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Innovation Contested

The Idea of Innovation over
the Centuries

Benoît Godin



Innovation Contested

Innovation is everywhere. It is not only in the world of goods (technology) but also in the world of words: Innovation is discussed not just in the scientific and technical literature but also in the social sciences and humanities. Innovation is also a central idea in the popular imaginary, in the media and in public policy. Innovation has become the emblem of modern society and a panacea for resolving many problems.

Today, innovation is spontaneously understood as technological innovation because of its contribution to economic “progress”. Yet for 2,500 years, innovation had nothing to do with economics in a positive sense. Innovation was pejorative and political. It was a contested idea in philosophy, religion, politics and social affairs. Innovation became decontested only in the last century. This occurred gradually beginning some time after the French revolution. Innovation shifted from a vice to a virtue. Innovation became an instrument for achieving political and social goals.

In this book, Benoît Godin lucidly examines the representations and meaning(s) of innovation over time, its diverse uses, and the contexts in which the concept emerged and changed. This history is organized around three periods or episteme: the prohibition episteme, the instrument episteme, and the value episteme.

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Innovation Contested

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the Centuries

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Foreword

The idea for this book came to me when I noted the discrepancy between the voluminous literature on innovation and the absence of reflexivity on what innovation is. Despite the hundreds of papers and books and theories produced on innovation every year for decades, no one has ever asked where the concept of innovation comes from, how it has evolved over the centuries and why innovation is so popular in the public imaginary today. Briefly stated: What is the history of innovation?

Why everyone embraces the idea of innovation but at the same time why no one on earth ever thought of asking such questions says a lot about our lack of reflexivity about ‘modernity’. I offer in this book a prolegomenon to the history of the concept of innovation. A prolegomenon because I could have continued for many years to read the writings on innovation produced over the centuries, and I would then have written a different book. But a general and broad interest in this topic from many audiences I have talked to convinced me to sit down and write this one.

I owe special thanks to the attendees at conferences, workshops and seminars where I have presented the results of my research: Bonn, Helsinki, London, Lund, Lyon, Montreal, Paris, Pittsburgh, Prague, Oslo, Toronto, Warsaw and Washington. I also owe a special thanks to Pierre Lucier, a colleague without whose contribution I could not have produced the two chapters on Antiquity. Many thanks also to colleagues who commented on some of the chapters as they came out as working papers: Gerald Barnett, Robert Bud, Alexandra Hausstein, Joseph Lane, Denise Lemieux, Christine Macleod, Manfred Moldaschl, Markku Peltonen, Eric Schatzberg, Jonathan Scott and Apostolos Spanos. Jean Hebue read the final manuscript and has been most helpful in strengthening my argument in several places. Thanks to Adam Holbrook and Eleanor Smith of Simon Fraser University in Vancouver, Canada, with whom I worked on some archival sources (Early English Book Online). Finally, sincere thanks to Daniela Ghio for work on the original edition of Niccolò Machiavelli’s *The Prince*; to Jim Ferrier who has made of my English something understandable to the reader; and to Linda Joly for her precious contribution to the collection of documents on which this book rests.

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Introduction

In 1828, Antoine-Chrysostome Quatremère-de-Quincy (1755–1849), archaeologist, critic of arts and perpetual Secretary at the French Royal Academy of Fine Arts, published *De l'invention et de l'innovation dans les ouvrages des beaux-arts*, in which he offers a 'theory' of fine arts. Quincy starts with "establishing the meaning of the words invention and innovation" (my translation). To Quincy, invention is "the action of arriving at the object one seeks, it concerns mainly works of imagination". Innovation is the opposite of invention "in the unfavourable sense that we generally ascribe to the word innovator" (Quincy, 1828: 2): "Nothing is easier than the role of the innovator" (Quincy, 1828: 10). The innovator "looks only to the surprise of the moment . . . his supposed creation is nothing" (Quincy, 1828: 14). To Quincy, the spirit of innovation generates material novelty only "in the industrial sense, or in the sense that we give to fashion, and to all that is done with a view to output . . . Its creation is nothing but change", disorder, anarchy, dissolution and confusion (Quincy, 1828: 11). "There is nothing new except the date" (Quincy, 1828: 12). "The genius of invention alone has the privilege of newness" (Quincy, 1828: 14).

Four years later, Quincy recalls his distinction between invention and innovation and applies it to the Italian architect Francesco Borromini (1599–1667). Quincy accuses Borromini of blurring the two: "denying that there could be a natural reason, a principle of order . . . substituting, for the combinations that come from the nature of things, the irregularities of chance and the negation of all reason". Borromini did nothing but "knock down the whole system of Greek architecture without replacing it with any other . . . He changes, returns, reverses, only to change, return, reverse . . . There is nothing new except disorder" (Quincy, 1832).

Quincy is only one of the many writers before the twentieth century who holds a representation of innovation as essentially pejorative. Until then, innovation was considered morally bad and the word innovation was an odious term. Such views abound in the literature of the time, from learned men to pamphleteers. Yet few like Quincy take time to discuss innovation at length. In general, writers simply use innovation as a (derogatory) label. Things have not changed much. Today, we take innovations so much for

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granted that few of us enquire what innovation is—including the theorists on innovation. Hundreds of studies on innovation are published every year, but no serious study exists on the concept of innovation. To most of us, innovation is always good. Critical or reflexive analyses are rare. Not being an innovator merits the same condemnation as not being a religious person did in the past. To paraphrase John Lyons on imagination, today innovation “is popularly considered to be a great endowment. People, and even institutions, are criticized for [not being innovative enough]” (Lyons, 2005: x). Before the twentieth century, the innovator was pictured as a person who departed from social norms. The innovator was a deviant, or rather a defiant. He takes liberties in thinking and action contrary to what he has been educated for and contrary to the established order and orthodoxy. “To be ‘good’ means to conform to the customary; to deviate means to be ‘bad’” (Watson, 1967: 32). In contrast, to us, innovation is an “ideal to believe in”, as James Engell says of imagination (Engell, 1981: viii).

The interesting question to ask is why—and when—innovation changed meaning. In his study on the idea of happiness in the eighteenth century, Robert Mauzi suggests that some ideas belong “à la fois à la réflexion, à l’expérience et au rêve [at the same time to thought, to experience and to dreams]” (Mauzi, 1979: 9). Before the twentieth century, the idea of innovation belonged to experience but very rarely to thoughts and dreams. Innovators themselves made no use of the word. Innovation was a word used by the opponents of change. The novelty (the innovation!) of the twentieth century was to enrich the idea of innovation with thought, dreams and imagination. Innovation took on a positive meaning that had been missing until then and becomes an obsession. What has happened that made innovation of value after centuries of the ban on or prohibition of innovation?

Innovation is a word used to express our concept of change, or rather a specific type of change. Innovation is change that is human-made and deliberate, as contrasted to that made by God, nature or chance. It is radical (revolutionary), sudden and, to the people of past centuries, violent. This is a social construct—a construct because innovation could be, and has been, defined otherwise in different epochs: gradual (rather than sudden), incremental (not radical), progressive (instead of subversive), useful and creative.

Why study a word, some will ask? Because innovation is, first of all, a word—every concept is a word. Innovation is also often just a word, or rather a label. Hans Blumenberg once suggested that the “basic embarrassment of every theology” is “to speak about God constantly without having the right to permit itself to say anything about him” (Blumenberg, 1979). Such is the case with innovation. As Reinhart Koselleck puts it on deeds (Koselleck, 1972), for centuries it was not innovation itself that shocked humanity but the word describing it. In the past, innovation was a damned word, a derogatory label. It was used as a linguistic weapon against one’s enemy, as Neil Kenny suggests about curiosity: “Attributing curiosity to someone often involved strong evaluation—whether celebration or denigration—but

rarely indifference” (Kenny, 2004: 12). Today, innovation is a word too, a slogan, due to the aura it has acquired in the public mind. What role does the word as a word have in the drive for innovation? What have people put into the word that makes it a term so much used—and deprecated or valued, depending on context? A study of the word contributes to explaining the central place of innovation (as an activity and goal) in discourse. “What people claim to be doing and how they justify it is just as revealing as what they finally do” (Pocock, 1985: 218).

Yet this book is not a study on words. Innovation is also a concept. What is it in the word that makes it sometimes a label and at other times a concept? A word has a conceptual space that makes it a concept. “The enlargement of a concept’s semantics field”, suggests Koselleck, “marks its passage from the rank of a mere word to that of a [concept]” (Koselleck, 1972: 80). From the outset, innovation has been a word imbued with a plurality of meanings. It suggests an immediate and automatic cluster of ideas. Innovation is part of a large semantic field. Many terms come under the umbrella innovation: change, novelty, reform(ation), revolution, invention. Like “civilization” (Bowden, 2011: 30), innovation serves as a synthetic concept. As a concept, innovation was adopted into common usage or public discourse because it encapsulates a broad range of terms that were already being used to describe a pre-existing idea. Today, innovation has an attractive and unifying force because it has legitimacy and authority and is an incontestable value or ideology. Innovation itself is *the* criterion of judgment: Action is undertaken in the name of innovation.

Yet again, this book is not about a disembodied concept. First, concepts and actions go together and change together (Farr, 1989: 24). Concepts are an integral part of an event, a crucial ingredient of its happening. They give significance to events and articulate new possibilities (Sewell, 2005: 245–51). Concepts are semantic conditions of events and much more: “One of the ways we are capable of reappraising and changing our world is by changing the ways in which [the] vocabularies are applied” (Skinner, 1999: 63). In this sense, the concept of innovation does not simply describe but serves to perform actions: changing the world.

Second, the book is a study on the *representations* of innovation. It looks at innovation as a cultural force—rather than at innovations—examining why people make use of the concept and what impact they have on social, political and economic thought. There is a complete lack of history on the concept of innovation in the literature. Hence the current myths on the origin of the concept—unanimously attributed to Joseph Schumpeter. Hence innovation as the object of a spontaneous and dominant representation—innovation as technological innovation. Hence the absence of reflexivity—innovation is always good. Most of the books on the history of innovation (technological innovation) assume that we know what innovation is and look through history to find out where it may be found. Scholars imply that their chosen concept (technological

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innovation) is also present in the past, although people then did not use the term explicitly. I suggest that we need rather to find out how people themselves use the concept. Concepts have history—and change. In this sense, technological innovation did not exist before the twentieth century.

Given the debate in intellectual history on words *versus* concepts (Hampsher-Monk et al., 1988: 53–56; Condren, 1994: 16–17; Olsen, 2012: 172, 180–83), and given that the distinction between innovation as a word and innovation as a concept is not always clear-cut—at least until the word becomes a concept on its own in the twentieth century, although it remains a word too, a label—I use ‘term’ in such cases.

To date, intellectual or conceptual history has concentrated on political concepts and, to a lesser extent, on social ones. There is no study of the concept of innovation in this literature, neither from the Cambridge school of the history of political thought (and the Cambridge University Press series *Ideas in Context*) nor from the German *Geschichtliche Grundbegriffe*. Dictionaries of political concepts and the vocabulary of politics, new and old, are also silent on innovation (Lewis, 1832; Furet and Ozouf, 1989). The *Dictionary of the History of Ideas* is equally mute on the subject (Wiener, 1968–74; Horowitz, 2004), as is Raymond Williams’ *Keywords* (Williams, 1976). Certainly, researchers like Quentin Skinner and Koselleck concern themselves with different aspects of innovation, or study associated concepts: e.g., Koselleck’s concept of “movements”, like progress, modernity, crisis and revolution (Koselleck, 1977). Intellectual historians also make use of the concept to their own end: Skinner’s innovative ideologists (Skinner, 2002a, 2002b); John Pocock’s innovative moves (Pocock, 1985); and James Farr’s conceptual change as political innovation (Farr, 1989). Theorists from diverse horizons also talk of innovation without using the word: Claude Lévy-Strauss’s *bricolage*, Max Weber’s charisma, Robert Merton’s influentials, Paul Mort’s adaptability, and many other writers on types of personality, like Vilfredo Pareto’s instinct of combination or Ruth Benedict’s Dionysians. Yet innovation plays no part in intellectual history.

In this book, I do not engage in debates about intellectual history—this is beyond my competence—nor do I offer a theory—I am allergic to theories, particularly speculative theories. What I contribute, and add to the literature, is the study of a neglected concept. Nevertheless, I have learned a lesson from recent intellectual history. The study of concepts is the study not of words but of ideas in context, of the link between a concept and social, political and economic life, between thought and experience. I study the representations of innovation, and discourses or what individuals say about innovation: what they mean by it, what use they make of it, for what purpose.

The intellectual history of innovation is different from that of other concepts, like political concepts. There existed no theory of innovation until very recently and therefore very few conceptual discussions on which to base a history. There is frequent but disparate usage of the concept. The term is used by

everyone in everyday discourse, but no one develops a theory of innovation. For most of its history, innovation is a nonconcept: forbidden, not thought about and not theorized about. As a consequence, the history of the concept is not a history of scholarly texts, but a social history. One has to study public discourses in addition to, if not more than, the classics—and the theorists. Tracts and pamphlets are sources that can't be ignored: "By the outbreak of the first civil war [England, 1642–46] the pamphlet had established itself as a proven vehicle for political action" (Skerpan, 1992: 9).

MAKING SENSE OF INNOVATION

This book develops the idea that innovation is a contested concept, in contrast to today's theorists.¹ For centuries, innovation was contested because it was subversive. As "introducing change into the established order", a phrase that sums up the connotation of centuries of talk about innovation, innovation is—and this is the second idea of the book—political. For most of history, innovation has nothing to do with economics (technology) or with creativity. Innovation is a political concept, first of all in the sense that it is regulated by Kings, forbidden by law and punished—although Kings constantly innovate.² Advice books and treatises for princes and courtiers support this understanding and include instructions not to innovate. Books of manners and sermons urge people not to meddle with innovation. From the Renaissance onward, innovation was also a linguistic weapon used by political writers and pamphleteers against their enemies. Today, innovation has a definite relation to politics too, as an instrument of industrial policy.

One influential factor in the history of the concept is religion. The story of innovation is not different from that of the Enlightenment and its critics, where "anxiety arose first and foremost from" religion. "Other concerns—civil, political, and economic—flowed from this basic preoccupation" (McMahon, 2001: 197). Innovation entered the public vocabulary with the Reformation. Innovation is forbidden by the Church's decrees, seconded by proceedings of Church Assemblies and followed by trials. Speeches and sermons speak against innovation, religious and political. The *Book of Common Prayer* in England enjoins people not to meddle with the "folly" and "innovations and new-fangledness" of some men. Bishops visit parishes to enforce the regulations.

Innovation changes meaning in modern times. The term shifts meaning at the moment that it becomes thought of as instrumental to man's needs or goals—moral, political, social and material. From then on, innovation is a concept that serves narratives, broadly defined, to make sense of both the past and the future in a positive sense. The concept is part of a larger movement of ideas. Koselleck talks of *Sattelzeit*, when history or the experience of time becomes a defining feature of humankind. Between 1750 and 1850 there occurred a "shift in the conception of time and a reorientation towards

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the future . . . against which structural changes are perceived, evaluated and acted upon” (Koselleck, 1977; Richter, 1995: 35–38). Many words change meaning and become positive. Such is the case with revolution, but also with innovation. To Koselleck, *Sattelzeit* includes four characteristics: “democratization, temporalization, ideolization and politization”. All four apply to innovation: from a rulers’ category (forbidden), the concept diffuses among the populace; from an orientation toward the past (renewing), as among Christian writers, it shifts to the future (utopia). The concept is, at the same time, used as a weapon (ideology) and a slogan (politics).

In the case of innovation particularly, two characteristics are determinant. First, innovation is part of the movement concerned with the quest for freedom. ‘Initiative’ catches the connotation of innovation well. Individuals take the initiative or liberty of introducing something of their own and foreign to the custom. Again, religion is an influential force here. Innovation is in fact the secularized term for heresy, as private liberty or choice. Drawing on the arsenal of Catholic theology, writers of the seventeenth and eighteenth centuries enlarge this meaning. Innovation includes the religious but also the political and the social innovator. Furthermore, innovation includes not only (heretical) thought but also (deviant) action. In this latter sense, innovation points to a second characteristic: *praxis* and action. Innovation is practical as contrasted to contemplation—*negotium* versus *otium*; *viva activa* versus *viva contemplativa*. It indicates the active life and the pursuit of useful activity. This reaction against contemplation gave rise to a fundamental conceptual change in the twentieth century. Until then, the term innovation is either a *verb* or a *substantive*, the action (introducing something new) or the outcome of this action (an innovation). As “innovative ideologists”, to use Skinner’s phrase, the theorists of the twentieth century have redescribed the concept of innovation as a *process* (in time), from idea to application, from theory to practice.

Two more trends in ideas enrich the concept. First, from the Renaissance onward, people became conscious of their capacity to change the world. Innovation is instrumental to the future: a means to ends. This led to an increasing number of discourses making use of the concept. Second, from the eighteenth century onward, progress was a central value of modernity, including material progress (goods) (Spadafora, 1990). As a result, the concept gave rise to theories and policies of innovation in the following century.

STRUCTURE OF THE BOOK

This book is a study on the history of the concept of innovation. It aims to make sense of why the concept shifted from vice to virtue over the centuries, from an act of condemnation to an act of praise. The book’s ultimate aim is to engender some reflection on an abused concept. Innovation may be used in the neutral sense today, but the underlying normativeness and

performativeness make of it a strictly positive and hyperbolic concept. Users of the concept generally have an agenda, including the theorists.

In sources from before the twentieth century, innovation is what the opponents of innovation say it is, particularly the Church and its disciples, warning of the nefarious consequences of innovation. Innovators never thought of using the term to describe their own activities. Innovation was too bad a word for that. In contrast, in the twentieth century, innovation is what the apologists of innovation, including the theorists, say it is. Yet in many ways the theorists recapitulate the older views. Innovation is subversive (disruptive) or revolutionary—in a positive sense. The use of the concept remains evaluative and normative. What is new to the twentieth century is the economic dimension. Innovation acquires a dominant representation, thanks to ‘technological innovation’. Politics has a key role to play here. The same agents—governments—that contested innovation in the past (making it an object of prohibition) decontest innovation (making it an object of action or instrument).

Yet history is not linear, from the pejorative to the positive. As Gordon Schochet says of the history of political thought (Schochet, 1993: 324):

The history of English-language political thought is not one straight-line development, not the history of successive modes of expressing political relationships, each overwhelming and succeeding its predecessor. Varying and often competitive conceptualizations frequently coexist and even become entangled with one another. Triumphs and defeats—if, indeed, that is what they are—can be but temporary rearrangements. And, perhaps most important, the supplanting of a discursive fashion is not always the end of life. It may continue to find supporters long after it has failed from favour . . . Despite these caveats, it is possible to discover trends or tendencies and to establish the lineages.

Innovation is a concept full of ambivalence and tensions. In spite of prohibitions at the Reformation, positive valuations did exist, to varying degrees. And despite the denials, people innovated constantly. What some have called the paradox of innovation catches the tension pretty well: Everyone innovates but denies innovating (Zaret, 2000: 37–43; 254–57).³ Equally, in modern times, negative evaluations exist despite a dominant and eulogistic representation. For example, several people contest the hegemony of technological innovation, resurrecting old concepts in its place (social innovation).

The story is also nonlinear in a second sense. There has been no sudden transition from the negative to the positive. The transition occurred gradually over the centuries, and the negative and the positive always cohabited together to different degrees. There is tension at every period. There have been and still are recurrent controversies on what innovation is. Theoretical discussions on what innovation is and contested definitions of innovation in the twentieth century attest to a continuing tension. To paraphrase

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Koselleck on revolution, innovation “is a widely used forceful expression whose lack of conceptual clarity is so marked that it can be defined as slogan” (Koselleck, 1969: 43). In the 1960s–70s, several authors suggested abandoning the concept because of its polysemy. In the end, innovation got a dominant and restricted meaning (technological), as contrasted to its diversity of meanings in the past.

Over time, the valuation of innovation has varied according to the epoch. Innovation also has shifted meaning according to context (political, religious and spiritual, legal). Innovation has always had a dual meaning, but there have been periods when the negative meaning dominated over the positive, and vice versa. These periods alternated over the centuries. The vicissitudes and varieties in the meaning of innovation are a pattern in the concept over the centuries. Negative to the ancient Greeks, the concept of innovation shifted to positive in the Middle Ages. It returned to negative from the Reformation until the nineteenth century, when it gradually acquired a superlative connotation.

To make sense of this story, I talk of paradigm shifts, or *episteme*. The book is organized according to three historical periods. The first is the *prohibition episteme*, from the Reformation to the nineteenth century, as a moment when innovation is strictly forbidden by law and is a word of accusation used by critics.

This moment is followed by the *instrument episteme* (nineteenth and twentieth centuries). Innovation is gradually decontested due to both a semantic and an instrumental rehabilitation. Decontestation is a process of naturalization of contingent concepts, practices and representations into ideologies (Freedman, 1996; Norval, 2000). As collective belief systems, ideologies decontest concepts by converting the variety of opinions into a monolithic certainty. They naturalize what is contingent and provide a particular organization of society, a nonhistorical, given and natural articulation, an imaginary. Innovation as ideology precisely serves this function. Innovation has become a noncontroversial practice, an institutionalized signifier and an ordering and structuralizing principle of thought and action.

Finally, the *value episteme*—the current moment—is that moment when innovation becomes a value *per se*. Innovation has become part of a verbal arsenal of honour and praise. It is the object of veneration and cult worship. At this moment, the concept of innovation loses some of its descriptive function. Today, innovation means anything, everything . . . and nothing. Innovation is an umbrella term, a concept that groups a diversity of things, activities and attitudes that serves, more often than not, the practical (technology and the market). If I may paraphrase Koselleck on revolution again, innovation “possesses such [innovative] power that it is constantly extending itself” (Koselleck, 1969: 44). Innovation has become a panacea for every socioeconomic problem.

The book is organized chronologically in four parts according to these three epistemes, preceded by one part on the emergence of the concept of

innovation in Antiquity. Innovation had a pejorative connotation for over 2,500 years. As Francis Haskins puts in on naked breasts as “an Innovation, and a meer piece of refined Barbarism” (Hawkins, 1672: 62): “In all Ages, it hath been the wisdom of States to suppress innovations . . . *Plato* of old was so strict, that he would not admit so much as a new Tune, or a Jig to be sung in his Commonwealth” (Hawkins, 1672: 64). Innovation was considered revolutionary in the sense of being subversive of the established order. Part I studies the emergence of the word, the etymology and meaning(s) of innovation and the uses made of the concept from Antiquity to the late Middle Ages. Readers interested in modern history may skip this part—at their peril.

Chapter 1 examines the emergence of thoughts on innovation. The concept of innovation is of Greek provenance (*kainotomia*), from the fifth century BCE. The word is derived from *kainos* (new). Initially, *kainotomia* had nothing to do with our current or dominant meaning of innovation as commercialized technological invention. Innovation meant ‘cutting fresh into’. It is used in the context of concrete thinking (as in ‘opening new mines’), as well as abstract thinking (‘making new’). Innovation acquired its current meaning as a metaphorical use of this word. In the hands of ancient philosophers and historians, innovation is introducing political change, contrary to the established customs and laws. Four Greek authors are studied in this chapter: Xenophon, Plato, Aristotle and Polybius, for it is they who made early uses of innovation as a concept. As conceptual innovators, these authors coined various words for innovation—one of which, *kainotomia*, has a long legacy and is still used in Greece—and filled them with specific meanings, and used them for a derogatory purpose, giving rise to a concept that has remained within our lexicon ever since.

Chapter 2 offers an analysis of Latin writers, from the time of the Roman Empire to the late Middle Ages. Etymological dictionaries date the coining of ‘innovation’ to the thirteenth and fourteenth centuries but remain silent on the word *innovo*. Absent in ancient Roman times, *innovo* entered the Latin vocabulary in the third and fourth centuries, as renewing. From the beginning, the concept had a positive meaning. Such a representation continued until the sixteenth century, when it changed to negative. The chapter documents the several contexts in which the concept is used—religion, poetry and law—and particularly stresses the role of Christianity in the use and diffusion of the concept.

Part I ends with Niccolò Machiavelli, certainly the first writer to develop a discourse on political change, using innovation in a positive sense. Convinced that innovation is threatening and must be perceived as conservative or not challenging the existing system of values, Machiavelli offers arguments and strategies to seduce and maintain support for innovation. Using both *The Prince* and *The Discourses*, the chapter documents the central role innovation occupies in politics. Machiavelli uses the concept in the two senses of the previous centuries, the Latin one (renewing) and the Greek

(making new) and brings in a new perspective on the latter, a positive one. In the end, to Machiavelli, innovation is a means to stabilize a turbulent world—rather than revolutionize it, in contrast to what theorists of innovation say today.

Part II turns to what I call the prohibition episteme. In a context of order, every change is innovation—in a pejorative sense. The *Reformation* is innovation. *Revolution* is innovation. *Social reform* is innovation. Part II studies the representations and uses made of the concept from the Reformation to the nineteenth century, both among writers and in everyday discourse, through controversies in religion, politics and social thought.

It is through religion that the concept of innovation entered public discourse in the Western world. This occurred from the late 1400s onward and reached a climax in the 1630s in England, leading to one of the first controversies on innovation, between King Charles I and his protégé Archbishop of Canterbury William Laud on the one hand, and puritans like Henry Burton on the other. Chapter 4 is concerned with this controversy. Starting in the mid-1620s, Burton accused the bishops of innovating in matters of church doctrine and discipline, contrary to His Majesty's instructions. In 1636, Burton published two of his sermons in a polemical form and was brought before the Court. His opponents produced answers accusing Burton himself of innovating. Burton had his ears cut and was sentenced to imprisonment. The study of this controversy teaches us what innovation meant to Burton's contemporaries—every later argument against innovation is found in the writings of Burton—the values it embedded, what uses were made of the concept and what the context was from which Western representations of innovation emerged. It appears that innovation is the modern form of and term for heresy.

The next step in the use of innovation as a concept was in politics. Innovation came to be equated with political revolution and revolutionaries. The model is the English political revolution of 1649. After 1789, the emblematic example of political revolution is the French Revolution. To many, the democrat or republican is simply an innovator who proceeds by “violent methods” to subvert the monarchy and to erect a “Utopian Republic”, as the English puritan William Prynne put it during the English revolution. Chapter 5 examines the representation and use made of the concept of innovation (or rather the word) in politics through the controversy on Republicanism in seventeenth-century England. It compares the discourses held by royalists against the “innovators of State”. The republicans and revolutionaries make no use of innovation, a morally charged word. To them, innovation is too pejorative a word to use it to define their project. If the republicans and revolutionaries wanted to make a positive case for their cause, they had to avoid a negative concept. In contrast, critics of the republic and the revolution used the word widely. Precisely because the word had a morally charged tone, they used innovation to make a case against the ‘Machiavellian design’ of republicans, adding a new connotation to it: (Every) innovation is violent.

Next, it would be the social reformers' turn to be accused of being innovators. Like the religious and political innovator, the social innovator, as some called the socialists in the nineteenth century, was accused of subverting the established order, particularly property and capitalism. The social innovator was described as a radical, as many accused French socialists of being on the eve of the revolution of 1830 and after. However, to others, innovation is social reform in a positive sense. The tension or ambivalence of the concept, oscillating between the pejorative (socialism) and the positive (social reform), is the subject of Chapter 6. The chapter documents the use of innovation in social issues, based on, among others, an influential study from 1858 entirely devoted to so-called social innovators.

Part III is perhaps the central piece of the book for understanding how, when and why innovation shifted to the positive. The period after the French Revolution was witness to a new sociopolitical context. It gave rise to new representations of innovation. Every change becomes an innovation in a positive sense. The *word* innovation enlarges its meaning and becomes, to use Koselleck's conception, a *concept* used to talk of experienced and expected changes, including those that were denied before. Part III looks at the rehabilitation of innovation in the nineteenth century, a rehabilitation that led to the 'instrumentalization' (through public policy) and theorization of innovation in the next century.

The first chapter of Part III compares the two rhetorics developed on innovation over the centuries. The first is that of the opponents of innovation who made use of arguments from *ethos* and *pathos* to support their case, to give power and sustenance to their criticisms and to challenge the innovators. Second, in the nineteenth century, people started to redescribe innovation and rewrite history. What was bad innovation became good innovation because of long-lasting and beneficial effects, so it was believed. The English philosopher Jeremy Bentham is studied as a perfect example of such a semantic rehabilitation or conceptual change.

The semantic rehabilitation is supported by a second kind of rehabilitation: an instrumental one. Innovation got rehabilitated at that moment when it came to be defined as utility or progress: Innovation is instrumental to political, social and, later, economic goals, so it was claimed. Chapter 8 documents how, before the nineteenth century, France was similar to England with regard to the representation of innovation. However, after the French Revolution, things changed. Changes were now experienced positively as radical or 'revolutionary' and permanent, they encompass more and more spheres of society and are considered useful. One needs a 'new' term: Human-made change becomes innovation.

The next chapter offers an illustration of innovation as beneficial: the useful arts. In the nineteenth century, one of the instruments of the then proclaimed transformations in society was science. Yet until then, science was not discussed in terms of innovation among 'men of science'. To be sure, newness is everywhere (key words are new philosophy, new method,

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new experiments), but innovation remains pejorative. This chapter documents what innovation means to men of science. Then I look at when, how and why the concept of innovation entered science with a positive meaning. This started gradually in the nineteenth century. It is documented that, at that time, the concept of innovation was different from today's dominant representation as artefacts or goods for the market. Innovation had nothing to do with industrial and technological innovation. Innovation entered science through the useful arts. To inventors of the nineteenth century, innovation was the introduction of the scientific method into useful arts. Inventors appropriate a then increasingly popular word for their own purpose: to raise the status of the artisans.

Part IV looks at contemporary history. Over the last 60 years, innovation has become an ideal to believe in and a value in itself. Everyone appropriate the word: Biologists talk of 'animal innovation'; sociologists have replaced the concepts of modernization and social change with innovation and have reintroduced the century-old phrase 'social innovation' into their theories; economists began to use innovation interchangeably with their preferred concept—technological change—and technology became technological innovation in the writings of historians.

Chapter 10 looks at the vocabulary used to talk of innovation. Innovation is one of many words used to talk about change and novelty or newness. It is part of a large semantic field, composed of basic concepts and counter-concepts, synonyms and antonyms. A first set of concepts, that of the prohibition episteme, is change, reformation, revolution and innovation. The instrument episteme added imitation, invention, creativity and technology—but continued to work with the older concepts, extending or changing their meanings. By studying over 500 definitions of innovation (collected from as many studies) produced over the twentieth century, the chapter documents a far more comprehensive view of innovation than that offered by some modern theorists, whose self-referencing 'history' of innovation is repeated again and again, like a myth. This canonical paradigm of the late twentieth century has eclipsed the diversity of meanings and representations of the previous decades and even centuries. As a result, innovation has become a magic word.

Chapter 11 takes a look at an innovative shift in the representation of innovation in the twentieth century: technological innovation as a total *process*—from the generation of an idea to its application, from theory to practice. Technological innovation emerged as a phrase after World War II because in discourse, action and policy, it was useful to include a large(r) number of people (than just scientists) and activities (than just science or basic research). Technological innovation sprang from a tension between science (for its own sake) and society, or its aspiration to action. Research has to be useful to society—through the market. Innovation stresses application versus mere scientific discovery. In this sense, technological innovation is a counter-concept to science—and more particularly to basic research—as a dominant

cultural value of the twentieth century. The chapter stresses the pioneering role of engineers (managers) as theorists of technological innovation.

Chapter 12 concludes the book with the study of an influential construct of innovation, that of “innovation studies”. “Innovation studies” is a discipline or specialty concerned with the economics, management and policy of innovation, mainly industrial and technological innovation. Other fields are but ‘adjacent fields’, according to “innovation studies”, not an integral part of it. Whenever I use the phrase ‘innovation studies’ (in quotes), it is in this sense, that is, as distinct from, and more restricted in scope than, studies of innovation as discussed in this book.⁴ The chapter looks at one particular theorist, a major one according to the literature—Chris Freeman—and documents how the British economist constructed a tradition of research on technological innovation (as the commercialization of technical invention). This tradition refocused the study of innovation onto firms or industrial innovation, gave a national (policy) perspective to theories of innovation and imagined a symbolic father, Joseph Schumpeter, to legitimize a theoretical framework. There are affinities here with the nineteenth-century German school of economics. This historical school established itself “to help in the building of the empire” (Schumacher, 1937: 372). The ambition (mission) of “innovation studies” is to contribute to governments’ efforts to create nations of innovators. In the end, ‘innovation studies’ is a perfect example of Skinner’s idea that politics sets the problem of theorists—and that theory is politics itself (Palonen, 2003).

A FEW WORDS ON METHOD

For the intellectual historian of innovation, there exist very few titles entirely devoted to innovation and no theoretical writings on innovation before the twentieth century. To some extent, the problem is not dissimilar to that of a student of antiquity. In his *Idea of Progress in Classical Antiquity*, Ludwig Edelstein mentions that no detailed discussion on “progress” remains from classical antiquity, except fragments and brief sentences (Edelstein, 1967). Nevertheless, Edelstein could produce evidence of “progressivism” in antiquity from a non-negligible group “representative of a movement”.⁵ The case is similar for innovation. For most of the period studied in this book, occurrences of the word innovation exist by the thousands. Every writer, from the anonymous to the most famous, makes use of the word innovation. However, there is no in-depth study. As this book suggests, most of the time the word is used as a linguistic weapon or ideological arsenal for or against change.

A second factor complicates the analysis. Like Edelstein’s source material, the evidence is widely dispersed. Occurrences of the word innovation are scattered. The usage is frequent but disparate. One has to study politics, religion, history, law, science, arts, economics and other disciplines to

properly appreciate the extent and diversity of its uses. Yet taken together, the documents inform the student of what the representation of innovation is to those at that time. As Keith Baker suggests in his study of prerevolutionary writings in France:

None of these . . . documents can properly be regarded as a classic work of political theory, as we tend to define that genre, though at many points they may bear the imprint of such works. Taken together, however, they clearly suggest the problems which French political thinkers faced on the accession of Louis XIV, the range of language in which such thinkers attempted to resolve those problems, and the tensions that this language often displayed. (Baker, 1990: 113)

The challenge to the student of innovation, then, is the selection of source material. Since there is a limited amount of in-depth discussion on innovation before the twentieth century, one has to study a voluminous number of texts in order to get a sense of what innovation is. Given this voluminous source material, two options are available. First, one may confine oneself to titles on innovation specifically. Of such titles, controversies (documents followed by replies and counter-replies) are the ideal sources since they allow one to understand the diverse purposes of the use of the concept. Another option is to study those documents that use innovation only occasionally or casually (isolated occurrences). Studying isolated occurrences allows one to understand the broader context in which the word or concept is used.

In this book, I have used both types of documents: texts with a few or isolated occurrences of the word and texts with titles on innovation. Over the years, I have collected over 400 documents that have titles containing innovation, from the Reformation to the late nineteenth century. I have also studied hundreds of titles from the twentieth century up to c. 1975–80, namely at the time the idea of innovation crystallized in modern theories. In a second phase, I have supplemented these titles with searches through hundreds of other texts online, using archival sources like Perseus Digital Library, British History Online, Early English Books Online (EEBO), Eighteenth Century Collection Online (ECCO), Gallica (Bibliothèque Nationale de France), the ARTFL Project and Google Books (Ngram). I thus have studied a set of documents with a diversity of usages of innovation, from a mere word to a full-length discussion (see Appendix 1).

Impressive as this might seem, this is only the tip of the iceberg. A lot remains to be done. The book covers mainly English and French sources. It deals mainly with the Reformation and the centuries that follow. It discusses philosophy, religion, politics, science and economics but leaves aside, for example, history, administration and law, poetry/literacy/fiction⁶ and newspapers.⁷ The originality of this book consists in the fact that no one has yet attempted to undertake an analysis of where the concept of innovation

comes from, what it means according to different people and contexts and what uses are made of it over time. The book is:

- A study of *representations* of innovation (ideas and discourses) rather than of innovations (a much studied subject).
- A *long-term perspective* analysis, spanning 2,500 years of history.
- A study of a *large and diverse body of writing*—speeches, pamphlets, anonymous writings and theories, covering politics, religion, social writing, economics and science.
- A study of innovation as a contested and *political* rather than economic idea (technology).
- A *critical* study of innovation, in contrast to the mainly normative (and performative) analyses of today.

NOTES

1. On the contestability of concepts, see Gaillie, 1955–56; Gray, 1977; MacIntyre, 1973; Connolly, 1974; Mason, 1993.
2. As Edward Shils puts it: “Rulers, despite their insistence on the traditional legitimacy of their authority, were constantly being forced to depart from tradition” (Shils, 1981: 28). At court, novelty is praised: kings founded scientific academies, scientists conducted their science under the patronage of princes (Long, 2003) and dedicated their scientific discoveries to them (Biagioli, 1993), and cabinets of curiosities, the precursors to museums, were set up (Daston and Park, 1998).
3. For a discussion of this paradox in the context of change generally, see Ferguson, 1965; Ashton, 1980.
4. The first occurrence I have found of the phrase innovation studies in the literature is 1968: “Diffusion studies can be considered as a sub-class of innovation studies” (Holdaway and Seger, 1968: 369).
5. Gerhart B. Ladner pointed to the same issue in *The Idea of Reform*: “[T]hough slight in themselves, [the peculiarities of the terminology of reform] are of some weight if held together” (Ladner, 1959: 133).
6. Arts and literacy have their own vocabulary (creation and the like) and make few uses of the concept of innovation.
7. The *newspaper* has had an enormous impact on shifting people’s attention to whatever is ‘new’.

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Part I

The Emergence of a Concept

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1 *Kainotomia* and Conceptual Innovation in Ancient Greece

The Athenians are addicted to innovation, and their designs are characterized by swiftness alike in conception and execution.

(Thucydides, *The Peloponnesian War* I: 70: 2)

When the Greek physician Galen (129–99 CE), in *On the Natural Faculties*, attributed to Prodicus an “innovation” in nomenclature for having changed *phlegma* to *blenna* (mucus), he was without doubt one of the few ancient writers using innovation in a neutral sense. To be sure, novelty was everywhere and was defended by several authors in Greece. Novelty (*kainon*) in pleasure (arts) and knowledge (science) were accepted if they did not change the divine or natural order of things, so it is presumed. However, innovation (*kainotomia*) is not accepted under any circumstances.

The concept of innovation is of Greek origin (*kainotomia*; *καινοτομία*), from the fifth century BCE. The word is derived from *kainos* (new). Initially, *kainotomia* had nothing to do with our current or dominant meaning of innovation as commercialized technical invention. Innovation meant ‘cutting fresh into’. It was used in the context of concrete thinking (‘opening new mines’), as well as abstract thinking (‘making new’). Innovation acquired its current meaning as a metaphorical use of this word. In the hands of ancient philosophers and writers on political constitutions, innovation is “introducing change into the established order”.

This chapter is a study on the emergence of thoughts on innovation.¹ It looks at where the word innovation comes from and what the concept meant to the Ancients. The chapter is organized as follows. It starts by documenting the first full-length discussion of innovation, that of Xenophon. Xenophon’s use of innovation is literal, and the philosopher talks of innovation in a positive way. Yet among later Greek writers, innovation is used in a metaphorical sense and the meaning is essentially pejorative. To document the case, the use of the concept in Plato, Aristotle and Polybius, as well as the contribution each made to the concept, is studied. The chapter concludes with thoughts on these authors as (conceptual) innovators: coining new words, changing the meanings of words and using words in new ways in different contexts: political economy, culture, politics and history.

A note on translation issues: There is often ‘language inflation’ in translated works. One Greek author may have made no use of innovation, yet translators use the word nevertheless. This is often the case in seventeenth-century England (for Greek as well as Roman translators). Translators may deliberately aim to stress innovation because of the context of their times. On the other hand, innovation is also translated into English using other words, like revolution, or is not translated or used at all. In fact, translators have no interest in innovation *per se*. They do not feel it necessary to keep and translate the word literally. They rather work with the context of the text and uses whatever word seems appropriate to them. In contrast, in conducting intellectual history, one must then start with the Greek edition. Second, one needs to check translations against each other. I have compared both old and more recent translations, and I have cited the texts that translate the word literally, if they exist at all, or, if not, I have translated the Greek word as innovation myself (and placed the translator’s word in brackets).²

XENOPHON: INNOVATION AND POLITICAL ECONOMY

Philosopher and historian Xenophon (430–355 BCE) is known mainly for his works on the history of his times. By contrast, *Ways and Means*, his last work, is a work on ‘political economy’ addressed to Athens’ Council of Five Hundred and intended to raise revenues for the city. Athens had just emerged from war in a disastrous financial situation. Xenophon’s proposal is to raise capital with an income tax to be expended on erecting facilities for merchants and visitors (accommodations and hotels) and on a fleet of state-owned merchant vessels.

Xenophon’s many works have attracted philosophers writing on political constitutions, including Aristotle and Polybius (but not Plato). Yet it is difficult to trace the real impact of a writer at the time. *Ways and Means* is considered by today’s philosophers a minor work in Xenophon’s output. Such a work is studied rarely today, if ever. However, for the purpose of this chapter it is an important work, for it contains the earliest step in the genealogy of innovation as a concept. In a chapter on mines, Xenophon uses innovation in a sense totally foreign to us. It is a metaphoric usage of this word that one finds among later Greek philosophers.

To Xenophon, Athens had ample resources. The city was a commercial center and had land, sea and, above all, resident aliens, “one of the best sources of revenue” (*Ways and Means* II: 1). Merchants and shipowners came and went at Athens. They rendered many services and paid taxes. Xenophon suggests that foreigners be offered some advantages in order that they “look on us as friends and hasten to visit us” (*Ways and Means* III: 4): seats in theatres, lodging and places of exchange (markets). Such facilities would contribute to expanding imports and exports, sales and rents. They “would be an ornament to the State and at the same time the source of considerable revenue” (*Ways and Means* III: 14). Xenophon goes as far as

to suggest that Athens acquire a fleet of public merchant vessels and lease them, like other public property.

Next, Xenophon turns to silver mines and how, if properly managed, they could be a source of revenue too. Here, Xenophon claims to offer something entirely new. To Xenophon, there are few mining projects because the country is short on labour (*Ways and Means* IV: 5). Yet silver is in strong demand for arms, household implements and jewellery. Xenophon's proposal, the one and only innovation he takes care to add—he does not use the word innovation to this end (“were my proposals adopted, the only novelty [*καίνον, kainon*], would be that . . .”)—is that the State possess public slaves, as private individuals do, and make them available for hire to entrepreneurs in the mines (*Ways and Means* IV: 17). This would raise revenues for the State and contribute to developing business. Xenophon develops the rationale for innovation as follows:

Why, it may be asked, are fewer new cuttings [mine galleries] made nowadays than formerly? Simply because those interested in the mines are poorer . . . A man who makes a new cutting incurs a serious risk . . . [and] people nowadays are very chary of taking such a risk.

However, I think I can meet this difficulty too, and suggest something good [, a scheme] that will make the opening of new cuttings a perfectly safe undertaking. (*Ways and Means* IV: 27–30)

Xenophon thinks here of private individuals combining and pooling their fortunes in order to diminish risks (*Ways and Means* IV: 31) and, as mentioned, involving the State in such affairs. All in all, to Xenophon the “scheme” would provide abundant revenue and make the city strong, with people happy and more physically trained, more obedient, better disciplined and more efficient (*Ways and Means* IV: 49–52). “We shall be regarded with more affection by the Greeks, shall live in greater security, and be more glorious”, and “we may come to see our city secure and prosperous” (*Ways and Means* VI: 1).

Where is innovation in this argument? To Xenophon, innovation (*kainotomia*) is ‘making new cuttings’. The word is a combination of *καίνος* (new) and the radical *τομ* (cut, cutting).³ In Xenophon's case, it means opening new galleries. To others writers, as we will see, it means opening new avenues, particularly new political dispositions. In one place, Xenophon uses *kainotomia* metaphorically but still within a ‘concrete’ (physical) connotation: “opening new veins” (*Ways and Means* IV: 27).

Xenophon is one of the (very few) writers to use *kainotomia* before Plato and Aristotle—at least according to ancient texts we possess that document the case. Before him, Aristophanes used the word too, in a metaphorical sense, in two comedies.⁴ In *Wasps* (875), a person addresses a prayer to God, which he says he is doing for the first time:

Oh! Powerful god, Apollo Agueius, who watchest at the door of my entrance hall, accept this innovation [fresh sacrifice]; I offer it that you

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may deign to soften my father's excessive severity; he is as hard as iron, his heart is like sour wine; do thou pour into it a little honey. Let him become gentle toward other men, let him take more interest in the accused than in the accusers, may he allow himself to be softened by entreaties; calm his acrid humour and deprive his irritable mind of all sting.

In *Ecclesiazusae* (583), Blepyrus responds to Praxagora's fear that the participants in trials may be afraid of a new way of administering justice. Blepyrus replies that innovation is better than any other principle:

PRAXAGORA: I believe my ideas are good, but what I fear is that the public will cling to the old customs and refuse to accept my innovations [reforms].

BLEPYRUS: Have no fear about that. Love of innovation [novelty] and disdain for traditions, these are the dominating principles among us.

What distinguishes Xenophon from Aristophanes is an entire discourse on innovation and a consciousness of innovating. Three characteristics of Xenophon's representation of innovation deserve mention. First, Xenophon's "making new cuttings" refers to the new literally. Nothing peculiar here. Second—and here is the main point—this newness concerns the State. Xenophon's proposal is a "scheme" or "project" (a plan of action), as he calls it, and his scheme is political. Such a scheme is, considering the context of the time, dangerous or risky, as Xenophon put it. The political economist proposes that the State itself take risks. In fact, to counter the opposition to, or fear of, the risky proposal, among other things, Xenophon explicitly suggests gradualism: The introduction of the proposal should "proceed gradually [rather] than to do everything at once" (*Ways and Means* IV: 36), a motto regularly echoed in Plato and Aristotle and by many others in the following centuries.

Xenophon's representation would be picked up by later writers and would define innovation for centuries to come. Political change (risky) and (revolutionary) schemes became key connotations to or meanings of innovation. From then on, innovation shifted to take on a pejorative meaning: introducing change into the established order. New ideas and altering laws are "very risky" and may lead to "constitutional upheavals", claimed Aristotle in *Politics* (II: viii, 1268b). While both Xenophon and Aristophanes use *kainotomia* in a neutral sense, the word becomes pejorative among later philosophers. Xenophon's *kainotomia*, as revolutionary in the sense of radically different, is changed to revolutionary in the sense of subversive.

A word of caution is necessary here. As the texts analyzed in the following sections show, innovation (as well as change) is often translated as revolution. In fact, the context may dictate such a meaning, but, in general, innovation means political change (with a subversive connotation perhaps) but

not revolution. The word revolution did not exist at the time (it is of Latin origin).⁵ Instead, the words commonly used were troubles, tumult, revolt, rebellion and sedition (Koselleck, 1969; Richter, 1995: 42–43). Be that as it may, the obsession with subversive change was discussed using many different words at the time, including *kainotomia*: change (*metabole*), sedition (*stasis*), overthrow and the like. Such was Plato and Aristotle’s vocabulary.

PLATO: INNOVATION AND CULTURE

In *The Republic*, Plato accepts only one slight change to constitutions: that philosophers become Kings (and Kings become philosophers) and rule the State. The fault in constitutions of existing states is that no philosophers rule:

There will be no end to the troubles of states, or indeed, my dear Glaucon, of humanity itself, till philosophers become kings in this world, or till those we now call kings and rulers really and truly become philosophers, and political power and philosophy thus come into the same hands. (*Republic*, V: 473d)

Book VIII is entirely concerned with the process of change or degeneration (“all created things must decay”; *Republic*, VIII: 546a), from Plato’s ideal State to imperfect States. Plato describes each political state or constitution one after another, together with the character of the ruler and the causes of decline:

Timarchy → Oligarchy → Democracy → Tyranny

One has to turn to a later work to document the use of *kainotomia* in Plato. In *Laws*, Plato discusses *kainotomia*, using the word as such. He has only one good word for innovation: Chances and accidents (calamities, diseases and wars), not men, make laws and “often force on innovations” [revolutions] (*Laws* IV: 709a). At that very moment, men use their “skills” to “seize any favorable opportunity” (*Laws* IV: 709c).

Plato even denies innovating himself—or minimizes his innovation:

Those who are termed ‘magistrates’ I have now called them ‘ministers’ of the laws, not for the sake of innovating [“coining a new phrase”] but in the belief that salvation, or ruin, for a State hangs upon nothing so much as this. For wherever in a State the law is subservient and impotent, over that State I see ruin impending; but wherever the law is lord over the magistrates, and the magistrates are servants to the law, there I descry salvation and all the blessings that the gods bestow on States. (*Laws* IV: 715c–715d)

Plato's discussion of innovation is related to 'culture' (education, customs).⁶ He refuses innovation in education, for it gives rise to social instability, that is, demands for new institutions and laws (*Laws* VII: 796c–800a). In contrast:

When the programme of games is prescribed and secures that the same children always play the same games and delight in the same toys in the same way and under the same conditions, it allows the real and serious laws also to remain undisturbed; but when these games vary and suffer innovations . . . [children] have no fixed and acknowledged standard of propriety and impropriety. (*Laws* VII: 797b)

Plato's argument is threefold. First, people love innovation. Children "hold in special honour he who is always innovating or introducing some novel device". But "the biggest menace that can ever afflict a state" is changing "quietly the character of the young by making them despise old things and value novelty". Change "except in something evil [or humorous amusements like comedy] is extremely dangerous" (*Laws* VII: 797b).

Second, innovation leads to political instability. "If children innovate [*neoterizein*]⁷ in their games, they'll inevitably turn out to be quite different people from the previous generation; being different, they'll demand a different kind of life, and that will then make them want new institutions and laws" (*Laws* VII: 798c).

Third, there is need to contain or control innovation:

When the laws under which people are brought up have by some heaven-sent good fortune remained unchanged over a very long period, so that no one remembers or has heard of things ever being any different, the soul is filled with such respect for tradition that it shrinks from meddling with it in any way. Somehow or other the legislator must find a method of bringing about this situation in the state. (*Laws* VII: 798b)

What holds for games holds for music and dance too. "We must do everything we possibly can to distract the younger generation from wanting to try their hand at presenting new subjects, either in dance or song". Plato argues for laws on "natural correctness" to counter "the tendency of pleasure and pain to indulge constantly in fresh music" (*Laws* II: 657b). To Plato, the Egyptians have developed good laws to this end: drawing a calendar of festivals and authorizing certain songs and dances (*Laws* VII: 799a–b; II: 656c–57b). The Egyptians have also "forbidden to painters and all other producers of postures and representations to introduce any innovation . . . over and above the traditional forms" (*Laws* II: 656e). Plato recommends that "no one shall sing a note, or perform any dance-movement, other than those in the canon of public songs, sacred music, and the general body of chorus performances of the young—any more than he would violate

any other 'norm' or law . . . If he disobeys, the Guardians of the Laws and the priests and priestesses must punish him" (*Laws* VII: 800a).

Together with games and music, a third area in need of control is foreign customs. "The intermixture of States with States naturally results in a blending of characters of every kind, as strangers import among strangers innovations [novel customs]" (*Laws* XII: 950a). Strangers are most welcomed, unless they bring in innovations in the city: Magistrates "shall have a care lest any such strangers introduce any innovation [*neoterizein*]" (*Laws* XII: 953a).

ARISTOTLE: INNOVATION AND POLITICS

According to Aristotle, no one had innovated more than Plato on communism. In *Politics* Aristotle writes: "[N]obody else has introduced the innovation of community of children and women, nor that of public meals for the women" (*Politics* II: iv, 1266a). To Aristotle, communal property brings disputes because of the unequal contribution of each individual. The present system of property (private, with common use) is better, if properly regulated. It is a matter of habit, and it is controlled by sound laws (*Politics* II: v, 1263a).

To Aristotle, another innovator criticized by name is the architect Hippodamus because of his view, among others, that "honour ought to be awarded to those who invent" or discover some advantages to the country (*Politics* II: viii, 1268b). To Aristotle, "It is [always] possible for people to bring in proposals for abrogating the laws or the constitution on the ground that such proposals are for the public good" (*Politics* II: viii, 1268b). Only ambition drives Hippodamus "always to be different from other people". To Aristotle, the lesson is clear: "Since men introduce innovations [*neoterizein*] for reasons connected with their private lives [modes of living], an authority ought to be set up to exercise supervision over those whose activities are not in keeping with the interests of the constitution" (*Politics* V: viii, 1308b).

Aristotle's concern with innovation is political change. While Plato discusses innovation in its relation to culture, Aristotle focuses on politics. To be sure, Plato is concerned with cultural change because politics governs everything, including culture. However, Aristotle explicitly looks at political change. As is well known, to this philosopher there are three 'right' constitutions (kingship, aristocracy and polity) and three 'deviations' (*parekbasis*) (tyranny, oligarchy and democracy). Aristotle is interested in studying which processes "destroy constitutions, and which are those that keep them stable [*menein*]" (*Politics* IV: ii, 1289b). The source of variety is the diversity of social and economic conditions or wealth (property) and the freedom of the people. As a consequence, Aristotle's polity is a mixture of oligarchy and democracy. This mixture is the best because it is stable. It is free of factions like rich and poor (*Politics* V: xi).

Large parts of *Politics* are concerned with regulating political change.⁸ To be sure, some change in societies is desirable. Immediately following the discussion of Hippodamus's innovation, Aristotle suggests, "A case could be made out in favour of change. At any rate if we look at the other sciences, it has definitely been beneficial—witness the changes in traditional methods of medicine and physical training, and generally in every skill and faculty" (*Politics* II: viii, 1268b). By contrast, in politics, most good changes have already been made: "All possible forms of organization have now been discovered. If another form of organization was really good it would have been discovered already" (*Politics* II: v, 1264a).⁹ More change would only be for the worse:

There are some occasions that call for change and there are some laws which need to be changed. But looking at it in another way we must say that there will be need of the very greatest caution. In a particular case we may have to weigh a very small improvement against the danger of getting accustomed to casual abrogation of the laws . . . There is a difference between altering a craft and altering a law . . . [It] takes a long time [for a law] to become effective. Hence easy change from established laws to new laws means weakening the power of the law. (*Politics* II: viii, 1269a)

Book V discusses changes in constitutions and contains Aristotle's thoughts on the "causes that give rise to 'revolution' in the constitutions of states and to party factions". Aristotle makes an important distinction that would persist for centuries to come: radical change (revolution) versus gradual change, and the dialectics between the two. He stresses the fact that, like time, revolution develops slowly, little by little. Change grows imperceptibly over a long period of time—a motto found in many others of Aristotle's writings and used regularly as an argument against innovation from the Reformation until the nineteenth century. Revolution, or faction, arises from "small matters": "[T]he false step is at the beginning, but well begun is half done, as the proverb says, so that a small error at the start is equivalent in the same proportion to those of the later stages" (*Politics* V: iv, 1303b). It has an effect on the whole State: "A change so gradual as to be imperceptible . . . It very often happens that a considerable change in a country's customs takes place imperceptibly, each little change slipping by unnoticed" (*Politics* V: iii, 1303a). Aristotle repeats the description elsewhere as follows: "The change occurring either quickly or gradually and little by little, without being realized" (*Politics* V: vii, 1306b).

Aristotle bases his argument for gradualism on two analogies. One is to nature (time), as already seen. Francis Bacon offers this same analogy in his essay *Of Innovation* in the early seventeenth century. The other analogy is to men's expenditures:

It is essential in particular to guard against the insignificant breach. Illegality creeps in unobserved; it is like small items of expenditure which

when oft repeated make away with a man's possessions. The spending goes unnoticed because the money is not spent all at once, and this is just what leads the mind astray . . . One precaution to be taken, then, is in regard to the beginning. (*Politics* V: viii, 1307b)

Aristotle applies the analogy to leaders in oligarchies whose extravagant mode of living “bring[s] about innovation [new state of affairs]” (*Politics* V: vi, 1305b)—the same leaders also “stir up innovations” because they lose their wealth (*Politics* V: xii, 1316b). The lesson is clear:

Even a small thing may cause changes. If for example people abandon some small feature of their constitution, next time they will with an easier mind tamper with some other and slightly more important feature, until in the end they tamper with the whole structure . . . The whole set up of the constitution [is] altered and it passed into the hands of the power-group that had started the process of innovation [*neoterizein*].

How may constitutions be preserved then? Stability is the answer: Nothing should be done contrary to the laws, and changes should be gradual, as time is. To counter innovation among others, Aristotle offers some advice (*Politics* V: viii–ix), among which are:

- Avoid extremes (principle of the middle way).
- Do not “augment the power [honour] of any one man out of proportion”; that is, “[t]hat no person becomes pre-eminent”.
- “Exceptional prosperity in one section of the state is to be guarded against”.
- “Ensure that the number of those who wish the constitution to be maintained is greater than that of those who do not”.
- “Treat each other in a democratic spirit, that is to say, on an equal footing”.
- Set up an authority for control.

Kainotomia is a word little used among Greek writers, including Aristotle. In fact, it shares a place in the vocabulary with another, more widespread word: *neoterismos* (νεωτερισμός).¹⁰ Today we have many words to talk about innovation: change, revolution, invention, and others. Similarly, *kainotomia* is only one of the words the ancient Greeks had to talk about innovation. *Neoterismos* was another.

What distinguishes *neoterismos* from *kainotomia*? In the beginning *kainotomia* may have been used to stress the subversive aspect of innovation, but *neoterismos* does so too. Both words are used in a political context, or used by writers on politics (philosophy and history).¹¹ As already mentioned, Plato made no use of *kainotomia* (and the verb *kainotomein*) in *The Republic*. Yet he does use the verb *neoterizein* (νεωτερίζειν) once on education,¹²

using an argument for gradualism,¹³ and another time on democratic leaders.¹⁴ Similarly, as noted previously, in *Laws* Plato uses this word twice, on education and on foreign customs. And in both *The Republic* and *Laws*, Plato also uses *neoterismos*.¹⁵ Aristotle's *Politics* too uses *neoterizein* (twice as often as *kainotomein*) concerning changes in oligarchies. He makes four other uses of the word, again with a pejorative connotation: two (opposite views) on communism,¹⁶ another on the caste system¹⁷ and still another on the democratic participation of the people in government.¹⁸

There seems to be no real difference between the two words.¹⁹ Innovation, whatever the word, is pejorative. Both *kainotomia* and *neoterismos* have a political and subversive connotation. Early uses of *neoterismos* are found among Attic orators like Aristides (530–468 BCE) and Isocrates (436–338 BCE) and historian Thucydides (460–c. 395 BCE). Yet the word became widespread mainly after Christ, above all among historians: Flavius Josephus (37–100 CE) used it frequently in *Antiquitates Judaicae* and *De Bello Judaico*, as did the Roman historian Cassius Dio (150–235 CE) in his Greek writing *Historiae Romanae*.

Whatever the word used, history certainly contributed to giving innovation a definite political connotation. Together with thoughts on politics and political philosophy, history (of politics mainly) makes use of *kainotomia* and, more frequently, *neoterismos*. Polybius's is a perfect example of such a history.

POLYBIUS: INNOVATION AND HISTORY

According to students of political thought, the Greek historian Polybius is an influential classical writer on politics, together with Plato, Aristotle and later Roman writers. For my purpose, Polybius deserves a few paragraphs for his use of *kainotomia*, two centuries after Plato and Aristotle. Has something changed in meaning?

Polybius (200–118 BCE) is the author of *The Histories of Rome* in 30 volumes; the final edition had 40 books. However, only the first five books remain intact, as well as a long portion of the sixth book. The rest is composed of fragments. The *Histories* documents how Rome came to dominate the Hellenistic world in the third century BCE.

One expects today that historians be 'objective' and make use of their concepts in a neutral way. A historian tells narratives about the past and uses (should use!) the concepts as they were used then. Together with Thucydides, Polybius is in fact considered the father of objective history. He interviewed the participants in many events, visiting places himself to clarify some details of events and was given access to 'archival' material. Polybius stresses that he had spoken to the "eye-witness of some of the events" rather than using reports of "second or third-hand" (*Histories*, 4.2) and "arrange every event as it happens according to fixed rules, as it were, of scientific classification"

(*Histories*, 9.2). However, this did not prevent him from having biases, for example against the Aetolians, the Carthaginians and the Cretans.

Polybius' use of *kainotomia* (or rather the verb *kainotomein*) continues the tradition. The concept remains subversive, but the historian does not, as Aristotle does, forbid innovation. Polybius is writing history. He talks *about* innovation not *of* innovation. Polybius uses the concept nine times, all but two²⁰ in a political context of 'revolution' or tumults (people revolting; *Histories*, 1.79, 1.9, 3.70, 15.30, 22.4, 35.2) and changes in constitution (the Aetolians 'given to innovation', namely constitutional change; *Histories*, 13.1). *Neoterizein* too is used in a political context for a *coup d'état* or a violation of existing treaties (*Histories*, 5.29, 7.3).

Yet Polybius innovates when he introduces *kainopoein* (*καινοποιεῖν*), the meaning of which is, again, making new.²¹ Now there are three words used for innovation: *kainotomia*, *neoterismos* and *kainopoiia*. Over time (during the Hellenistic period at least), *neoterismos* was used far more than *kainotomia*. In contrast, *kainopoiia* (and *kainopoein*) remain relatively absent among Greek writers. One finds no occurrences of it in Xenophon, Plato or Aristotle. It is Polybius's linguistic innovation and has remained his, with only a few uses among later writers.

Since the *Histories* is entirely concerned with politics, *kainopoein* is first used in a political context and, in that case, a military context. References to war, warfare (new weapons) and alliances (treaties) contribute to the connotation: Hannibal supplying his army with "new weapons" (*Histories*, 3.49); King Philip's rejection of a treaty as a "fresh cause of anger with the Aetolians" (*Histories*, 21.10); wars "gathering fresh strength", an idea reminiscent of Plato's and Aristotle's gradualism.²²

But the connotations are more diverse than the simply political, and the word may have been coined precisely to avoid an exclusively negative connotation. Occurrences of *kainopoein* in the positive and neutral senses are also frequent: new weapons (*Histories*, 3.49); need of new projects or exploits to keep one's allies' enthusiasm alive (*Histories*, 3.70); keeping or renewing the memory of great men with eulogies (*Histories*, 6.54).

One use deserves mention. As a historian, Polybius applies the concept to himself. Polybius renews the practice of history. He undertakes or invents a new kind of history, says he. "No writer of our time has undertaken a general [world] history", says Polybius, as compared to the limited histories concerned with isolated wars. These histories "contribute exceedingly little to the familiar knowledge and secure grasp of universal history" (*Histories*, 1.4).

Polybius stresses his innovation two more times, using *kainopoein* for the purpose. First, he explains that his *Histories* starts at 220 BCE (Rome becoming dominant over the whole Hellenistic world) because it is at this period that "the history of the whole world entered a new phase": "every government therefore being changed about this time, there seemed every likelihood of a new departure in policy" (*Histories*, 4.2). Second, Polybius claims that he writes "a history of actions, because they are continually new

and require new narrative”. To Polybius, previous writers have concentrated too much on “genealogies, myths and colonizations, as well as the foundations of cities and consanguinity of peoples” (*Histories*, 9.2), namely on emotional and sensational history, as tragedy does. Polybius innovates with a kind of history exempt from dramatization, so he suggests.

CONCEPTUAL INNOVATION

These authors account for almost all uses of *kainotomia*, including those in the Hellenistic period. An enigma remains—a philological one. If one believes historians’ dating of ancient texts, Aristophanes’ use of *kainotomia* precedes Xenophon’s. However, in Aristophanes one finds no explicit or concrete reference to *τομή* (cut, cutting) in the use of the concept, as in Xenophon. The meaning is entirely metaphorical. What is the purpose of using such a word then, rather than existing words, like *neoterismos*? There exist too few occurrences of the word to settle the issue. But it indicates perhaps that Xenophon’s use of the word is not an innovation of his own, as the word in fact preceded him. By the time Xenophon wrote *Ways and Means* *kainotomia* may have already had many different meanings, including the metaphorical. Xenophon chooses to use the word with a concrete meaning to serve his own specific purpose.

Be that as it may, with *neoterismos* and *kainotopoiia*, innovation definitely liberated itself from its concrete (mining) origin. The first step was the use of *kainotomia* in a metaphorical sense. The next was multiplying the number of words used to talk of innovation. This demonstrates the fact that innovation had definitely entered the vocabulary and was among people’s concerns. (See Table 1.1.)

In writing on innovation in philosophy, politics and history, our authors are above all conceptual innovators, a fact already documented with regard to political theorists (Skinner, 1979, 1988, 1991, 1994, 1996: Chapter 4, 2002; Pocock, 1985; Farr, 1988, 1989). Writers invent new words or change the meaning of existing concepts to support an argument and persuade

Table 1.1 Uses of Innovation (frequency)

	kainotomia	kainotomein	kainotomon	neoterismos	neoterizein	kainopoein
Aristophanes		3				
Xenophon		5				
Plato	2	4		2	4	
Aristotle		3	1		6	
Polybius	3	9		2		14
Plutarch	16	10		24	22	2

*The frequencies concern the works studied in this chapter.

an audience. One finds the very early uses of innovation in Aristophanes' comedies. These uses are made mainly in a positive sense. Xenophon uses the word in a positive way too. However, as compared to Aristophanes, Xenophon innovates. He stresses the revolutionary (originality) character of innovation. Then both Plato and Aristotle innovated again and turned the concept into a pejorative one, as being revolutionary in a negative sense. Innovation is subversive in the sense that it changes the order of things and leads to revolution. Polybius too uses *kainotomia* (or rather the verb form) in a political context but adds a new word for his own purpose (war issues), often in a positive sense (new machines) and applies it to himself as a historian (new kind of history).

The real preoccupation of the writers on innovation is the innovator, the one who innovates, the agent. Hence the verb form. In fact, innovation (whatever the word used) is more often than not referred to using a verb (*kainotomein*) rather than a substantive (*kainotomia*)—*neoterizein* and *kainopoein* are verbs too. Innovation as a substantive is rare—Plato is the only one to use the substantive.²³ The aim of using the verb form is to put emphasis on the agent or innovator. But there is no reference to originality or creativity, above all on the part of innovators themselves. Plato denies innovating (coining a new word) simply for the sake of innovating; Xenophon minimizes his innovation; Aristophanes does not use the word innovation to talk of his originality and novelty (*Clouds*, 537ff.). Innovation as creativity is a modern representation. To the Greeks, people 'given to innovation' are not creative but are rather guilty of something. Innovators are transgressors of the political order.

Who are the innovators? According to Aristotle, the innovators are Plato on communism (sharing of children and wives) and Hippodamus with his changes in laws (giving too much honour to inventors). Aristotle also includes among innovators those who look for private gain (*Politics* V: viii, 1308b); extravagant leaders—"Men of this sort seek to bring about innovation [a new state of affairs]" (*Politics* V: vi, 1305b); and legislators (Phaleas, unknown) (*Politics* II: iv, 1266a). Aristotle's innovators also share certain characteristics, not dissimilar to those theorized in the first half of the twentieth century—the have-nots: the young "initiating the innovation" leading to tyranny (*Politics* V: vii, 1307a), the poor "both more willing and better able to introduce innovations [*neoterizein*]" (*Politics* V: ix, 1310a) or being "advocate[s] of innovation [new order]" (*Politics* II: iv, 1266b), and those who lose their wealth—"when the leaders have lost their properties they stir up innovations" (*Politics* V: xii, 1316b).

Everyone is an innovator, then, from the philosopher to the statesman to the ordinary citizen and the children, if he changes the political order. To the Greeks, the emblematic example of innovation is political change in constitutions. However, there is no definition of innovation among the ancients. Defining innovation is not a concern of philosophers. Political change provides only a set of elements for an argument against innovation

or vice versa. Neither is there any study of innovation, above all on how innovation is distinct, if ever, from change or other types of changes. To be sure, thoughts are offered on how change occurs (suddenly or step by step) and its effects (destruction of the old), but Xenophon is the only writer to present a full-length discussion of innovation, the first ever, yet in a sense totally different from ours. Finally, there is no theory of innovation. Innovation *per se* is not theorized about. To the Greeks, innovation is used mainly (in verb form) to stress deviance. It is change to the established order. It is subversive. It is forbidden.

Yet with time, one writer innovated again. Two hundred years after Polybius, the Greek historian Plutarch (46–120 CE) made regular use of innovation, both as a substantive and as a verb. In his *Lives*, a biography of famous Greeks and Romans, Plutarch does not refrain from using *kainotomia*—as well as *neoterismos* and *kainopoein*. In contrast to previous writers, Plutarch uses the concept in a positive sense, with superlatives: the Roman dictator Sulla’s “great innovations and changes in the government of the city” (*Lives*, Sulla: 74); Themistocles’ “many novel enterprises . . . and great innovations” (*Lives*, Themistocles: 3); the “great magnificence, [but also] boldness and ostentation” of the artist Stasicrates’ “innovations”, such as giving mountains “the form and shape of a man” (making a statue of King Alexander) (*Lives*, Alexander: 72). Nevertheless, such new (and very rare) uses have not altered the pejorative connotation of innovation over time.²⁴ Plutarch himself uses the verb form in a negative sense too,²⁵ and all the preceding uses remain somewhat ambivalent, and not purely positive, given the political context in which he discusses them.

INNOVATION AND CHANGE

Claiming, as I do, that the writers studied here invented or coined the word *kainotomia* depends entirely on the sources available to document the case. In fact, the word may have existed previously. However, earlier writers, like poets (e.g., Homer and Hesiod) and pre-Socratic philosophers, made no use of it—perhaps because their writings were not concerned with the political constitution. Be that as it may, it remains true that our four writers are innovators, at least in the sense that they are the first (known) users of the word.

Kainotomia, or rather the use of the word, puts the emphasis on the pejorative. To be sure, Aristophanes and Xenophon use *kainotomia* in a positive sense, the first literally and the second concurrently with negative or ambivalent senses (Blepyrus is positive, Praxagora is not sure, and the public will probably dislike Praxagora’s innovation). But such uses shift from Plato onward. To Greek philosophers, innovation means two things. First, introducing novelty (of any kind). This is Plato’s “coining a new term” and new forms in games, music and customs. It is also Aristotle on Plato’s communism and Hippodamus’s honour to inventors. All these uses are pejorative

because of their political effects. Second, innovation is introducing political or constitutional change. This is Aristotle's main meaning. Most of the time, political change has a subversive connotation.

Change (human-made change) was the central concern of the writers on innovation and would remain so for centuries. Dictionaries of the seventeenth century and later define innovation as change too (see Chapter 10). Yet change is as elusive a concept as innovation, and the reader will have plenty of occasions to see this in the following chapters. One key to understanding what innovation as change means is to study the contexts of the use of the concept.

Two theses exist about change in antiquity. One suggests that change is not accepted among Greeks (Popper, 1945). The other is that it is. To Robert Nisbet, the Greeks were "fascinated" by change. To be sure, to the Greeks, change is limited. It is cyclical, and the only political change accepted is mixed constitutions. But change is discussed everywhere: science, history, politics (Nisbet, 1969, 1980; see also Edelstein, 1967). *kainotomia* may offer a solution to the controversy: change (metabole)—yes (with careful consideration and conscious acceptance), innovation (*kainotomia*)—no. Change is divine or natural. It is slow, gradual and continuous (step by step). In contrast, innovation is humankind's. It is change to the established order and is not accepted. Like we moderns, Ancient Greeks consider that novelty (*kainon*) is everywhere and that innovativeness (the propensity to innovate) is a fact of life. Yet things are different with regard to innovation. To the Greeks, *kainotomia* is not equivalent to innovativeness or creativity/originality. Innovation is subversive of the established order. It is a concept applied to and used mainly to discuss politics, including what we call revolution today.

NOTES

1. I owe a considerable debt to Pierre Lucier (Chaire Fernand Dumont sur la culture, INRS). Without Pierre's knowledge of the Greek and Latin languages—and much more—I could not have written this chapter or the next one.
2. The same method applies to the next chapter, on Latin writers.
3. 'Cutting one's way forward' (*προκοπή*), a word from the Hellenistic period, became progress in Latinized form (Edelstein, 1967: 146).
4. A third comedy (*Clouds*) is concerned with the issue of Old versus New underlying conflicts in philosophy (and culture). But Aristophanes does not use the word innovation in this comedy.
5. Revolution was used very little in politics (but was in astronomy) before 1789 (Dunn, 1989).
6. To the Greeks, *paideia* (*παιδεία*) is culture through education (the shaping of physical and intellectual character) (Jaeger, 1939). Here I use the word in its anthropological sense and include customs too.
7. More on this word later.
8. "What is needed is the introduction of a system which the people involved will be easily persuaded to accept, and will easily be able to bring in, starting from

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the system they already have. It is no less difficult task to put a constitution back on its feet than to create one from the start" (*Politics* IV: I, 1288b).

9. Aristotle makes a similar statement later in the work: Institutions "have been in the course of all ages discovered many times over, or rather infinitely often . . . Thus we ought to make full use of what has already been discovered while endeavouring to find what has not" (*Politics* VII: x, 1329b).
10. Most writers who use *neoterismos* do not make use of *kainotomia*.
11. *kainotomia* is not used in 'scientific' works. For example, Aristotle praises novelty in fields that give pleasure (like literature) and in science and arts, but he does not use *kainotomia* for this purpose.
12. "The overseers of our state must cleave and be watchful . . . against innovations in music and gymnastics counter to the established order". New songs are allowed but not "new way of song". "A change to a new type of music is something to beware of as a hazard of all our fortunes". "The modes of music are never disturbed without unsettling of the most fundamental political and social conventions" (*The Republic* IV: 424b).
13. Such a kind of "lawlessness that easily insinuates itself unobserved . . . By gradual infiltration it softly overflows upon the characters and pursuits of men . . . and proceeds against the laws and the constitution . . . till finally it overthrows all things public and private". "In the beginning, our youth must join in a more law-abiding play, since, if play grows lawless and the children likewise, it is impossible that they should grow up to be men of serious temper and lawful spirit" (*The Republic* IV: 424b).
14. The heads of the people (particularly the farmers) in a democratic assembly would be frequently accused by others of "plotting against the people", although "having no innovation in mind [revolutionary design]" because they are acting like oligarchs (pursuing wealth and becoming rich, that is, "keep[ing] the lion's share for themselves") (*The Republic* VIII: 565b).
15. "The manifold innovations" occurring constantly in States (*Laws* VI: 758c); wealth and poverty bringing "luxury, idleness and innovation" (*The Republic* IV: 422a); the citizens "eager for innovation [revolution]" (*The Republic* VIII: 555d).
16. "When regulating the amount of property legislators ought also to regulate the size of family; for if the number of children becomes too large for the total property, the law is quite sure to be repealed, and apart from the repeal it is a bad thing that citizens who were rich should become poor, for it is difficult for such men not to be advocates of innovation [new order]" (*Politics* II: iv, 1266b). Plato's communism is a good thing in the subject classes, particularly farmers, because it makes them "submissive to authority and not making innovation [revolution]" (*Politics* II: 1262b).
17. Those who cultivate the soil should be slaves and not "of a spirited character (for thus they would be both serviceable and safe to abstain from innovation) [insurrection]" (*Politics* VII: 1330a).
18. The people should share in government for "all people throughout the country are ranged on the side of the subject class in wishing for innovation [a revolution]" (*Politics* VII: 1332b).
19. From a study of Byzantine lexicography, Apostolos Spanos suggests a distinction between *kainotomia* and *neoterismos* as that between making and doing (Spanos, 2013). I have found no such distinction in Ancient Greece. Up to a point, *kainotomia* is used to talk about someone innovating (the agent), while *neoterismos* puts the emphasis on a state of mind or attitude (a spirit of innovation). This is certainly in line with the etymology of *neoterismos* (youth): the young are greedy for innovation. However, the distinction is not clear-cut

- (see, for example, Thucydides on *neoterismos*), and by Polybius's time, it is no longer valid.
20. One concerns new machines (weapons) (*Histories*, 1.23), the other new exploits (*Histories*, 1.55).
 21. The verb *ποιεῖν* (*poiein*, make) gave rise to poetry (*ποίησις*) and poet (*ποίησις*), a maker or 'creator'.
 22. "For as when a man has once set a fire alight, the result is no longer dependent upon his choice, but it spreads in whatever direction change may direct, guided for the most part by the wind and the combustible nature of the material, and frequently attacks the first author of the conflagration himself; so too, war, when once it has been kindled by a nation, sometimes devours the first those who kindled it; and soon rushes along destroying everything that falls in its way, continually gathering fresh strength" (*Histories*, 11.4).
 23. Neither is the substantive *kainopoiia* used even once by Polybius.
 24. Before Plutarch, Aristotle made use of *kainotomon* (the new), the neutral form of the adjective *kainotomos*, in such a sense, but only once. Before criticizing Socrates vehemently on the form of constitutions, Aristotle says, "It is true that all the discourses of Socrates possess brilliance, cleverness, innovation [originality] and keenness of inquiry" (*Politics* II: 1265a).
 25. Caesar's "innovations" to "make the people docile" (Caesar, *De bello Civili*: 6); Cicero opposing the "innovators [the tribunes]" of the law (*Lives*, Cicero: 12); Demosthenes "introducing all sorts of innovations [corrections and changes of expression] into the speeches made by others against himself" (*Lives*, Demosthenes: 8).

2 *Inново*

On the Vicissitudes and Varieties of a Concept

Neque enim putes quod innovatio vitae, quae dicitur semel facta, sufficiat; sed semper et quotidie, si dici potest, ipsa *novitas* innovanda est . . . sicut innovatur et nunquam est quando non innovatio ejus augeat. (Do not think that the renewal of life [baptism], which we say occurs once, that is, enough. It is always and every day, if we may say so, that this newness [*novitas*] itself must be renewed [*innovanda*] . . . as though there were never any renewal [*innovatur*] where the renewal [*innovatio*] does not increase.) Origen, *Commentar*, in *Epistulam ad Romanos* V: 8, PG XIV, 1042As

conversi autem ad interiorem, ad ea quae innovanda sunt . . . inveniamus hominem novum, diem novum, canticum novum, testamentum novum—et sic amemus istam *novitatem* ut non ibi timeamus vetustatem. . . . (Turn toward the interior man, toward all that there is to be renewed [*innovanda*], would we be able to find the new man, the new day, the new singing, the new alliance, and cherish this newness [*novitatem*] such that we would not fear growing old.) Augustine, *Confessiones*, Enarr. in Ps. XXXVIII, 9, Corp. Christ., Ser. Lat. XXXVIII, 410

Plutarch, who at some point took Roman citizenship, is an exception among the Greeks. Plutarch uses *kainotomia* as a multifaceted concept: sometimes negative, at other times positive (see Chapter 1). To be sure, innovation, whatever the term, is considered multifaceted among other Greek writers too, and remains so among Byzantine writers as well (Spanos, 2010, 2013a, 2013b), but statistically *kainotomia* is considered as negative—until about Plutarch’s time and much later, in religion for example—by the Greek fathers, such as St. Basil of Caesarea (c. 329–79), who in *Epistulae* considered *kainotomia* as “heresy”.

Innovation is not a word in Ancient Rome. Certainly, there are precursor terms or concepts. Yet *innovo* and derivatives do not exist.¹ When, how and why did the word *innovo* enter the Latin vocabulary? This chapter deals with the semantics of innovation from the time of the Roman Empire to the sixteenth century. In many ways, the Romans share the representation of

Table 2.1 The Word *Innovo*: Its Origin

	France	England	Italy
Innovation	1297	1297	1364
Innovate	1315	1322	Fourteenth century ¹
Innovator	1500	1529	1527

Sources: *Oxford English Dictionary* (1989), Oxford: Clarendon Press; O. Bloch and W. Wartung (1968), *Dictionnaire étymologique de la langue française*, 5th ed.; C. Battisti (1952), *Dizionario Etimologico Italiano*, Florence: Barbèra; M. Cortelazzo (1979), *Dizionario etimologico della lingua italiana*, Bologna: Zanichelli.

¹*Innovellare* (thirteenth century).

Ancient Greece. Innovation has some positive connotations, as a substantive, for example (*novitas*). At the same time, innovation in political affairs is discussed negatively (*novare*).

By the third and the fourth centuries, *innovo* entered into the Latin vocabulary. In contrast to what it meant to the Greeks, in Latin it has a positive meaning from the beginning. Such is the use made of the term in religion and poetry. This representation of innovation continued until the sixteenth century. During this period, innovation also acquired a legal connotation. In politics, it also came to be used positively (chapter 3). Yet in the sixteenth century, *innovo* shifted back to the negative connotation of Ancient Greece, following the Reformation in England. This pejorative and contested meaning lasted until the nineteenth century.

This chapter is a study of the meaning(s) of innovation among Latin writers. Most dictionaries date the coining of innovation to the thirteenth century and remain silent on the Latin word *innovo* (see Appendix 2 and Table 2.1). Here, I go further back in time. The first part of the chapter looks at the vocabulary used in Ancient Rome for novelty or newness, at a time when *innovo* did not exist. The second part looks at early uses of *innovo* and documents the two meanings of the word: renewal and change/make new. It is documented that these meanings vary according to context: religion (spiritual), poetry (material) and law (enacting again).

THE ROMAN VOCABULARY

Before the fourth century, *innovo* does not exist in the Latin vocabulary. Yet like the ancient Greeks, the Romans had many words for novelty or newness. For the Greek adjectives *kainos* and *neos*, for example, the Romans had *novus*. For innovation as a substantive (*kainotomia*), the Romans coined *novitas* and *res novae/nova res*. These words are often used in a neutral sense, with either a positive or negative judgment on the innovator.

In his *Institutio Oratoria*, Quintilian (c. 35–c. 100) discusses how authors “introduce some novelty [*novitas*]” in the arts of rhetoric (*Institutio Oratoria* 3: 3), some having an “excessive passion for novelty [*novitas*]”, such as the encyclopaedist Aulus Cornelius Celsus (*Institutio Oratoria* 9: 1). Like many writers, Quintilian stresses the strangeness of and the unexpected in novelty. He makes an explicit reference to this connotation and explains why novelty has such an effect on people: “It is novelty [*novitas*] and change that please in oratory and what is unexpected always gives especial delight” (*Institutio Oratoria* 8: 6). Yet Quintilian notes that the old sometimes produces the same effect as the new: “Archaic words produce an attractive effect not unlike that of novelty [*novitas*]” (*Institutio Oratoria* 1: 6).

Such is also Lucretius’s (c. 94–c. 51 BCE) connotation in *De Rerum Natura*. “I know how hard it is in Latian [*sic*] verse to tell the dark discoveries of the Greeks, chiefly because our pauper-speech must find strange terms to fit the novelty [*novitatem*] of the thing” (*Rerum Natura* 1: 136). To Lucretius, nature is new but also strange. Philosophers give themselves the task of discovering the mysteries of nature and explaining its strangeness. “By what devices this strange and new [*novitas*] state [sleep] may be occasioned, and by what the soul can be confounded and the frame grow faint, I will untangle” (*Rerum Natura* 4: 929). To Lucretius, newness is not “so easy”; it is “incredible at first sight” and “audacious to conceive for the imagination . . . the first time”. It is only “with time” that we accept it (*Rerum Natura* 2: 1020–40).

Many other natural philosophers took on the same task as Lucretius. The new is fundamental to Gaius Plinius Secundus, better known as Pliny the Elder (23–79 CE), in *Naturalis Historia*; to Celsus (c. 25 BCE–c. 50 CE) in *De Medicina*; and to poets like Publius Ovidius Naso (43 BCE–17/18 CE), known as Ovid, in *Metamorphoses*. Statesmen, political philosophers and historians also hold this same connotation. Novelty is striking because of its strangeness. Strangeness is frightening and “expresses man’s helplessness in the face of a strange situation, which he cannot control” (Smalley, 1975: 130–31). The commentaries of Julius Caesar (100–44 BCE) are full of such uses (*novitate*).² Titus Livius Patavinus, known as Livy, (59 BCE–17 CE), in *History of Rome* (*Ab urbe condita*) also makes frequent use of the concept in this sense.³

Livy also makes use of *res nova*/*nova res* in several places.⁴ In Book 4 of *History*, Livy discusses tribune of the plebs Gaius Canuleius’s subversive (*alterum*) proposal on the intermarriage of patricians and plebeians. In fact, the bill would make it “lawful for one of the consuls to be chosen from the plebs . . . the lowest of the citizens”. “We propose nothing new [*nihil novi ferimus*]”, said Canuleius, “but reclaim and seek to exercise a popular right”. “Ought nothing new be adopted? [*Nullane res nova institui debet?*]” just because it had never been done before? No. The citizen has supreme authority and is “permitted, if they so desire, to enact a law”.

The connotation of innovation as strangeness is an important lesson if we are to understand the representation(s) of innovation in classical antiquity.

Innovativeness may be a fact of life (Lloyd, 1987: 50–108; Angour, 2011), but thoughts on innovation are rather ambiguous. In his study of novelty among the Greeks, Armand d'Angour stresses the case of positive novelty in classical antiquity (Angour, 2011). To be sure, Angour discusses the multifaceted dimension of novelty. Yet because of a focus on the positive connotation—and his neglect of political writings—Angour underestimates what *kainotomia* as a concept is to the Greeks. Angour fails to distinguish innovativeness from innovation.⁵

It is not a matter here of resuscitating the old debate on the noninnovativeness of the ancients, but rather a matter of balance. We can find confirmation of the ambivalence or tension of innovation in antiquity if we look at the Roman equivalent to the Greek pejorative connotation. One has to stress here the distinction previously noted and generally missed in the literature, that between innovativeness and innovation, between the fact of innovating and the representation(s) of innovation. Innovativeness exists in Ancient Greece (*kainein*, make new) and is accepted to many degrees (in poetry and science, for example) but innovation (*kainotomia*) is not.

The pejorative connotation of innovation among the Greeks is also found in the context of Roman political writings. For example, the verb *novare* often stresses the subversive connotation of innovation, as in Livy's *History of Rome*—and is often translated as such (revolution). At the time of an election to supply two new praetors, there were soldiers and deserters who were “desirous of innovation in every thing [qui omnia novare cupiebant]”. Livy reports that the majority voted for Epicyles and Hippocrates (*History* 24: 27). Livy makes many similar uses of *novare* in the *History*. On his anxiety against the Arretines, Gaius Hostilius makes hostages of a hundred senators and their children, and Gaius Terentius decides to “scour the whole province and see to it that no opportunity was given to those eager to change everything [eager for a revolution] [ne qua occasio novare cupientibus res daretur]” (*History* 27: 24). On the Aetolians' schemes for setting Greece “in commotion”, while the “principal people” (those of the best characters) are disposed to maintain the Roman alliance, the multitude (populace) “and especially such as were not content with their position, wished to change everything [wished for a general revolution] [omnia novare velle]” (*History* 35: 34). On Lucius Scipio's conducting the army through Macedonia and Thrace into Asia, “All hangs on the good-will of Philip”, and Africanus suggests that Scipio “test the attitude of the king”. Livy reports that “the king was at a banquet and had gone far with his drinking; this very cheerfulness of mind relieved all suspicion [anxiety] that Philip planned to change something [make any new trouble] [suspicionem dempsit novare eum quicquam velle]” (*History* 37: 7).

The pejorative connotation of *novare* may be found in many other texts as well. In his story on Constantius's legions taking possession of Aquileia, Roman historian Ammianus Marcellinus (325/30–c. 391) ascribed to Constantius the “planning of overwhelming things [planning of a rebellion] [novare quaedam moliebantur]” (*Rerum Gestarum* 21: 11). Similarly,

Cornelius Tacitus (c. 56–117 CE), Senator and historian of the Roman Empire, discusses Civilis’s rebellion as “turning things upside down [setting the work of revolution] [novare res hoc modo coepit]” (*Histories* 4: 14).

Yet *novare* admits of positive connotations in other contexts. Such is the case with Ovid in *Fasti* (1: 620). *Fasti*—the calendar of religious feasts—is a work of Ovid less known than the classics *Metamorphosis* and *The Art of Love*. On the date of January 15, it was the time for worship devoted to the nymph Carmenta. As a rite honouring mothers had been inadvertently eliminated, the mothers went on a childbirth strike. These gentlemen then gave in, and the old rituals returned:

Nam prius Ausonias matres carpenta vehebant
haec quoque ab Evandri dicta parente reor;
Mox honor eripitur, matronaque destinat omnis
Ingratos nulla prole novare viros,
Neve daret partus, ictu temeraria caeco
Visceribus crescens excutiebat onus

In the past, carpentes [two-wheeled chariots] transported Ausonie’s mothers. But soon this honour was denied them. All of the matrons then decided not to renew [*novare*] these ungrateful men through any descendants. In order not to bear children, these reckless ones, by hidden means, expelled the load that was growing in their bellies.

Marcus Servius Honoratus, grammarian of the late fourth–early fifth centuries, deserves mention, too, for his Commentary on Virgil’s *Aeneid*. Virgil’s Canto 8, verse 189, evokes the future Rome. King Evandre provides his assistance to Aeneas and introduces him to the cult of Hercules. Virgil writes:

Res Evandrus ait: “Non haec sollemnia nobis
Has ex more dapes, hanc tanti numinis aram
Vana superstitio veterumque ignara deorum
Imposuit: saevis, hospes Troiane, periclis
Servati facimus meritosque novamus honores.”

King Evandre says: “These solemn occasions, these banquets of tradition, this altar consecrated to so eminent a divinity, this is not an empty and ignorant superstition of the old gods who have imposed them upon us; we celebrate them, having survived dire perils, oh our Trojan host, and we renew [*novamus*] honours well deserved.”

Honoratus comments specifically on the words *novamus honores*:

[D]etraxit “re”, nam “renovamus” debuit dicere; quam particulam alibi addidit, ut “fata renarrabat divum”, aliter in quarto “tectā novantem”

dixit. Quidam intelligunt proprie esse “*novare*” replicando vetera quamdam facere *novitatem* ac per hoc excludere vetustatis injuriam.

He [Virgil] has removed [the prefix] “re”, since he should have written “renovamus”. Elsewhere, he has added this prefix, as in “he told anew the fates of the gods”.⁶ But he did otherwise in canto 4, saying: “constructing/creating [*novantem*] a block of houses.”⁷ We understand that “*novare*” strictly speaking means “make newness” by returning to/reopening old things and thus avoid harming the elderly/the old.

It is precisely this meaning of *novare* as renewing that got into *innovo* in the following centuries.

INNOVO

Warner Jaeger suggests that “[w]ith the Greek Language a whole world of concepts, categories of thought, inherited metaphors, and subtle connotations of meaning enters Christian thought” (Jaeger, 1961: 6). Such is the case with innovation. In the fourth century, “Christianity has been officially admitted to the Roman Empire by Constantine . . . Christianity became the public religion of the Roman state . . . [and] now occupied a powerful position in the Empire” (Jaeger, 1961: 70).

While *kainotomia* is of rare occurrence in Ancient Greece and is found mainly in politics, the verb *kainôô/kainein* (καίνωω/καίνειν, make new) is a lot more frequent. But it is an old form of it—*kainizôô/kainizein*, καινίζω/καινίζειν—that was translated into *innovo*. *Kainizein* is rarely used in Ancient Greece. It has a connotation of originality, not in the sense of creativity but of being first in time: inaugurating, doing something for the first time, something strange. It is originality in the sense of origin. The three great Greek tragedians make occasional use of it: Euripides’ *The Trojan Women*, Aeschylus’s *Agamemnon* and *Libation Bearers* and Sophocles’ *Trachiniae*. The word survives in the first century BCE, for example in Strabo’s *Geography* and particularly in Roman Flavius Josephus’s *Antiquitates Judaicae* (six occurrences) in the first century CE.⁸

The Latin translation (*in* + *novo*) changes this meaning to “renewal”—in line with the other (Christian) terms used at the time: renovation, reformation, regeneration. While the radical *re* serves to stress or emphasize (newness in the sense of) a *return* to an original condition, *in* serves to emphasize the *introduction* of novelty. The former stresses the past (return to the old, and later changing the old), the latter the future (introducing something new, entirely new).

An early use of *innovo* is by Pope Stephanus (254–57), known today for his battle to ensure that every Christian church adheres to the Roman tradition, particularly the recalcitrant Eastern and African churches. During what is known as the Cyprian controversy, Stephanus reminds the Cypria, bishop

of Carthage and upon threat of excommunication, that one is not allowed to rebaptize heretics who repent, as an African synod had just decided to do. In such a case, says Stephanus, one must “practice forgiveness of repentance and reintroduce them to communion. Baptism is unique and leaves an indelible trace . . . If there are some who recover from some heresy, we must innovate in nothing [nihil *innovetur* nisi quod traditum est] that is not traditional (or that has not been transmitted to us) and that we simply impose our hand in the guise of a pardon” (Ladner, 1959: 139). Here *innovo* has the sense of renewing, an enduring meaning for centuries.

The Vulgate

The new is fundamental to the Bible, in the sense of renewal. “What in Greek *paideia* [culture] had been the formation or *morphosis* of the human personality now becomes for the Christian the *metamorphosis* of which Paul had spoken when he wrote to the Romans, asking them to undergo a process of radical metamorphosis through a renewal of their spirit” (Jaeger, 1961: 97–98). The Vulgate is full of *novol/novare* as spiritual renewing⁹—together with (some but less frequent terms like) *renovatio*, *reformatio*, and so on. (Ladner, 1959).¹⁰ *Innovo* is no exception.

Before the Vulgate, there were many Latin versions of the ‘Bible’. In 382, Pope Damasus I commissioned Saint Jerome to produce a ‘standard’ version of the *Vetus Latina*, which he did, using original Greek and Hebrew texts.¹¹ Four books in the Vulgate make use of *innovo* in a spiritual context. The Book of Job is a complex ensemble of a genre based more on wisdom than on history, related to an ancient tradition telling the story of an Eastern sage who lived in opulence, who lost everything, and who afterward had his faith severely tested. In the book, which likely dates from the second generation of the exile to Babylon, a writer returns to this old story to contemplate the exodus of the population of Israel into exile, thereby deprived of all that it possessed. In it we find Job’s friends who redouble their questioning and their objections: How do you explain that God so condemns a just man? Job is tempted to give it all up, but he holds fast and continues to believe in his God. The following extract (Job 29: 20) is part of one of the poems collected in the book. Job repeats his faith and his certainty that misery will be conquered and that happiness will return:

gloria mea semper innovabitur et arcus meus in manu mea instaurabitur

you shall see, my friends, my glory shall be renewed and my bow shall regain its youth

Lamentations 5: 21 is another book making use of *innovo* in the sense of renewing. This text actually dates from before the end of the exile. It plays

continually on two levels: “[B]ring us to yourself, oh Lord, and so bring us to Jerusalem!”.

converte nos Domine ad te et converteremur, innova dies nostros sicut
in principio

bring us to yourself, oh Lord, and we shall return, renew our days as at
the beginning/as before

A third book is Psalms 50: 12 (in the Hebrew Bible, this is Psalms 51, according to the usual timetable). Long (but wrongly) attributed to Solomon—a personage who carries authority and is often represented with a lyre like a poet-musician—the Psalms constitute a collection likely compiled toward the end of the third century BCE. In particular, the Psalms have seen service in the liturgy and were used in the prayer of the faithful:

cor mundum crea in me Deus et spiritum rectum innova in visceribus meis

create within me a pure heart, oh God, and implant a new spirit inside of me

Here, the meaning is definitively original, as compared to the preceding books. *Innovo* is (renewing in the sense of) making new. But this is an exception.

Finally, Wisdom 7: 27, also a book long attributed to Solomon (Chapter 7 has Solomon speaking) and written in Greek, does not date back to before 50 BCE. It is a so-called deuterocanonic book, that is, belonging to the second canon; Protestants called it the Apocrypha, in a different sense of the word than that of the Catholics. *Innovo* here translates the Greek *kainizein*. It belongs to a philosophical literature of the time and includes some passages that comprise the eulogy to Wisdom—one of the Bible’s important feminine figures:

et cum sit una omnia potest et permanens in se omnia innovat¹² et per
nationes in animas sanctas se transfert amicos Dei et prophetas constituit

since it [wisdom] is unique, it can do anything; stable in itself, it renews everything, and it circulates among the nations within pious souls and forms friends of God and prophets

A spiritual connotation is only one use of *innovo* in the Vulgate. There are also political contexts. Ecclesiastes, included in the Septuagint, is now called the book of Ben Sirah according to his Hebrew name. The book is a deuterocanonic book and thus does not appear in the Hebrew Bible. It is attributed to a notable of Jerusalem in the time of the Seleucids. It would have been written about 180 CE. Faced with the growing influences of Greek

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philosophy, Ben Sirah promotes the heritage of the Jewish faith. Chapter 36: 6 (in the Septuagint, this is verse 5, not verse 6) is a prayer for the complete liberation and restoration of Israel:

innova signa et inmuta [rather, immuta] mirabilia

renew your signs and repeat your wonders

A second political use is Samuel (1 Samuel 11: 14). In the Greek Bible, this book is named the Book of Reigns. The kingship of Saul, first King of Israel, was strongly contested. Here, after a military victory by Saul against the Ammonites, it was decided, on the advice of Samuel, who it must be remembered had been the instigator of the monarchy, to ‘renew’ that institution:

Dixit autem Samuel ad populum “venite et eamus in Galgala et innovemus ibi regnum”

So Samuel said to the people “come, let us go to Galgala and renew/reaffirm/make new the monarchy”

The book of the prophet Osee 10: 12 offers a slightly different meaning, similar to that of the Psalms. Osee seems actually to have preached in the Northern Kingdom at the time that the kingdom, governed by Jeroboam, was threatened by Assyria, that is, toward the end of the eighth century BCE, before the fall of Samaria in 721 BCE.

seminate vobis in iustitia, metite in ore misericordiae, innovate vobis novale, tempus autem requirendi Dominum cum venerit qui docebit vos iustitiam

sow for yourself justice, reap the fruit of piety, break up/make yourselves a new field; for it is time to seek the Lord, till he come and rain down justice upon you

Finally, in 1 Maccabees 12: 17 on the renewal of a pact that Jonathan, one of Maccabees brothers, wants to renew with the Roman allies, says:

mandavimus itaque eis, ut veniant etiam ad vos et saluent vos et red-
dant vobis epistulas nostras de innovatione et fraternitate nostra

we have ordered them to go to you with our greetings and deliver this letter about the renewal of our ties of brotherhood

Together with the spiritual and political, another variant of renewal is that found in a material context. In 1 Maccabees 10: 10, *innovo* means renovate.

This book, which tells the facts and doings of the Maccabees brothers under the Hasmonean dynasty, seems to have been written in Greek by a Jew from Palestine sometime in the first century BCE, in any case before the fall of Jerusalem at the hands of the Romans. This use of the Greek verb is therefore in all likelihood not a translation, and we know roughly the date of its emergence. (The first book of Maccabees does not appear in the canon of the Hebrew Bible but does appear in that of the Greek Bible and the Vulgate. It is a deuterocanonic book):

Et habitavit Jonathas in Hierusalem et coepit aedificare et innovare civitatem

Jonathan settled in Jerusalem and he began to construct and to restore/renovate the city

Poetry

Like the Vulgate, poetry contains a spiritual connotation of *innovo*, as in Minucius Felix, rhetorician and Christian apologist of the second–third centuries. In the following extract, from the *Octavius* (Chapter 11), a sort of sarcastic pamphlet which, here, comments on the belief of Christians in the Resurrection, we read:

vellem tamen sciscitari, utrumne cum corporibus an absque corporibus, et corporibus quibus, ipsisne an innovatis resurgatur. Sine corpore? Hoc, quod sciam, neque mens neque anima nec vita est.

I would nevertheless like to know whether we are resurrected with the bodies, or without the bodies, and with which bodies, the same ones or new ones. Without the body is neither spirit [*mens*] nor soul [*anima*] nor life [*vita*].

The meaning is clear enough: Are we resurrected with the same bodies or with new/transformed/other/renewed/revamped bodies?

Paulinus (354–431), Latin poet and Bishop of Nole, near Naples, in a letter to Ausonius (Epistles to Ausonius, 31: 60), describes the wonders that the grace of God works in human beings:

Abstergit aegrum corporis pigri situm
Habitumque mentis innovat

He removes stains from the sick body and he renews the condition of the soul

Like the Vulgate, poetry has other connotations too: political, material and cultural. Grammarian Honoratus uses all three. In his comments on

Virgil's *Aeneid*, Honoratus makes five uses of *innovo*. In Canto 2, verse 473, Virgil tells of the fall of Troy. In the extract commented on, Aeneas describes the fall of the palace at the hands of Pyrrhus, whom he compares to a snake that crawls out of the ground and, having cast off its old skin, bursts with a new youth. Honoratus comments:

Constat enim serpentes innovari virtute pelle deposita

we know basically that, their skin having been cast off snakes are renewed in strength/vigour

Another use is cultural. Canto 4, verse 302 is dedicated to the romance of Dido and Aeneas. In the extract commented on, Dido thunders forth against Aeneas, torn between rejection and reconquest. Honoratus comments on the feasts as follows:

Liberi enim sacra tertio quoque anno innovabantur

the sacred rites [orgies] of Bacchus were renewed every three years/every third year

Yet Honoratus makes the most use of *innovo* in a political context. A slightly different meaning of renewing occurs while commenting on Canto 5, verse 598. Canto 5 tells of the Trojans' stay in Sicily and describes at length the games that the Trojan children learned there and that were then handed down to the Latins. The extract commented on concludes with a big game of carousel-parade—very complex—which foreshadowed the one Ascagne introduced into Albe-la-Longue and which later appeared in Rome. Virgil writes:

Hunc morem cursus atque haec certamina primus
 Ascanius, Longam muris cum cingeret Albam
 Rettulit et priscos docuit celebrare Latinos
 Quo puer ipse modo, secum quo Troia pubes

this race/parade, these competitions, Ascagne, when he surrounded the city of Albe-la-Longue with a wall, imported/adopted/reproduced/remade [*rettulit*] them first. It was he who taught the old Latins to celebrate them, as he himself had done with the young Trojans when he was a child

Honoratus comments on the word *rettulit*, which he considers equivalent to *innovavit*:

innovavit quod ante jam fecerat

he redid/reproduced that which he had previously done

Again in a political context, Honoratus comments on Canto 11, which reports various actions of Aeneas and tells the story and the heroic deeds of Camille. In the extract commented on, Latin ambassadors come to ask permission of Aeneas to honour their dead. Honoratus again comments on the words Virgil uses. In verse 104, Virgil writes:

Iamque oratores aderant ex urbe latina,
Velati ramis oleae veniamque rogantes
Corpora, per campos ferro quae fusa jacebant,
Redderet ac tumulo sineret succedere terrae;
Nullum cum victis certamen et aethere cassis
Parceret hospitibus quondam socerisque vocatis

already envoys arrive from the Latin city, covered with olive branches and asking a favour: that he [Aeneas] give back the bodies scattered by iron in the fields, that he allow them to be covered by a “tumulus” of earth—basically, no battling against the beaten and those beings deprived of light/air (*aethere cassis*)—and that he spare those whom he had already called his hosts and his in-laws

Honoratus comments on the words *et aethere cassis* (deprived of light):

id est luce vacuis . . . hoc autem bene addidit, quod victi possunt
innovare certamen

[Virgil] correctly added this, because those conquered could return to/
resume fighting

A third use in a political context is found in Honoratus’s comment on Canto 12, verse 573. Canto 12 tells the end of the epic, which revolves around the Aeneas–Turnus duel. In the extract commented on, Aeneas prepares the assault against Latinus and demands its total surrender. Virgil writes:

Scilicet expectem, libeat dum proelia Turno
Nostra pati rursusque velit concurrere victus?
Hoc caput, O cives, haec belli summa nefandi:
Ferte faces propere foedusque reposcite flammis

Must I [Aeneas] wait until it is convenient for Turnus to fight and, once beaten, to take up arms again? Oh citizens, here is the beginning, the peak of this abominable war. Quickly, bring torches and, with fire, demand once more/require again [*reposcite*] the alliance/the treaty/the pact

Honoratus comments on the word *repscite*, which he makes a synonym of *innovate*:

nam hoc dicit: flammas foederis urbis innovemus incendio. Nam
“repscite” est revocate, innovate

[Virgil] says, let us renew through fire the flames of the alliance. Basically, “repscite” signifies “revocate” [return to, demand again, recall], innovate

Renewing as recall is also the meaning found in Sidonius Appollinaris (430–89), poet, diplomat and bishop. In a letter to his “Dear Eutropius” (*Epistulae* III: 6, 1), the holy Gallic-Roman Bishop Sidonius writes:

Si veteris commilitii, si deinceps innovatae per dies gratiae bene in
praesentiarum fides vestra reminiscitur, profecto intelligitis ut vos ad
dignitatem sic nos ad desideriorum culmina ascendere.

If your loyalty recalls our joint [military] service, if it recalls our amity/
involvement subsequently unceasingly renewed/increased, you will
understand that, although you are at the height of dignity, we ourselves
have reached the height of our desires.

Like Honoratus, Prudentius (348–413), Roman Christian poet, makes use of several meanings or contexts too. The following references are taken from the *Peristephanon* (crown, as in a martyr’s crown), a work (late fourth–early fifth centuries) that, poem by poem, sings of the glorious and courageous ends of the Christian martyrs. Three poems make use of the concept innovation. Poem 9 illustrates the martyrdom of Saint Cassien, a professor delivered into the hands of his students, who made him suffer the worst torments, in particular that which consists of writing on his body as if on a tablet: They go at it with a metal point and with a little stylet, they erase, they start again, and so on:

Inde alii stimulos et acumina ferrea vibrant
Qua parte aratis cera sulcis scribitur.
Et qua secti apices abolentur et aequoris hirti
Rursus nitescens innovatur area.
Hinc foditur Christi confessor et inde secatur;
Pars viscus intrat molle, pars scindit cute.

Others wield spurs and iron points, both by the end we use to trace characters in wax and by the end by which words previously inscribed are erased and the smooth surface restored in place of the messed-up surface. By these two maneuvers, the confessor of Christ is lacerated and torn/cut. One part penetrates his tender flesh, the other cuts his skin.

The semantic key here is the use of writing tablets, generally made of wood covered with beeswax. This technique allows one to completely erase what has been written, replace the coat of wax, and write another text. The writing surface is thus made new/renewed, restored—a much repeated context (and analogy) in which the word appears, as in the Spanish poet Marcus Valerius Martialis's (40–104) *Epigrammata*:

Esse puta ceras, licet haec membrana vocetur
Delebis, quotiens scripta novare voles

You erase each time that you wish to make new writings/texts

Prudentius's Poem 12 sings of the martyrdoms of Peter and Paul, both of whom died in Rome, on the same day but at a one-year interval, one by the sword and the other crucified. Two monuments have been built on the Tiber to commemorate this. We read:

Festus apostolici nobis redit hic dies triumphi,
Pauli atque Petri nobilis cruore,
Unus utrumque dies, pleno tamen innovatus anno,
Vidit superba morte laureatum.
Scit Tiberina palus, quae flumine lambitur propinquo,
Binis dicatum caespitem tropeis,
Et crucis et gladii testis,
Quibus irrigans easdem bis fluxit imber sanguinis per herbas.

We remember the day of the apostolic triumph, a day enlarged by the blood of Paul and of Peter. A single day [the same day], but renewed/returned by a full year, saw them crowned by a magnificent death. The Tiber marsh, the one that languishes by the river, knows the two burial mounds ennobled by their double trophy; it is witness to the cross and the sword, which have twice seen its meadows bathed in blood.

Every year on the same date, it is as though the same day renewed itself/began anew. The image had already appeared previously in Virgil.

The third poem from Prudentius (Poem 14) sings of the martyrdom of Saint Agnes, a young girl who was desired by the emperor but who resisted him. As punishment, he among other things placed her in a bordello and made her available to all and sundry. The first man who approached her fell stricken down on the floor! We read:

Sunt qui rogatam rettulerint preces
Fudisse Christo, redderet ut reo
Lucem jacenti; tum juveni halitum
Vitae innovatum visibus integris.

There are those who reported that we had asked her [Agnes] to pray to Christ to bring the light to the guilty lying stretched on the ground: so a breath of new/renewed life and a perfect vision were given back to the young man.

The rest of the torments ended just as badly for the torturers. In the end, they cut off Saint Agnes's head or cut her throat, something of that nature.

In sum, innovation, or rather *innovate*, has the meaning of renewing. One may find some variations, as in Psalms and Osee (make new) and Honoratus (imitate), but the dominant representation is that of a return, a renewal.

DEVELOPMENT OF THE CONCEPT

Innovation as renewal continues until the Reformation. For example, people accused of innovation in the seventeenth century reply that they are only returning to past or forgotten practices that time has corrupted, not innovating (see Chapter 4). However, during the late Middle Ages, innovation acquires new meanings, too.

Poetry continues to be a key user of the concept *innovo* in the positive sense. In Poem 2 of *Iambici libri*, Augurelli (1456–1524), humanist poet and alchemist, pays homage to Laurentius of Medicis, under whose reign the Lauretanian house was symbolized by the phoenix: “ad Laurentium Lauretanum patricium Venetum/phoenix sub quo domus Lauretana significatur [The phoenix, which is reborn from its ashes, is frequently associated with the laurel]”. Both appear on the Laurentius family's coat of arms:

et usque ab Indis et Rubio advectos mari
Miros odores congerit.
Quibus se adurit, et innovans sub unica
Arterna lauru permanet.

He collects astonishing perfumes brought all the way from India and the Red Sea, with which he covers himself, and he endures, renewing himself under the unique and eternal laurel.

Innovans clearly refers to the phoenix, which is reborn from its ashes. Laurentius endures by constantly renewing himself under the laurel, symbol of the phoenix—both the same and perpetually new at the same time.

However, poetry introduces a change in meaning, putting the emphasis on the future. This meaning is often used in a material context. Here, *innovo* means change, transform completely. Such is the use that Ammonio (1478–1517), Italian cleric and Latin poet, made of it. Poem 1 from the *Carmina omnia*, qualified by the author as “carmen asclepiadeum” (i.e., a poem in verse of 12 feet according to an old Greek lyric form) is dedicated

“ad Gulielmum Monioium, Angliae baronem [to Guillaume Monioius, English baron]”:

Longobardia adhuc, cepit ab Angliis
Tunc nomen quod habet, vestra Britannia
Sic est, longa dies innovat omnia.

Lombardy until then, your Great Britain took for the English the name it has now. So that's it: a long day/time changes everything.

The change of name suggests here that, taking the long view, time eventually changes/renews/transforms/'innovates' everything.

A century before Ammonio, Boccaccio (1313–1375), Italian author and poet and Renaissance humanist, talked of change and transformation. In the sixth poem, titled *Alceste*, from *Bucolicum carmen* (bucolic poem), Boccaccio imitates Virgil's *Bucolics* (eclogues) and places Amintas and Mélibée in a poetic dialogue. The extract, from the mouth of Amintas, sings the beauties of Italy—a veritable geography lesson on Latium and Campanie!

Massicus et Gaurus florent pulcherque Vesev[i]us
Innovat arbustis vites stauratque Falernus
Ulmis jam colles, stringit Vulturnus et undas.

[The mountains] Massicus and Gaurus are flowering, fair Vesuvius changes the shrubs into vines, [the forest of] Falernus already revives the elms on the hills and the Vulturnus collects the waters.

Here *innovo* translates the idea of transformation, of creation in a new form.

Just to take a few more examples: Stefanardo (1230–1298), Italian professor of theology, made use of the term in a poem titled *De controversia hominis et fortune* [we expected *fortunae*] [Of the Fight of Man and Fortune]. Verse 1018ss is an homage addressed to some powerful warrior prince:

Tempore ter deno gressu Saturnus inert
Lustrat bis seno seiuga clara Jovis;
Sic tua bimatu diu rutilantia Martis
Jugiter, Astripotens, innovat ora manus.

With his slow/lazy gait, Saturn completes his voyage three times in ten strides; Jupiter's beautiful team of six horses shines twice in six strides. You, every day in two years, without respite, great powerful star [Astri-potens, an epithet often attributed to Jupiter], your grandiose power of Mars changes the face of things.

Innovo here means transform/change/make newness, according to the semantics of the movement of stars that ‘renew themselves’ in their orbits (revolution), an analogy already made by Honoratus. In his comments on the *Aeneid*, Canto 1, Honoratus discusses Virgil’s idea of the revolution (circumvolution) of the sun and the years as *innovatione*:

TRIGINTA: vel quod XXX, tantum annos regnavit, vel quod Cato ait, “XXX. annis expletis eum Albam condidisse”. magnos orbes: tria sunt genera annorum: aut enim lunaris annus est XXX. dierum aut solstitialis XII. mensum, aut secundum Tullium magnum, qui tenet XIIDCCCCLIIII. annos, ut in Hortensio “horum annorum quos in fastis habemus magnus XIIDCCCCLIIII. amplexitur. Hoc ergo loco magnum dixit comparatione lunaris, et alibi “interea magnum sol circumvolvitur annum”. annus autem dictus quasi anus, id est anulus, quod in se redeat, ut est “atque in se sua per vestigia volvitur annus”, vel ἀπὸ τοῦ ἀνανεοῦσθαι, id est ab innovatione.

THIRTY: or it signifies that he reigned only thirty years, well that’s what Cato says . . . to the effect that, thirty years having been completed, he founded Albes. [GREAT ORBITS (or GREAT CIRCLES): there are three types of years, or it is the lunar year which is 30 days, or it is the solar year which is of twelve months, or it refers to the great Tullius [Cicero], who evokes a cycle of *n* years as in his treatise *Hortensius* “these legal years that encompass *n* years”. In the current citation, it is mainly the lunar comparison that dominates and elsewhere, it is the sun (“meanwhile, the sun completes its great circumvolution”). The year is said as “anus” (that is, ring), which returns to itself as is the case in the citation “the year returns on itself as though in its tracks”, or by the fact of renewing itself.

Stefanardo is only one theologian talking of change in this way in the late Middle Ages. Bonaventure (1221–74), scholastic theologian and philosopher, is the great Franciscan thinker—Augustinian philosopher—who taught in Paris in the eighth century at the same time as engaging the Dominican Thomas Aquinas, the Aristotelian, in a tense but always courteous battle. The following extract comes from Bonaventure’s *Rythmi* (poems, texts in verse) and bears the title *Philomene*. The poem strongly evokes a bird:

Tunc cum fletu recitat illius labores
 Sitim, famem, frigora, aestus et ardores,
 Quae dignanter pertulit propter peccatores,
 Dum illorum voluit innovare mores.

So, with a flood of tears, he recalls his work, recalls thirst, hunger, cold, heat, the sweating he endured with dignity due to the sinners, while he wished to change their way of living.

The meaning is clear: It is a matter of changing/transforming mores. One creates new mores. One 'innovates'!

Over time, *innovo* also developed a legal application. Pope Gregory VII (1073–85) is the artisan of the Gregorian reform, first as counselor to Leo IX and his successors, then as a pope himself. He particularly wanted to purify the clergy's customs (celibacy, nicolaism) and fight against simony (trading in spiritual goods, such as the sacraments and indulgences, from the name of that Simon in Acts of the Apostles 8: 18, who was given to this type of foul trafficking) and the trafficking in benefits and especially bishoprics. In a most celebrated letter in which he attacks the investiture practices by which certain bishops attain their position by paying, he calls to mind the correct rule, which says that a bishop legitimately attains his position due to his faith and to his aptitudes, not by usurping. This rule "which has long been neglected in the Church because of our sins and which has been twisted by a culpable habit, we desire to restore it (*restaurare*) and put it into effect (*innovare*) for the glory of God and the salvation of all Christianity . . . so that the bishop duly-elected according to the doctrine of truth cannot be described as a thief and a brigand". This refers to John 10: 1: "In truth, in truth, I say it to you, whoever does not enter by the doorway in the sheep-fold, but who climbs over another side, that one is a thief and a brigand. But he who enters by the doorway is the shepherd" (Ladner, 1959: 241).

In the face of recalcitrant individuals who continue to oppose Church decrees, popes like Gregory regularly had to "innovate": to restore and put into effect, to recall (confirm, reactivate) previous authorities' instructions. They did so by issuing bulls that renewed (*innovare*) prior legal statutes. In 1509, Julius II (1503–13), patron of Michelangelo, creator of the Swiss Guard and promoter of the construction of St. Peter's of Rome, issued a bull against those who aspire to the papacy by practicing simony: "Si summus rerum opifex. Bulla contra aspirantes ad papatum symoniace innovata confirmata et approbata per sacrum Lateranensem concilium".¹³ Clearly, from a legal perspective, *innovo* here signifies renewing/reactivating a legal statute.

Julius's bull is only the first of a series of similar bulls issued in the sixteenth century making use of *innovo* in this sense.¹⁴ Julius himself issued a second bull in 1510 to retract his position on conciliarism. Many bulls condemn individuals or groups who abuse Church properties and renew previous condemnations. Such are Leo X's bulls¹⁵ and many others: Pius IV (1560), condemning duelling already decreed by his predecessors and decisions on the management of properties and corporations' practices; Clement VI (1528) on the assembly of all magistrates and officers on the lands of the Holy Roman Church, except for the very venerable personnel of the

cardinal legates; Clement VIII (1593), modifying the status of the “declassified” monasteries of the Order of St. Basil.

CONSERVATIVE AND RADICAL CHANGE

From the fourth century to the sixteenth century, innovation is discussed as action (verb)—*innovo*—as the Greeks do (*kainotomein*, *neoterizein*, *kainopoein*). In the sample of documents studied here, the substantive does not appear. *Innovo* does point, however, to an outcome, a new soul. In this sense, *innovo* has a positive meaning. A first and most common meaning is renewing, a spiritual and moral renewal. This meaning has little or no connotation of introducing something (entirely) new, although it inaugurates a new ‘order’. The second meaning is changing, making new, with a perspective on the future, however timid it may at times be; this has been the meaning of *novare* since the fourth century.¹⁶ It frequently appears in the Vulgate and regularly among poets and Christian writers.

In spite of some variants in the sense of imitating (starting again), as in Honoratus, and renovating (concrete meaning), as in Maccabees, renewing and changing/making new are the two dominant meanings of *innovo* during the Middle Ages. These two meanings are used in multiple and diverse contexts: spiritual, political, material, cultural and legal. We have here the two poles around which the concept varies in the following centuries, as discussed in the rest of this book.

After politics (Ancient Greece), it has been religion’s (Christianity’s) turn to shape the meaning of innovation. These two dimensions of social life, politics and religion, continue to shape the term until the nineteenth century. Protestantism and Republicanism were key issues of innovators, or rather of the critics of innovators, in the seventeenth century and thereafter. This is the subject of Part II. In a context of order, sustained by an ideal of stability, innovation became a preoccupation and a central word in the vocabulary of change. From the Reformation onward, innovation as renewing is conservative change. The concept is used in this sense by moderate reformers but also by those accused of innovating and who need to defend their case against their critics. In contrast, innovation as making new is radical. It challenges the existing system of values by introducing something entirely new in place of the old. This meaning is that of the critics of innovators who need a word to attack enemies. No innovators, from the Renaissance and after, ever thought of applying the word to themselves. Machiavelli is an exception in the use of the concept in a positive sense.

NOTES

1. *Inventio*, a word from rhetoric and whose history remains to be documented, exists. Yet it has a meaning totally different from that of today: the first step in constructing arguments.

2. The warriors “dismayed by the novelty” of this mode of battle (Caesar, *De Bello Gallico* 4: 34); the “suddenness of the affair” (*De Bello Gallico* 6: 39). Labrenius “intimidated [the inhabitants of Melodunum] by [his] unexpected arrival” (*De Bello Gallico* 7: 58). “Things which strike us by their novelty” (*De Bello Gallico* 8: 0). Curio astonished by the “unexpected” cloud of dust (*De Bello Civili* 2: 26).
3. The Albans “being moved by the very novelty [novitiate etiam rei moti]”, i.e., being convoked in an assembly first (*History* 1: 28); Servius commanding the senators to come to King Tarquinus at the Senate. The senators were “astounded at this strange and wonderful sight [novitiate ac miraculo attoniti]” (*History* 1: 47); the consul Titus Quinctius Capitolinus, “a most unsuitable man for the purposes of changing things [of a would-be revolutionary] [minime opportunus vir novanti res]”; “the novel and surprising sight [novitiate rei ac miraculo]” (*History* 4: 8); the Senate sitting apart from the people: “like all novelties [innovations], excited much comment [peaeibitque sermons, sicut omnis novitas solet]” (*History* 34: 54); the Macedonians raising their spears: “strangeness of the action [novitiate rei]” (*History* 33: 10).
4. The Spaniards “eager for novelties [change] [in novas res ingenia]” (*History* 22: 21); “calling the Senators to meet the decemvirs in the curia [instead of the Senate] was like a new thing [an innovation] [velut nova res]” (*History* 3: 38); instituting scenic entertainments, “a new departure . . . for a warlike people [nova res bellicose]” (*History* 7: 2); “unexpectedness of the attack [nova res trepidationem fecit]” (*History* 9: 31).
5. What Angour calls the paradox of innovation is rather a tension between innovation and tradition (Angour, 2011: 62).
6. Canto 3, verse 716:

Sic pater Aeneas intentis omnibus unus
Fata renarrabat divum cursusque docebat.

So our father Aeneas, standing alone with everyone attentive, told anew the plans of the gods and recounted his adventures.

7. Canto 4 verse 260:
Aeneam fundantem arces et tecta novantem
Conspicit . . .
He saw Aeneas building fortifications and creating/constructing houses . . .
8. “Strange [because new] the prayer you offer to the God”, writes Euripides (*The Trojan Women*, card 860). More explicitly, Strabo says of Zaleucus that he “was among the first to innovate [to make the following innovation]—that whereas before his time it had been left to the judges to determine the penalties for the several crimes, he defined them in the laws, because he held that the opinions of the judges about the same crimes would not be the same, although they ought to be the same” (*Geography* VI: 1).
9. *Novitas* has the same meaning; yet, as with the Romans, it is rarely used in the Vulgate as compared to the verb form.
10. Apostle Paul (Epistles, originally written in Greek). Ephesians 4: 20–24: “That, however, is not the way of life you learned when you heard about Christ and were taught in him in accordance with the truth that is in Jesus. You were taught, with regard to your former way of life, to put off your old self, which is being corrupted by its deceitful desires; to be made new [*ananeousthai*, renew; Vulgate, *renovamin*] in the attitude of your minds; and to put on the new self, created to be like God in true righteousness and holiness”. Romans 12:2: “Do not conform to the pattern of this world, but be transformed by the

renewing [*metamorphousthe*, transform; Vulgate, *reformamini*] of your mind. Then you will be able to test and approve what God's will is—his good, pleasing and perfect will". 2 Corinthians 3: 18: "And we all, who with unveiled faces contemplate the Lord's glory, are being transformed [*metamorpho*; Vulgate, *transformamur*] into his image with ever-increasing glory, which comes from the Lord, who is the Spirit". 2 Corinthians 4:16: "Therefore we do not lose heart. Though outwardly we are wasting away, yet inwardly we are being renewed [*anakainô*, renew; Vulgate, *renovatur*] day by day". Colossians 3: 9–10: "Do not lie to one another, since you laid aside the old self with its evil practices, and have put on the new self who is being renewed [*anakainô*; Vulgate, *renovatur*] to a true knowledge according to the image of the One who created him."

11. The word *vulgata* is the passive past participle of *vulgo-vulgare* (divulge, spread, propagate, publicize), which itself comes from *vulgus* (people, multitude). The Vulgate replaced the *Vetus latina* (the old Latin), a previous Latin text with multiple authors and versions that was prepared from the Greek text of the Bible, that is, the text called the Septuagint, written in Alexandria in the third century. The text of the Vulgate has become the commonly recognized reference in the whole of Christendom. At the Council of Trent, Catholics recognized it with a sort of legal accreditation, thus affirming its character of validity and of "safety for the faith". Over time, the text underwent periodic technical improvements. The last major philological 'facelift', requested by the Vatican II Council, succeeded in 1979 in a text that was more exact and more certain, commonly designated as the Neo-Vulgate.
12. In Greek, it is written *τὰ πάντα* (*ta panta*, all things, everything) *καινίζει* (*kainizei*, third person singular indicative present of *καινίζω-καινίζειν*, it renews).
13. The fifth Lateran Council, (1513–21), convened by Julius II just before his death and continued by Leo X, put an end to the so-called conciliarist debate—conciliarism is an ecclesiastical theory that believes that a council is above the Pope—and confirmed the primacy of the Seat of Rome. The bull renews (*innovata*), confirms (*confirmata*) and approves (*approbata*) a decision by the first Lateran Council (1123).
14. 1509: "Si summus rerum opifex. Bulla contra aspirantes ad papatum symoniace innovata confirmata et approbata per sacrum Lateranensem concilium [If the supreme creator of things . . . Bull against those who aspire to the papacy by practicing simony, renewed, confirmed and approved by the Lateran Council]"; 1510: "Suscepti regiminis nos cura sollicitat. Bulla innovans et confirmans constitutionem sive extravagantem Pii II contra appellantes ad futurum concilium [Caring for the burden we received weighs upon/disturbs/worries us . . . A bull renewing and confirming the position/decision/rule/edict, however unusual, from Pius II against those who appeal to the future council]"; 1514: "Quoniam perversi difficile corriguntur. Sanctissimus Dominus noster Leo Papa X bullas Pii II, Sixti IV et Julii II contra criminosos et receptatores eorumdem promulgatas innovat [Since the guilty mend their ways with difficulty . . . Our most holy Lord, Pope Leo X, renews the bulls of Pius II, Sixtus IV and Julius II promulgated against culprits/criminals and those who welcome/shelter/protect them]"; 1517: "Bulla innovationis litterarum contra invadentes hostiliter terras et loca S.R.E. [S.R.E.: sanctae romanae ecclesiae] [Bull of renewal of letters issued against those who enter into the lands and properties of the Holy Roman Church with hostile intent]"; 1518a: "Bulla innovatoria brevis felicitis recordationis Julii papae II contre Barones . . . in terris Ecclesiae [Bull renewing a brief from that Pope of happy memory Julius II against the barons on lands of the Holy Roman Church]"; 1518b: "Bulla approbationis et innovationis Litterarum Bonifacii IX contra impediētes

executionem Litterarum apostolicarum [Bull of approval and renewal of the Letters of Boniface IX against those who impede the execution of the Apostolic Letters]”; 1528: “Onus pastoralis officii. Bulla aurea . . . innovatoria Bullae Julii II super sindicatu omnium magistratuum et officialium in terris S.R.E., exceptis personis revendissimis legatorum cardinalium [The weight of our pastoral duty . . . A golden bull [a category of bull to which the golden seal gave additional prestige] that renews the bull from Jules II on the assembly of all magistrates and officers on the lands of the Holy Roman Church, except for the very venerable personnel of the cardinal legates]”; the preceding golden bull was from Clement VII (1523–34); 1560: “Bulla . . . super confirmatione ac innovatione prohibitionis duellorum [On the confirmation and renewal of the interdiction of duels]”; 1593: “Bulla confirmationis et innovationis alterius bullae felicitatis recordationis Gregorii XIII super approbatione reductionis monasteriorum ordinis sancti Basilii in Congregationem [Bull confirming and renewing another bull from that Pope of happy memory, Gregory XIII, on the approval of the reduction of the monasteries of the Order of St. Basil to the status of congregation]”.

15. 1514 (see note 14): condemns exactions and crimes perpetrated on Roman territory; 1517: against those who enter into the lands and properties of the Holy Roman Church; 1518a: attacks the wicked barons who act ruthlessly on lands belonging to the Church; 1518b: attacks those who refuse to recognize and apply the Apostolic Letters, maintaining that only local prelates can give them executory force.
16. In turn, *novare* admits of renewing too. Such is Celsus's use of the term in the following extract, from *De Medicina*, first century. While discussing fevers, Celsus reports the remedy of a certain Petron, a rather “harsh treatment” that kills patients. The remedy was said to “renew and increase a disease and inflame fevers” (*De Medicina* 3: 9).

3 Innovation, or How to Stabilize a Changing World

In quiet times [rulers] never [think] that things change. [It] is common human failing when the weather is fine not to reckon on storms.

(Machiavelli, *The Prince* XXIV)

Five hundred years ago, Niccolò Machiavelli wrote *The Prince* (1513), which was published posthumously. With this book, Machiavelli introduces a new ‘morality’ in politics. Machiavelli “set[s] himself”, writes Isaiah Berlin, “to generalize about the behaviour of men in society in a novel fashion . . . He completely ignores the concepts and categories—the routine paraphernalia—in terms of which the best known thinkers and scholars of his day were accustomed to express themselves” (Berlin, 1972: 160). To Machiavelli, politics has its own morality, different from that of the then dominant (Christian) morality: necessity or flexibility in place of moral virtue (Skinner and Price, 1988: 39) and conflict as vital to the state, not a hindrance (Skinner and Price, 1988: 66; Skinner, 1988: 440).

In *The Prince*, Machiavelli asks how a Prince may deal with a world changing constantly. One strategy is innovation. Innovation is a resource for dealing with change and with diseases in the world, or corruption, in the sense of degeneration. As seen in the previous two chapters, until Machiavelli, innovation had both a negative and a positive connotation, the latter among Latin writers at least. To Christian writers, grammarians and poets, *innovo* is spiritual ‘renewing’. To Machiavelli, innovation is positive too, as this chapter documents. Innovation is a fact of politics and merits a place in a Prince’s arsenal.

This chapter is not just one more article on Machiavelli. Such articles abound in the literature. The chapter is rather concerned specifically with the idea of innovation in Machiavelli, of which there exist only a couple of analyses (Pocock, 1972, 1975: Chapter 6; Pappin, 2008). In Machiavelli’s *Prince*, innovation is introducing changes in government, namely entirely new laws and new institutions. Yet this is only one meaning of innovation in Machiavelli. *The Discourses*, written 15 years after *The Prince*, offers a different representation of innovation. Innovation is imitation: a return to the original foundations that time and people have corrupted.

This chapter is divided into two parts. The first part looks at *The Prince* and *The Discourses* from the point of view of change and its relationship

to innovation. The next part analyzes what innovation is to Machiavelli. It documents two different representations, depending on the context or work in which the concept is used.

A point of methodology: It is imperative to go back to the original Italian. Translators do not necessarily have an interest in innovation, as I have mentioned on Greek and Latin writers, and often translate the term innovation in different ways.¹ For example, Quentin Skinner and Russell Price's *Prince* (1988) does not translate *innovare* as innovate (and the translation is not systematic: In one instance *innovare* is translated as change and in another as replace). On the other hand, Skinner and Price translate the expression *introduttore di nuovi ordini* as innovator (*The Prince* VI). Not a bad translation considering the spirit of the text, but a 'verbal inflation' considering that the word innovator appears only once in *The Prince*. Without going back to the original text, a basic word for the study of innovation is either missing or overstated. From a genealogical and semantic point of view, the word innovation must be translated as such—or at least must be discussed critically.²

MACHIAVELLI, CHANGE AND INNOVATION³

Due to the patronage of his professor, Marcello Adriani, Machiavelli (1469–1527) became Second Chancellor of the Florentine Republic in 1498, at the age of 29. He then served the government until 1513, when the Medicis re-entered the city and dissolved the Republic. It was during the diplomatic missions he conducted in this post that he learned what became lessons for Princes.

The Prince was written during 1513, and Machiavelli hoped it might help him find employment with the new government. *The Prince* is concerned with how a Prince acquires and maintains new kingdoms, either through *virtu* or else through *fortuna*. Outstanding *virtu* is scarce. Consequently, *The Prince* looks at ways for *virtu* to withstand fortune, at how man can master his fate. To Machiavelli, the characteristics of the *virtuoso* Prince are not what was then known as the cardinal virtues (wisdom, justice, courage, temperance) nor the princely virtues (honesty, magnanimity, liberality) nor morality. The Prince must do whatever is dictated by necessity. To get honour, glory and fame, a Prince must perform actions that are wicked and/or virtuous, use force and/or fraud (be a lion *and* a fox), depending on the circumstances. *Virtu* denotes flexibility (Skinner and Price, 1988: 40). However, although having good qualities is not a prerequisite, the Prince must always *appear* to be good. He thus must learn the art of deceit and be a good simulator and dissimulator. Innovation is part of this arsenal. Using Francesco Sforza, Duke of Milan, as a model, Machiavelli says that it is necessary:

[t]o deal effectively with his enemies, to gain allies, to conquer (whether by force or by cunning), to inspire both devotion and respectful fear in

the people, to be obeyed and respectfully feared by troops, to neutralise or destroy those who can or must be expected to injure you, to replace [*innovare*] old institutions with new ones, to be both severe and kind, both magnanimous and open-handed, to disband loyal troops and form a new army, to maintain alliances with kings and other rulers in such a way that they will either be glad to benefit you or be slow to injure you.

(*The Prince* VII)

Machiavelli had no success with *The Prince* and did not get hired by the Medici. He therefore turned to writing. From this period came *The Discourses on Livy* (1517). Here, Machiavelli is not concerned with Princely regimes but with republics and the contribution of liberty⁴ to the greatness of cities. He turns to history (Rome) for answers. To acquire liberty, keep it safe and prevent corruption, it is necessary, again, that the chosen leader have the same *virtu* as in *The Prince*. But above all, it is necessary that proper institutions be developed to instil this same quality in the masses: religion because it terrorizes people and induces them to prefer the good of the community; a mixed constitution because it balances (without eliminating) opposite factions (common people and the rich).

Machiavelli lived in a time of great changes. “Some of the new features of Italian political theory in the fourteenth century”, suggests Skinner, “are best explained as a series of attempts to come to terms with changes in Italian political life” (Skinner, 1988: 408). Two changes or forces were considered detrimental to the security and liberty of city-states (Skinner, 1988: 418). One arose from external factors, namely foreign conquest. In the 1490s, France invaded Italy, and the Medici were forced into exile. They regained power in 1512 but were exiled again in 1527 until the 1530s, when they finally succeeded in converting the Republic into a principality. Second, internal discord and division were arising out of factions and powerful individuals “ruling in [their] selfish interest instead of promoting the common good”. This context led many authors, from the fourteenth century onward, to seek a form of government that could best maintain security (for the Prince and his subjects) and/or liberty (for the people). It gave rise to the theory of republican government and to civic humanism. John Najemy has described civic humanism as an ideology arising out of fear, or “horror of political conflicts” (Najemy, 2000: 97): “It was the transformation of domestic politics from the 1380s [the explosive summer of 1378 and the fear of social revolution] into the opening decades of the fifteenth century . . . that generated the ideology of civic humanism” (Najemy, 2000: 81).

Change is central to Machiavelli’s thoughts. “All human affairs are ever in a state of flux and cannot stand still” (*The Prince* I: 6; see also *The Discourses* II: Preface). How does one maintain power in the face of constant changes, how does one affect *fortuna*? To Machiavelli, neither *fortuna* nor God rules everything. Humans can control *fortuna*, provided they use ability. “Fortune is the arbiter of half our actions, but it lets us control the other

half". This is difficult: "[O]ur natural inclinations are too strong to permit us to change, or having always fared well by acting in a certain way, we do not think it is a good idea to change our methods". To be successful in controlling circumstances, men need to be flexible and vary their conduct. Men "are successful if their methods match the circumstances" (*The Prince* XXV).

The Prince

In *The Prince*, Machiavelli offers a typology of States and asks "how principalities can be governed and maintained" (*The Prince* I). States are either republics (discussed in *The Discourses*) or principalities (the subject of *The Prince*). The latter are either hereditary or new, and the new ones are either completely new or acquired. To Machiavelli, hereditary states are much less difficult to hold than new states because people are "accustomed" to the ruler. The latter does not have to change the established order, and people are disposed toward him, provided he acts correctly. "The length and continuity of his family's rule extinguishes the memories of the causes of [past] innovations [*innovazioni*]" (*The Prince* II). However, it is different with new principalities: "[N]ew states are full of dangers" (*The Prince* XVII). "Men are very ready to change their ruler when they believe that they can better their condition, and this belief leads them to take up arms against him".⁵ Consequently, "a new ruler is always forced to injure his new subjects, both through his troops and countless other injuries that are involved in conquering a state. The outcome is that you make enemies" (*The Prince* III).

When a conquered territory is in the same country with the same language, it is easy to hold it, "provided the old way of life is maintained and there is no difference in customs" (*The Prince* III). The ruler should wipe out the old ruling family and "not change laws and impose new taxes". However, if the annexed territory is foreign, difficulties emerge. Machiavelli offers two solutions. First, the ruler should go and live there (in order to detect troubles early on), establish colonies and become a protector. Second, the ruler should destroy the ancient political institutions. People are accustomed to a certain way of life. Despite the passage of time and the benefits bestowed by the new ruler, lost liberties and ancient institutions will never be forgotten.⁶

The ease with which a ruler can found and maintain a completely new principality depends on many factors. One is ability (*virtu*) (as opposed to luck, or *fortuna*), or recognizing opportunities. Innovation is precisely such an ability. It is difficult at first, but then fruitful (*The Prince* VI):

Those who become ruler through their own abilities experience difficulty in attaining power, but once that is achieved, they keep it easily. The difficulties encountered in attaining power arise partly from the new institutions and laws they are forced to introduce in order to establish

their power and make it secure . . . Taking the initiative in introducing a new form of government is very difficult and dangerous . . . The reason is that all those who profit from the old order will be opposed to the [introduction of a new order], whereas all those who might benefit from the new order are, at best, tepid supporters of him. This lukewarmness arises partly from fear of their adversaries, who have the law on their side, partly from the skeptical temper of men, who do not really believe in new things unless they have been seen to work well. The result is that whenever those who are opposed to change have the chance to attack the innovator [*innovatori*], they do it with much vigour, whereas his supporters act only half-heartedly; so that [the innovator, *se per condurre l'opera loro*] and his supporters find themselves in great danger.

Therefore, in order to persuade people, force is necessary in addition to innovation: "It is easy to persuade [people] about something, but difficult to keep them persuaded. Hence, when they no longer believe in you and your schemes, you must be able to force them to believe" (*The Prince* VI).⁷

Then comes Machiavelli's own innovation or originality (*The Prince* XV–XXI). Machiavelli asks, "In what ways a ruler should act with regard to his subjects and allies". What Machiavelli says "differs from the precepts offered by others" who suggest that a ruler should act honourably (Aristotle, Cicero, Seneca, as well as humanists like Patrizi, Platina, Pontano, De Castiglione). Certainly, "it would be most-praiseworthy for a ruler to have all . . . qualities that are held to be good [merciful, trustworthy, humanity, upright, devout]. But . . . it is not possible". To Machiavelli, "a ruler who wishes to maintain his power must be prepared to act immorally when this becomes necessary . . . Doing some things that seem virtuous may result in one's own ruin, whereas doing other things that seem vicious may strengthen one's own position and cause one to flourish" (*The Prince* XV).⁸

If all these "measures" are put into practice,⁹ they will make a ruler's power "more secure and stable" than that of a hereditary ruler (*The Prince* XXIV):

For men are much more interested in present things than in those that are past, and if they find that their affairs are flourishing, they are content and do not seek changes. Indeed, they will do everything possible to defend a new ruler, as long as he is not deficient in other respects. Thus he will acquire a double glory: both for having founded a new principality, and for having adorned and strengthened it with good laws, strong arms, reliable allies and exemplary conduct.

The Discourses

The Discourses offers a different perspective on politics. The work is a defence of republics as the best form of government for preserving liberty

and security because power is shared between the lower and upper classes. "There should never be an institution which allows the few to decide on any matter which in the ordinary course of things is essential to the maintenance of the commonwealth" (*The Discourses* I: 50).¹⁰

Again, Machiavelli acknowledges his originality. "I propose to defend a position which all writers attack . . . I arrive then at a conclusion contrary to the common opinion which asserts that populaces, when in power, are variable, fickle and ungrateful; and affirm that in them these faults are in no wise different from those to be found in certain princes" (*The Discourses* I: 58). The populace:

[i]s more prudent, more stable, and of sounder judgment than the prince . . . Government by the populace is better than government by princes . . . If princes are superior to populaces in drawing up laws, codes of civic life, statutes and new institutions, the populace is also superior in sustaining what has been instituted . . . The populace always makes fewer mistakes than do princes. (*The Discourses* III: 58, 34)

To Machiavelli, a republic starts with one man, a prudent and virtuous "organizer" (innovator) (*The Discourses* I: 9). However, the maintenance of a republic rests on institutions.¹¹ And a Prince should not hesitate to innovate here. In a corrupt state, "the introduction of new laws [*innovazione*] requires the modification of institutions" (*The Discourses* I: 18). *The Discourses* (I: 9) talks of innovation in the same terms: change [*innovation*] of ancient institutions.

While *The Prince* uses innovation with a perspective on the future—introducing new laws, totally new laws, unknown to the conquered state—*The Discourses* turns to another meaning and looks at the past, or history. Rome is Machiavelli's model.¹² Again, Machiavelli stresses his originality. In political affairs, there is "lack of a proper appreciation of history". One honours and admires antiquity, but rarely imitates it. "I want to get men out of this way of thinking . . . I have decided to enter upon a new way, as yet untrod-den by anyone else". This is a difficult task. Like the "search for new seas and unknown lands . . . It has always been . . . dangerous to discover new ways and methods" (*The Discourses* Preface).¹³

To Machiavelli, there are two types of cities. One, like Rome, is a free and secure city built by natives and organized with strict discipline and laws. At the opposite end is Florence which, because it was an acquired city built by people from elsewhere, faces difficulties. "It is almost impossible that states of this type should by any eventuality be set on the right road". It is very difficult to "introduce order without incurring danger, because few men ever welcome new laws setting up a new order in the state unless necessity makes it clear to them that there is need for such laws" and "such a necessity cannot arise without danger: the state may easily be ruined before the new order has been brought to completion" (*The Discourses* I: 2).

Machiavelli looks at history and asks, “what were the institutions of the city of Rome and what events conduced to its perfection?” (*The Discourses* I: 2). Machiavelli’s answer is a combined form of government that leaves room for (or rather regulates) conflicts. As Skinner puts it, “The belief that all civic discord must be outlawed as factious, together with the belief that faction constitutes one of the greatest threats to political liberty, had been one of the leading themes of Florentine political theory ever since the end of the thirteenth century” (Skinner, 1978a: 182). By contrast, to Machiavelli, tumults, discord and conflicts are not damaging to freedom in a republic but are rather a consequence of political participation (*The Discourses* I: 4). Discord and quarrels between the plebs and the nobles produce good effects: “[G]ood laws [come] from those very tumults which many so inconsiderately condemn . . . Tumults deserve the highest praise since, besides giving the populace a share in the administration, they served as a guardian of Roman liberties” (*The Discourses* I: 4).

Rome’s greatness, according to Machiavelli, comes from being a republic, and its expansion comes from innovation in wars: “[H]ow wise [Romans] were to depart from generally accepted methods” (*The Discourses* II: 6). By methods, Machiavelli is not concerned with warfare or technology.¹⁴ Machiavelli believes in strategy rather than artillery: “methods” of war—sieges, assaults (*The Discourses* II: 32)—tactics (called novel devices, inventions) in military operations, all depend on the right use of circumstances, good discipline and abilities (*The Discourses* III: 10–15). *The Prince* offers similar views. There are only a few words on fortresses—and only one mention of weapons at the very end. To Machiavelli, a ruler should certainly fortify his city (*The Prince* X), but “the best fortress a ruler can have is not to be hated by the people” (*The Prince* XX).

The study of the past suggests to Machiavelli the concept of renovation: restoring (revival, rebirth) of (religious and government) institutions to their foundations. This is what great men did to contribute to Rome’s greatness.

Changes make for their [institutions’] conservation which leads them back to their origins. Hence those are better constituted and have a longer life whose institutions make frequent renovations possible [“laws which put a check on human ambition and arrogance”], or which are brought to such a renovation by some event which has nothing to do with their constitution . . . Without renovation, these bodies do not last . . . The way to renovate them . . . is to reduce them to their starting-point . . . There is nothing more necessary for a community, whether it be religious establishment, a kingdom or a republic, than to restore to it the prestige it had at the outset, and to take care that either good institutions or good men shall bring this about rather than external force should give rise to it. (*The Discourses* III: 1)

WHAT IS INNOVATION?

John Pocock deserves mention for having brought attention to *The Prince* as a study of innovation (Pocock, 1972, 1975: Chapter 6). Nevertheless, 40 years later, Pocock's analysis merits some revisions. Pocock suggests that *The Prince* offers a "typology" of (political) innovators. This is an overinterpretation. Certainly, *The Prince*, as well as most of the writings of Machiavelli, abounds in typologies (in the form of dichotomies), as Ernst Cassirer has emphasized (Cassirer, 1946: 156). However, there is no explicit typology of innovation or innovators in *The Prince*. To Machiavelli, there are innovators and noninnovators (those who rely on luck for their fate). One should be careful not to "typologize" types of Princes¹⁵ into categories of innovators. Machiavelli discusses how new Princes are more or less successful in their actions, depending on their ability to deal with the people involved and with their adversaries and on the kind of actions they perform. But not all their actions are "innovative"—unless one equates innovation to change, an association contested by many theorists of innovation (see Chapter 10).

We should be careful, too, not to equate action—any action of a new Prince—to innovation simply because this action comes from a 'new' Prince. Pocock likens mere action or change, any change, to innovation because of the fact that action and change disturb custom and tradition. Nowhere has Machiavelli defined innovation as, or even suggested that innovation is, "the overthrow of an established system", "the destruction of a previously existing legitimacy system" (Pocock, 1975: 160, 161). Innovators are those who act differently, for example those who introduce new laws—not those who act or rule new regimes with old means, like force.

Nevertheless, change is certainly a major idea in understanding innovation—more than *fortuna*, contrary to what Pocock suggests. Of the many senses of *fortuna* in Machiavelli, as discussed by Skinner and Price, one refers to change—although the authors do not use this concept (change) in their analysis: *Fortuna* is "a force or agent that intervenes in human affairs" (Skinner and Price, 1988: 104–06). It is precisely change, as discussed widely in Chapter 25 of *The Prince*, that is the fundamental idea for understanding innovation: change as a background condition to innovation. One innovates because there is a changing situation that requires new ways of doing things or new things to do. One innovates when, in the face of changes, he himself changes things by introducing something new to stabilize a turbulent environment.

What is missing in Pocock's analysis is a representation of innovation at the time of Machiavelli and a critical understanding of the category.¹⁶ But I do not want to get into a scholastic and sterile debate with Pocock and offer one more interpretation of Machiavelli's idea. What I want, rather, is to document the meaning or meanings of innovation in Machiavelli as a 'moment' of particular importance for innovation as a category of Western thought.

To Machiavelli, innovation has no connotation of creativity or originality.¹⁷ To be sure, Machiavelli stresses his own originality repeatedly and consciously so, as we have seen. Yet like Francis Bacon later on—the second writer on innovation after Machiavelli (see Chapter 9)—Machiavelli does not use the concept of innovation to this end. To both writers, innovation is political.¹⁸

The word innovation and its variants appear seven times in Machiavelli (see Table 3.1). The word is thus of rare occurrence. Yet a whole semantic field is used, and from this vocabulary the meaning of a concept may be discovered. Many of Machiavelli's words are changing, modifying, altering, and the like. Others are from a family of words with the radical re-: renovate, reform, restore. Still others are initiative, undertaking.¹⁹ To Machiavelli, innovation is changing the basic political institutions by introducing new laws, new practices and new methods. Such innovations allow the Prince to discipline the people and to maintain order and bring honour to the Prince. "Nothing brings so much honour to a new ruler as new laws and new practices that he has devised . . . It is the introduction of such new methods of fighting that enhances the reputation of a new ruler, establishing him as a great leader" (*The Prince* XXVI).

Innovation as introducing new laws—entirely new laws—is only one meaning of innovation. *The Discourses* carries another connotation, or rather keeps to a connotation of the time (see Chapter 2). Innovation is going back to foundations, or renewing. Time corrupts things, as it does the human body. "The downfall of cities . . . comes about because institutions in republics do not change with the times . . . but change very slowly" (*The Discourses* III: 9). Hence the need to renovate, revive, restore to foundations, origins or principles. This is the essence of *The Discourses*. Innovation is imitation of great (successful) men's deeds (*The Discourses* III) and imitation of (return to) ancient institutions.

In such a context, how might innovation be introduced? Machiavelli offers two strategies. One should note at the outset that Machiavelli admits people's ambivalence toward innovation. People are at the same time fond of and averse to innovation. On one hand, "Men are fond of novelty . . . This desire for novelty throws open the door to anyone in the neighborhood who puts himself at the head of a new movement . . . Men run after him . . . They crowd round him, boost him and push him forward"

Table 3.1 Innovation in Machiavelli

	The Prince	The Discourses
<i>Innovare</i>	2	1
<i>Innovatori</i>	1	0
<i>Innovazioni(ne)</i>	1	2

(*The Discourses* III: 21). “Men always follow in the footsteps of others, imitation being a leading principle of human behavior” (*The Prince* VI).²⁰ On the other hand, there is resistance to innovation.²¹ People are accustomed to a certain way of life:

Man who is accustomed to act in one particular way, never changes . . . There are two reasons why we cannot change our ways. First, it is impossible to go against what nature inclines us to. Secondly, having got on well by adopting a certain line of conduct, it is impossible to persuade men that they can get on well by acting otherwise. It thus comes about that a man’s fortune changes for she changes his circumstances but he does not change his ways [methods]. The downfall of cities also comes about because institutions in republics do not change with the times . . . but change very slowly. (*The Discourses* III: 9)

Men in general are as much affected by what a thing appears to be as by what it is, indeed they are frequently influenced more by appearances than by reality.

(*The Discourses* I: 25)

Given such ambivalence, there is need for strategy. “It always remains difficult”, writes Machiavelli in *The Discourses* (I: 18), “to maintain liberty in a state or to get one state from servitude to freedom: some people will always remain hostile”. Two courses are available: “defective institutions must either be renovated [*innovare*] all at once . . . or little by little . . . Neither course is possible, I maintain”. In the first case, extraordinary measures are necessary, like force, which is bad in a republic; in the other case, it is difficult to anticipate the inconveniences.

Machiavelli’s suggestion is twofold. First, dissimulation: “One should not declare one’s intentions, but should seek to get what one desires anyhow” (*The Discourses* I: 44), states Machiavelli on many occasions. Thus, the new Prince can “organize everything afresh . . . appoint new governors, with new titles and a new authority, the governors themselves being new men; . . . in short, to leave nothing of that province intact, and nothing in it, neither rank nor institution, nor form of government, nor wealth, except it be held by such as recognize that it comes from you” (*The Discourses* I: 26):

He who desires or proposes to change the form of government in a state and wishes it to be acceptable and to be able to maintain it to everyone’s satisfaction, must needs retain at least the shadow of its ancient customs, so that institutions may not appear to its people to have been changed, though in point of fact the new institutions may be radically different from the old ones . . . Since novelties cause men to change their minds, you should see to it that changes retain as much as possible of

what is old, and that, if changes are made in the number, the authority and the period of office of the magistrates, they should retain the traditional names.

(*The Discourses* I: 25)

Second, one should innovate early and fast, as *The Prince* suggests repeatedly.²² It is better to act quickly. With time, people forget the innovation and get accustomed to the changes: “The injuries should be done all together [a statement different from *The Discourses*] so that, because they are tasted less, they will cause less resentment” (*The Prince* VIII). In both cases—dissimulation and alacrity—innovation is both a private and a public act. Innovation is public in its effects: [I]t aims at the public good—or the Prince’s power. However, it must be dissimulated. In this sense, innovation remains private. Innovation is innovating under the guise of continuity.

Again, it is interesting to contrast Machiavelli to Bacon. A century later, Bacon suggested a totally different strategy (see Chapter 9). Innovation is to be conducted openly and gradually. In his essay *Of Innovation* (1625), Bacon suggests that, in order that people get accustomed to innovation, one should innovate slowly, as time does. Bacon’s proposal is “[t]hat men in their innovations would follow the example of time itself; which indeed innovateth greatly [‘time is the greatest innovator’], but quietly, by degrees scarce to be perceived”.

A NOT SO REVOLUTIONARY VISION

It is “wise to depart”, writes Machiavelli, “from generally accepted methods in order to pave the way to greatness of the highest order” (*The Discourses* II: 6). Yet this is a “dangerous enterprise” (*The Discourses* III: 35). Princes “begin to lose their state the moment they begin to break the laws and to disregard the ancient traditions and customs under which men have long lived” (*The Discourses* III: 5). “Anyone who thinks that new benefits make important men forget old injuries is mistaken” (*The Prince* VII). These sentences summarize Machiavelli’s view of innovation.

To Machiavelli, innovation has multiple meanings, incorporating both Greek and Latin writers’ views, depending on the context (or text): from a connotation of the past (*renewing* institutions—according to the ancient model) to one of the future (*making new* forms of government—new to the citizens), from the particular (introducing new laws) to the most fundamental (founding a new order), all having to do with “initiative”:

Introduction of a new order: new form of government, new institutions, new laws.

(*The Prince* II, IV; *The Discourses* I: 18)

Renewing [renovating, replacing, changing] the ancient institutions.

(*The Prince* VII; *The Discourses* I: 9; I: 18)

To Machiavelli, innovation serves to stabilize, not to revolutionize. The world is changing constantly, hence the need for innovation to stabilize it. There is a need to stabilize a ruler's power and secure it through innovation: to establish a new political order to consolidate power (governing and maintaining a state; retaining a rank or position of ruler). In contrast, to modern theorists, the world is too stable and needs innovation to change it, even revolutionize it. To Machiavelli, innovation has no connotation of (political) revolution.²³ In only one place does Machiavelli use innovation in the sense of rebellion. While discussing the French regime, he suggests that one always finds discontented nobles (barons) "ready to lead new revolts" [*innovare*] (*The Prince* IV). The connotation of innovation as revolution emerged in the seventeenth century. After the English revolution, innovation meant violence and revolution, according to the clergy, monarchists and many others (see Chapter 5). As a consequence of such a representation, political innovation remained the benchmark criterion for judging (pejoratively) all types of innovation for centuries.

It remains to be documented whether and to what extent the reception of Machiavelli's work is responsible for this new representation. Literature opposing Machiavelli emerged soon after his death, including religious literature (Skinner, 1978a: 248–54; Skinner, 1978b: 143, 171–73, 307–9). Machiavelli as heretic is a recurrent accusation. Has the concept of innovation suffered from the bad reception of *The Prince*? Might the reading of Machiavelli's work have had anything to do with this change in the meaning of innovation? Is it Machiavelli's focus on political innovation that gave rise to a pejorative representation of innovation for centuries to come, in fact until the nineteenth century? These points require further study.

Machiavelli is a rarity in the political literature of the time, talking of innovation in positive terms—this representation most probably comes from his reading of the *Histories* of Livy, to whom innovation (*res nova*) is positive. Nobody listened, or rather almost everyone refused to adhere to Machiavelli's views. Interestingly enough, Machiavelli also gets scant hearing among the modern (twentieth-century) theorists of innovation. To these latter, political innovation is seldom an object of study. The emblematic case of innovation is technological innovation—which was not innovation to Machiavelli. Equally, innovation is understood as revolutionary or major innovation today. Again, a different view from that of Machiavelli.

NOTES

1. I use Quentin Skinner and Russell Price (1988) for *The Prince* and Richard Crick and Leslie Walker (2003) for *The Discourses*.

2. Special thanks to Daniela Ghio. Without Daniela's knowledge of the Italian language, I could not have made sense of Machiavelli's vocabulary.
3. The first paragraphs of this section are based on Skinner and Price (1988).
4. Independence from any authority—internal and external—and self-government.
5. On new regimes as suspicious, see the letter from Machiavelli to Francesco Vettori (Skinner and Price, 1988: 93–95).
6. "Anyone who becomes master of a city accustomed to a free way of life, and does not destroy it, may expect to be destroyed by it himself". This is because the inhabitants "will never forget their lost liberties and their ancient institutions, and will immediately attempt to recover them whenever they have an opportunity" (*The Prince* V).
7. There are three other ways to become a ruler and maintain new states. The first is favour or luck. However, it is difficult to maintain such a state because of inexperience and lack of loyal forces. "States that grow quickly will be destroyed by the first chill winds of adversity" (*The Prince* VII). The second way to become a ruler is wickedness. In this case, the cruelty should be done well. "The injuries should be done all together so that, because they are tasted less, they will cause less resentment; [then] benefits should be given one by one, so that they will be savoured more" (*The Prince* VIII). The last is the astuteness or favour (help) of the citizens (*The Prince* IX). Machiavelli also discusses armies (one's own or mercenaries), fortifications and artillery (*The Prince* X, XII–XIV) and suggests that "a ruler should have no other objective and no other concern, nor occupy himself with anything else except war and its methods and practices".
8. Meanness is better than generosity: "The rulers who have achieved great things in our own times have all been considered mean" (*The Prince* XVI). Cruelty is better than mercy: "[I]t is much safer to be feared than loved" (*The Prince* XVII). Deceiving is better than keeping promises, being both fox (fraud) and lion (force), a much quoted metaphor, from Cicero to Bacon to Pareto. "Be a fox to recognize traps, and a lion to frighten . . . Men are so naïve, and so much dominated by immediate needs, that a skillful deceiver always finds plenty of people who will let themselves be deceived". A ruler "need not actually possess all the qualities but he must certainly seem to . . . If it becomes necessary to refrain, you must be prepared to act in the opposite way . . . A ruler should . . . be capable of entering upon the path of wrongdoing when this becomes necessary . . . A ruler who wants to maintain his power is often forced to act immorally" (*The Prince* XIX). Nevertheless, a ruler "should avoid anything that will make him hated or despised" (and plotted against secretly). To this end, he should create an image of himself, displaying "grandeur, courage, seriousness and strength". Rulers "should leave unpleasant tasks to others, but themselves do those things that increase their popularity" (*The Prince* XIX). "The best fortress a ruler can have is not to be hated by the people" (*The Prince* XX). How else to gain a good reputation? "Undertaking great campaigns and performing unusual deeds"; "show[ing] himself a lover of talent and honour those who excel in any art"; "keep[ing] the people entertained with feasts and spectacles" (*The Prince* XXI).
9. As well as measures on secretaries and advisers (*The Prince* XXII and XXIII).
10. In a republic, a ruler should choose peaceful methods (rather than war) to persuade the citizens (rewards and generosity, not only punishments). Dictatorship is acceptable temporarily as an extraordinary measure: "a way out of abnormal situations" (*The Discourses* I: 34).
11. In several places in *The Discourses*, Machiavelli says that men die and princes change; see I: 9, 11, 17, 19): laws, tribunes and courts mediate between the plebs and the senate (*The Discourses* I: 5–10). Religion (not the Church,

- “which keeps Italy divided”) is of great help here (*The Discourses* I: 11–15). Religion is an institution or “instrument necessary above all others for the maintenance of a civilized state”, “reforming” a city and prosecuting wars: citizens are “more afraid of breaking an oath than of breaking the law . . . Nor in fact was there a legislator who, in introducing extraordinary laws to a people, did not have recourse to God for otherwise they would not have been accepted” (*The Discourses* I: 11).
12. Book I of *The Discourses* is devoted to Rome’s constitutional development; Book II is concerned with the growth of Rome’s empire; and Book III concerns the role of great men in the flourishing of the Empire.
 13. “In all cities and in all peoples there are the same desires and the same passions as there always were. So that, if one examines with diligence the past, it is easy to foresee the future of any commonwealth . . . But since such studies are neglected and what is read is not understood, or, if it be understood, is not applied in practice by those who rule, the consequence is that similar troubles occur all the time” (*The Discourses* I: 39). “Everything that happens in the world at any time has a genuine resemblance to what happened in ancient times . . . Men have, and always have had, the same passions, whence it necessarily comes about that the same effects are produced” (*The Discourses* III: 43). “He who would foresee what has to be, should reflect on what has been, for everything that happens in the world at any time has a genuine resemblance to what happened in ancient times” (*The Discourses* III: 43).
 14. “It is not true, contrary to what is commonly believed, that “war before long will be reduced to the question of artillery” (*The Discourses* II: 17). Artillery needs to be backed up with good methods and a good and disciplined army (infantry). “It is infantry that should constitute the basis and sinews of an army and that should be held in high esteem” (*The Discourses* II: 18). To Machiavelli, artillery certainly helps a nation be “successful” in wars. However, because attacks with such devices are generally short, “armies [will soon] come to hand-to-hand conflicts [and] neither heavy nor light artillery can hurt you”. In short, Machiavelli prefers a good, loyal and trained infantry to artillery. “Artillery is useful to an army provided it is backed by valour”. Similarly, Machiavelli does not favour fortresses (*The Discourses* II: 24): “Rome never held either cities or provinces by means of fortresses save when they were already built”. On one hand, if built to control citizens, fortresses are harmful to a prince’s subjects. It makes his subjects furious and rebellious—in fact, citizens are already rebels if a prince thinks of building a fortress. To Machiavelli, it is better for a prince to use *virtu* and to rely on subjects’ loyalty. On the other hand, if built against enemies, fortresses are “futile” because of artillery, and the more so if a Prince has a good army.
 15. Rulers by ability, by luck (favour), by wickedness or by astuteness, each discussed in a separate chapter (*The Prince* VI–IX).
 16. I suggest that readers interested in Pocock’s analysis read Pocock (1972) rather than Pocock (1975), the former being a more concise and less imprecise analysis of the concept of innovation.
 17. The word ingenuity exists already to this end, although it is rarely used in the sense of creativity before the eighteenth century (Murray, 1989). Machiavelli uses *ingegno* (and *ingegnoso*) to describe a Prince as intelligent, skillful, wise and clever and compares him to a fox (Rebhorn, 1988). He also uses terms like *savi*, *virtuoso*, and *arte*. These ‘abilities’ are related to action, not to thought.
 18. There are many similarities between Machiavelli and Bacon, and these have often been discussed (e.g., Rebhorn, 1988): stressing “foundations”; contrasting his originality to fantasies, speculations and theories; accepting rhetoric (the need to “retain names”); shifting hierarchies, “Our religion has glorified humble

and contemplative men, rather than men of action. It has assigned as man's highest good humility, abnegation, and contempt for mundane things . . . This kind of education, then, and these grave misinterpretations account for the fact that we see in the world fewer republics" (*The Discourses* II: 2).

19. *Fara novita* is an example of an expression that is a synonym of innovation. See *The Discourses* (I: 8) on calumnies against Giovanni Guicciardini, commander of the Florentine army, and his friends "who desired to introduce innovation [*fare novita*, make new things] in Florence", namely regulations on calumnies, as Rome did.
20. "To discern . . . inconveniences [dictatorships like Cosimo de Medici's] in their initial stage is the more difficult the more men are by nature inclined to look with favour on **new** enterprises; a favour which is likely to be bestowed, above all else, on enterprises which seem to have in them a certain virtue and which are taken up by young men. For, if in a republic there appears some youth of noble birth and outstanding virtue, the eyes of every citizen at once turn towards him, and without any further consideration they agree to show him honour" (*The Discourses* I: 33).
21. Depending on context or type of man: "Young men are less cautious and more aggressive" (*The Prince* XXV). "It is easier to persuade rude men to adopt a new institution or a new standpoint [than] persuade civilized men to do so" (*The Discourses* I: 11).
22. This rule of prudence applies to every action of a Prince: "A ruler who does not recognize evils in the very early stages cannot be considered wise" (*The Prince* XIII). "A ruler will always find it easy to win over those men who were hostile to him in the early stages of his regime" (*The Prince* XX). "It is difficult to recognize such evils in the initial stage owing to the false impression new enterprises make on you at the outset" (*The Discourses* I: 33); "All bad examples arise from good beginnings" (*The Discourses* I: 46). "If the first signs of trouble are perceived, it is easy to find a solution; but if one lets trouble develop, the medicine will be too late, because the malady becomes incurable . . . If one recognizes political problems early, they may be resolved quickly, but if they are not recognized, and left to develop so that everyone recognizes them, there is no longer any remedy . . . Anyone who enables another to become powerful brings about his own ruin" (*The Prince* III).
23. On linguistic inflation and revolution in Machiavelli, see Goulemot (1968).

Part II

Use of the Concept

The Prohibition Episteme

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4 “Meddle Not with Them That Are Given to Change”

Innovation as Evil

The opinion of some private man prove not in my poore Logick an Innovation . . . To make an innovation . . ., there must be an unanimous and general concurrence of minds and men, to let on foote the new and desert the old; not the particular fancie of one private man.

(Heylin, *A Brief and Moderate Answer*, 1637: 124)

In 1548, Edward VI, King of England (1547–53), issued *A Proclamation Against Those that Doeth Innovate* (Figure 4.1). The proclamation placed innovation in context, constituted an admonition not to innovate and imposed punishments on offenders:

Considering nothing so muche, to tende to the disquieting of his realme, as diversitie of opinions, and varietie of Rites and Ceremonies, concerning Religion and worshippynge of almightie God . . .; [considering] certain private Curates, Preachers, and other laye men, contrary to their bounden duties of obedience, both rashely attempte of their owne and singulet witte and mynde, in some Parishe Churches not onely to perswade the people, from the olde and customed Rites and Ceremonies, but also bryngeth in newe and strange orders . . . according to their fantasies . . . is an evident token of pride and arrogance, so it tendeth bothe to confusion and disorder . . .: Wherefore his Majestie straightly chargeth and commandeth, that no maner persone, of what estate, order, or degree soever he be, of his private mynde, will or phantasie, do omitte, leave doune, change, alter or innovate any order, Rite or Ceremonie, commonly used and frequented in the Church of Englande . . . Whosoever shall offende, contrary to this Proclamation, shall incure his highness indignation, and suffer imprisonment, and other grievous punishmentes.

The proclamation was followed the next year by the *Book of Common Prayer*, which established the provision of a public liturgy to teach the new doctrine of English Protestantism (Church of England, 1549). The preface, written by Archbishop Thomas Cranmer, deplored that the whole Bible was

**A Proclamation against those that doeth innouate, alter o: leaue
doun any Rite o: Ceremonie in the Church, of their priuate authoritie: and aga-
inst them whiche preacheth without licence. Written the .vi. date of february,
in the seconde yere of the Kinges Maiesties moile gracious reigne.**



He kynges highnes by the aduise of his moile entier-
ly beloued Uncle, the Duke of Somerset, Gouernor of his moile
royall persone, and Protector of all his Realmes, Dominions and
Subiectes, and others of his Counsaill: Considering nothing so
much, to tende to the disquieting of his realme, as diuersitie of opi-
nions, and varietie of Rites and Ceremonies, concerning Religion
and wo:shipping of almighty God, and therfore studying all the
waies & meanes, whiche can be to directe this Church and the Cure,
committed to his highnes, in one and moile true doctrine, Rite and Usage: Yet is aduertised that cer-
tain priuate Curates, Preachers, and other laie men, contrary to their bounden duties of obedience,
doth rashely attempte of their awne and singular witte and mynde, in some Parische Churches and
otherwise, not onely to perswade the people, from the olde and accustomed Rites and Ceremonies, but
also theimself bynynge in newe and straunge orders, euery one in their Church, accordyng to their
phantasies: The whiche as it is an euident token of pride and arrogancie, so it tendeth bothe to confu-
sion and disorde, and also to the high displeasure of almighty God, who loueth nothing so muche as
orde and obedience: Wherefore his Maiestie straightly chargeth and commaundeth, that no maner
persone, of what estate, orde, o: degre so euer he be, of his priuate mynde, will o: phantasie, do omittle,
leaue doun, chaunge, alter o: innouate any orde, Rite o: Ceremonie, commonly vsed and frequen-
ted in the Church of Englande, and not commaunded to bee left doun at any tyme, in the reigne of
our late soueraigne lozbe his highnes father other then suche as his highnes, by the aduise aforesaid,
by his maiesties visitours, Iniunctions, Statutes o: Proclamacions, hath already o: hereafter shall
commaunde, to be omitted, left, innouated, o: chaunged: But that thei be obserued after that sort, as be-
foresaid wer accustomed, o: els now sithe prescribed, by the authoritie of his maiestie, and by the mea-
nes aforesaid, vpon pain that whosoever shall offende, contrary to this Proclamation, shall incurre
his highnes indignacion, and suffice imprisonment, and other greuous punishments, at his mai-
esties wil and pleasure.

AND to the intente that rashe and sedicious Preachers, should not abuse his highnes
people, it is his Maiesties pleasure, that whosoever shall take vpon hym to preach openly, in any
parische Church, Chapell, o: any other open place, other then those, whiche be licensed by the Kinges
maiestie, o: his highnes visitours, the Archebischoppe of Canterbury, o: the Bischoppe of the Diocese
where he doth preach: Excepte it bee the Bishop, Person, Vicar, Deane, Warden, o: Rector, in his
o: their awne Cure, shall be furthwith vpon suche attempt and preaching, contrary to this Proclama-
cion, committed to prison, and there remain vntill suche tyme, as his maiestie by the aduise aforesaid,
hath taken orde for the further punishment of thesame. And that the premises should bee moze spe-
dely and diligently don and perfozmed, his highnes geueth straightly in commaundement, to al Ju-
stices of Peace, Maiours, Shrieues, Constables, hed Borowes, Church Wardens, and all other
his Maiesties officers and ministers, and rulers of Townes, Parishes, and Hamlettes: That thei
be diligent and attendaunt, to the true and faithfull execution of this Proclamation, and euery parte
thereof, accordyng to the intent, purpozt and effecte of thesame. And that thei of their procedynges here-
in, o: if any offender be) after thei haue committed thesame to prison, do certifie his highnes, the lozbe
Protector, o: his maiesties Counsaill, with all speede thereof accordyngly: as thei tender his maiesties
pleasure, the wealth of the realme, and will aunswere to the contrary, at their bittermost perilles.

God saue the Kyng.

*Excusum Londini in aedibus Richardi Grafton
Regij Impressoris.
Cum privilegio ad imprimendum solum.*

Figure 4.1 Edward VI, A Proclamation Against Those that Doeth Innouate. (Image published with permission of ProQuest, as part of Early English Books Online.)

not read once every year in the church service because the order of the ancient Fathers “hath been so altered, broken and neglected by planting in uncertain stories and legends, with multitude of responds, verses, vain repetitions, commemorations and synodals”. “Here is set forth”, Cranmer wrote, an order “cut off of anthems, responds, invitatories and such like things as did break the continual course of the reading of the Scripture”. The preface contained one more argument on the “diversity” and “multitude” of practices in the country’s church service and ceremonies and opposed the “folly” and “innovations and new-fangledness” of some men. “Although the keeping or omitting of a ceremony, in itself considered, is but a small thing, yet the willful and contemptuous transgression and breaking of a common order and discipline is no small offence before God”. The new order and discipline were enforced with the *Act of Uniformity* (1549), which established the First Prayer Book as the only legal form of worship. “The King’s Majesty . . . hath divers times essayed to stay innovations or new rites . . . yet hath not had good success”. The act established “uniform rite and order” in prayer (by way of the *Book of Common Prayer*) and in ceremonies, as well as punishments for “offenders” against the rules (both ministers and ordinary people).¹

Negative thoughts on innovation would reach their climax in mid-seventeenth-century England. By the early 1600s, Protestantism defined the English identity—although Catholics denied this. However, according to some, there was still no purity of Protestantism. The idea that innovation in doctrine, discipline and prayer constitutes superstition and idolatry was shared by many English divines from the Reformation onward. Puritans, among others, took the king’s injunctions seriously. Henry Burton, an English minister, used the king’s declarations to attack the Church hierarchy. “We are professedly”, wrote Burton, “against all those usurpations and innovations, which the Prelates of later dayes have haled in by the head and shoulders, being besides and against the Law and the Land, and much more against the Law of God” (Burton, 1636b: 111). On November 5, 1636, Burton preached two sermons attacking the bishops for introducing innovations into the Church of England regarding doctrine, discipline and worship. He launched one of the first controversies on innovation.²

This chapter documents this controversy (1636–41). Seventeenth-century England was a period of change in religion despite many decades of effort to establish a new orthodoxy (Protestantism). The Reformation was still in the making. Tensions, debates and war characterized the period. The conflicts led to the use of innovation as a label for the unorthodox, deviants and transgressors of norms or heretics. Burton accused no less a personage than the Archbishop of Canterbury William Laud of innovating in matters of doctrine and discipline, contrary to the established rule. He used innovation as a polemical weapon against his enemies. His opponents produced (just as polemical) answers to Burton’s charges, using their arguments to call for censure by the High Commission, which led to Burton’s imprisonment.

The first part of this chapter discusses innovation in the seventeenth century, as framed by Henry Burton. It documents the innovations Burton accused the bishops of, grouped under eight headings. The second part analyzes what innovation meant to Burton and discusses why Burton stressed a broad use of the term. The third part of the chapter documents the rhetoric used by Burton's opponents to bring him before the court. The replies were exactly the opposite of Burton's arguments and add up to accusing him of being the innovator, not they. The last part examines what innovation meant to his contemporaries and explains why it had a pejorative connotation.

This chapter is not a piece on the history of religion or Protestantism (nor is it a contribution to the historiography on Henry Burton). Historians on Laudian reforms and the debates they generated in Puritan writings are already familiar with the religious innovations of Burton.³ The chapter merely adds some depth and weight to the historians' interpretation. What is new here is an intellectual history of innovation. It locates and documents the emergence of the classical representation of innovation in the seventeenth century, a representation that would endure through the centuries to come.⁴

No doubt some readers will be put off by the extensive use of cited passages from original sources, particularly when the texts are written in early modern English, which I have chosen to leave in the original. My purpose (in this chapter and the next one) is to give the readers a sense of the vocabulary used and the rhetoric developed to talk about innovation. As Arthur O. Lovejoy put it, "the history of any idea, or complex of ideas, is best presented through the citation of the *ipsissima verba* of the writers who have expressed it" (Lovejoy and Boas, 1935: x). One of my theses being that innovation during this controversy was essentially polemical, I have deemed it necessary to let the reader experience the 'tone' of the polemic. Too often historical work stops after summarizing the arguments of the time, leaving the reader with an appetite for a more detailed analysis. The intellectual history of concepts begins with that of words—whose choice is rarely innocent to a speaker or writer—their meaning and their uses. Certainly, such a history deals with the context and the values in which words are embedded and that 'determine' meanings and uses. I have tried to do this here. However, one cannot write the history of concepts if one does not, to a certain extent, let the actors speak for themselves. The reader who looks at Appendix 3 before reading this paper will get a preliminary idea of Burton's language and the range and depth of how innovation is connected to established social values.

BURTON'S INNOVATIONS

The complaints against doctrinal innovations emerged in England in the mid-1500s and reached a climax in the 1630s. The 1590s, particularly, were marked by a sense of change, decay and ferment in English religious affairs (Milton, 1995: 11). As Anthony Milton puts it, the Reformation retained a

structure of worship and administration that had not broken as decisively with the Roman past as had been the case in other Protestant countries. Unsettled issues were therefore a subject for constant reinterpretation and recrimination. The accusation of popery (a return to Rome's doctrine) characterizes the period. Following Peter Lake, Milton has suggested that "many of the religious controversies of the period relied on the manipulation and assimilation of the opponent's position into an antitype of either antipopery or Puritanism" (Milton, 1995: 4; Lake, 1989). To many divines, like the moderate Puritan Andrew Willet in the late sixteenth century, it was the duty of all the churches of England to unite against a common enemy—the Church of Rome (rather than against domestic enemies, whom they called Puritans). Opposition to Rome (antipopery) served several purposes: manifesting one's commitment to true religion, preventing conversions to Rome and endearing Puritans to the establishment.

According to Milton, in order to understand the controversies of the period, we must "understand how contemporaries understood orthodoxy in the first place and under what circumstances they were likely to believe they were threatened" by their opponents' heterodoxy (Milton, 1995: 4). The antipapal religious controversy prompted the systematic formulation of differences. There was a broad spectrum of different religious views, but they were portrayed and understood in a dualistic terminology. Antipopery was "a polemical tactic aimed at undermining the position of a rival faction in the struggle for power and influence" (Milton, 1995: 55), "a channel through which the church's own internal conflicts found expression" (Milton, 1995: 92). In this context, any idea contrary to the established doctrine (e.g., the *jure divino* theory of the government of bishops—prelates rule the church by divine authority and right; predestination, justification, salvation), like those of conformist Richard Hooker or Archbishop Richard Bancroft—easily led to accusations of popery and . . . innovation.

Then, in the 1620s, a more sceptical assessment emerged. Antipopery might be undermining the Church of England itself. It might be a potential front for seditious activity and encourage people to uncover popery within the English Church. In fact, antipopery was a label extended to any and all opponents; it conflated an opponent's position with that of Rome. Almost all churchmen endured accusations of antipopery at one time or another. As a reaction, from King James I (1603–25) onward, fear of popery thus began to shift to more toleration. The much criticized William Laud (1573–1645), Archbishop of Canterbury (1633–45), was a pure representative of this view of 'negative popery'. He invoked an anti-Romanist opposition against which he defined himself because antipopery threatened to frustrate his efforts to revive and re-establish old doctrines, as well as neglected and more reverent forms of worship and ceremonies. In point of fact, Laud was more preoccupied with the dangers of profanity and sacrilege than with antipopery. His campaign against antipopery aimed to avoid offending potential converts, above all the aristocracy and gentry. The agenda of Laud and the Laudians

combined Arminian views on salvation by works with strict uniformity in worship and an increased emphasis on ceremony and the importance of episcopacy.⁵ In light of this agenda, the charge of popery was soon raised against Laud himself and his reforms. Laud was accused of reintroducing popery, namely of innovation.

It is here that Henry Burton (1578–1648) enters the story—and that my contribution to the study of the period is situated. From 1612 onward, Burton was Clerk of the Closet to young Prince Charles. When the Prince became King in 1625, Burton “became concerned that the new King was showing too much favor toward Catholic sympathizers” (Auchter, 2001). The King dismissed Burton, who became minister at Saint Matthew Friday Street, where he continued attacking the Church hierarchy with sermons and pamphlets, particularly against Laud. In 1637, he was arrested and brought before the Star Chamber to explain himself, together with two other Puritans and pamphleteers (William Prynne and John Bastwick). Burton’s sermons were said to contain “seditious and factious” passages. “These scandalous and seditious pamphlets”, stated Laud devotee Peter Heylin, “are now growne so rise, that every day doth produce new Monsters; there being more of them divulged at this present time, then any former age can speak of” (Heylin, 1637: 191). “It hath been found at other times as necessary, that the tongue which speaketh proud words be cut off for ever” (Heylin, 1637: 192).

The innovation controversy was launched in 1636 when Burton produced a pamphlet *For God and the King*, the sum (with additions and enhancement) of two sermons preached on 5 November “to teach my people obedience to both” God and the King in these times of disobedience and of “innovations tending to reduce us to that Religion of Rome”. “How frequentlie and Solemnie” wrote Burton, “hath your Majestie made most Sacred Protestations to all Your loving Subjects, that you would never suffer the least innovation to creep unto Your Kingdome”. But innovations continued, according to Burton. “All which well considered, how audacious, yea how impious are our Innovatours, how feareless of Your Majestie, how regardless of Your Royall Honor, that in their innovations made such havocke, commit such outrages”. Burton asked the King to stop “the course of all innovators”.

For God and the King is based on Proverbs 24: 21:⁶ “My Sonne, feare thou the Lord, and the King, and meddle not with them that are given to change. For their calamity shall rise suddenly; and who knoweth the ruine of them both?” Burton’s text proceeded in two steps. In the first half of the pamphlet, Burton conducts an exegetical analysis of the proverb. In the second part, he launches accusations against the Church hierarchy.

To Burton, the proverb is a threefold lesson. First, it is an exhortation: The object is fear of both God and the King. The religious and the civil fears differ in kind, “yet in resemblance and similitude they are not unlike” (Burton, 1636b: 6). Fear of the Lord is obedience to God. It is a “duty which God requireth of his children” (Burton, 1636b: 12). “We are bound to perform

all obedience to God. . . . Else it is rebellion . . . , a mass of Idolatry and Superstition, Will-Worship of man's invention" (Burton, 1636b: 14). Fear of the King is not a "fear with terror" but a "natural affection" (Burton, 1636b: 42), namely "the duties due from Subjects to their King" (Burton, 1636b: 36). It means honouring the King as with all superiors (parents, masters, princes), "yea greater love than natural Children beare unto their Parents, namely as [Subjects] are members of the great politicke body" (Burton, 1636b: 43).

Second, the proverb is an admonition. It admonishes one not to become involved with innovators in matters of religion or government; "that is, have no fellowship, side not, countenance not, approve not, applaud not such men in their evil wayes" (Burton, 1636b: 6). To Burton, men given to change "are always notorious detractors, and sycophants, derogating from those things, which they goe about to innovate or abrogate, that so they may establish their owne novelties, whither in Church, or State, or both" (Burton, 1636b: 8).

Burton suggests five reasons not to meddle with "innovators". The first is guilt by association: "[I]f we bee silent and doe not detect them, nor labour to defeate them . . . we shall be found guilty" and "so pertake of the like punishment" (Burton, 1636b: 93). The second reason is what Burton refers to as 'dangers': [P]olitical innovation leads to tyranny (Burton, 1636b: 93) and religious innovation to ruin, troubles and discontent in the State (Burton, 1636b: 95). Here Burton uses Aristotle's *Politics* (Book V: viii) (not *Republic* as he erroneously suggests), in which the Greek author "compares changes in a State, which at first seeme but small and insensible, to the expenses of a house, and the wasting of a man's substance by little and little, which in a short time consumes all" (Burton, 1636b: 93–94). This has been a much repeated argument against innovation over the centuries, one to which I will return again and again.

A third reason for not meddling with innovators is that they turn things upside down (Burton, 1636b: 96): undermining and overthrowing "the State of Church and Common weale, and mingle heaven and earth together" (Burton, 1636b: 99, 164). Burton's fourth reason continues in the same vein: innovation "may set up Antichrists throne againe . . . , Popery piety, and Superstition holiness" (Burton, 1636b: 99). Burton ends his list of reasons not to meddle with innovators by accusing the latter of being enemies to the King. As examples, Burton discusses the Gunpowder Plot (the attempted assassination of King James on November 5, 1605). "What tongue can tell or what heart conceive", Burton asks, "the miserable changes, that must have ensued, upon that desperate designe, if it had beene effected" (Burton, 1636b: 100). Burton also looks at the history of the church and argues that past changes and innovations—he cites Virgil's *De Inventoribus Rerum* with regard to popes' inventions—led to the "infection" of superstition and idolatry: ceremonies, tables, altars, robes and bowing. According to Burton, these kinds of innovation had not stopped. On the contrary, the "spirit of Rome"

continues corrupting the worship of God, troubling the peace of the church, captivating “man’s consciences with their humane invention”, exercising tyranny and seeking the ruin of Christ’s kingdom (Burton, 1636b: 109).

Finally, according to Burton’s exegesis, the proverb offers a reason for admonition. Burton had already dealt with the matter. Briefly stated, “calamity shall rise above [the innovators], and bring them to ruine” (Burton, 1636b: 8). To Burton, the “instruction arising from this text” (Solomon’s proverb) is simple: “[E]very one ought so to address himself to the hearing of the Word of God” (Burton, 1636b: 9).

Then Burton devotes the rest of his text to discussing innovations under eight headings (see Table 4.1) (Burton, 1636b: 111–58). It is worth looking at the innovations one by one, for it gives a sense of what innovation is according to Burton. As will become evident in the following pages, popery is Burton’s main argument against innovation.

Innovation in doctrine was a much debated topic in the 1630s. Burton discusses several books published by the prelates that, according to his view, call several elements of the Protestant doctrine into question regarding, for example, transubstantiation and the Sabbath. His opponents reply that it is only a matter of time and circumstances, the “inhibiting of young Ministers to preach of the Doctrines of Election and Predestination” (Burton, 1636b: 114).⁷ He also argues against the prohibition that “[s]tudents should not read the modern learned writers such as Calvin, Beza, and others of the Reformed Churches” (Burton, 1636b: 111). According to Burton, this innovation (the prohibition) brings us back to Rome. Laudians would deny such an innovation: [I]t constitutes a misunderstanding on the part of Burton (as we will see later in the chapter).

Innovation in discipline holds a particular place in Burton’s list because he felt personally concerned. In the introductory epistle, Burton claimed that *For God and the King* was produced to present the King “a true account” of his views. Burton maintained that the sundry “innovators” had “falsely and maliciously” presented his own views. “I humbly appeale to the King Majestie Sovereign and Patron, as my judge in this cause . . . , for I hold it not fit that they who are my adversaries should be my judges”. In a second document that

Table 4.1 Burton’s Innovations

Innovation in doctrine
Innovation in discipline
Innovation in the worship of God
Innovation in the civil government
Innovation in altering of books
Innovation in the means of knowledge
Innovation in the rules of manners
Innovation in the rule of faith

he produced in defence of his censure, *An Apology of an Appeale* (1636a), he explicitly accused the tribunal of unjustness and repeated the preceding accusation *verbatim*. The judges were “incompetent” because “they plainly appeare to be both parties in the cause” (Burton, 1636a: 6). To Burton, innovation in discipline meant censuring people and ministers “because they will not conforme to their [bishops’] impious orders” (Burton, 1636b: 127). Innovations allow the prelates to “catch more Ministers to outt them of their Ministry and living” (Burton, 1636b: 64). “For not yielding [to the innovations], Ministers are Excommunicated, suspended, yea threatened with Pistolling, and with blood-shedding and hanging as Rebels” (Burton, 1636b: 25).

The next innovation Burton discusses—innovation in the worship of God—may seem a ‘minor’ innovation to most of us today and was indeed considered as such by his accusers, but it constituted a ‘major’ innovation according to Burton. It concerned the introduction of new rites and ceremonies and “outward performances and duties” (Burton, 1636b: 17) or superstition and idolatry: “Will-worship of mans devising, consisting in some externall complements, and gesticulations, as cringing and crouchings, bowing, or standing upright at some Scriptures more than at others; also a punctuall observance in these formalities, as in bowing to the name of Jesus, to the Communion table, or rather Altar . . ., praying with their faces towards the East, thus tying God to a fixed place, standing at reading of the Gospell, and the like” (Burton, 1636b: 128–29). To these, Burton adds the cathedral with “her pompous Service, her Altars, Palls, Copes, Crucifixes, Images, superstitious gestures and postures, all instruments of musicke”. The “Papall Pompe”, Burton believes, constitutes “ornaments of the Romish whore” (Burton, 1636b: 162), coming from “desperate and all daring Popish innovators” (Burton, 1636b: 164).

Another type of innovation that may seem as minor to us as to Burton’s accusers, to whom it made “little difference”, was the altering of books. The Prayer Book was a real issue at the time, and Burton was probably right in calling alterations of it an innovation. In 1637, a Royal prerogative imposed on Scotland a new Prayer Book, fashioned mainly on the basis of the English liturgy. The result of this Laudian innovation was a riot and eventually the so-called Bishops’ Wars, which played a key role in the events leading to the English Civil War and Revolution. Burton looked at words left out, changed or added in recent editions of the prayer books that make “the religion of Papists the true religion” (Burton, 1636b: 131).⁸ “I say still, and here write it in capitall Letters, that THE CHURCH OF ROME TEACHETH DISLOYALTY AND REBELLION AGAINST KINGS, AND LEADES HER PEOPLE INTO ALL CONSPIRACIES, AND TREASONS AGAINST STATES AND KINGDOMES” (Burton, 1636b: 133). Burton attributed the plague to the “altering [of] the Fast-Book and prohibiting preaching in all place infected”. Because of the plague, few people go to the church and preach. In consequence, there had been a weekly increase in the number of sick people (Burton, 1636b: 144), while “preaching was never more necessary in this City than at this time” (Burton, 1636b: 148).

Similar accusations were made against what Burton calls innovations in the means of knowledge (suppressing and cutting short preaching and limiting all sermons to one hour) and the rule of manners. Prelates “allow one part of the Day for God, and the rest to mans carnall Lusts, Sin, the world, the Devil” (Burton, 1636b: 157). Burton was referring to Charles I’s reissue of the *Book of Sports* in 1633, which allowed several leisure activities on Sunday, including Church ales (i.e., beer drinking after Sunday services). To Burton, “sports and Pastimes deface and destroy the very face, beauty and power of all religion” (Burton, 1636b: 157). “I am ashamed of you” claimed Burton (Burton, 1636b: 49). “When the Lord calls to Fasting, you fall a Feasting” (Burton, 1636b: 50). Sports bring “the precipice and downfall of the people soules into perdition” (Burton, 1636b: 60). “Rebels and Sabbath breakers goe hand in hand together” (Burton, 1636b: 63). Like the prohibition of preaching, public assemblies brought us “a double increase of the Plague” (Burton, 1636b: 50)—a statement reproduced by Prynne, who added precise numbers to it: from 458 to 838 plague deaths (Prynne, 1636). “Preaching is made dangerous by you, for feare of the plague; which should [rather] be a meanes (as it hath beene formerly) to drive away the plague” (Burton, 1636b: 50).

All in all, the bishops’ innovations are witness to what Burton discussed under one more heading: innovation in the rule of faith, namely the bishops’ liberty in interpreting the scriptures. Burton concluded his pamphlet as it had started: “My Sonne, feare thou the Lord, and the King, and meddle not with them that are given to change. For their calamity shall rise suddenly; and who knoweth the ruine of them both?”

THE POLITICS OF INNOVATION

For God and the King openly challenges the government of the bishops. As innovators, the bishops would be revolutionaries: factious, seditious and rebellious (Burton, 1636b: 9, 11). Innovators refuse to acknowledge their subjection to the King (Burton, 1636b: 41): “The maine Principle of Popery is to exalt and acknowledge the Pope as supreme over all Powers, as Emperors, Kings, Princes, States, etc. . . . The Pope, and not the King, is the Papists King and Sovereigne” (Burton, 1636b: 40–41). In other words, popery constitutes rebellion against the king.

While discussing religious innovation, Burton thus meddles with politics.⁹ This would be turned into an argument against him at court. Burton used a political and ‘revolutionary’ vocabulary and talked of a time of disobedience to both God and the King from the very beginning of the pamphlet. He tells his readers that the King prohibits innovations but that innovators ignore the King’s laws. The King’s enemies are those who “transgresse and oppose his Majesties royall Lawes, Proclamations and Declarations against all Innovations in matter of Religion, etc. And thereby disturbe the peace of his Majesties

Kingdome and weaken the State” (Burton, 1636b: 10), while “His Majesty has committed to you the sword of Justice . . . to defend the lawes against such Innovators who . . . divide between the King and his people” (Burton, 1636b: 31). Burton accused the innovators of a plot to overthrow the state of religion and of the commonwealth (Burton, 1636b: 5, 93, 99–100), changing a kingdom into a tyranny little by little and changing laws, thus leading the country to troubles and discontent (Burton, 1636b: 93–95).

Burton’s pamphlet discussed two central political issues of the Reformation, the jurisdiction between ecclesiastical and temporal power—the *jure divino* doctrine or the prelates’ claim to rule the church by divine authority and right—and obedience and the right (duty) to resistance. On one hand, while discussing fear of the King, Burton had already suggested that “to transgress [the King’s] rule brings us under the guilt and penalty of rebellion” (Burton, 1636b: 38). “When the King taking an explicit solemn oath to maintaine the ancient Lawes and Liberties of the Kingdome, and so to rule and governe all his people according to those Lawes established: So consequently and implicitly, all the people of the Land doe sweare fealty, allegiance, subjection and obedience to their King, and that according to his just Lawes” (Burton, 1636b: 39). On the other hand, in matters of religion, kings have no unlimited power. “The King cannot give that power to others, which he hath not himself. For the Power that is in the King is given unto him by God . . . Neither God in his Law, nor the Lawes of the Land, doe allow the King to alter the State of Religion . . . Kings are the Ministers of God” (Burton, 1636b: 72–73). To Burton, “all our obedience to Kings and Princes, and other Superiors, must be regulated by our obedience to God . . . If Princes shall command any thing against God and his Law, then we . . . must obey man in nothing that stands not with our obedience first to God . . . To obey or fear man before God and so above or against God, is to make an Idol of man” (Burton, 1636b: 76).

A similar argument is offered against the bishops. The eighth innovation that Burton documents is innovation in the civil government. According to Burton, bishops “labor to reduce and transferre [the civil government] to Ecclesiasticall”, making the people “used rather as vassals and slaves to the Prelates than as the free subjects of the King” (Burton, 1636b: 129). The prelates (and the High Commission) pretend to act in the King’s name but give themselves unlimited power, changing doctrine, rites and ceremonies as they wish. Burton calls for an insurrection against the bishops and for people to “stand out against the creeping gangrene” (Burton, 1636b: 34).

Burton’s crusade against innovation was most certainly not independent of his own situation—and his accusers have not failed to reproach him for this bias. To Burton, rebels are those, like bishops and judges of the High Commission, who “falsly charged” Burton himself—“a loving, dutifull, faithfull, obedient peacable subject”—and “suggest and whisper into Kings eares evill and false reports” (Burton, 1636b: 45–46). They “set the whole State in a combustion, by stirring up and fomenting the fire of dissension

betweene our gracious Soveraigne, and his loving and loyall Subjects” (Burton, 1636b: 46). “This arte of Satan was much practiced in those times against those that were most religious and pious, and it prevailed much to the corrupting and overthrowing of Religion . . . This is also remarkable in this present Century . . . They creep into Courts, and by their hypocrisy, false tales, and detractions of sincere teachers and by a kind of collusion with Courtiers, they doe surprise the mindes of the great ones, and Magistrates” (Burton, 1636b: 47–48). Burton then drops a series of names on them: blind watchmen, dumbe dogs, plagues of soules, false Prophets, ravening wolves, theeves and robbers of soules (Burton, 1636b: 48); Declamers, Factious, Seditious, Turbulent, Disafected to the present government, Enemies of the King (Burton, 1636b: 49); Pope factors who “do labour to divide the King from his good Subjects, by poysoning his gentle eares with their Serpentine breath” and “seducing the people to their Superstition and Idolatry” (Burton, 1636b: 51).

In sum, following some Puritans and Catholics from the mid-1500s and early 1600s, Burton appropriated a political concept (innovation)—a concept defined by authorities as forbidden—and applied it as a catchword for all men given to change, including authorities (bishops). To Burton, “men given to change” are innovators “either of Religion or of the Republick” (Burton, 1636b: 7): heretics, as well as those acting against the King, be they lay people or officials, and the King himself when he allows the bishops to innovate. Throughout the pamphlet, Burton’s rhetoric stressed the political effects of such innovators on the country: They bring in ruin and tyranny. The rhetoric helped make Burton’s case against religious innovations. In the following years and decades, the use of the word exploded. Armed with such an understanding of the concept, Burton produced the first full-length discussion of innovation: What is innovation? Who is an innovator? What aims? What effects? Burton was responsible for launching one of the first controversies on innovation. Hundreds of pages were produced on both side of the controversy (see the next section). From then on, innovation entered increasingly into the everyday vocabulary.

To properly understand what innovation means to Burton, the reader must keep in mind that in religious (and political) matters, it was the political hierarchy (including ecclesiasts) who legitimately defined innovation. The explicit forbidding of innovation in England goes back to the 1540s with Edward VI’s declaration and continued in Burton’s time. In 1626, only one year into his reign, Charles I, King of England, Scotland and Ireland (1625–49) issued a *Proclamation for the Establishing of the Peace and Quiet of the Church of England* (England and Wales. Sovereign. Charles, 1626):

In all ages great disturbances, both to Church and State, have ensued out of small beginnings . . . [Because of] the professed enemies of our Religion, the Romish Catholics, the professors of our Religion may bee drawn first to Schism, and after to plaine Popery . . . His Majestie

therefore . . . hath thought fit, by the advice of his reverend Bishops, to declare and publish, not onely to his owne people, but also to the whole world, his utter dislike to all those, who to shew the subtilty of their wits, or to please their owne passions, doe, or shall adventure to stirre or move any new Opinions, not only contrary, but differing from the sound and Orthodoxall grounds of the true Religion, sincerely professed, and happily established in the Church of England; And also to declare his full and constant resolution, that neither in matter of Doctrine, or Discipline of the Church, nor in the government of the State, he will admit of the least innovation.

Then Charles “admonish[es], and also straitly charge[s] and command[s] all his subjects of this Realme, and his Realme of Ireland . . . especially those who are Church-men . . ., that neither by writing, preaching, printing, Conferences, or otherwise, they raise any doubts, or publish, or maintaine any new inventions, or opinions, concerning Religion”.

Two years later (1628), Charles dissolved Parliament—a well-known period in England’s history—and, in order to silence his opponents, issued a declaration explaining why he dissolved the institution. Discussing the state of government, church and Commonwealth, as well as the schisms and divisions that had ensued in the Church, His Majesty claimed his intention to “tie and restrain all Opinions that nothing might be left for private Fancies and Innovations . . . Neither shall we ever give Way to the Authorising of any Thing, whereby any Innovation may steal or creep into the Church; but to preserve that Unity of Doctrine and Discipline established” (England and Wales. Sovereign. Charles, 1628).

During the controversy, Charles I again issued a declaration on religious innovation. “Great Disorders have daily increased” following the introduction of new editions of the *Service Book*, *Book of Canons* and the actions of the High Commission. His Majesty defended himself against introducing innovation in religion and laws. “We neyther were, are, nor by the Grace of God ever shall bee stained with Popish Superstition: But by the contrarie, are resolved to maintaine the true Protestant Christian Religion”. To Charles, it was not innovation but “feare of innovation that hath caused the disorders which have happened of late within this Our ancient Kingdom”. To His Majesty, “[o]ur true meaning and intention is, not to admit of anie innovation eyther in Religion or Lawes, but carefully to mayntayne the puritie of Religion alreadie profest and established” (England and Wales. Sovereign. Charles, 1638). In 1640, a set of canons defending Laud and issued in His Majesty’s name followed—but was made illegal by the Parliament a few months later. The Convocation ordered that the canons be read four times a year in all churches. The canons reiterated that anyone who opposed Charles opposed God and addressed the charge of innovation in religion explicitly, enjoining that bishops, priests and doctors to make an oath “for the preventing of all Innovations in Doctrine and Government” (Church of England,

1640). A year later, the King reiterated his opposition to innovation in a *Proclamation on Religion* (England and Wales. Sovereign. Charles, 1641).

THE INNOVATORS' ANSWER

Burton's opponents were not fooled by his rhetoric. The innovators denied all Burton's charges. Burton was the innovator, not they: "You have acted the false Accuser" claimed Peter Heylin; "your selfe must be reputed for the Innovator" (Heylin, 1637: 170). "No men", claimed Archbishop Laud, "in any age of it, have been more guilty of innovation than [Burton and his accomplices]" (Laud, 1637: 42).

The most complete answers to Burton's pamphlet came from Heylin and Christopher Dow, two Laudian devotees. In 1637, they each produced replies of 200 pages discussing Burton's allegations point by point. Laud also wrote a speech for Burton's trial. Since Laud relied mostly on Heylin's answer published several months earlier, I use Heylin's as well as Dow's in what follows. These are also more interesting, since the tone of the answers clearly demonstrates the polemical purpose of the authors.

Heylin (1599–1662), first biographer of Archbishop Laud (Heylin, 1668), was an 'employee' in the High Commission when he wrote his answer to Burton. "Being now employed in the Examiners Office", stated Heylin, "I must deale with you" (Heylin, 1637: 1–2). "I was commanded by authority to returne an Answer to all the challenges and charges, in the said two Sermons and Apology of Master Burton" (Heylin, 1637: Preface). Dow's Laudian pamphlet *Innovations Unjustly Charged* offered, as the author puts it, "an answer to clamorous and scanderous railers" who "levell their poisoned arrows of detraction against the Sovereigne Power, and against the Fathers of the Church" (Dow, 1637: 2). Dow's goal was "to examine this Grand crimination, and to speake of the severall supposed innovations" (Dow, 1637: 31) in order "to prevent the growth of so great a mischief". "We must no longer be silent", he said. "It is high time then to speake" (Dow, 1637: 3–4).

Burton's opponents made use of many arguments, from the *ad hominem* and *ad populum* arguments to historical 'evidence'. To every argument, they offered a counterargument; to every accusation they developed a counteraccusation.

To both Heylin and Dow, Burton was simply a frustrated individual whose aim was revenge. In the past, Burton had accepted the established practices, but he was dismissed from the court and started writing against the bishops. Having failed at court, suggested Heylin, Burton "thought it then high time to Court the people; that he might get in the hundreds what he lost in the countie . . . Such is the humour of most men, whom the Court casts out; that they do labour what they can, to out-cast the Court" (Heylin, 1637: Preface; see also Dow, 1637: 9–13). To Heylin, "Burton the Dictator" was "a man in whom the Element of fire has the most predominance".

"The pulpit", Heylin continued, "first erected onely for preaching of the word of God, was by him made a Sanctuary, or privileged place, from whence to raile against the time, to cry downe all the orders of holy Church, and to distract the people with needlesse controversies". Burton "declame[s] the Clergy, and Inflame[s] the people". To Dow, "it seemes" that Burton's "ayme in his Sermons was the same which the Poet had in making his comedyes, To please the people" (Dow, 1637: 19). In an "approbious language", Burton "mocke[s] at the devout gestures, and pious expressions of holy reverence in Gods Service", he "deride[s] the whole service of God allowed and approved in our Church" (Dow, 1637: 23–24).

Ad hominen arguments and charges of seeking popularity mixed with accusations of invention (in a pejorative sense). When discussing the suppression of preaching, Heylin accuses Burton of having "brought in new forms of [his] owne devising" (lecturing for sedition rather than preaching) (Heylin, 1637: 38, 166). "The opinion of some private man prove not in my poore Logick an Innovation . . . To make an innovation . . ., there must be an unanimous and general concurrence of minds and men, to let on foote the new and desert the old; not the particular fancie of one private man (Heylin, 1637: 124) 'Fancy' is a loaded term used frequently during the controversy. Dow talks of the "fancied platform" of Calvinists (Dow, 1637: 193) and Heylin of the "fancies" of individuals.

Heylin and Dow next turn to more 'empirical' arguments. According to Dow, Burton had misunderstood His Majesty. On the reviving of the Act on Sports on Sundays, His Majesty intended "onely to take away that scandall which some rigid sabbatarians had brought upon our Religion" (Dow, 1637: 78). He "onely permit[s], and not impose[s] the use of recreations", for "all men not being morally able to apply themselves for space of the whole day to spirituall and religious exercises and to divine Meditations onely" (Dow, 1637: 80); second, the King authorizes recreations "provided that the proper worke of the day, the publick service of God be first ended" (Dow, 1637: 81); and third, "he only condemns drunkenness and disorders (Dow, 1637: 83) and "dancing of men and women together" (Dow, 1637: 84). "Alwaies the end and other circumstances ought to be considered, as well as the bare letter of the Law" (Dow, 1637: 89). Similarly, on innovation in civil government, Dow could find no proof in Burton, only a misunderstanding: "All that was intended by His Majestie [is] not to suppress Gods truth, but curiosity . . . Men cannot bee curious or over-daring without impiety" (Dow, 1637: 126). Briefly stated, the argument sums up to: you "misinterpret his Majesties most pious Act, in an undutiful and scandalous manner . . . to serve your owne turne" (Heylin, 1637: 47). The King "labours to suppress those innovations which you and those of your dissent have introduced" (Heylin, 1637: 82).

Burton would have misinterpreted the Reformation too. On innovation in doctrine, particularly on not studying the modern authors, Dow replies that it is "a thing acted twenty yeares agoe [King James]"; "if [Burton] had gone backe but twice as many more, hee might have found the reading

of Calvin and Beza accounted as great an Innovation” (Dow, 1637: 32). King James “enjoyne young students rather to looke into the Fathers, and acquaint themselves with the judgment of the Ancient Church, than to take up opinions upon trust of those moderne Authors” (Dow, 1637: 34). “The truth is that King James . . ., having taken some just distaste at some novell points delivered by some young Divines [who] were ill affected to Monarchical Government and injurious to the just right of Kings”, decided that studies should not be grounded upon “unsound and dangerous opinions to the State” (Dow, 1637: 35–36). To Heylin, there has never been a prohibition against reading Calvin, Beza and others of the Reformed Church; it is only that the students should not begin with these but with the Scriptures “and by degrees to those Divines” (Heylin, 1637: 119).

On change in the doctrine of obedience to superiors (too much obedience and unlimited power to Kings), Dow accuses Burton of conjectures: “Proofoes I can finde none” but only “conjectures and surmises” (Dow, 1637: 60). The Bishops “teach no other doctrine of obedience to Superiours than hath beene ever taught in the Church of God . . . They give to God and Caesar both their dues” (Dow, 1637: 64).

Time and circumstances, or history, also has to be taken into account, according to Dow. Why not alter the books “when the occasion ceased, as well as make it to serve the present occasion of those times” (like the danger of contagion) (Dow, 1637: 133). Burton’s fancy “shall receive from me the answer it deserves: silence” (Dow, 1637: 143). Similarly, on Charles’ Declaration on the Articles of Religion, supposed to have suppressed election and predestination, Dow replied, “is it not better that some truth for a while be suppressed, than the peace of the Church disturbed?” (Dow, 1637: 39). “When this Declaration was published by His Majesty, men were incapable of these doctrines” (Dow, 1637: 40). The doctrines were not suppressed, added Dow, but “profit being unknown” (Dow, 1637: 40–1). Time and circumstances matter to Heylin too. On innovations altering the book of prayers, Heylin replies that many of Burton’s innovations make “so little difference” (Heylin, 1637: 152). “As if a forme of prayer for a particular time and purpose must be still observed, when there is no such cause to use it, as at first to make it” (Heylin, 1637: 160).

Finally, on innovations in the worship of God, qualified as superstition and idolatry by Burton, Dow suggests that the novelties are rather symbolic and are “nothing of the substance of God worship” (Dow, 1637: 113). They constitute reverence and external ceremony (Dow, 1637: 114). Some are also simply accidents, like placing the altar to the east (Dow, 1637: 117): “We turne to the East, not as if God who is every where, were there” (Dow, 1637: 119). “God is not tyed to any fixed place”. He may be found anywhere and, if anywhere, then also in the east. “Why we may not doe it toward the East, according to the custome” is the question (Dow, 1637: 119).¹⁰

However, the main argument of both Heylin and Dow concerns ‘renewal’, an idea that denoted innovation early on (see Chapters 2 and 3). There is

no innovation but a restoration (Heylin), no innovation but a restitution (return) to, or continuance of ancient practices (Dow). Burton's innovations "are injuriously so termed", stated Dow (Dow, 1637: 30). Burton had already identified this tactical move of the bishops: Prelates "doe plead that they bring in no changes, but revive those things which ancient Canons have allowed and prescribed" (Burton, 1636b: 158). "Innovations, Say they? Wee bring no innovations, no new rites, but what hath beene in use ever since the Reformation . . . All that we goe about is to reduce inferior churches to an unity, and conformity to their Mother Churches" (Burton, 1636b: 159).

In fact, in discussing innovations in the worship of God, Dow argues: "I cannot but wonder with what face he can accuse any of these things of novelty, when there is not one of the things he names which hath not been used in the primitive and purest ages of the Church" (Dow, 1637: 114). These things were introduced in the beginning of Christianity, continued at the Reformation and confirmed by the Parliament (Dow, 1637: 120). Similarly, Heylin could find not a single innovation in the Protestant Church:

The Papists and these men, how different soever they may seeme to bee in other matters, have . . . agreed to charge this Church with novelties and innovations . . . But in the reformation of this Church, we introduced no novelties . . . but onely laboured to reduce her to that estate and quality, whereby she was in her originall beauty and the Primitive times . . . All those Innovations which they have charged upon the Church in their scandalous Pamphlets, are but a restitution of those ancient orders, which were established heere at that Reformation" (Heylin, 1637: Preface).

"It is no innovation to admit traditions," states Dow. "Onely we doe not admit any traditions contrary to the Scriptures" (Dow, 1637: 167–8). To Laud, ancient practices have been altered little by little in the past "and now, if any authority offer[s] to reduce it, this ancient course of the Church is by and by called an innovation" (Laud, 1637: 55).

The argument of renewal is used against every innovation identified by Burton. On the limited power of the king to alter the state of religion (instituting new rites and ceremonies), Heylin says the King only "restore[s] this Church to its ancient luster" (Heylin, 1637: 82). On the *jure divino* power of the bishops, Heylin replies that "this is no new saying devised but yesterday" (Heylin, 1637: 64). Similarly, discipline (censures of the Church) "proceed[s] no otherwise now then of the old did" (Heylin, 1637: 131); the worship of God is "long since ordained by Canon . . . , a reforme certainly as old as the Reformation" (Heylin, 1637: 135), an "antient custom" (Heylin, 1637: 136) and a "reviver and continuance of the antient usages which have been practiced in this Church since the Reformation, and were commended to it from the purest ages" (Heylin, 1637: 140); alterations of books, yes, but "a restitution onely of the proper reading" (Heylin, 1637: 150). "Mr. Burton, "You are the innovator" (Heylin, 1637: 38).

All said, Burton is a ‘revolutionary’. He calls into question both the king’s and the bishops’ authority and calls for popular insurrection. As Laud put it, all these libels “are against the King and the Law, and can have no other purpose than to stir up sedition among the people” (Laud, 1637: 43–4). Heylin put it similarly: “There is none of any age, nor all together in all ages, which hath shewne greater malice unto the Church, and to the governors and Teachers of it, then you, Master Burton . . . You have the King’s royal power in question”. But “it is a kind of disobedience and disloyalty to question what a King can do” (Heylin, 1637: 178–79) and a sedition to call up people to insurrection (Heylin, 1637: 185). You “stirre up the people to effect the ruine [of Bishops] . . ., to bring them into discredit and contempt . . . and incense his Majestie against them” (Heylin, 1637: 183).

The accusation of rebellion and sedition is similar to that Burton made against his opponents. In fact, to every accusation, there is an answer. To every innovation, there is a denial: Others innovate, not oneself. There is something ironic here about Protestant churchmen hostile to innovation in the wake of the biggest innovation of them all, the Reformation. How could innovation be such a fuzzy concept and be amenable to so many contradictory interpretations?

WHAT IS INNOVATION?

In 1637, Burton had his ears cut and was sentenced to life imprisonment. However, after three years, he was released by Parliament. He went back to his position at Saint Matthew and became a popular hero (Hughes, 1974; Auchter, 2001). In fact, the tide was turning against Archbishop Laud. Parliament accused Laud of treason and imprisoned him in the Tower of London. Laud was beheaded in January 1645.

Parliament had always been against innovation—but was silenced for years by King Charles. As early as 1628–9, the third Parliament had set up a committee to enquire into innovation in religion and politics and adopted a resolution against “divers courses and practices tending to the change and innovation of religion” (House of Commons, 1628–9b). As commented by parliamentarian John Eliot, the Parliament voted “whosoever shall bring in innovation in religion, or . . . seek to extend or introduce Popery or Arminianism, or any other opinion disagreeing from the true and orthodox Church, shall be reputed a capital enemy to this kingdom and commonwealth” (Forster, 1864: 419–20). However, to Parliament, Laud was not the only enemy. Charles was another. The King had levied a tax without Parliament’s approval. He was “reputed an innovator in the Government” (House of Commons, 1628–9a). As Eliot put it, the tax was “against the ancient and settled course of government, and tending to an innovation therein” (Forster, 1864: 455). In his declaration dissolving Parliament, Charles declared that “these [political] Innovations [Parliament’s committees] we will never permit again”.

When Parliament reconvened in 1640 after an 11-year absence, it resolved that many censures and sentences of the High Commission were illegal and void. The House of Commons also voted that (1) The communion table should stand east and west; (2) games and pastimes on the Lord's day should be prohibited; (3) pictures and images in churches should be taken away (House of Commons, 1641). Parliament was backed by hundreds of petitions (Morrill, 1985), national 'covenants' from Londoners and Scots "forbearing the practice of all novations" and some bishops who had constructed a listing of (forbidden) innovations in doctrine, discipline and the *Book of Common Prayer* (Church of England, 1641).

In order to appreciate the historical relevance of the controversy to the history of innovation, at least four elements have to be taken into account: (1) the context out of which innovation as a concept emerged, (2) the meaning of the concept, (3) the values held by the people at the time and (4) the uses to which the concept was put.

The innovation controversy was embedded in a context or period of history governed by the paradigm of orthodoxy, authority and order. Innovation was forbidden. Church and State were interwoven, and innovation in one threatens authority in the other. Burton put it in terms of fear or obedience to both God and Kings. For nearly a hundred years, there was a new 'orthodoxy' in England (Protestantism), to which subjects (including the bishops) had to submit. But some, according to Burton, were corrupting the established doctrine with idolatry and superstition. When Burton accused the bishops of innovating, he was calling for a restoration of purity in the English reformed tradition.

Seventeenth-century England (as well as Europe) was also a context of change (political, economic, social and cultural). New and radical ideas and projects abounded, turning the world 'upside down' (Hill, 1972). Order and orthodoxy had to be enforced, and it became a matter of discipline to obey the authorities. Printing seditious pamphlets to incense the people against the King (Heylin, 1637: 43) or using the pulpit to "ransack the affaires of state" (Dow, 1637: 156) was unacceptable. "If every man had leave to cast his scruple", the balance of authority would soone weigh downe" and bring "Anarchie", stated Heylin (Heylin, 1637: 38, 40).

Calling into question the discipline of the bishops was not allowed. Burton compares the High Commission to "the arte of Satan". However, replied Heylin, "as farre as you have said the truth, they [the judges] will all joyne with you. But when you leave to speak the trueth, which is the Office of a preacher, and fall upon Seditious, false and factious discourse, to inflame the people, and bring them into ill opinion, both of their King, and those to whom the government of the Church is by him intrusted; you are no more a preacher, but a Prevaricator, a dangerous Boutefeu, and Incendiarie" (Heylin, 1637: 6).¹¹ Too many "speake evill of the things they understand not, and shall utterly perish in their own corruption" (Heylin, 1637: Preface). "What authority", asks Dow, "hath [Burton] to demand a fight of

[Church] Authority? Who made him Inquisitor generall over the Bishops, to examine their actions" (Dow, 1637: 106). To Dow, "in any Church since the beginning of Christianity was it ever knowne that any Church, or any evill government did, or could subsist, without inflicting censures upon the willfull violators of their orders and constitutions?" (Dow, 1637: 109). The punishments are neither an innovation nor a persecution but an "act of justice" (Dow, 1637: 112).

What is innovation to people of the time? Like heresy (and heterodoxy), innovation "does not exist in and of itself" but only in relation to orthodoxy and order. Orthodoxy claims that there exist right and wrong beliefs concerning Christ and his teachings (Peters, 1980: 14). In this context, innovation has a specific meaning. It has nothing to do with originality or creativity—not yet. Innovation has nothing to do with progress either: It is rather subversive. Innovation is essentially defined as 'change' to accepted practices, more specifically 'introducing change' (or 'alterations') into 'public' or state affairs: in religious matters—"new I call it because it is flat contrary both to the expresse Scriptures and to the judgment of all Divines in all ages of the Church" (Burton, 1636b: 77)—and in politics—"King and novelties here doe stand in opposition one against the other" (Burton, 1636b: 100).

Innovation is not a neutral term but a morally charged one. It is a pejorative designation—a derogatory label applied to opponents and enemies—and, like heresy, what we know about innovators "we know largely from the records left by their enemies, who sought to emphasize the fact and consequences of their deviance, not accurately report them" (Peters, 1980: 61).¹² The use of the word reflects the values and attitudes of its users and the reaction to nonconformists and deviants, namely all those who redefine the boundaries of 'normal' behaviour (as many other terms did at the time: curiosity, virtuoso, originality, eccentricity and enthusiasm) and who act contrary to the established custom. To His Majesty, innovation is no less than a deliberate transgression of norms. It is both heretical and 'revolutionary'. The kings' declarations and proclamations just discussed are witness to this interpretation.

To others, innovation is mere fancy. When Burton labels all those who separate the fear of the Lord and of the king¹³ as "Novell Doctors" (Burton, 1636b: 81, 126, 151, 153), "Novellers" (Burton, 1636b: 96, 99, 100, 156), "New Babel-builders" (Burton, 1636b: 32), "New Reformers" (Burton, 1636b: 66), "Reformers of Religion" (Burton, 1636b: 106, 107) and "New Masters" (Burton, 1636b: 107, 108, 163), he is referring to practices (idolatry or new forms of worship) that are "of their own invention" (Burton, 1636b: 15, 109). It is "man's device" and a matter of "private opinion". In sum, innovation is mere novelty and fondness for novelty. Similar pejorative uses of the term novelty are made in Heylin and Dow. In fact, the distinction between novelty (as curiosity, contemplation, subtlety and fashion) and invention (as useful) was still in the making at the time.

Because of its pejorative connotation, the use and diffusion of the concept developed slowly over the centuries. In the Church of the 1500s, there were

occasional charges of ‘novelty’ and ‘innovation’. The removing of novelties was a major goal of the reformers. However, novelty was discussed in terms of ‘heresy’, and ‘enemy’ was used as a term for innovator. ‘Private opinion’ (or ‘variety of opinions’) was also a popular term. Innovation really started being used widely in the 1600s. Catholics began to argue that Henry VIII, Edward VI and Elizabeth had innovated. English Puritans adopted the same argument beginning in the mid-sixteenth century. Innovators, novelers, novelists, and the like emerged as labels for those who worked for a ‘return’ to Rome as well as for a number of ideas and behaviours previously called heresy and heretical. Innovation came to share the vocabulary with heresy.¹⁴ Burton’s popularity—together with William Prynne’s—has contributed to furthering the diffusion of the word.

The pejorative connotation of the word gave rise to a whole vocabulary on ‘renovation’, ‘restoration’ and ‘reformation’ (*Erneuerung* in German) in *lieu et place* of innovation.¹⁵ In fact, English Protestants denied that they had created a new religion and talked instead of a reformed one.¹⁶ In the ensuing centuries, innovation continued to be seen as negative. Violent, dangerous, pernicious, zealous, unscriptural and schismatic are only some of the terms used to talk of innovation among eighteenth- and nineteenth-century divines. Pejorative associations also abounded in clerical titles of the same period: ignorance and innovation, superstition and innovation, usurpation and innovation, revolution and innovation. In that same time, there were very few uses of innovation in a positive sense, whether in science, literary criticism or mechanical arts, each developing its own ‘disciplinary’ vocabulary—the terms discovery, imagination and invention, respectively.¹⁷ As a consequence, those who in the ensuing centuries wanted to rehabilitate innovation had to develop ‘strategic’ thoughts on how to deal with resistances to innovation, as Machiavelli had already done.

The concept of innovation has a central characteristic: its subjectivity. Change and innovation vary according to individuals’ interpretations. Others (enemies) innovate, not oneself. As the *ars rhetorica* of the culture of humanism suggests, “it is always possible to construct a plausible argument *in utramque partem*, on either side of the case” (Skinner, 1996: 9, 97–99). Burton attributed innovation to Laud and the bishops; Laud, Heylin and Dow denied being innovators and accused Burton of innovating. The use of the word moved from being a well-defined transgression (King’s proclamations) to being polemical: Anyone who, according to an accuser, brought in changes regarding scriptures was an innovator.

In fact, the participants in the controversy identified a varying number of innovations. Burton discusses the bishops’ innovations under eight headings. However, to Laud there are 14 innovations in Burton, not eight, and “some few more there are” (Laud, 1637: 68). To Dow, the number varies considerably: “I have gone over these eight heads of Innovations [but] I might easily have reduced them to halfe that number” (Dow, 1637: 192). At the very end of his pamphlet, Dow claims that he could have charged Burton and his party “with five times that number” (Dow, 1637: 213).

In his study of the period 1600–40, Milton suggests that (what I have called) the controversy on innovation “derived less from any easily identifiable novelty than from the fact that a practice so notable for its associated Roman errors was expounded and encouraged without a single caveat or even allusion to any papal corruption” (Milton, 1995: 69–70). “The engine behind religious conflict”, argues Milton, “was not their introduction of any specific doctrinal innovations—indeed many of the ideas which provoked most complaint may be found expressed, in different polemical contexts, among their opponents. Rather, what triggered conflict was the manner in which these ideas were presented, the specific polemical context in which an idea was expressed and the presence or absence of caveats which were standard in a particular polemical genre” (Milton, 1995: 543). Innovations did violence to wider aspects of Protestantism. They were breaks with aspects of religion (the Reformation) which served national identity: they were symbols of deviation in Anglican doctrine and superstition and idolatry (Milton, 1995: 98–100).

That there was no innovation or no “identifiable or specific” novelty is at odds with all scholarship on this period and deserves qualification. The innovations were ‘minor’ perhaps, as some would say today, but nevertheless ‘symbolic’, and, for this reason they were real innovations to many at the time. As the Church of England put it in 1549 concerning innovations in ceremonies, “The keeping or omitting of a ceremonie (in it selfe considered) is but a small thing: Yet . . . it is no small offense before God” (Church of England, 1549). Milton defines innovation from today’s point of view: An innovation must be something entirely new.¹⁸ This is a recurrent misunderstanding in the literature on this period. Historians often confuse our meaning of innovation with the aim of innovators. Because ‘innovation’ at the time aimed at a restoration, reformation and renewal, it would not really be innovation; it was not something novel (or ‘first’ introduction) but a return to earlier and purer orthodoxy. However, once innovation is understood as ‘introducing change’ (not creativity or originality) and ‘perceived’ change, one cannot deny that there were many ‘innovations’ at the time and that Burton had a good case for his claim that his adversaries were introducing innovations. That the ‘innovations’ were really understood as such is attested to by the severity of the punishments. As Bray put it while discussing the series of acts from the mid-1500s onward designed to enforce uniformity in religion, “The severity of the punishments, which included death for relatively minor offences, reflected the concern felt by many that the ‘old religion’ was being overthrown [and] demonstrates the essential hollowness of the opposition to reform” (Bray, 1974: 221).

Another element of interpretation takes into account a shared perception of the time: Innovation was regularly defined as a slow and gradual process, but one which, over time, gets up out of proportion. Little things do matter. Put differently, over the long term, ‘minor’ innovations have cumulative and undesirable effects. To Burton, alterations and innovations “doe fill the

peoples minds with jealousies and feares of an *universall* [my italics] alteration of Religion” (Burton, 1636b: 147); to Prynne, they “breed a *generall* [my italics] feare of a sudden alteration of our Religion” (Prynne, 1636). “Little by little” they change a kingdom into a tyranny (Burton, 1636b: 93). The argument has a long history, going back to Aristotle, as we have seen. It was used by Machiavelli in his discussion of innovation in *The Prince*. Charles I also made use of it in his 1626 declaration. The argument would remain popular among many others in discussing innovation. Sixty years after the controversy (1696), an anonymous British Baptist wrote a pamphlet on the “innovation of singing” in the Church. Singing in itself is not “a matter of the greatest moment”, said the author, but if similar innovations multiply, in forms of praying for example, “it might tend to the utter ruine of Primitive Christianity” (Anonymous, 1696). One hundred years later (1785), the English divine George Berkeley would pronounce a sermon in which he suggested, “At first [innovation] runs in a gentle rill, but, by degrees, the rill swells into a mighty torrent that sweeps away every thing before it” (Berkeley, 1785: 34–35).

FROM HERESY TO INNOVATION

Religion holds a special place in explaining the pejorative meaning of innovation. While the impacts of religion on science—directly by way of Inquisition (Bruno, Galileo) and indirectly through affinities between ideas (e.g. Gaukroger, 2006)—have been well documented, no one has yet studied what innovation owes to religion. With the Reformation, a change in the connotation of the concept occurs. While the Middle Ages innovated as compared to Ancient Greece, making of innovation (*innovo*) a positive term, writers of the Reformation shift back to the Ancient Greeks’ pejorative meaning of innovation. Ecclesiastic authorities and writers introduce the substantive innovation (*innouacion*), a term new to the vocabulary,¹⁹ and accuse opponents of introducing innovations—in the doctrine and discipline of the new orthodoxy, Protestantism. In contrast, Catholics use the word to oppose Protestantism. On both sides, innovation becomes the (modern) successor term to heresy.

Heresy is a word that comes from antiquity. As St. Isidore of Seville (c. 570–636) put it in *The Twenty Books of Etymologies*, an encyclopaedia summing up the history of the Church²⁰ (Peters, 1980: 49–50), “*Haeresis* is called in Greek from choice (*hairesein*; election in Latin), because each one chooses that which seems to him to be the best . . . And so heresy is named from the Greek . . . since each [heretic] decides by his own will whatever he wants to teach or believe” (*Etymologies* VIII: 3). “Whoever understands scripture in any sense other than that which the Holy Spirit, by whom it was written, requires . . . may . . . be called an heretic” (*Etymologies* VIII: 5). By the early thirteenth century, as Edward Peters suggests, Robert Grosseteste,

Bishop of Lincoln and first Chancellor of Oxford, gave what became the standard definition of heresy: “Heresy is [1] an opinion chosen by human faculties, [2] contrary to sacred scriptures, [3] openly held, [4] and pertinaciously defended [preached]” (Peters, 1980: 167).

For a long period in Western history, the innovator is a heretic and, from the seventeenth century onward, the word innovation replaces heresy. “Innovation and heresy are practically synonymous . . . We frequently find them accusing each other of innovation” (Preus, 1972: 2). Both heresy and innovation are talked of, among others, in terms of evil, sickness and disease, and innovators as flatterers and seducers and eager for novelty. The lexicon of heresy is also full of pejorative references to novelty: art and craft, invention, and love of novelty (see Appendix 4). Innovators themselves are regularly compared to and called heretics. Opponents to both heresy and innovation accuse the enemy of similar acts: rebellion, civil wars, instability and disorder. The vocabulary of Royal proclamations against heresy and heretics is similar to that against innovation and innovators.²¹

Both heresy and innovation share the idea of choice or ‘private opinion’, as opposed to an orthodoxy or tradition. As the Scottish philosopher Thomas Reid put it, innovation is a “liberty which, even when necessary, creates prejudice and misconstructions, and which must wait the sanction of time to authorize it” (Reid, 1796). Religion is full of the argument over innovation as private opinion, from Edward VI in his proclamation *Against Those that Doeth Innouate*,²² Elizabeth I against the Jesuits,²³ Charles I²⁴ and the Church,²⁵ to Puritans²⁶ and their censurers such as Peter Heylin of the High Commission.²⁷ Private opinion abounds in politics too, for example during the controversy on Republicanism in seventeenth-century England, as documented in the next chapter. The argument from liberty or private opinion makes it clear that innovation is the secularized term for heresy.

Although innovation may be the modern term for heresy, with time it encompasses much more than the religious. As the following chapters document, innovation covers the religious, the political and the social domains. The innovator is against the established order—religious, political or social—as much as the heretic is against orthodoxy and the church.²⁸

NOTES

1. Both the 1549 Act and the preface to the *Prayer Book* are reproduced in Bray (1974: 266–76). Most other documents used in this chapter are original editions.
2. In the early 1600s, a “controversy” arose on “abuses” in the Church according to the bishops (Church of England, 1603). King James rapidly settled the controversy, organizing a conference (Hampton Court) and issuing a proclamation that minimized the “innovations” (James, 1603; Barlow, 1604). A few years later, the long preface to the King James Bible (1611) had some reflections on the charge that the translators were innovators although the text never uses the word innovation as such; words used are less pejoratively

- connoted: renewing and reforming, changing, altering and amending. The translation of the Bible into English is novelty, not innovation.
3. Peter Lake, Nicholas Taycke, Kenneth Finchman, Julian Davies, Kevin Sharpe.
 4. Two pamphleteers who sympathized with Burton's views and whom I have not included here are John Bastwick and William Prynne. Certainly Prynne made use of innovation far more regularly than Burton, and over a longer period. Burton stopped writing on innovation after the controversy discussed here. However, I concentrate on Burton because it is in his case, I suggest, that one may study the representation of innovation with the most enlightenment. Burton and his opponents made extensive use of the word innovation in a series of 'exchanges' with each other, defining the concept explicitly and discussing its use.
 5. For an excellent analysis on the 'logic' of laudianism, see Lake (1992, 1993).
 6. The book of Proverbs is a collection of ancient proverbs (or 'sayings' or 'adages'), of which many existed in the Near East at the time. The collection is attributed to Solomon, Israel's greatest king.
 7. Predestination is the belief that God has chosen some men to be saved but that most will be damned.
 8. One example among many: "Instead of this passage, Root out that Babilonish and Antichristian Sect, Which say of Jerusalem, &c. They in the Last Edition, 1635, set it downe thus, Root out that Babilonish and Antichristian Sect of THEM, which say of Jerusalem, &c" (Burton, 1636b: 130). To Burton, the change was made to restrain or transfer the accusation to Puritans.
 9. In fact, at the time, the affairs of religion and the state were one and the same. On changes and the connections between the two fields, see Russell (1967) and Bernard (1990).
 10. However, God is not in every individual. While discussing transubstantiation, Dow says: "Gods presence is not everywhere alike . . .). He is not so in the brute creatures as in the rationally; nor so in the wicked as in his Saints" (Dow, 1637: 119).
 11. Similar accusations abound in Dow: "a projector" (projecting plots) (Dow, 1637: 27–28), "a captain of factions" (Dow, 1637: 179) and "a broacher of novell opinions" (Dow, 1637: 213).
 12. In his book *Concerning Heretics*, the humanist Sebastian Castellio (1515–63) defined heretics simply as those "with whom we disagree" (cited in Skinner, 1978: 247).
 13. Anabaptists and Papists who refuse to honour the King and Jesuits who attribute unlimited power to kings.
 14. At this time, the vocabulary of heresy also came to share its place with other terms like error. Anthony Wotton, in *Runne from Rome* (1624), talked of erroneous rather than heretical beliefs in order to avoid needless wrangling over the word, "for it seemes to many somewhat doubtfull what is properly to be called heresy" (Milton, 1995: 210). Novelty was also sometimes discussed in terms of the paradigm of truth: from "antiquity of truth to novelty of errors" (Burton, 1636b: 100).
 15. It is often suggested (or assumed) in the literature that the word innovation, because it is pejorative, was not used, but rather renovation and the like instead (Panofsky, 1960: 37–38; Burke, 1972: 221–27; Whitney, 1986; Palonen, 2003: 76–77). However, that another vocabulary came into use did not eliminate that on innovation. As this chapter documents, the language of innovation is used widely by authorities and other people.
 16. Arguments for a Reformation may be summed up as (1) 1500s: not a new church (*vis-à-vis* Rome) but a reformed one; removing of corruption, removing of novelties; (2) 1600s: return to the primitive church and the true church—scriptures, invisible church (God church, true believers), medieval church (sects like those of Hus and Wycliff as proto-Protestants) (Milton, 1995: Chapter 6).

17. Certainly, 'new' and associated concepts abound in the writings of the time and need to be studied seriously in any historiography of innovation. However, the new was not talked about in terms of 'innovation'. The use of new is also not without contradiction. For example, on one hand, the tradition of *ars rhetorica* denied innovation: the central argument of rhetoricians, according to which persuasion consisted in convincing an audience to accept something they did not already hold to be true, was to be achieved by means of accommodating the unfamiliar or unpopular proposition to the values of the audience. On the other hand, rhetorical manuals advised the orator to guarantee the attentiveness of his audience. This could be done if the orator demonstrated that the matters that he was about to discuss were important (*magna*), novel (*nova*) or incredible. I owe this point on rhetoric to Markku Peltonen.
18. How much novelty is a matter of debate. Theorists of innovation have developed controversial classifications and contrasted major to minor or incremental innovation. Similarly, distinctions are often made between innovation (as *first* adoption of a new idea, thing or behaviour) and imitation (diffusion of the innovation or adoption among followers).
19. In Chapter 2, I traced the origin of innovation to the Latin *innovo*. However, there is a late Latin word—*novatio* (from *novare*), a word from law in the fourteenth century, according to etymological dictionaries (renewing an obligation)—which gave novation. *Novatio* is used in the sixteenth and seventeenth centuries in Latin texts, and novation is used among Scottish and French writers particularly (where it gave *novateur*). One hypothesis would be that innovation comes from novation. Yet the two words appear at about the same time in English, with a similar pejorative connotation, which makes the hypothesis of linear affiliation between the two speculative, unless more studies are conducted.
20. Until the twelfth century, *Etymologies* was the most widely used reference book: information on heresy came from this book—as well as from Augustine.
21. Compare Edward VI's Proclamation of 1548 to the Tudor Royal proclamations against heretical preachers and heretical books (Hughes and Larkin, 1964: 57–60; 181–86).
22. "No maner persone, of what estate, order, or degree soever he be, of his private mynde, will or phantasie, do omitte, leave doune, change, alter or innovate any order, Rite or Ceremonie, commonly used and frequented in the Church of Englande" (England and Wales. Sovereign. Edward VI, 1548).
23. Jesuits and secular (Romish) priests are of a nature "apt to innovation and affected much to their owne opinions" (England and Wales. Elizabeth, 1602).
24. "Please their owne passions" (England and Wales. Charles, 1626); "private Fancies and innovations" (England and Wales. Charles, 1628).
25. A document, most probably from the Church of England, in the same year as Edward VI's proclamation, claims that "it is not a private mannes duetie, to alter Ceremonies, to innouate orders in the Church . . ." (Anonymous, 1548). "No private menne . . . ought to take in hande, nor presume to appointe or alter any publike or common order in Churche" (Church of England, 1549).
26. Henry Burton on bishops "own inventions", "man's device" and "private opinion" (Burton, 1636b).
27. Peter Heylin's phrases: "opinion of some private men", "fancies of one private man" (Heylin, 1637: 124).
28. This is not different from what happened to heresy. As Edward Peters has documented, from the late tenth century, the term heresy "came to be used of all forms of dissent, from the personal to the political", from the intellectual to the popular (Peters, 1980: 91).

5 Republicanism as Innovation . . . or Not Innovation

Innovators are not ruled by any customes and Lawes, but such as please them.

(Poyntz, *A Vindication of Monarchy*, 1661: 25)

We may have forgotten it these days, but innovation is a political concept. It began to be used by ancient writers on change and the stability of political constitutions, came into wider usage after the Reformation as a King's legal prohibition, then became a polemical weapon used against every kind of opponent to the established order and every proponent of change, including 'innovating' princes like Charles I.

Despite this political connotation, there are no entries on innovation in dictionaries of political thought or mentions in studies of political ideas. To be sure, change, under different aspects, is widely studied: revolution, crisis, progress, modernity. Yet innovation as a concept is still waiting for its history to be written. There is not a single article in the literature on the history of the concept or on the use of the concept in political matters—although historians like Pocock, Skinner and Farr have stressed the conceptual innovativeness of the political theorists. Historians and political scientists may have focused too much on 'classical' authors and theories. Until the twentieth century, innovation was used in a different kind of literature than the classics and theories, that is, pamphlets and tracts.

From the Reformation onward, the word innovation was widely used in religious matters, as documented in the previous chapter. The English Puritans accused the bishops of 'innovating' in matters of Church doctrine and discipline, using the word as such, thus launching the first controversy on innovation. In fact, it is that specific controversy that contributed to the diffusion of the concept in the following decades. In mid-seventeenth-century England, innovation started being discussed in politics, particularly with regard to the Republicans. The (failed) attempt to establish a republic in mid-seventeenth-century England was certainly one of the greatest political innovations up to that time, and, as Jonathan Scott has suggested, "the innovatory nature of the republic was hard to disguise" (Scott, 2000: 235). In the context of a monarchy, it challenged the established order directly.

Such a context of order has been widely studied by scholars for a long time and need not be repeated here (e.g., Hill, 1972). What must be stressed is that this context explains the use (or rather nonuse) of a central concept of the Western world: innovation. Innovation was a bad thing. It threatened authorities. Before the twentieth century, innovation was a term used pejoratively against every deviant, from the heretic to the political revolutionary and the social reformer.

It is through the discourses of critics of Republicanism that innovation enters into politics. The concept serves to discredit the political innovator or Republican. Republicans themselves rarely if ever discussed their project in terms of innovation. In fact, few if any innovations of the time were acknowledged as such.

This chapter is a study on the concept of innovation, the extent to which it permeated politics, and the representations that writers developed on innovation. It will be shown that innovation is a morally charged term, and this connotation explains the fate of the concept for centuries. To the Republicans, innovation is too pejorative a word to use to define their project. In contrast, the word is used without reservation by the Republicans' critics. To the Royalist, innovation points up the Machiavellian designs of Republicans.

This controversy on innovation, the second to occur in mid-seventeenth-century England, is more than just semantic. It has many things to teach the student of politics about context (order), self-presentation (image) and political action through persuasion. Words are markers of the social understanding of the world, and they reflect social and political values (Skinner, 1988; Farr, 1989). Furthermore, as Koselleck, among others, suggests, "in politics, words and their usage are more important than any other weapon" (Koselleck, 1969: 57).

In addition to being a chapter on the intellectual history of innovation, this chapter is a contribution to the history of political thought. It looks at how innovation as a pejorative and derogatory term entered political discourses and how, in turn, politics made use of it and contributed to its meaning. The chapter is not a paper on the history of Republicanism or theorists of the republic. Many arguments against Republicanism are well known to experts on political thought.¹ These are studied here to the extent that they contributed to a then (relatively new and) emerging concept: innovation.

The first part of this chapter examines the discourse held by English Royalists against the "innovators of State", through a pamphlet published in 1661, the first political pamphlet to use innovation in its title, a pamphlet never studied by political scholars. The second part documents a controversy between the English Republican Henry Neville and his critics, as well as the use made of innovation to support a case. The third part analyzes what innovation meant to people at the time, explaining the use (and nonuse) of the concept. The final part of the chapter studies what effects this representation of innovation have had on the concept in the centuries that followed.

The chapter focuses on England for two reasons. One is the fact that English writers were key contributors to a pejorative representation of innovation, particularly from the Reformation onward. Second, England is an ideal case study. England is a perfect example of the representations of innovation current in several countries, at least up to the French Revolution: France, Italy, Germany and the United States.

One important distinction needs to be made from the start. To properly appreciate innovation and its meaning during the period studied here, it must be recalled that innovation is distinct from innovativeness, at least in the vocabulary. Innovativeness is accepted to many extents, often openly. In contrast, innovation refers to introducing or bringing in some new thing that changes customs and the order of things in a non-trivial manner, and, because of this meaning, it is feared, forbidden and punished. To anticipate my conclusion, this meaning explains why the term was avoided by the innovators (Republicans) themselves.

A MONARCH ACCEPTS NO INNOVATION

The reign of King Charles I (1625–49) was one of the most innovative periods in England's history, if one believes what was said by people at the time. From 1628–29, parliamentarians regularly accused His Majesty of “innovating” (using the word as such) in matters of religion (“changing of our holy religion”) and politics (“taking or levying of the subsidies of tonnage and poundage not granted by Parliament”) (England and Wales, Parliament, 1654: 206–14). Between 1637 and 1641, Puritans like Henry Burton accused the King and his *protégé*, Archbishop of Canterbury William Laud, of “innovating” in religious doctrine and discipline.

This was only the beginning. In 1642, the Parliament sent 19 propositions to King Charles, asking for a more direct role in the government of the Kingdom, from the nomination of the Privy Council and ministers to the education and marriage of the King's children. As answer, Charles responded: *Nolumus Leges Angliae mutari* (We do not want that laws of England be changed) (England and Wales, Sovereign, 1642: 14). Some years later, the King put some of his thoughts on these propositions, among others, in *Eikón basiliké* (1648), which was published posthumously, and stated: I see “many things required of Me, but I see nothing offer'd to Me, by way of gratefull exchange of Honour” (Charles, 1648: 75). “In all their Propositions”, claimed Charles, “I can observe little of . . . which are to be restored” but “novelty” (Charles, 1648: 91), “destructive changes”, “popular clamours and Tumults” and “innovating designes” (Charles, 1648: 82–83).

The worst was still to come for Charles. On January 30, 1649, he was beheaded. Two months later, the Parliament addressed a declaration, claiming: “The *Representatives* of the *People* now Assembled in *Parliament*,

have judged it *necessary* to change the *Government* of this *Nation* from the former *Monarchy*, (unto which by many injurious incroachments it had arrived) into a *Republique*, and not to have any more a *King* to *tyrannize* over them" (England and Wales, Parliament, 1649: 20).

When Robert Poyntz (*bap.* 1588–1665), Knight of the Bath² and Royalist writer, published his tract *A Vindication of Monarchy* on "the danger that cometh by the abuse of Parliaments" (Poyntz, 1661: 35), the failure of a republic in England was only a few years behind him (see Figure 5.1). Yet works on Republicanism were increasingly produced in the country for over a decade, from John Milton's *The Tenure of Kings and Magistrates* (1649) and *The Readie and Easie Way to establish a Free Commonwealth* (1660) to Marchamont Nedham's *Interest Will Not Lie* (1659). In turn, pamphleteers increasingly levelled charges against Republicans: Milton the "diabolical rebel", James Harrington "the utopian", and Republicans the "innovators".

Poyntz was the first to use the concept of innovation ("innovators") in the *title* of a discourse entirely devoted to (a reply to) the Republicans. He was rivalled only by lawyer and Puritan William Prynne, whose use of the concept against the "Machiavilian and Innovating Republicans" was regular in many of his political writings from the mid-1650s onward. To be sure, the accusation of "innovating" in/of "both Church and Common-wealth" was widespread in English writings for several decades.³ However, the concept is used thereafter with explicit reference to the "Republican".

In his pamphlet, Poyntz defended the monarchy with references to Roman history and interpreted innovation as anything against the rules of common law. The argument from history and customs was a commonplace argument learned from rhetoric, and every writer studied in this chapter used it. To Poyntz, "Our fanaticke Polititians who teach men rebellion, and to flatter and deceive the People, and to effect their own designes, do say, that the supream power is originally in the People, and habitually inherent in them, and is derived from them, so as they may chastise and change their Kings, and assume again their power . . . do incite the People to rebellion" (Poyntz, 1661: 155).

To Poyntz, "There are two Pests and cankers, [which have caused Parliaments] so necessary for the Publick good, to prove the bane and ruine thereof" (Poyntz, 1661: 39). One is the King's absolute (and discretionary) power. As might be expected from a Royalist, Poyntz spent only a few sentences on this pest. Furthermore, he refers to Roman emperors rather than to English history. The other pest is Parliament. This is the pamphlet's main focus. Poyntz discusses this pest under the following headings:

Right of bishops to sit in Parliament.

Associations in Parliament against the King's and people's will.

Sedition and rebellion against the Sovereign.

Principles of innovators.

A
VINDICATION
OF
MONARCHY
AND

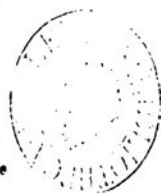
The Government long established in the
Church and Kingdome of *England*,

Against

The pernicious Assertions and tumultuous
Practises of the Innovators during the
last Parliament in the REIGN

OF

CHARLES the I.



Written by Sir ROBERT POYNTZ
Knight of the Bath.

L O N D O N,

Printed, by Roger Norton, and are to be sold by Gabriel
Bedell, and Thomas Collins, at the Middle-Temple-
Gate in Fleet-street, 1661.

Figure 5.1 Robert Poyntz, *A Vindication of Monarchy*. (Reproduced with permission from the Bodleian Library. Image published with permission of ProQuest, as part of Early English Books Online.)

Principle that the Prince holds its crown from the people.

Principle that the supreme power resides in the people.

Principle of the power of people to elect their Prince.

King's legislative power.

Prerogative of the King.

Poyntz starts by discussing the right of bishops to sit in Parliament, offering three reasons not dissimilar to what a Republican would propose for any representative of the people in Parliament. Bishops need to be part of the Parliament because it is a matter of representation of every part of the commonwealth. People are not bound by laws if they have no voice in Parliament. Second, the bishops' learning and judgment provide for enlightened advice and assistance. Third, bishops pay taxes.

However, Poyntz's main argument is developed with the Republicans in view, not the bishops. As a first entry into the matter, Poyntz argues that making associations in Parliament against the King's (and people's) will is unlawful. "Love of liberty and the desire of dominion" (Poyntz, 1661: 53) is "the most effectual means to disturb peace, to introduce innovations in the State, and to weaken all bonds of loyalty and obedience" (Poyntz, 1661: 49). Although "in these great attempts and dangerous experiments upon a state and Common-wealth", men's designs "do really aime at some good reformation, and intend to proceed upon justifiable grounds and reasons, or at least so seeming", yet "they slip almost insensibly into the use of dangerous and unlawful means" and are driven "to violent motions" (Poyntz, 1661: 54). Here is stated Poyntz's understanding of innovation: violence, sedition and rebellion against the Sovereign.

Poyntz devotes a large part of his text to what he calls the principles of Republicans as "innovators" of state. First is the principle that a king holds its crown from the election of the people and may be deposed at will. False, says Poyntz. Power is established by God, and "evil Kings are set over us, by which the authority of all Kings is established". The people "are incompetent judges, and not capable to discern a King and a Tyrant; and in respect of their ignorance, they alwayes gave great advantage unto those who were ambitious, seditious, and lovers of novelties" (Poyntz, 1661: 87).

The second principle of innovators is that the people have supreme power. But, asks Poyntz:

How can they reconcile themselves with St. Paul, who saith, the Powers are of God . . .; with [the doctrine of] Aristotle, and other learned men affirme, that by nature men are subject and servants to others? . . . There is a difference between the powers which are God, and the administration, or the evil execution of those powers. In the beginning were Kings . . . but some people, after they were weary of Kings, governed

themselves by their own laws. [This] was worse than the Tyranny of one man. (Poyntz, 1661: 111, 113)

The third principle of innovators is that the people have the power to elect their Prince. False, replies Poyntz again. Those who transfer “power unto others, have, after those acts are consummated, no power to deal in any thing appertaining to that Power by them transferred” (Poyntz, 1661: 122). It is not a delegated power (Poyntz, 1661: 123) but a “contract” that binds forever (Poyntz, 1661: 130). Even a tyrant cannot be removed:

I grant, that there is often an abuse of the Law . . . and there is an abuse of the Regal power and prerogative . . . under the colour and pretence of reason of State. [But] these corruptions and abuses, are not sufficient causes, for the abolishing the good and ancient institutions in Common-wealth, or the proper and necessary rights of Monarchy. (Poyntz, 1661: 145–46)

Poyntz concludes his pamphlet: “Although the cause of rebellion proceedeth not from ambition, revenge, and the like, but from actions of good intention, for reformation of the Church or Common-wealth, rebellion and civil war doth follow” (Poyntz, 1661: 153). To Poyntz:

A Civil war, or rebellion doth most commonly produce more pernicious effects in one year than either the insufficiency or Tyranny of a Prince can in an age . . . The People ever desirous of innovations, and prone to all licentiousness, when the reins are but slackned, they do expose to the fury of their provoked Sovereign. (Poyntz, 1661: 155–56)

What does Poyntz have to say explicitly and generally on political innovation? Poyntz could hardly ignore that “[a]ll human affairs are ever in a state of flux and cannot stand still”, as Machiavelli put it in *The Discourses* (I: 6). He had lived through the civil wars, the execution of Charles I, the government of Cromwell and the restoration of monarchy (Charles II), and he had read the discourses by the Republican writers. In fact, Poyntz accepts change because, over time, there is corruption. Things need to be reformed. “By the course of time they [the Church and Common-wealth] are carried through the corruption in manners, defects in government, and in the execution of good Laws, into a stream of abuses, contempt and confusion” (Poyntz, 1661: 4). However, the corruptions are not “indurable, but removable”. Yet, to Poyntz, acceptable change is not innovation because “alteration” is dangerous. Change must be limited in scope. Change is better conducted “with a fair, orderly and prudent reformation or temporary toleration, then by . . . Innovations, especially sudden”. In the latter case, “the minds of men are disquieted, fuel is brought into fiery and turbulent spirits, and the peace of the Church and Common-wealth indangered, if not destroyed” (Poyntz, 1661: 4).

THE REPUBLICAN INNOVATOR

Poyntz has put into text a conception of innovation that soon led to a political controversy. “Before the seventeenth century”, so argues Jonathan Scott, “most English defenders of the commonwealth principles assumed their compatibility with monarchy”. However, during the mid-century, “it became a key republican claim that . . . monarchies in Europe had all in practice become tyrannies” (Scott, 2004: 38). Many arguments were developed in seventeenth-century England to support a republic: references to history (Parliaments are old) and to natural law (a Republic is the best or correct form of government) and to the use of models (the Romans) (Scott, 2004: 110; see also Skinner, 1965, 1972, 2002). In every case, it was a matter of defending two principles: the public good (as a government goal) and constitutional government (rather than a government of one person) (Scott, 2004: 36). To some, it was also a matter of providing a basis for stability or a balance of dominion for the prevention of alteration, like Harrington’s agrarian law (Scott, 2004: 182).

Republicanism in seventeenth-century England certainly represented a great innovation. But writers at the time rarely if ever acknowledged this innovation. Innovators never thought of naming themselves innovators. As a consequence, use of the innovation concept is very rare among the most important Republican writers. Only a few authors—Harrington, Milton, Nedham and Algernon Sidney—used the concept, and they used it only in a few documents (of the hundreds they produced). There is still less use of the concept in key Republican texts such as Harrington’s *The Commonwealth of Oceana* (1657) and Nedham’s *The Case of Commonwealth* (1650), and none among others, like Milton’s *The Tenure of Kings and Magistrates* (1649).

The few uses that these writers made of the concept were for two purposes but not for discussing Republicanism as innovation.⁴ One use continued the tradition of the previous decades, that is, naming changes in religious matters. Such is the case in Nedham’s *The Case of Commonwealth* or Milton’s *Aeropagitica* (1644), as well as in the latter’s *Eikonoklastes* (1650), discussing Charles’ *Eikón basiliké*. Another use of the concept is in interpreting history. For example, Harrington’s *The Prerogative of Popular Government* (1657) discusses how the Florentines were addicted to innovation by changing the Senate. He also uses the concept to discuss the (Machiavellian) dichotomy between monarchy and democracy, as well as the difficulty of conquering the first and keeping the second: Absolute monarchy is governed by discipline and command, while democracy always innovates or breaks orders. Finally, Harrington makes reference to Bacon’s essay *Of Innovation* (1625) while discussing the origins of the agrarian law.

The same kind of use of the concept is made by the Republican Henry Neville, to whom we now turn. Neville explicitly refused to use the concept of innovation to talk about his remedy for the disease of England. In the work to be discussed, Neville makes three uses of the concept of innovation,

all three in a historical context: the Romans not dividing the lands equally (as Romulus did) in conquered Athens (Neville, 1681: 57); the Normans changing the government and infringing on the rights and liberties of people (Neville, 1681: 113); and the Scots refusing innovations in matters of religion (Neville, 1681: 162).⁵ In a conflicting view, two authors engaged in a controversy with Neville, and they did not refrain from using the concept against him. Let's look at the controversy.

Neville (1620–94), a Republican, a friend of Harrington and an admirer of Machiavelli,⁶ anonymously published the pamphlet *Plato Redivivus: or, a Dialogue Concerning Government* in 1681. The text, republished several times in the following decades, is a dialogue between an English gentleman, a noble Venetian and a doctor (of state) developing a proposal for the exercise of the Royal prerogative through councils responsible to Parliament.

To Neville, there is a disease in the State which arises from the fact that the Prince is a tyrant. He puts his own interest before the interests of his people. The very first governments were instituted “for the good and Preservation of the Governed, and not for the Exaltation of the Person or Persons appointed to Govern” (Neville, 1681: 30). To Neville, “The Cause Immediate of our Disease, is the inexecution of our Laws” because the King thinks (and is advised) that they are against his interest (Neville, 1681: 253–54).

Neville's pamphlet is divided into three discourses (representing three days). On the first day, the speakers agree that there is a problem or disease in England and on the need for a remedy. The English gentleman reminds his interlocutors of the “wise Custom amongst the Ancient Greeks” that “when they found any Craziness or indisposition in their several Governments, before it broke out into a Disease, did repair to the Physicians of State”. But “in our days, these Signes or Forerunners of Diseases in State are not foreseen, till the whole Mass is corrupted, and the Patient is incurable, but by violent Remedies” (Neville, 1681: 10).

The second day turns to the causes of the disease. The Venetian asks, “What Reasons this Nation [England], which hath ever been esteemed (and very justly) one of the most considerable People of the World, and made the best Figure both in Peace, Treaties, War, and Trade, is now of so small regard, and signifies so little abroad?” (Neville, 1681: 16). The gentleman answers that one of the primary causes:

is the Breach and Ruin of our Government [which] lyes agonizing, and can no longer perform the Functions of a Political Life . . . Our courtiers . . . have played Handy-Dandy with Parliaments, and especially with the House of Commons . . . by Adjourning, and Prorogating, and Dissolving them (contrary to the true meaning of the Law). (Neville, 1681: 20–21)

Turning to the Venetian, the gentleman talks of “your Government, which hath lasted above twelve hundred years, entire and perfect; whilst all the rest of the Countreys in Europe, have not only changed Masters very

frequently in a quarter of that time, but have varied and altered their Politics very often" (Neville, 1681: 24). Like Harrington, Neville is looking for stability in the government. To the gentleman, the government of England is the best form of government: a mixed monarchy. Yet the problem is that the King has destroyed the balance: He has the prerogative to call and dissolve Parliaments and to approve laws as he pleases (Neville, 1681: 111–12). In such a context, asks the doctor, what remains of our liberties or rights?

The third day is devoted to the remedy. To Neville, four powers of the Crown hinder the execution of our laws (Neville, 1681: 256ff.): the King making war as he pleases, levying taxes as he pleases, nominating people to offices as he pleases, and employing the public revenues as he pleases. Neville's remedy is to have "His Majesty exercise these four great *Magnalia* of Government, with the Consent of four several Councils", elected in Parliament, and each year one-third changed (Neville, 1681: 259), together with a Parliament elected every year (Neville, 1681: 269).

Like Poyntz, Neville accepts change. However, unlike Poyntz, Neville's "reform of the government" is really innovation: "Bill that make considerable alterations in the administration we have need of" (Neville, 1681: 222). Yet Neville never uses innovation in this context, but rather alteration, reform, rectification and melioration. The stated goal is to help the Prince, not overthrow him. Let's postpone the answer to why Neville refuses to talk of innovation until after we look at the replies to his position and the controversy it generated.

Plato Redivivus generated two full-length replies that qualified the "libel" as innovation and its author as an innovator. The two replies deny any disease in the State and consequently refuse any changes. The first came from an anonymous author (W. W.) and was titled *Antidotum Britannicum: or, a counter-pest against the Destructive Principles of Plato Redivivus*. The pamphlet was published in the same year as *Plato Redivivus* (1681).

Like Neville's, the pamphlet is a dialogue, between Platophilus (Henry Neville) and Britanicus (W. W.), to whom "the Government of England is a rare and admirable mixture of Monarchy, Aristocracy, and Democracy" (Anonymous, 1681: 6). The entire tract is concerned with portraying Republicans as subversive. The main argument of the tract concerns erecting boundaries, as Poyntz does. To the anonymous writer, "Kings are made by God", and "The people only nominate or designe" their King. "The Vote or Consent of the People is only a *Medium*" (Anonymous, 1681: 17). It is a fallacious principle "that if the People have the most Property and Possessions in Land, that they must therefore have the most Power". This is a "design" "to make the People hate Monarchy, and to be in love with Democracy" (Anonymous, 1681: 37). "The Nobles and Gentry in a Monarchy are a great Security to the government while they keep themselves within their proper bounds" (Anonymous, 1681: 40).

But, replies Platophilus, "the Commons were an essential Part of the Parliament" long ago (Anonymous, 1681: 56). Perhaps, adds Britanicus, but "[t]hey

were rarely Summoned" (Anonymous, 1681: 57). Platophilus repeats Neville's statement that courtiers have played handy-dandy with parliaments "by Adjourning, Proroguing and Dissolving them" (Anonymous, 1681: 71). In turn, Britanicus replies that "[t]he House of Commons anciently was Concerned only in Statutes, Grants, and Subsidies, or such like, but of late they claim . . . to be made Parties in all Judgments" that appertain to the King only (Anonymous, 1681: 79). Parliaments "must keep themselves within their just bounds . . . leaving to the King his undoubted Prerogative" (Anonymous, 1681: 75).

To the anonymous writer, "It belongs to the King, that those Laws and Customs which he shall think to be just and profitable, that he confirm and cause them to be observed", not "any new law, but . . . the just Laws that are already in being" (Anonymous, 1681: 114–15). "All Innovations in Government are Dangerous", says he. It is "like a Watch, of which any one piece lost will disorder the whole" (Anonymous, 1681: 172). As previously mentioned, this is a much repeated argument in the literature against innovation. Although sudden and violent, innovation comes on imperceptibly, little by little, by degree.

Three years after *Antidotum Britannicum*, Thomas Goddard, Esq., published *Plato's Demon: or, the State-Physician Unmaskt; Being a Discourse in Answer to a Book call'd Plato Redivivus* (1684). The text is a dialogue (again) between an English gentleman and a merchant. The author's authoritarian sources are Hugo Grotius's *De Jure Belli* and the Bible.

Like the anonymous writer, Goddard starts with sedition. It is our duty, Goddard writes, to oppose:

the Seditious, Conspiracies, and Traiterous Associations, of Our little, malicious scribbling Enemies . . . Among many of that deceiving, or deceived Crew, none seems more impudently extravagant than the Author of a Libel call'd Plato Redivivus. [Neville] makes us believe that he is supporting Our Government, whilst he endeavours utterly to destroy it. Any private person, who authoriz'd by our lawful Government, shall publish either by words or writings, any arguments or discourse, against the Constitution of the Government by Law establish'd, is a pestilent, pragmatistical deceiver, a seditious Calumniator, and Perturbator of our Peace: His words and writings become scandalous Libels. (Goddard, 1684: 13–14)

Goddard's first of three discourses is concerned with demonstrating that there is no disease in the State but rather "Extreme happiness of the English Nation" (Goddard, 1684: 5)—a form of government (monarchy) "eternall secur'd from the corruption of Tyranny" and "a Prince so moderate and so just" (Goddard, 1684: 6). In the course of his argument and throughout the whole tract, Goddard develops many conceptual distinctions reminiscent of philosophical dichotomies (substance–accident, form–matter, soul–body)

and uses them to make a case against innovation. First Goddard distinguishes between the Governors and the Constitution. The former are “subject to weaknesses and infirmities, and . . . may be easily remov’d or chang’d, without destroying or altering the Government” (Goddard, 1684: 17–18). But a:

Politician is certainly most unfit for a Prince’s Cabinet, or House of Parliament, who finding, it may be, some mismanagement in State-affairs, should presently resolve to pull down the Fabrick it self, I mean Monarchy, and in its place build up a phantastical Commonwealth, then transform that into an Optimacy, then an oligarchy, till having pass [*sic*] through all the misfortunes, which innovation and change have generally produc’d.

To Goddard, “to alter, nay totally destroy the ancient establish’d Government . . . would have been so much contrary to the Wisdom and judgment of Plato” (Goddard, 1684: 24). “No one Polity, or Form of Government or laws whatsoever [meaning ancient Greece], are universally proper for all places”. The authority of Plato, Lycurgus or Solon shall “be admitted no farther than their laws are proper or convenient for us” (Goddard, 1684: 31). To be sure, the Greeks had good laws, but “the Form of Government [Republic] succeeded as generally all Innovations do” (Goddard, 1684: 41). “Nothing is left, but some few wandring, remains of old rustick monuments, which serve only to testifie that they once have been” (Goddard, 1684: 224). The lesson is clear: “[S]upport the present Government by Law established, [so] that we may avoid the Plague of Innovation” (Goddard, 1684: 46) and “the misfortunes, which Innovation generally produces” (Goddard, 1684: 47).

Goddard devotes his second discourse to natural law. Neville has attributed the turbulence of the present time, says Goddard, to the constitution of the government, which needs to be altered. Wrong, replies Goddard. In support of his view, he presents a further distinction. Government is divided into the Material part (the People) and the Formal part (where Power resides) (Goddard, 1684: 59–60). According to Goddard, Neville means that the formal part needs to be altered, and he is mistaken. Sickness in the body politic resides in the material part (the discontented and turbulent men).

“How comes it then to pass that so many Philosophers, and all Antimonarchical Authors, pretend, That the People were before the Prince, that they are above him, that they made him, and by consequence, may depose him”? It comes “from the Ignorance of some ancient Philosophers, and the impious complaisance of some of our modern Wits” (Goddard, 1684: 90), namely those neglecting the history of the Bible. To Goddard, those philosophers (Lucretius, Hobbes) say that the world was made by chance. “How comes it to pass, that Accident and Chance” have been so fitting to us (Goddard, 1684: 94)? “When Men grow fond of their own Imaginations they

run over all, and neither Reason nor Religion have any Power to stop them” (Goddard, 1684: 108). To Goddard, history “make[s] me capable of defending the doctrine, and the good constitution of our Government, against all hot-brain’d and ambitious innovators” (Goddard, 1684: 211–12). “Our Author hath not produced one single authority, or one little piece of an Act, Statute or Law, to prove that the Sovereign power is in the people”, only private opinion (Goddard, 1684: 289).

Goddard’s final discourse continues with more history and makes a parallel between Ancient Rome and modern England:

The *Roman Commonwealth* was one of the *worst Government*, that ever subsisted so long . . . Its chief *default* proceeded from the *exorbitant power of the people* . . . Though they set on foot the popular pretence of Liberty and Property, yet honour and Empire was the true game, which they themselves hunted . . . : outward appearance, for the good of the people, but truly for the advancement of his own private designs and Empire. (Goddard, 1684: 241–42, 252–53)

Goddard observes the same in England:

Many of our own worthy Patriots, who cry up so much for Liberty and Property, and the interest of the people, intend more really their own particular advancement . . . Many privileges may be granted to the people at first for encouragement, which afterwards may be inconsistent with the safety of the Government. (Goddard, 1684: 259, 248)

Goddard concludes by repeating his belief that since there is no disease, there is no need to “comply with our Authors Popular Government” (Goddard, 1684: 314). “Should the House of Commons become our masters, what could they bestow upon us, more than we already enjoy, except danger and trouble”, those “fatal consequences, which such a popular innovation would induce?” (Goddard, 1684: 325).

POPULAR INNOVATION

What representation of innovation does one derive from this controversy? As documented already, innovation as a concept was first used widely in religious matters, particularly after the Reformation. It was deviant behaviour and meant introducing change into the established order, namely Protestantism—that is, counter-reformation, which then was popery or new doctrine—and a new discipline in the seventeenth-century Protestant Church. It covers a larger range of heterodoxies than just heresy. All deviant people are innovators. When people started using the concept in religious matters, it was to emphasize the broader innovative behaviour of ‘heretics’

and to make analogies with the ‘revolutionary’. However, it was left to others to develop this latter representation of innovation.

Innovation in politics carries essentially the same meaning as introducing change into the established order, in this case the political order. However, innovation includes one more pejorative connotation that gave it bad press for centuries: It is sudden and violent.

Change

The four texts discussed in the previous two sections all start with change, either to propose or deny it. To Poyntz, there is “corruption”, which necessitates “reform”. To Neville, there is a “disease” with calls for a “remedy”. On the other hand, the anonymous writer and Goddard believe that there is no disease and therefore no need of change. To them, those who introduce change or reform are innovators in a pejorative sense.

Poyntz is certainly the author who discusses change most widely. To a certain extent Poyntz accepts change, but limited change. That change is necessary is based on the fact that time corrupts things. Poyntz’s first entry into the subject is via religion: “That some Rites and Ceremonies we retain which have been polluted, yea . . . ; yet . . . pollution and impiety may be worn or wrought out” (Poyntz, 1661: 23). “If we look for a Church where there are no scandals . . . neither any imperfections and defects, we must go out of the world” (Poyntz, 1661: 24). To Poyntz, acceptable change has two characteristics. First, it must take context into account rather than be abstract. Laws, he says:

May well be made to look forward, and for the future, but they must of necessity be made fit for the present time . . . Although it be true that all the Divine Laws extend not their power of binding in all times, and to all persons; and positive Laws Ecclesiastical must be fitted to the times and manners of men . . . yet great consideration ought to be taken, of the difference of variations of times, and of other circumstances, reasons, and inconveniences, before any new Laws, Orders or Discipline either in the Church or Common-wealth be imposed, or the old and inveterate Lawes and customs repealed and abrogated . . . We ought not onely to look simply upon the nature and quality of the things in themselves, and in abstract, but how they stand in relation, and connexion with old matters and things of long establishment, and of great importance . . . Saint Augustine said, of some evils in the Roman State [that it is better to] observe and keep antient Laws and customes, although they are not of the best . . . especially if the changes and alterations [suggested are] driven on by violent and pertinacious Spirits. (Poyntz, 1661: 11–12, 16–17)

Applied to political matters, the argument becomes gradualism. This is the second characteristic of acceptable change to Poyntz: “The alterations in

the State and Government . . . if they are not discreetly handled, and affected by degrees in an orderly course, and carried still on with the ease and contentment of the people, they will in short time be disquieted, and either turne back into the old way like sheep driven, or violently run head-long into some new" (Poyntz, 1661: 18).

Unlike Poyntz, both the anonymous writer and Goddard have very few words about change. To the anonymous writer, when there is no inconvenience, there is no need for change. "We ought to defend that Kingdom and Government, which Reason persuadeth us unto, Experience approves, and Antiquity commendeth; when inconveniences in the old Laws are not apparent; and the conveniences to come by the new, are not infallible, it will be perillous to change the Laws, but more perillous when many, and most perillous when fundamental" (Anonymous, 1681: 215–16). On the frontispiece of his tract, the anonymous writer placed the following: "Res nova non tant utilitate, Proficiunt, quam Novitate efficiunt [Novelties do not serve utility; they rather produce more innovation]".

Like the anonymous writer, to Goddard there is no disease but rather "Extreme happiness of the English Nation" (Goddard, 1684: 5). "The Subjects of England enjoy a greater Liberty, than was known to any of our Ancestors before us" (Goddard, 1684: 321). Goddard finds no fault in the present government that would lead one "to desire any change or innovation" (Goddard, 1684: 361). "A [more frequent] Parliament cannot make us more" happy than we already are (Goddard, 1684: 326). "What can our new masters do for us more than is already done" (Goddard, 1684: 368). "We have a King merciful, loving, and tender to us" (Goddard, 1684: 372). Goddard's conclusion: "When there is no disease, there can be no cure" (Goddard, 1684: 375).

Antimonarchy, Violence and Design

To those at the time, three characteristics define innovation. First, innovation, or rather the innovator (because the discourses on innovation are first of all concerned with the innovator), is unlawful and guilty of "Capital Crime", says Poyntz (Poyntz, 1661: 58).⁷ The innovator is the one who breaks laws. To Poyntz, "Innovators are not ruled by any customes and Lawes, but such as please them" (Poyntz, 1661: 25)—an argument framed in terms of private opinion in religious matters and that entered also into political innovation.⁸ Others shared his belief. The anonymous writer develops his whole argument against innovators based on the violation of boundaries.⁹ On several occasions he stresses the duty of people to keep within their just and proper "bounds". To Goddard too, the innovator "has no religion"; he is a "dissenter". "I do not think the Papists . . . so dangerous to our Government, as the *Dissenters*" (Goddard, 1684: 340). The papists "hath no ill influence upon our Civil Government" (Goddard, 1684: 350).

In the present case, deviance means antimonarchy or the ‘popular’ doctrine of Republicanism. The pamphleteers phrase it explicitly as such. To the anonymous writer, *Plato Redivivus* is “a Hotch Potch of antimonarchical Principles” (Anonymous, 1681: 4) to “infect His Majestie’s good Subjects”. Goddard calls the Republican writers “Antimonarchical Authors” (Goddard, 1684: 90), whose principle is “innovation of popular power” (Goddard, 1684: 367), “*exorbitant power of the people*” (Goddard, 1684: 242). To Poyntz, the innovators deserve the name “Patrons of Popular liberty” (Poyntz, 1661: 136). Of the three Royalist authors, no one put it better than the anonymous writer in his preface: “They who are troubled with the Itch of Innovation, cannot but be rubbing upon Majesty”. Their “design is to turn Monarchy into Anarchy” and “propagate so many pernicious Maxims and Popular Theorems tending to the Subversion of the established Government”. And he continued, “Monarchy is the most sure Basis of the peoples Liberties and the only Staple of their Happiness”. If monarchy were replaced by councils, “it would open a Door to all Calamities, and Confusion”. Liberty of conscience introduces “Arbitrary Power in the State”. To the anonymous writer, “Novatian himself [the first antipope] was not a greater Innovator than these Men”.

Secondly, and not its least characteristic, innovation in this view is ‘violent’. This characteristic distinguishes innovation from what it had meant previously, particularly in religion. To be sure, in the 1630s–40s innovation in religion was discussed as ‘dangerous’ due to its consequences on doctrine and discipline, not because it was violent—although it was regularly stressed that innovation leads to wars. From then on, innovation is necessarily sudden and violent. Innovation is ‘revolutionary’. It is necessarily great or major change—while ‘minor’ or symbolic novelties were also innovation to ecclesiasts.

The reader has by now seen plenty of citations that are witness to the ‘revolutionary’ behavior of the innovator. Rebellion and sedition are key words used against the innovator—revolution as new beginnings and historical inevitability was not used in this sense at the time. On one hand, the innovator, because of “his fiery and turbulent spirit” as Poyntz put it, leads people to sedition. On the other hand, “inevitable” and “fatal” consequences follow “popular innovation”, as Goddard stated (Goddard, 1684: 325, 367). All authors are unanimous as to these inevitable consequences, from the general to the political: danger and troubles, division and factions, wars and anarchy.

To Poyntz, changes in religion in England went “in an orderly and quiet passage, under the conduct of a Royal power, and a prudent Council of State. Religion changed as it were by degrees and insensibly, all things seeming to remain in the same course and state as before”, unlike Germany, France, the low countries and Scotland (Poyntz, 1661: 31). But “[t]hose innovators who try experiments upon a State, and upon the peoples disaffection to the present government, and thereupon lay the chief foundation of their designs, without some other stronger assurance, have often failed, and have found

themselves and others with them utterly ruined, through the suddain and violent ebbing and flowing of the Peoples passions and affections" (Poyntz, 1661: 18). As we have seen, Poyntz argues for a reform, not innovation—a reform that takes time and circumstances into account, rather than being discussed in the abstract; a reform by degree and order, not by violence. Also as seen, to the anonymous writer, innovation is sudden and violent, but at the same time it often arrives imperceptibly, little by little, by degrees.

A third characteristic of innovation needs consideration. A term that recurs among all three Royalists (and King Charles's *Eikón basiliké*) is design. The innovator has a design in mind. The meaning of design is a project, a suspicious project—another term that suffered from bad press ('projectors' were the untrusted innovators-entrepreneurs of the time). There is no reference to creativity here, but rather a machination, a subversion, a conspiracy. Poyntz, as we saw, talks in terms of a (dangerous) "experiment", as well as design. So do the anonymous author W. W. and Goddard.

Design, a key word of the political world in England and the US in the 1760s–70s (Bailyn, 1967: 94–159), would continue to characterize innovation in the next century, and then the notion of "scheme" would be added, as in Thomas Bancroft's *The Danger of Political Innovation and the Evil of Anarchy* (1792). "I trust it may be expected from the good sense of Englishmen that they will reject their suspicious schemes of Reform and Innovation" (Bancroft, 1792: 14).

As much as it may represent a dangerous design, innovation is at the same time reduced (minimized) to a mere popular fashion—"Itch of innovation" (anonymous writer), "Plague of innovation" (Goddard), "love of novelties" (Poyntz)—or to a matter of "eutopia". To the anonymous author:

[t]here are a Generation of Men (fitter in being Factious to Disorder, than Sober to settle Affairs of State) who make it their Master-piece; to Subvert the best Government . . . and then to present unto the People some *Eutopia*, or imaginary Model of Government.

I cannot see but the King and his Privy Council may manage all the Affairs of State, with much more advantage to the Publick . . . than if the Administration thereof were by these *Eutopian* and Popular Councils. (Anonymous, 1681: 173, 217)

For his part, Goddard refers to fantasy and enthusiasm: "phantastical Commonwealth" (Goddard, 1684: 18), "Fantastical cure for an imaginary disease" (233), "Enthusiastical follies" (321).

Reformation Yes, Innovation No

Antimonarchy, violence and design: These are the three elements of innovation that make of it a negative concept. It also explains Neville's relation to innovation. Like Poyntz, Neville agrees with change but, unlike

Poyntz, says “considerable alterations in the administration we have need of”. Yet Neville does not seek to abolish the monarchy, as revolutionaries do. He would also keep the House of Lords—although one nominated by Parliament and with no control over the House of Commons—rather than suggesting an elected Senate. Neville really offers a ‘reformation’, not an innovation. On one hand, Neville suggests a great innovation (without using the word): “I believe there can be no Expedients proposed in Parliament that will not take up as much time and trouble, find as much difficulty in passing with the King and Lords, and seem as great a change of Government, as the true remedy would appear” (Neville, 1681: 183). On the other hand, he says, “The less change the better . . . Great alterations fright Men” (Neville, 1681: 272). In sum, Neville is “not making a [new] kind of Government [like that which exists in Italy], but rectifying an ancient Monarchy, and giving the Prince some help in the Administration” (Neville, 1681: 278).

Why no innovation in Neville? Because of resistance—and therefore a lack of supporters. “We are not Ripe for any great Reform”, he says, firstly, because we have “a Politique Debauch, which is a neglect of all things that concern the Publick welfare” (Neville, 1681: 282); secondly, because the “most Wise and Grave Men of this Kingdom are very silent” (Neville, 1681: 283); and thirdly:

There is a great distrust [in Parliament] of venturing at such matters, which being very new, at the first motion are not perfectly understood, at least to such as have written of the Politicks; and therefore the Mover may be suspected of having been set on by the Court-party to puzzle them, and so to divert . . . It is the nature of all Popular Councils . . . to like discourses that heighten their passions, and blow up their Indignation, better than them that endeavour to rectifie their Judgments. (Neville, 1681: 288)

Yet, Neville continues:

We have one Consideration, which does encourage us . . . And that is the Infaillible Certainty that we cannot long Continue as we are, and that we can never Meliorate, but by some such Principles, as we have been here all this while discoursing . . . If you ask me whether I could have offer’d any thing that I thought better than this, I will answer . . . Yes, but that [what I have suggested is] the best, that the People would or could receive. (Neville, 1681: 290–92)

Neville’s rationale would not pacify his opponents, who would accuse him of innovating. “Our author”, as Goddard put it in his Epistle dedication, makes “us believe that he is supporting Our Government, whilst he endeavours utterly to destroy it”. At the end of his tract, Goddard repeats

his belief: "Our Author augments, or diminisheth, changeth or disguiseth the truth of things, as they make most convenient for his purpose" (Godard, 1684: 273).

INNOVATION AND REVOLUTION

The controversy on Republicanism was only a beginning. Political innovation continued to be negatively perceived into the next century, particularly after the Glorious Revolution of 1688. Church ministers produced sermons on innovation in general matters (rather than strictly on religious innovation), discussed its subversive character and used labels such as "Republican fury" or "Friends of the people" to portray the innovators. Parliamentarians, among others, started discussing changes in Parliamentary representation and laws in terms of innovation. Pamphleteers published many of the titles on innovation during the eighteenth century, with as polemical an overtone as before, using innovator as a derogatory label. These writers used the same kinds of arguments as in the previous century: Innovation is introducing change into the established order; it is radical and subversive; it has drastic consequences. They used the same type of authority to support their argument too: the Bible, customs and laws, and history.

In the previous chapter, I suggested that it was during the Reformation that innovation became widely used in the Western world, essentially in a pejorative sense. The present chapter suggests that politics contributed to this pejorative connotation too. The early writers on and theorists of the Republic made no use of the concept. In fact, if the Republicans wanted to make a positive case for their cause, they had to avoid every negative word. When they used the word, they adhered to its common pejorative representation—the same use (or nonuse) characterizes every political theorist of the time, including John Locke and Thomas Hobbes. On the other hand, critics of the Republic used the concept widely. Precisely because the word had a morally charged tone, they made use of innovation to make a case against Republicans as 'innovators of State', adding a new connotation to it: Innovation is violent, or 'revolutionary'.

The idea that innovation is sudden and violent continued to be a central characteristic of the concept until late in the following century. In a speech *On the Danger of Political Innovation* delivered on 28 November 1794 before the Literary Society of Glasgow College, the philosopher Thomas Reid contrasted change in government that is "gradual, peaceable and legal" to that which is "sudden and violent" (Reid, 1796: 9–10). "Violent and sudden changes of the form of government", suggested Reid, "are so dangerous in the attempt, so uncertain in the issue, and so dismal and destructive in the means by which they are brought about" (Reid, 1796: 13–14). Reid was not alone. Suffice it to mention *The Danger of Violent Innovations in the State*, a sermon preached in Canterbury by George Berkeley (1733–95;

not the philosopher) on the anniversary of the martyrdom of Charles I in 1785. Berkeley used the same Solomon's proverb as Burton to discuss innovation. Berkeley was concerned with those who attempt "by violent methods, to reform the Constitution" (Berkeley, 1785: 6) and with "the danger and the sin of making violent innovations in any constitution of government whatever, that has been long established, and to which the people have been accustomed quietly to submit" (Berkeley, 1785: 7). A few years later, two more English ministers would make use of Solomon's proverb to discuss innovation in sermons preached before local military associations. They both argued for respect and submission to superiors (Ackland, 1798; Fly, 1798). Henry Fly, using the "popular fury of 1780" in England and the French Revolution as examples, discussed how the "love of novelty" "plunge[s] a whole nation into the most dreadful calamities".

The idea of violence is so entrenched in the vocabulary of innovation that it came to be used in a metaphoric sense as well. In 1785, James Boswell, Esq., wrote *A Letter to the People of Scotland* to alert them of a planned "innovation" to reduce the number of Lords in the Court of Session from 15 to 10, in order "that they may have larger salaries". "What is the motive of this violent measure?" Boswell asked (Boswell, 1785: 33). This is only one of the changes in the language of the time. About 20 years before, Norman Sievwright, Church minister at Brechin, Scotland, had argued that the bishops who do not submit to a Parliament arising from a revolution are the real innovators ("antirevolutional innovators") (Siewwright, 1767).

After 1789, the term revolution entered the vocabulary of innovation in a definite way. Some used the failure of the French Revolution (the Reign of Terror of Robespierre) to portray innovation as necessarily revolutionary in a pejorative way. As a French man of letters (anonymous) wrote to an advisor to the Swiss government: "les horreurs du régime des jacobins en France ont jeté une défaveur générale et profonde sur toute idée d'innovation [the horrors of the Jacobin regime in France have cast a general and profound disfavour on any idea of innovation]" (Monot, 1805: 56 fn.). Edmund Burke, Irish statesman and political philosopher, is certainly the most well-known writer emphasizing a relationship between innovation and revolution (see Chapter 8). But he is not alone. Reid, too, reacted to the French Revolution. However, Burke was definitely the most influential writer. An anonymous writer wrote a tract titled *On the Danger of Innovation to a Government*, making extensive use of Burke and claiming, "Innovation which, in every state where it begins, no one can tell where it will end . . . The French revolution was neither organized in a moment, nor accomplished at once. No, it was brought about by degrees" (Anonymous, 1817: 26–27). Decades later, the pejorative analogy between innovation and revolution persisted. Writing on what he called the "tendency of the House of Lords to support principles of innovation", Reverend Jeremy Cooper, Christ Church College, Oxford, asked, "Is the honour of England in the latter part of the nineteenth century fallen so low as this, that titles and honours are to be held out as premiums

and bribes to those who will renounce all honest Church and State principles, and became acolytes to the new school of Innovation and Revolution?" (Cooper, 1866: 31–32).

NOTES

1. There exist many books on Republicanism. As examples, one may consult the works of Pocock, Paul A. Rahe, Caroline Robbins, Jonathan Scott and Blair Worden.
2. Poyntz received this Order at Charles I's coronation.
3. Some royalists like Robert Filmer and John Bramhall made use of the word but only infrequently in political matters despite the large volume of documents that they published.
4. An exception is Milton. He uses the concept twice in a context of Republicanism: *A Discourse shewing in what state the three kingdomes are in at this present* (1641: 2–3); *A sovereign salve to cure the blind* (1643: 23). Yet Milton uses innovation in a negative way and minimizes innovation.
5. The first two occurrences serve to support Republican principles, but in a negative way, as Milton did. The innovator is an infringer of people's rights and liberties.
6. Neville has been associated with the English translation of Machiavelli's works published by John Parker in 1675. In *Plato Redivivus*, Neville talks of Machiavelli in terms of "Divine Machiavel" (Neville, 1681: 21), "Incomparable Machiavel" (Neville, 1681: 188), "the best and most honest politician" (Neville, 1681: 217).
7. Others talk of "capital enemy" (House of Commons, 1628–29a) and "crimen lese Majestatis" (Anonymous, 1659).
8. Political innovators as "Patrons of Popular liberty" (Poyntz, 1661: 136), "governed by their own laws" (Poyntz, 1661: 113) and "private designs" (Goddard, 1684: 253); Henry Neville by his "own private opinion" (Goddard, 1684: 14, 289).
9. The century before, Edward VI talked of "bounded duties of obedience" in his Proclamation of 1548.

6 Social Innovation

From Scheme to Utopia

I am not bound to think the *Trunk Hose* of our forefathers ridiculous; because *Fashions* crosse the Seas as oft as the *Packet Boat*, into this *Island*, the *Nursery of Novelty*s; nor think the worse of these; because old Age, *over-weening* their own fashion, maketh them peevishly severe against any other: in all things of this nature, it is rather Shismaticall Novelty not to be a sociable Innovator.

(Whitlock, *Zootomia*. 1654)

By the nineteenth century, the meaning of the concept of innovation had become sufficiently large that it included all kinds of innovators. Last on the list, it was the social reformers' turn to be accused of being innovators. This chapter concludes the study of the prohibition episteme and looks at social innovation. The phrase social innovation emerged in the first quarter of the nineteenth century and served to label the social reformer or socialist, accused of overthrowing the established order, namely property and capitalism.

Like what innovation is in religion and politics, the word innovation is not a concept in social issues, not yet. Moreover, social innovation is not as common a phrase as innovation. Occurrences are frequent but disparate. Writers used the phrase only once or twice in a text, with little or no discussion. Social innovation is merely a word or label and is not theorized about—like innovation. What is different from religion and politics is the dual connotation of the word. In fact, over the nineteenth century, innovation gradually acquires a positive connotation. Innovation is both negative, as documented in the previous two chapters, and positive, as it will gradually become in the nineteenth century and as studied in the rest of this book. Innovation embodies the idea of progress, according to an increasing number of writers. Social innovation is no exception.

This chapter documents the emergence of social innovation as a phrase in the nineteenth century. The first part of the chapter looks at the negative view of social innovation and why the socialist as social innovator is a revolutionary innovator. The second part provides some ideas on the change of connotation as the nineteenth century progressed. Social innovation is social reform in the positive sense.

It is generally asserted in the literature on social innovation that the phrase or concept emerged recently, namely after that of technological innovation. This chapter documents the opposite. The phrase social innovation emerged a century before technological innovation. Social innovation re-emerged only in the twentieth century, as a theoretical concept. This happened in reaction to or in opposition to technological innovation, said to take too large a place in public discourses, policies and theories of innovation. In this sense, social innovation is a counter-concept to technological innovation.¹ Social innovation owes its origin to socialism—and its resurrection (in the 1970s–80s) to technological innovation.

SOCIAL INNOVATORS AND THEIR SCHEMES

In 1858, William Lucas Sargant (1809–89), English businessman, political economist and educational reformer, published *Social Innovators and Their Schemes*, a diatribe against those “infected with socialist doctrines” or “social innovators”, as he called them—the French Henri de St-Simon, Charles Fourier, Louis Blanc, Pierre-Joseph Proudhon, Émile de Girardin and the political economists, including Adam Smith—to whom welfare rather than work is the solution to social problems.

To Sargant, “the present generation is distinguished by an honourable desire to promote the well-being of the most numerous and least fortunate classes of society”. But there is “some danger of leading men into errors”, “disorder and disappointment”. “By bettering artificially the condition of the poor, [political economy] encourage[s] an undue increase in numbers” (Sargant, 1858: iii–v). When the French socialists “jealously” exalt “the supreme rights of the labourer to the exclusion of the rights of the capitalist” (Sargant, 1858: 2), they “aggravate the dissatisfaction that exists” (Sargant, 1858: 4). To Sargant, “health of the body and of mind” are “obtained not by ease, not by indulgence, but by active participation” (Sargant, 1858: 7). Work is a better aid than welfare.

One would be hard-pressed to find an explicit definition of social innovation in Sargant’s writing. Most of the time, Sargant uses the term innovation rather than social innovation. To Sargant, social innovation amounts to innovation of a specific kind: socialism. One of Sargant’s main arguments is that the originators of socialism and their followers are ignorant of the most basic principles of social science—although they constantly stressed, I may add, the scientific approach of their project. As the fourierist Victor Considérant puts it, “L’école sociétaire n’est pas une secte, mais une école scientifique [The socialist school is not a sect, it is a scientific school]” (Considérant, 1842: 145). To Sargant:

Of the social truths that have been investigated during the last fifty years, none has been more clearly established than this: that the dignity

of the working classes is principally in their own hands, and that without industry, frugality, and self-restraint, on their part, no measures of Government, no organizations of society, can raise their condition . . . ; it is not to the direct action of legislation on wages and charitable relief, but to an improvement of the men themselves, that we must look for amelioration. (Sargant, 1858: 463)

Sargant emphasizes two characteristics of capitalism targeted by socialists, and his view was shared by every opponent of socialism. First is the socialists' hatred of capital. "There is at the bottom of many socialist systems an exaggerated notion of the evils of bodily labour" (Sargant, 1858: 460). That "all productions, since they are the results of labour, ought to belong to the labourers" is not "a sound political economy" (Sargant, 1858: 448–49). "Take away the profit of the farmer, the manufacturer, the merchant, and the retailer, and capital would soon disappear, production would cease, the workman would starve, and the whole world would relapse into barbarism . . . It is the interest even of labourers that capitalists should derive an income from their possessions" (Sargant, 1858: 449).

The second characteristic essential to capitalism and targeted by socialists is competition. "All must agree that competition has serious evils", admits Sargant (Sargant, 1858: 452). "And yet without it society would languish . . . The pursuit of wealth by honest industry, though it has nothing illustrious about it, is at any rate respectable" (Sargant, 1858: 454). It is "a stimulus necessary to overcome the tendency of men to apathy and idleness . . . Every organization has its own ills [but] the evils of competition will be certainly, if slowly, corrected" (Sargant, 1858: 455).

The critique of social innovators as being ignorant was a frequent one at the time. In 1859, an anonymous British writer used the pretext of reviewing five books (he didn't really review them), among them *Social Innovators and Their Schemes*, to make a case against social innovators: "The first and most universal characteristic of the social innovator is a profound ignorance, and often a violent abhorrence, of political economy". To the writer:

Almost every one of the socialist writers is absolutely unable to comprehend the simplest law affecting the recompense of labour—that of demand and supply; hardly one of them is aware that competition can never force down wages below their natural level . . . They regard the savings of the capitalist as something taken from the remuneration of labour, not as something taken from the personal expenditure of the rich to give increased employment to the poor. (Anonymous, 1859: 344–45)

Briefly stated, the socialists ignore the limits imposed on social arrangements by economic laws.

Sargant and the anonymous writer are not alone, and the criticism is not limited to political economists and economic arguments. A few years

later, the American *Popular Magazine of Anthropology* published a paper that tried to make a place for “social innovation” experiments within the discipline of anthropology. To the anonymous author, “social innovation” means legislation for the “elevation of the races into a permanently better condition”, for “better mental and physical states of mankind”, like morals and hygiene (Anonymous, 1866: 94–95). The author makes a plea for scientific and practical anthropology, as opposed to metaphysical and “social innovators” like Fourier. “The reformers have never discriminated between political and social conditions in matters of social innovation”. “Buried” as they are “in statistics and *à priori* schemes”, they “omit the consideration of this important element”: there is “a firmness in man [a “law of repression”], independent of all forms of government” (Anonymous, 1866: 96) that retards progress. Anthropology should investigate this “psychological characteristic” for practical purposes, contribute to “knowledge of race character, and pave the way to a better future state” (Anonymous, 1866: 97).

To take one more example: While discussing bank notes in *A History of Prices*, Thomas Tooke and William Newmarch recommended consulting the work of economist Michel Chevalier, a professor of political economy at the Collège de France, for a “substantial” theory. “The events of 1848, and the few following years, produced schemes and theories of social innovation and danger, to which, in a country like France, it was necessary to find not merely plausible but substantial answers” (Tooke and Newmarch, 1857: 616).²

The pejorative connotation of social innovation as socialism was also shared in France. In his *Mémoires* published in 1859, the historian and politician François Guizot discussed the insurrection in Lyon in November 1831, stressing the revolutionary character of the social innovators: “Tous les partis politiques, tous les novateurs sociaux, toutes les passions, toutes les idées, tous les rêves révolutionnaires, apparurent dans cette anarchie; quelques-uns des chefs saint-simoniens ou fouriéristes étaient, peu auparavant, venus en mission à Lyon pour prêcher leurs doctrines [All political parties, all social innovators, all passions, all ideas, all revolutionary dreams, appeared in this anarchy; some of the Saint-Simonian and fourierist leaders had just previously come on a mission to Lyon to preach their doctrines]” (Guizot, 1859: 208). Guizot is pointing here to a central characteristic of social innovation: The social innovator is a revolutionary.

Sargent was the first writer to develop a whole discourse on social innovation, and he certainly contributed to the diffusion of the phrase. In the years following the publication of the book, several reviews produced positive evaluations of the work, and the use of the phrase exploded. In fact, Sargent always produced sage and fair analyses. To be sure, Sargent did not refrain from stressing the “new religion” of Saint-Simon, the “rêverie” of Fourier and the failures of their followers, and he did believe that England was radically different from France as depicted by the socialists. Nevertheless, Sargent’s overall fairness was recognized by everyone, whether they agreed

or disagreed with him. Two years after *Social Innovators*, Sargant published a similar study on *Richard Owen and His Social Philosophy*. "Though I have no admiration for his shallow philosophy, no sympathy with his crude and mischievous schemes of social innovation", concluded Sargant, "I must allow his claim to be regarded as great among self-educated men" (Sargant, 1860: 446).

Why are the socialists social innovators? Ignorance may be a characteristic of the doctrinaires, but it is not what makes someone a social innovator. The explanation is elsewhere. For centuries, innovation and innovator were pejorative concepts. Labelling socialists as innovators emphasizes the negative connotation. There is more than a mere semantic or rhetorical issue here. To Sargant and others, social innovation has two characteristics that make it a pejorative term. First, social innovation relies on schemes. Scheming is an accusation that occurred regularly at the time among writers opposed to innovation, as we have seen in the previous two chapters. It suggests a machination, a conspiracy. Socialism as scheme is a systematic plan of action for change. A scheme (or plan or design) is suspect because it goes hand in hand with subversion and revolution. This is the second characteristic of social innovation, already identified by Guizot.

Innovation as revolution is an association made regularly in controversies on politics (Republicanism) in the seventeenth century and after. Similarly, social innovation is radical and revolutionary, namely disruptive of the existing social order, privileges and institutions—"political and social innovation" are frequently used together in the same phrase to highlight this characteristic. Social innovation is revolutionary, and consciously so. In fact, and unlike the innovators of the previous centuries, the social innovators were never afraid to talk openly of their innovation and its revolutionary consequences, and to name it as such.

Among its critics, social innovation is regularly equated to the Revolution. It leaves no system unchallenged. As François Auguste Mignet put it in his history of the French Revolution, Lyon (again) is "attached to the ancient order of things" because it is dependent on the higher classes. Therefore, "it was necessary to declare in good time against a social innovation [the Revolution] which confounded old relations, and which, in degrading the nobility and clergy, destroyed its trade" (Mignet, 1826: 257). To others, social innovation is part of a whole series of revolutions against the existing order. In 1883, Goldwin Smith, a critic of socialism, published *False Hopes, or Fallacies, Socialistic and Semi-Socialistic Briefly Answered*. Smith looked at the spread of "plans of innovations"—communism, socialism, nationalization, cooperative association and "financial nihilism", or attacks against money and banks—aiming to "destroy not only existing institutions but established morality—social, domestic, and personal—putting evil in place of good" (Smith, 1883: 3). To Smith, "social innovation is everywhere more or less allied and impelled by the political and religious revolution which fills the civilized world" (Smith, 1883: 4). Yet "it is plainly beyond our power to

alter the fundamental conditions of our being”, as the French Revolution had shown (Smith, 1883: 4–5). The “free system” is responsible for growth and wealth, but “the connection of political economy with politics is a blank page in the treatises of the great writers”, Smith concluded (Smith, 1883: 69).

What is feared in a socialist scheme is particularly the threat to capitalism and property, and this is regularly stressed by critics, as Sargant did. In the late nineteenth century, many ‘defined’ social innovation specifically as “the overthrow of private property and the abolition of an institution on which society has always rested”. One of the sources of the idea at the time is the ‘standard’ representation of communism. For example, in 1888 a popular edition of the *Encyclopedia Britannica* included a long article on communism that begins as follows: “Communism is the name given to the schemes of social innovation which have for their starting point the attempted overthrow of the institution of private property” (*Encyclopedia Britannica*, 1888: 211).

Yet among some other writers, social innovation had a more positive meaning. The same socialists that Sargant had criticized were praised as “social reformers” by others—another phrase that exploded in the 1860s. In fact, as Gareth Stedman Jones has suggested recently, socialism was to many the “new spiritual power” in post-revolutionary France and elsewhere in the Western world (Stedman Jones, 2010). Social innovation, in a positive sense, became a popular phrase among the followers of Saint-Simon and Fourier, as well as many others. What is it in social innovation that gives rise to such disparate representations?

SOCIAL REFORM

While the term innovation has been widely used since the seventeenth century, social innovation entered the vocabulary in the aftermath of the French Revolution and was used regularly in the 1860s and ensuing decades, following Sargant. To be sure, there were regular uses of the phrase in France (and England) in the 1830s–40s, but French writers made far less use of it than English writers, even during the more popular period of the phrase (1860–90). However, one thing is certain: To the French, social innovation was more positive than to English writers. As discussed in the chapters to come, in the nineteenth century, innovation increasingly acquired a positive connotation, although pejorative uses continued. This was the case in France and increasingly so in many other countries, but not in Sargant’s England. In England, the few positive connotations were generally used with qualifications (e.g., social innovation requires preparation or caution).

Socialism was only one of the meanings of social innovation. In this sense, social innovation and social innovator were more often than not used in the plural: A socialist was never alone. He had a “sect”, as Sargant put it, which gave a real reason to fear his scheme—in fact, the phrase social

innovator(s) was used far more often than social innovation. This meaning of social innovation shared its place with a more positive one. Thirteen years before Sargant, an anonymous writer (H. B.) wrote a review in the *American Universalist Quarterly* titled *Fourierism and Similar Schemes*. The article was a criticism of the doctrine of Fourier. "What they propose", wrote the anonymous writer, "is not to improve our present system of society, but to abolish it entirely, and to construct a new one in its stead" (Anonymous, 1845: 53). To the writer "the project, taken as a whole, is a dream of the most fantastic kind" (Anonymous, 1845: 55). It is a "reversal of the natural order of things" and a doctrine to "gratify fickleness in every thing". In the next issue of the journal, a writer (Horace Greeley) answered the anonymous writer, proposing a different meaning of socialism. He accused the writer and others of producing imperfect summaries of Fourier's doctrine. Greeley introduced the phrase social innovation and applied it to all those who have "vanquished Pauperism and Servitude", among them the Shakers (Greeley, 1845).

Greeley's article is titled *The Idea of a Social Reform*. Social reform is a second meaning of social innovation in the literature of the nineteenth century. This is exactly the distinction made by the reviewer in *The National Review* previously discussed:

It is our object in the present paper to indicate briefly, first, the most important of those radical errors into which the socialist theorists fall, and those scientific certainties against which they blindly and vainly struggle; and next, the principle of some of those experiments made by sober social *reformers*, which may compass, to a certain moderate extent, the same ends as those which stimulate the socialist theorists to their fruitless efforts, but which would attain them by modest and gradual means alone. (Anonymous, 1859: 344)

The writer is thinking here of cooperative associations and "the distribution of the profits among all who assist to create them". Social reformers attempt to improve society "without aspiring to reconstruct it", while social innovators "propose to create society, if not human nature, anew, upon an entirely different basis . . . , according to some artificial scheme from which they believe that all good may be evolved and all evil eliminated" (Anonymous, 1859: 343).

The distinction between innovation and reform, or between radicalism and gradualism, was the topic of many writers on social reformers, like the very popular—but also criticized—study (seven editions) produced by Louis Reybaud (Reybaud, 1840). In fact, the distinction is a very old one. As already documented, it was used widely in debates on innovation in the previous centuries. Innovation risks leading to uncontrollable consequences. Better to reform than innovate. Many writers on social innovation thought similarly: "Great events may, and do spring from the most trifling causes",

wrote a British anonymous writer in 1839. “We cannot doubt that the present political and social innovation has much more in it than meets the eye, and may fairly justify fidgety uneasiness in those, who never know to what any thing that happens *may* lead” (Anonymous, 1839: 28).

While social innovation as socialism had a negative connotation, social innovation as social reform was generally seen as positive. This positive connotation applies to any program, particularly if initiated by governments, for improving the social condition of humankind. France is certainly the country where social innovation in the sense of humanism had been the most prevalent, starting in the 1830s. To be sure, Saint-Simon, Fourier and Blanc, as well as Owen in England, made no use of the phrase—although some like Fourier used innovation, as he did regularly in his *Théorie des quatre mouvements*, first published in 1808, to discuss his social innovation—but sympathizers and writers in the fourierist journal *La Phalange* and other pamphleteers did: “La Société toute entière, devant laquelle et pour laquelle se fait l’Épreuve d’une Innovation sociale quelconque”, wrote Considérant, “est juge de la valeur de l’Innovation, et c’est l’Acceptation libre du Procédé nouveau, l’Imitation spontanée de la Combinaison nouvelle, qui expriment le Jugement de l’Humanité [The whole of Society, before whom and for whom any social innovation whatsoever may be tested, is the judge of the value of the innovation, and it is the free acceptance of the new process, the spontaneous imitation of the new combination, that expresses the judgement of Humanity]” (Considérant, 1842: 166–67). Social innovation is innovation for the people.

From the very early occurrences of the phrase social innovation in the nineteenth century, a remedy is invoked. “On sent que la société est mal à l’aise [One feels that society is ill at ease]”, wrote Considérant in a book whose purpose was to contribute to the diffusion of Fourier’s “grande conception [great design]”, namely the “véritable ancre de salut de l’humanité [the very anchor of humanity’s salvation]”. “On admet que [la société] a besoin d’une organisation nouvelle. L’état des choses actuelles enfante désordre sur désordre, perturbation sur perturbation, et tout cela ne peut évidemment cesser que par une innovation sociale [We admit that society needs a new organization. The current state of affairs engenders disorder upon disorder, disturbance upon disturbance, and all of this evidently cannot but end with a social innovation]” (Considérant, 1834: 312). Over the twentieth century, social innovation would also be discussed frequently as a remedy, or ‘adjustment’, to technology or technological innovation.

Social innovation includes any social reform, and the social reformer is a social innovator. The terms are used interchangeably. In nineteenth-century France, a social reform or social innovation is generally described as “utile et humanitaire [useful and humanitarian]”. Many writers praise social innovation as the outcome of the Revolution. “La marche terrible de la révolution française achevait de rendre [les partisans de l’ordre] hostile à toute innovation sociale [The terrible march of the French Revolution

succeeded in making the partisans of order hostile to any social innovation]”, wrote an author in a biographical note on William Godwin (*Société de gens de lettres et de savants*, 1838: 447). The revolution itself is social innovation. “N’est-ce pas de cette grande innovation sociale [la révolution] que sortirent toutes les prérogatives dont jouit actuellement le peuple, sa liberté, son égalité, son identité essentielle avec l’État, le droit de tout dire tant sur les hommes que sur les choses [Is it not from this great social innovation (the revolution) that arise all of the prerogatives the people now enjoy, their liberty, their equality, their fundamental identification with the state, the right to say anything whether about men or about things]” (Saint-Maurice Cabany, 1845: xxxii). These thoughts are exactly opposite to those of socialists’ critics, to whom also the revolution is social innovation, and social innovation is revolution. Here, social innovation serves precisely to stress positively the revolutionary character of changes necessary to transform society.

Everyone’s favourite author or reformer is a social innovator. To the socialists, some added philosophers and politicians. To a writer on the *History of French Literature*, it is Rousseau who holds “the same position as a social innovator and reformer that Voltaire occupies as an intellectual innovator, and that Turgot and Necker occupy as political innovators” (van Laun, 1877: 90). To a reviewer of Henri van Laun’s book, Montesquieu, whose *L’Esprit des lois* “sounded the doom of aristocracy and absolute monarchy, is considered a social innovator” (Perkins, 1877: 71). To Guizot, the emperor Napoleon had “semé partout les germes du mouvement et d’innovation sociale [sown everywhere the seeds of social movement and social innovation]” (Guizot, 1866: 25). States and governments, as the privileged source of social reform, are also studied as social innovators. In fact, the view of government as social innovator has a long history. In the mid-nineteenth century, *La Phalange* reports that in Parliament, Mr. de la Martine replied in answer to Guizot: “Les gouvernements qui ne sont pas des machines prudentes d’innovation sociale ne méritent pas d’être honorés du nom de gouvernement [Governments that are not enlightened engines of social innovation do not deserve to be honoured with the name of government]” (*La Phalange*, 1842: 347).

Together with politics, religion contributed to the representation of social innovation as social reform. To some Christian writers, socialism is social reform, and the socialist is the model to follow. To Reverend Moritz Kaufmann, Louis Blanc is a “literary and social innovator of superior culture and philosophical attainments” (Kaufmann, 1879: 146). Kaufmann devoted several books toward rehabilitating the socialist doctrines, among them *Utopia; or Schemes of Social Improvement* (1879) and *Socialism and Communism in Their Practical Application* (1883). Kaufmann wrote on the “prejudices against socialism as nothing but idle dreams and fancies”. To Kaufmann, socialism is not an irritant tending toward social disruption, but a dynamic leading to social progress. It is social reform. Kaufmann made

few uses of the phrase social innovation (or rather social innovator), but his message is clear. Socialism and the Church's message go hand in hand; as another Christian put it, "l'évangile, lors même qu'il ne serait pas le livre définitif de la parole divine, sera toujours le guide et le modèle du novateur social [the gospel, although it is not the definitive book of the divine word, will always be the guide and the model of the social innovator]" (Lechevalier, 1834: 538).

Yet such a representation was not uncontested. To other Christian writers, social innovation is nothing but socialism, in a pejorative sense. "Forward as our march is, we tend strongly to the study of the past", states Jean-Joseph François Poujoulat in his *Histoire de Saint Augustin* (a chapter of which was translated in the *Christian Examiner* in the same year). "It is evident that great questions now before our people must lead us to study anew the history of the Church, and come to a satisfactory conclusion regarding the men and the doctrines of primitive ages" (Poujoulat, 1845: 3). To Poujoulat, "while we are receiving from the principle [*sic*] nations of Europe every school of new philosophy and every project of social innovation [the author referred to Fourier and Owen among others], we are assured from the same quarters by other voices, that all philosophy is a sin against faith and all innovation a rebellion against authority" (Poujoulat, 1845: 2). To others, like a professor of political economy at the Université catholique de Louvain, the Saint-Simonians and similar "social innovators" promote a "théorie de la perfectibilité indéfinie du genre humain qui implique la négation absolue du Christianisme [theory of infinite perfectibility of the human race that implies the absolute negation of Christianity]" (Coux, 1837: 241–42). To still others, it is a matter of social innovation not delivering the promised results. Writing on "institutional and political change" and the socialists, a Christian writer states, "Measures, or the defeat of measures, of social innovation, usually disappoint by the smallness of result" (Martineau, 1843: 145).

Writers include many different things under social innovation understood as social reform, but two domains are often highlighted. One is education. The French sociologist (and social reformer) Auguste Comte, who used the concept innovation in several places in his writings, is one among several to whom education is social innovation. The *Cours de philosophie positive* praises Catholicism for the introduction of a system of general education for all, an "immense et heureuse innovation sociale [great and happy social innovation]" (Comte, 1841: 366). The other domain highlighted is legislation on labour or work conditions, including rights and equalities, such as that on the differences between the salaries of men and women.

INNOVATION AND ANACHRONISM

'Social innovation' appeared in the first half of the nineteenth century. It meant many things then. It had both a positive and a negative connotation.

As one writer put it on the alliance between France and Austria of 1756, the alliance is “une innovation sociale qui, par les uns fut anathématisée du nom de perturbation sociale, et, par les autres, baptisée du saint nom de progrès [a social innovation that to some has been anathematized by the name social disturbance, and by others baptized with the holy name of progress]” (Gaillardet, 1837: 155). The two main representations of social innovation are socialism (radicalism) and social reform (humanism, egalitarianism). The association between social innovation and socialism was first made by the socialists themselves in France in the 1830s and 1840s,³ then ‘historians’.⁴ But critics rapidly turned the phrase into a pejorative one, above all in England (Sargant, political economists and Christian writers). This led some to contrast innovation to reform.

Given this history, one could conjecture that social innovation as social reform contributed to giving legitimacy to innovation, a damned word as *Considérant* put it: “On frissonne aujourd’hui au seul mot d’innovation. Pour une foule d’hommes, le nom de novateur est un nom maudit [We shudder today at the word innovation. To many people, the name innovator is an accursed name]” (*Considérant*, 1834: 312). Yet there have been few uses of social innovation until recently, as compared, for example, to innovation itself. In this sense, social innovation is witness to innovation being perceived as positive, rather than being a causative factor in the positive connotation of innovation.

Like innovation, social innovation (and social innovator) started as a polemical derogatory label. The purpose was to discredit someone. Then it acquired a positive and moral connotation. The purpose was to praise something and call for action: a public goal and the public laws for it. For a long time, both the positive and negative uses of social innovation were simple uses of the phrase, with few occurrences in a text. Only very recently has social innovation entered theoretical writings—this started with conceptual discussions in the 1960s–70s that then developed into theories in the last 15 years or so.

Currently, social innovation is a further development of (and a reaction to) the concept of innovation as a pejorative category. It serves to make a contrast, a distinction, from other types of innovation. It emphasizes something. To early critics, the purpose of innovation in social innovation was to equate the social, or societal novelty (socialism), to innovation and to label it as a pejorative category. To others, the social in social innovation is to contrast it to other types of innovation or qualify the innovation: Social innovation is innovation of a public or collaborative nature. It is distributive—and good. To most writers, the distinction is moral.

From the very first theoretical thoughts on social innovation in the twentieth century (e.g., Drucker, 1957) to the most recent ones (e.g., Mulgan, 2007), social innovation has been presented as a new idea, or at least the interest in the idea has been presented as new or relatively new. Some writers date the origins of the phrase to 1970 (Cloutier, 2003). In contrast, others

suggest that Benjamin Franklin, Emile Durkheim, Max Weber and Joseph A. Schumpeter had the 'notion' already (Mumford, 2002; Hillier, Moulaert and Nussbaumer, 2004; Nussbaumer and Moulaert, 2002). However, most often the 'newness' is taken for granted and is not documented. In fact, social innovation is regularly contrasted to technological innovation and presented as a remedy for or adjustment to the undesired—or limited—effects of technological innovation (e.g., Mesthene, 1969; Dedijer, 1984; Mulgan, 2007; Klein and Harrison, 2007; Callon, 2007; Murray, Mulgan and Caulier-Grice, 2009). In this sense, the phrase social innovation would have appeared after that of technological innovation.

To be sure, technological innovation is present everywhere in the literature today, and it is hard to escape the effects of the hegemony. This may explain why the few 'historiographical' thoughts on social innovation describe the phrase as new. Beginning in the second half of the twentieth century, technological innovation has been a much studied phenomenon. It is discussed or acted upon everywhere by everyone: Theories are developed, policies are implemented, and our everyday vocabulary makes use of the phrase. Technological innovation, or rather innovation *tout court*—innovation is spontaneously understood as technological innovation—has become a catchword. Innovation is the emblem of a modern society and a panacea for resolving economic problems. Yet the phrase social innovation existed long before technological innovation. Social innovation dates back to the beginning of the nineteenth century—at a time when technological innovation did not exist in discourses, emerging only in the 1940s—with only a few exceptions before that date, like Thorstein Veblen in *Imperial Germany and the Industrial Revolution* (1915)—and exploding in the 1970s and afterward.

If social innovation dates from the nineteenth century, the recent use or explosion of the phrase in the literature (its 'newness') is only a resurrection. The phrase re-emerged (in a positive light) in the second half of the twentieth century as a reaction to technological innovation and to the hegemonic discourses on technological innovation. Social innovation came to mean alternatives to 'established' solutions to social problems or needs, namely to technological innovation and state- or government-supported social reform. In this sense, social innovation is a counter-concept to technological innovation.

NOTES

1. On counter-concepts, see Koselleck, 1975.
2. On Chevalier's defence of political economy against the socialist "novateurs", see Chevalier, 1848.
3. The association was made by the followers rather than by the originators.
4. The historiography of politics, as well as that of the working class, used social innovation to refer to examples or models (Owen and Fourier) or to make analogies with innovation in politics, religion or literature.

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Part III

Transformation of the Concept

The Instrument Episteme

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7 Reimagining Innovation

A Semantic Rehabilitation

Tous les peuples s'accordent ainsi dans certaines circonstances à repousser les innovations: malheur aux états qui appellent des innovations inutiles. Il est nécessaire d'ajouter: malheur aux états qui repoussent des innovations nécessaires. Il est des circonstances où les innovations sont utiles, il en est d'autres où elles sont un moyen de salut . . . [Mais attention :] les fléaux qui sont le partage des innovations subites se montreront également dans une innovation graduée, si on n'a pas pris la précaution de l'accompagner d'une innovation correspondante dans tout le système civil et politique. [All people thus agree in certain circumstances to reject innovations: Woe unto states that call innovations useless. To this we must add: Woe unto states that reject necessary innovations. There are circumstances where innovations are useful, there are others where innovations are a means of salvation . . . But note: the scourges that are the lot of sudden innovations will also appear in a gradual innovation, if we have not taken the precaution of accompanying it with a corresponding innovation in the entire civil and political system].

(Montlosier, *Des mystères de la vie humaine*, 1833)

As the nineteenth century ended, the word innovation had accumulated four characteristics that made it a powerful term in the mouths of critics of changes brought into the world by humankind. From the Greeks, the representation of innovation had retained its subversive (revolutionary) character. The Reformation added a heretical dimension (individual liberty), and the Renaissance a violent overtone. Together, these characteristics led to a fourth: Innovation came to be talked of in terms of plots (designs, schemes). Yet in spite of these connotations that made a word (innovation) part of the vocabulary and of discourses on order, innovation seems to have escaped the attention of historians. The literature studies many concepts of change but not innovation. Is innovation only a word—a mere word—in the vocabulary of adherents to the status quo—Churches, Kings and their supporters—and devoid of sociological meaning?

In a certain sense, yes. Before the twentieth century, there existed no theory of innovation. Innovation was a concept of limited theoretical content,

a linguistic weapon used against one's enemy. In another sense, no. The opponents of innovation in the seventeenth and eighteenth centuries provided the first image of innovation and innovators, one that lasted for centuries. What constitutes innovation and who is an innovator were defined by the enemies of innovation and innovators. It is against this pejorative image or representation of innovation that innovators had to struggle when they started making use of the concept in a positive sense in the nineteenth century. This story is not very different from that of the Enlightenment and its enemies—the *anti-philosophes*—as Darrin McMahon has documented (McMahon, 2001).

The opponents of innovation make use of two kinds of arguments to support their case. First, *ethos*. Respect is due to tradition, authority and order. Second, *pathos*. A series of epithets (e.g., heretic) and associations (e.g., revolution) are offered to heighten the emotions, disqualify the innovator and dramatize the consequences of innovation. However, by the nineteenth century, a third kind of argument enters the discourses on innovation: *logos*. People start to talk of and about innovation in different terms. Innovation is rational, in many ways. It brings benefits, if introduced correctly. It is useful and progressive. This rehabilitation occurred between c. 1750 and c. 1850, that period of history Koselleck designates as *Sattelzeit*, when many words changed meanings due to a “shift in the conception of time and a reorientation towards the future”.¹

The rehabilitation of innovation makes use of a new rhetorical move: redescription. People start to rewrite history, including contemporary history, and redefine innovation in new terms. What was considered bad innovation shifts to good innovation. This chapter is about the semantic rehabilitation of innovation. As background, the first two parts recall and summarize the arguments discussed in the previous chapters and used against innovation and innovators before the nineteenth century: *ethos* and *pathos*, respectively. The third part turns to *logos*. I concentrate on Jeremy Bentham's *Book of Fallacies* (1824) as a crucial step in the rehabilitation of innovation, from a linguistic weapon to a concept in its own right. In most of his writings, Bentham positioned himself as a ‘legislator’ of definitions.² He took on the task of correcting linguistic abuses and fixing language.³ To Bentham, innovation is such an abused word that it deserves rehabilitation. Innovation is a word, yes, but more than a word. It has an etymology, a history. It is used and abused.

ETHOS

Appeal to *ethos* is one of the two basic types of argument used by opponents of innovation from the seventeenth century onward. The argument takes many forms. One is the respect due to authorities, political and religious. “King and novelties here doe stand in opposition against the other”, claims

the Puritan Henry Burton (Burton, 1636: 100). The King himself denies the charge of innovation made by Parliament: “[O]ur true meaning and intention is, not to admit anie innovation eyther in Religion or Lawes, but carefully to maintayne the puritie of Religion already profest and established” (England and Wales. Sovereign. Charles I, 1638). Contested Archbishop Laud had to defend himself too, by way of a series of principles issued in the King’s name (Church of England, 1640).

Opponents of innovation—Puritans, ecclesiasts, royalists and pamphleteers—regularly repeat the admonitions of monarchs in support of their own case against innovators. In fact, from the seventeenth century onward, political and ecclesiastical authorities issued explicit proclamations against innovation (England and Wales. Sovereign. Edward VI, 1548), produced lists of forbidden innovations (Church of England, 1641), required bishops to visit parishes to enforce the ban (on visitations in general, see Forrest, 2013), instructed bishops and archbishops as well as doctors (in universities) and schoolmasters to take an oath against innovations (Church of England, 1640) and ordered trials and prosecuted the ‘innovators’ (Church of Scotland, 1707, 1709).

Respect is due to authority, but to tradition and custom too. One cannot change what time and wisdom have established. As previously documented, Robert Poyntz develops a whole discourse defending the monarchy against the Republican “innovators” on the basis of the common law. “Respect is to be had unto the times of old” (Poyntz, 1661: 12). During the French Revolution, the “formes antiques [ancient forms]” were regularly emphasized against those whom the monarchists call innovators and in support of the “constitution immortelle . . . depuis quatorze siècles [constitution immortal . . . for 14 centuries]” (Tinseau-D’Amondans, 1792: 77). Science is no exception: the “superficie [superficial]”, “l’éclat [glamour]” of innovations is opposed to the principles of the ancients (Maurin, 1696: 24). *Philosophes* like Descartes and Voltaire are regularly accused of being “novateurs” (Bargadé, 1707: 4), of “vain desire of Innovation” (Bancroft, 1792: 10).⁴

The use of history to support one’s case is a regular tactic of innovation’s opponents. Analogies and examples taken from the past, including antiquity, abound in the mouths of those in support of the status quo. For example, in *Innovations*, a lecture delivered in Liverpool in 1868, Reverend Richard Frederick Littledale looks at 12 contested practices or changes introduced in the Church and, using Joseph Esmond Riddle’s *Manual of Christian Antiquities* (1843), demonstrates that all of them are hundreds or even thousands of years old and therefore not innovations.⁵ “But some of you will say”, claims Littledale, “practically they are Innovation, for they are new to us, and Innovations in religion are bad things”. But such an argument “is a very dangerous argument for . . . the Reformation”, which “was an Innovation, and on the very largest and most startling scale” (Littledale, 1868: 15): the reformers burned and ruined churches; they turned chalices into drinking cups, altar stones into pavements, Church vestments into counterpanes, fonts into dog troughs, and the like; they stopped the daily service of prayer;

they invented the pew system; they sold (for a fee) the sacraments; they ruined schools and monasteries and burned university libraries (Littledale, 1868: 22–24). “Our position is briefly this: The religion we teach is an old one . . . We are not innovating” (Littledale, 1868: 27).

The old as a weapon in argument has been much studied. Yet “even the old admitted of nuances, contradictions, and contested definitions, depending upon the context” (Woolf, 2003: 44). What characterizes innovation is that the argument from *ethos* stresses at the same time the intentional or purposive character of the innovator. As Thomas Reid put it, innovation is a liberty (see Chapter 4). Yet liberty or private opinion is also a matter of invention and imagination (fancy). Both invention and imagination were pejorative until the nineteenth century. The preface to the *Book of Common Prayer* talks of the “folly and new-fangledness” of innovators (Church of England, 1549); King Charles of “private fancies” (England and Wales. Sovereign. Charles I, 1628); Henry Burton of “humane invention” and “man’s devising” (Burton, 1636; Peter Heylin of “fancie” and “owne devising” (Heylin, 1637). Other similar attacks use words like eutopia (Anonymous, 1681), utopia (Ponchon, 1839), fantastical (Hawkins, 1672; Goddard, 1684), sophistical (Anonymous, 1859) and philosophical (Ackland, 1798; Bancroft, 1792).

In political matters, private opinion takes the sense of a private design or conspiracy (plot, scheme and design are the words used)—an accusation made by Charles against the Parliament: “private designes” under the pretence of “publick Reformation” (Charles I, 1648: 187).⁶ “The means of effecting such . . . change[s] are: plots, conspiracies, sedition, rebellion, civil war, bloodshed and massacre” (Reid, 1796: 10). “Design” (connotation: subversive)⁷ and “scheme” (connotation: suspicious) are recurrent words used (Poyntz, 1661; Anonymous, 1681; Goddard, 1684; Bancroft, 1792; Cooper, 1866). Machination (“of wicked ingenuity”) is another (Anonymous, 1817). Edmund Burke’s *Reflections on the French Revolution* and his correspondence are full of such terms (more on Burke in the next chapter),⁸ as are the writings on social innovation.

Over time, the argument on private opinion developed a new twist. Private opinion is the opposite of nature, the natural order or principle. Innovation substitutes “le caprice individuel à la raison universelle [individual caprice for universal reason]”, writes Quatremère-de-Quincy (Quatremère-de-Quincy, 1828: 14); “Chacun se fait l’unique arbitre de son goût [Each one makes himself the sole arbiter of his tastes]” (Quincy, 1828:10).

PATHOS

Pathos is an appeal to emotions. Like *ethos*, it takes many forms. The basic one is appeal to danger, fear and threats (argument *ad baculum*) (Walton, 1992b). The innovation of religion and republic is “dangerous”, claims

Burton: Political innovation leads to tyranny and religious innovation to ruin, trouble and discontent (Burton, 1636: 93, 95). In fact, Burton is a perfect subject for a study of innovation. He makes use of every argument against innovation used in the centuries to come.

Danger connotes the disastrous effects of innovation. The argument makes use of analogies with history and other countries. One basic form of appeal to emotions is the chain reaction or slippery slope argument (Walton, 1992a, 1992b)—the principle of the Ancient Greeks that small causes have great effects.⁹ Innovations start little by little, by degrees, “scarce to be perceived”, accumulate, then degenerate into a general catastrophe: “I never can be sure what will come next”, claimed James Boswell, a Scottish lawyer, in 1785 (Boswell, 1785: 30). This was an argument first used in Aristotle’s gradualism of change and widely repeated from the time of the Reformation onward. The argument was used in almost every pamphlet, religious and political,¹⁰ Burton again was no exception: Innovators change a kingdom into a tyranny little by little and change laws, thus leading the country to civil wars.

A third form of appeal to emotions was the use of epithets and associations (see Appendix 5). Associations from heresy to revolution, as sudden and violent, abound in the discourses on innovation.¹¹ Accusations were also made against the character or morals of the innovator (*ad hominem* argument), using stereotypes and hyperboles. In general, a writer multiplied the words of a pejorative nature in order to stress his case. In one single phrase or page, one finds a series of epithets one after the other.¹²

A final form of appeal to emotions was equating innovation to fashion, thus discrediting the seriousness of the innovator: Uses of the terms spirit or age of innovation and love of novelty were legion among opponents of innovation.¹³ Novelty for novelty’s sake was also a recurrent accusation.¹⁴

To the *ethos* and *pathos* arguments, the accused replied with two positions. The innovator always denied he innovates. As Burton puts it: Prelates “doe plead that they bring in no changes, but revive those things which ancient Canons have allowed and prescribed . . . Innovations, Say they? Wee bring no innovations, no new rites, but what hath beene in use ever since the Reformation” (Burton, 1636: 158–59). Innovation was a return to primitive ages or purity, the restoration of the old, reformation. “It is no innovation to admit tradition”, claims Dow against Burton (Dow, 1637: 167). Another opponent to Burton, Heylin, replied similarly: “We introduced no novelties . . . but onely laboured to reduce [the Church] to that estate and quality, whereby she was in her originall beauty and the Primitive times” (Heylin, 1637: Preface). The King only “labours to suppress those innovations which you and those of your discent have introduced” (Heylin, 1637: 82).

No one put such a vision better than Edmund Burke: “To innovate is not to reform” (Burke, 1796: 290). Reform was return to the spirit of the existing laws and constitution and a strict adherence to them, without abandoning first principles (Symmons, 1810: 17). If there be innovation, it should

be gradual, as Francis Bacon suggests on imitating nature (time) (see Chapter 9), a suggestion reproduced in the French *Encyclopédie*: “[L]es révolutions que le tems amene dans le cours de la nature, arrivent pas-à-pas; il faut donc imiter cette lenteur [the revolutions that time brings in the course of nature, arrive step by step; we should therefore imitate this gradualness]” (*Encyclopédie*, 1774: 757).¹⁵ The same spirit animated George Berkeley, whom we have encountered already (Chapter 5): “[N]othing human is absolutely fixed . . . General alterations in the modes of government are, perhaps, unavoidable”. But “great and violent innovations no individual is entitled to make” (Berkeley, 1785: 33). Reformations perhaps, innovations no. “Much more ill than good is ever to be expected from them” (Berkeley, 1785: 34).

That our constitution is absolutely perfect, it would be ridiculous to assert. Perfection belongs not to lapsed humanity. That a better constitution may be conceived, we do not positively deny . . . It may, however, be consistently asserted that so few and so unimportant are the defects, so many and so valuable the perfections, of the nicely balanced British Constitution, as to render it highly probable that any innovations in its system will be more likely to injure than to improve it . . . No plan of representation could possibly be devised in which the WHOLE NATION would agree. Why then should we hazard the consequences of an innovation, which it is barely possible might do some good; but which is much more likely to create discord . . . My Son, fear thou the Lord and the King, and meddle not with them that are given to change.

(Berkeley, 1785: 87–88, 91)

Such citations could be multiplied. For example, we have seen that many writers on social innovation make a distinction between social innovation as socialism and social innovation as social reform on these same grounds (radical–gradual).

The second position held by innovators is to play down innovation. Innovation is “pretended” innovation. It is less an innovation than it seems. There is “nothing of the substance of God worship . . . [Innovations in ceremonies] are reverence, external” only, claims Dow against Burton (Dow, 1637: 113–14). New postures are not “of vital importance”, repeats the Scot Robert Lee against his accusers (Lee, 1867b: 7); reading prayers from a book is a “very insignificant matter” (Lee, 1867a: 25). Yet, replies the accuser, “Although the keeping or omitting of a ceremony, in itself considered, is but a small thing, yet the willful and contemptuous transgression and breaking of a common order and discipline is no small offence before God” (Church of England, 1549).

In addition to denying or minimizing innovation, the accused returns the accusation to the accuser: “You are the innovator”, claims Heylin against Burton (Heylin, 1637: 38, 170). The same appears in the next century in John Skinner against Norman Sievwright and his charge of innovations in

the Church of Scotland (Skinner, 1767: 5). Similarly, “Those who denounce me”, charges Robert Lee during his controversy with the Church of Scotland, “are themselves chargeable with even greater transgression of a similar kind” (Lee, 1867a: 4).

In sum, dramatization gave sustenance and power to this idea of innovation in the seventeenth century. To ecclesiasts, innovation is dangerous. To political authorities it is conspiracy and subversive of the political and social order, or revolutionary (sudden, violent and radical).

LOGOS

“No man who attacks the errors of his age, and proposes reform, can escape the ordeal of persecution”. So John Patterson, in one of the first full-length positive visions of innovation, summarized the spirit of innovation in the mid-nineteenth century (Patterson, 1850: 37). Already in the late seventeenth century, Guillaume Cave (16??–1713), an English doctor of theology and chaplain of Charles II, put it similarly in his *La religion des anciens Chrétiens* (1671), translated into French in 1711: “La persuasion de l’antiquité est si grande, & si forte qu’on croit quel que fois commettre une espèce d’impiété, quand on la révoque en doute, ou que l’on se met en devoir de s’en informer [The influence of antiquity is so great and so strong that we sometimes believe we commit a sort of impiety, when we cast doubt upon it, or when we undertake to inform ourselves about it]” (Cave, 1673: 23–24).

To *ethos* and *pathos*, a new generation of writers in the nineteenth century offered arguments based on evidence, by way of definitions, analogies with the past and examples from contemporary history. Progress (utility and benefits) was the basic form of the argument. Such an argument emerged in the eighteenth century and multiplied in the nineteenth (see the next chapter). To innovation as the source of bloody revolutions . . .

The history of modern times and of our own nation, is sufficient to put us on guard [against innovation]. What was it that made us accountable as a nation, for the murder of Charles 1st? Innovation. What was it that stamped the same eternal and disgraceful dye upon the French, when they guillotined their virtuous Sovereign and his amiable family? Innovation . . . What did the people of England obtain by their dissolution of Monarchy: Cromwell . . . This was innovation, this was the progress, and this the end of that innovation. (Anonymous, 1817: 16–18)

. . . the man of a modern mind responds with the idea of progress:

Almost all great men that have appeared in the world have owed their reputation to their skill in innovating. Their names, their busts, their

books, their eulogiums, diffused through all countries, are a just reward of their innovations. (Robinson, 1782: 63–64)

Yet progress is one and only one argument developed to rehabilitate innovation. Writers also confront *ethos* and *pathos* directly, offering opposite arguments. Against *ethos*, writers argue that innovation is a kind of “blind obstinacy with which the generality of mankind adhere to those doctrines, opinions, and usages which they have inherited from ancestors” (Patterson, 1850: 17). On a moderate reform bill proposed by William Pitt—then backbencher but soon to be English Prime Minister—the first of a series of measures of parliamentary reform culminating in the Reform Bill of 1832, Charles James Fox, Secretary of State for Foreign Affairs, claims, “To talk of innovation as a bugbear against improvement and reformation, is what uncandid men have always done in politics and religion” (Fox, 1783: 482). According to Fox:

[To persons who feel] that we are in a state of peace and tranquility, and that we have no provocation to any steps for improving the benefits we enjoy, or retrieving any misfortune that we have incurred. . . . every proposition tending to meliorate the condition of the country must be subject of jealousy and alarm . . . Argument against reform . . . relates to the danger of innovation. [But] it is only by a reform that we can have a chance of rescuing ourselves from a state of extreme peril and distress. (Fox, 1797: 516)

In his *Essai sur les préjugés*, Paul-Henri Thiery d’Holbach Dumarsais writes:

L’antiquité donne toujours du poids et de la solidité aux opinions des hommes . . . Ils s’imaginent que ce que leurs ancêtres ont jugé convenable ne peut être ni altéré ni anéanti sans crime et sans danger . . . Ils s’en rapportent aveuglément aux décisions de ceux qui sont plus âgés qu’eux . . . Il ne faut rien changer . . . toute innovation est dangereuse . . . Ne rien changer, ne rien innover, sont des maximes ou de la stupidité ou de la tyrannie . . . Où serions-nous, hélas! Si nos ancêtres avaient eu pour les leurs l’aveugle vénération que l’on exige de nous pour les préjugés antiques? L’homme serait encore sauvage [Antiquity always gives weight and solidity to the opinions of men . . . They imagine that what their ancestors deemed appropriate can be neither altered nor destroyed without crime and without danger . . . They blindly go along with the decisions of those older than themselves . . . We must change nothing . . . every innovation is dangerous . . . Change nothing, innovate in nothing, are maxims of either stupidity or of tyranny . . . Where would we be, forsooth, if our ancestors had had for their ancestors the blind veneration that is required of us for old prejudices? Man would still be a savage]. (Dumarsais, 1822: 141–43)

Writers also confront *pathos*. With time, many people came to believe that innovation is first of all a word, an emotive word. Innovation is a linguistic weapon used against an enemy, for polemical purposes: the revolutionary, the Republican and, in the nineteenth century, the social reformer or socialist. People started to mock the critics of innovation. “The word innovation is so extremely offensive, that like a harsh note in music, it is grating to the feelings of all who hear it: antiquity and old precedents are now in fashion, and must upon all occasions be quoted”. So spoke Reverend Samuel John Nash in England in his Address to the Board of Agriculture (Nash, 1800: 2). Similarly, “Mankind are dupes of words”, claims Lee in his defence against the Church of Scotland: “Nothing which has been done by myself and others, now charged with innovating, has any affinity with those papistical or medieval practices in the English Church” (Lee, 1867b: 47). To Lee, “words admit of different interpretations”:

The very term “Innovation” carries with it an invidious inference. That word suggests the mischievous policy of those, who at various periods have endeavoured to place upon the Church a yoke of forms and ceremonies which it could not bear . . . The changes . . . are associated with memories which cannot but render them objects of suspicion [the five articles of Perth, the canons of Archbishop Laud] . . . The invidious term has even a more odious tendency. It hints, not darkly, at endeavours to undermine the purity of worship and would fasten the suspicion on the public mind, (as it actually has done on the mind of individuals) that those favourable to change, must be actuated by motives of unfaithfulness to the interests of that Church of which they are members. (Lee, 1867b: 5, 28)

That innovation is a word of *préjugé* gave rise to classifications or typologies—good/bad innovation (*Encyclopédie*, 1765: 254; Cobbett, 1817; *Dictionnaire des sciences médicales*, 1818: 229), graduées/brusques [gradual/abrupt] (Montlosier, 1833), “qui dure/qui ne dure pas [that last/that do not last]” (Bayle, 1820), speculative/empirical/practical (*Dictionnaire des sciences médicales*, 1818)—and to nuances: “Not to cling to anything ancient because it has the sanction of time and authority; not to reject anything new because it is destitute of those sanctions” (Patterson, 1850: 53).¹⁶

These reflexive thoughts led to a rehabilitation of innovation, by way of redescription. As innovating ideologists, social actors try to legitimize their contested behaviour with words. They present their behaviour as legitimate, using favourable terms: coining new terms, altering the meaning of existing terms, and, briefly stated, placing their action in a new moral light (Skinner, 1994). “A term generally used to commend an action or state of affairs may be used instead to express and solicit disapproval, or a condemnatory term may be used to suggest that, contrary to received assumptions, what is being described is also deserving of praise” (Skinner, 1999: 65).

Redescription “prompt [s] people to view [something] in a new moral light” (Skinner, 1999: 67). History, or rather the rewriting of history, is full of redescriptions. The Reformation is now innovation and the Revolution is innovation, in a positive sense. In 1814, François Montlosier (1755–1838), counter-revolutionary, deputy (*noblesse*) at the General Estates of 1789, produces *De la monarchie française* at the request of Napoleon Bonaparte. Nevertheless, the document is forbidden by the Empire regime. In over 40 pages, Montlosier relates the history of the different political and economic reforms proposed before 1789 by Maupeou, Saint-Germain, Turgot, Necker, de Calonne and Brienne (Montlosier, 1814: 165–208). All failed, according to Montlosier, because the measures adopted did not respect or build on tradition. Yet Montlosier calls these reforms innovations, in a neutral sense, and applies the word to the revolution too.

Others are more positive in their redescription. Past innovation or long-lasting and beneficial change becomes innovation. Had there not been innovations, claim Robert Robinson (1782) and Charles Pigott (1792), what would the world look like? “The word innovation”, states English pamphleteer William Cobbett:

which merely means the introduction of something new, is a very pretty word . . . To make a dirty narrow street into a wide clean street is an innovation; but there is no harm in it. To make an impassable lane into a turnpike-road is an innovation. So that an innovation may be a very good thing . . . [A]n innovation may be a very bad thing [too]. But, at any rate, we propose no innovations. We propose nothing that has not been before in our country. We propose Annual Parliaments, and that every man who pays taxes shall have a vote choosing those who lay the taxes on us; and we are ready to prove that these are not new, but very old indeed. But, for the argument’s sake, if we did propose an innovation. I should be glad to know what objections that would be to us, supposing the proposition to be good in itself?

Then Cobbett lists 14 innovations, old and new, from the license-printing press and the special jury to the excise law, the police and the Bank of England and asks, “Is not this innovations”.

Opponents of innovation talked of a spirit, or age, of innovation and of radical(ness). The modern writer uses these same words but with an opposite connotation. To the opponents of innovation, the age of innovation is subversive to the social order, being too radical. The modern writer praises this same spirit, precisely because it changes things in a revolutionary way.

These are only some of the many revisionist thoughts that figure in the literature of the nineteenth century. Specific redescriptions include the “Government of the Church by bishops was an innovation”; the British constitution “owes its beauty to innovation”; “the great charter and the bill of rights were innovations”; “the office of the speaker and the freedom of speech”

are too. “Every change is innovation”. “Ce qui était innovation est devenu usage courant [What was innovation has become current usage]”. James Taylor Coleridge summarizes this rhetorical move rather well:

Ministers professed a sanctified horror at the most distant prospect of innovation. Yet they were themselves the greatest innovators in this Country—they had altered the law of Treason, they had repealed an article in the Bill of rights, and now they were about to justify a measure, which in its immediate consequences would be to vote the House of Commons useless. (Coleridge, 1796: 262)

A (SEMANTIC) REHABILITATION

At the heart of the rehabilitation of innovation lies a semantic rehabilitation—as both a factor and an outcome of changing representations of innovation. The English philosopher Jeremy Bentham (1748–1832), whose works were translated into French by Etienne Dumont very early on (even before some were published in English), authored such a rehabilitation. Bentham is known above all for his utilitarianism. Today, many understand utilitarianism in strictly economic terms. However, Bentham’s utilitarianism is not restricted to commerce—commerce being considered incompatible with republican or civic virtue from the mid-eighteenth century onward (Pocock, 1985b; for a critique of Pocock’s dichotomy, see Burt, 1992). Bentham’s utilitarianism is ‘philosophical’. It encompasses the political, social and economic, as well as the scientific and technological. It applies to anything that is ‘useful’ in every aspect of life and society.

Bentham’s idea of utility first appeared in *An Introduction to the Principles of Morals and Legislation* (1789). To Bentham, “Nature has placed mankind under the governance of two sovereign masters, pain and pleasure . . . They govern us in all we do, in all we say, in all we think” (Bentham, 1789: 1). Utility is “that property in any object, whereby it tends to produce benefit, advantage, pleasure, good and happiness . . . or to prevent the happening of mischief, pain, evil, or unhappiness” (Bentham, 1789: 3). In sum, utility is the production of (good) effects.

Together with his well-known work on utilitarianism, a fact that is all but forgotten today is that Bentham is also responsible for what may have been the very first full-length rehabilitation of the concept of innovation. Bentham produced pages on innovation in various incomplete manuscripts, published first in French by Etienne Dumont in 1816 as *Traité des sophismes politiques* and then in English as *The Book of Fallacies* in 1824 by Peregrine Bingham. In fact, Bentham’s ideas acquired a wide audience after the translation into French of (extracts of) *The Principles* by Dumont in 1802 (*Traité de législation civile et pénale*). Then, using other manuscripts (including that on fallacies and the *Essays on Political Tactics* of 1791), Dumont rearranged the whole and produced *Oeuvres de Jérémie Bentham* (1829).

In Dumont's *Traité*, one finds an explicit application of the idea of utility, first explained in *The Principles*, to the concept of innovation—an application Bentham never made so explicitly except in unpublished manuscripts. In every translation of extracts from Bentham, Dumont always included innovation, as discussed in Bentham's manuscripts, as an example of argumentation based on good reasons or utility. Such is the case with the *Traité de législation* but also with both *Tactiques des assemblées législatives* and *Traité des sophismes politiques* (1816). With these translations, the rehabilitation of innovation was widely diffused in France.¹⁷

At the very beginning of the *Traité*, Dumont establishes a link between the political thought of Bentham on laws and innovation: "Qu'est-ce que donner une bonne raison en fait de loi? C'est alléguer des biens et des maux [effects] que cette loi tend à produire [What is it to give a good reason for making a law? It is to explain the good and bad effects the law tends to produce]". Bentham had already stated the principle of utility as follows: "the principle which approves or disapproves of every action whatsoever, according to the tendency which it appears to have to augment or diminish the happiness of the party whose interest is in question: or, what is the same thing in other words, to promote or to oppose that happiness" (Bentham, 1789: 2–3). Then Dumont discusses fallacies that are commonly encountered in legislative affairs. One of these is "reproche d'innovation [the reproach of innovation]": accusing someone of innovating or rejecting innovation just because it is innovation. "Ceux qui", states Dumont, "dans une assemblée politique, ont un grand intérêt à ne pas souffrir l'examen d'une question, s'efforcent de mettre le préjugé seul à la place du raisonnement [Those who in a political assembly have a strong interest in not enduring the examination of a question, strive to put prejudice alone in place of reasoning]".

Such sophisms take many forms, one of which is the fallacy of danger, as Bentham calls it, the subject matter of which is "to repress discussion altogether, by exciting alarm". By using a single word, in this case innovation, the fallacy turns a thing into a monster: anarchy (Bentham, 1824: 144). This is a special form of the fallacy *petition principii*, used here employing a single word. The word alone and in itself affirms that the object to which it is applied is an object of approbation or disapprobation. This generally occurs imperceptibly. "A man falls into it but too naturally . . . The great difficulty is to unlearn" (Bentham, 1824: 215).

Bentham distinguishes three kinds of words: neutral, eulogistic and dyslogistic. Many words begin as neutral (unaccompanied by any sentiment or judgment)—a contestable assessment—then shift to eulogistic (approbation) or dyslogistic (disapprobation). "Originally, all terms expressive of any objects were (it seems reasonable to think) neutral. By degrees they acquired, some of them eulogistic, some a dyslogistic, cast" (Bentham, 1824: 215). "The person, act, or thing in question is or deserves to be, or is and deserves to be, an object of general approbation; or the person, act, or thing in question is or deserves to be, or is and deserves to be, an object of general

disapprobation” (Bentham, 1824: 216). According to this classification, change is neutral, improvement is eulogistic, and innovation is dyslogistic.

Part II of *The Book of Fallacies* is concerned with the fallacies of danger, and Chapter 2 deals specifically with the fallacy of innovation under the title *The Hobgoblin Argument, or, No Innovation!* To Bentham, the word innovation is “imputation of bad motives, bad designs, bad conduct and character” (Bentham, 1824: 143). “*Innovation* means a *bad* change, presenting to the mind, besides the idea of a *change*, the proposition, either that change in general is a bad thing, or at least that the sort of change in question is a bad change” (Bentham, 1824: 143–44). But:

[t]o say all new things are bad, is as much as to say all things are bad, or, at any event, at their commencement; for of all the old things ever seen or heard of, there is not one that was not once new. Whatever is now *establishment* was once *innovation*.

(Bentham, 1824: 144)¹⁸

Certainly there is some truth in the fallacy. There may be some reasons to oppose a legislative measure: A new legislative measure “always carries a certain quantity of mischief”. To oppose a measure for mischief constitutes a just reason, if well founded. But generally, the opponent “set[s] up the cry of *Innovation! Innovation!* hoping by this watchword to bring to his aid all whose sinister interest is connected with his own” (Bentham, 1824: 147). To Bentham, the conservative “pass[es] condemnation on all change” by “the indiscriminating appellative” *new* (Bentham, 1824: 149–50). “The horror of innovation”, concludes Bentham, “is really a disease” (Bentham, 1824: 151).

To Bentham, innovation is an instrument of deception, a linguistic weapon. While discussing another fallacy—the fallacy of confusion, “the object of which is, to perplex, when discussion can no longer be avoided”—Bentham turns to innovation again. Innovation means something new, but “it has contracted a bad sense; it means something which is new and bad at the same time . . . [Yet] the idea of novelty was the only idea originally attached to the term innovation, and the only one which is directly expressed in the etymology” (Bentham, 1824: 218). The word is “chosen for the purpose of passing condemnation” (Bentham, 1824: 218–19).

Bentham applies his ‘language analysis’ to a specific type of innovation too, which we call technological innovation today. As a ‘projector’ himself (projector is a precursor term to technological innovator), Bentham conceived plans for economic development, among them a new kind of prison called Panopticon (Crimmins, 1998). Bentham on many occasions denounced the restrictions on investment imposed on projectors by laws on usury. “No laws ought to exist”, suggests Bentham in *A Manual of Political Economy*, “for the restraint of projectors and for preventing them from obtaining loans of the capital of which they stand in need”. To Bentham, “the censure that condemns projectors” is “a general attack upon the improvement of the

arts and sciences” (Bentham, 1793–95: 49). In a sentence reminiscent of that found later in *The Book of Fallacies*, Bentham states:

Everything which is *routine* to-day was originally a *project*; every manufacture, how *old* soever it may be, was once *new*; and when new, it was the production of that mischievous and bold race who ought to be destroyed—the race of projectors! (Bentham, 1793–95: 49)

In line with Daniel Defoe before him, Bentham wants to remedy the bad press that projectors have and the censure put on them, as satirized in Jonathan Swift, for example. Bentham offers many solutions to this end. One is changing the laws on usury. In *Defence of Usury* (1787), Bentham challenges Adam Smith on the question of projectors (Letter XIII). He accuses the Scottish economist of having, like most people in England, a pejorative understanding of projects and projectors, ranking the latter with “prodigals” and thus conveying “the idea of reprobation”. To Bentham, a project is rather the pursuit of wealth by invention and always “has this circumstance against it, viz. that it is new”. In Bentham’s view, Smith has condemned “as rash and ill-grounded all those projects by which our species have been successively advanced from the state in which acorns were their food, and raw hides their cloathing, to the state in which it stands at present”. For a third time, Bentham refers to the fallacy on innovation and concludes:

Sir, let me beg you, whether whatever is now the routine of trade was not, at its commencement, project? Whether whatever is now establishment, was not, at one time, innovation?

To Bentham, the restraints on usury and interest rates had the effect of diminishing the total number of (potentially beneficial) projects in England. Bentham’s proposal is “to provide, in favour of projectors only, a dispensation from the rigour of the anti-usurious laws; such, for instance, as is enjoyed by persons engaged in the carrying trade”. A second solution, reminiscent of Francis Bacon, is for legislators “to encourage inventive industry” (Bentham, 1793–95: 47). To Bentham, science and arts, “theory and practice” are “combined and inseparable” (Bentham, 1830: 204). Bentham had already made a distinction between invention and innovation (his terms are talent and project) (Bentham, 1793–95: 49–50), one of the first such distinctions and one that became commonplace in the twentieth century. Despite the distinction, both science and arts are “useful”, states Bentham (Bentham, 1830: 205ff.). Because research increases “the mass of general wealth” (Bentham, 1830: 215), it is imperative that government fund the research that is necessary for inventions. This solution he developed at length in *The Rationale of Rewards*. To Bentham, “*pure theory* [is] the first step in invention” (Bentham, 1830: 214), a rationale that in fact led to linear or sequential “models of innovation” in the twentieth century.

Bentham's third solution was rehabilitating the image of projectors. In *Defence of Usury*, as we have seen, Bentham applies his language analysis to projects and projectors. He challenges Adam Smith to define what a projector is and what a good as opposed to a bad projector is. In *A Manual of Political Economy*, Bentham suggests that governments provide charts or lists of inventions in order to distinguish good from bad projects and projectors. And he clarifies the vocabulary, even changes it. "Were it in the power of laws to put words under proscription, as it is to put men, the cause of inventive industry might perhaps derive scarcely less assistance from a bill of attainder against the words project and Projectors, than it has derived from the act authorizing the grant of patents".

Despite Bentham's concern with technological innovation (projects), one cannot attribute to this philosopher the coining of the expression or its impact on much later writings on technological innovation. Although by Bentham's time the term innovation was applied increasingly to fields other than religion and politics, it was left to the writers of the twentieth century to develop a discourse on technological innovation. Bentham kept to the vocabulary of his time, using project for technological innovation and innovation for introducing change into the established order. Bentham uses innovation only once in matters of projects and projectors.

Bentham admits that the idea of utility is not a new idea. In fact, several people before him—historians, Parliamentarians, the press—discuss innovation in similar terms.¹⁹ Yet until then, says Bentham, utility was interpreted instinctively or, when discussed openly, essentially criticized. With a treatise on the political rhetoric of his time, whose arguments apply one to one to innovation, Bentham did contribute to the rehabilitation of innovation (as utility or progress). As the nineteenth century progressed an increasing number of writers felt it necessary to stress the subjectivity and the value-laden aspect of the term. They criticized the way people talked about innovation, compared the representations and revised previous meanings.

This semantic rehabilitation goes hand in hand with another one: an instrumental rehabilitation, as discussed in the next chapter. From the nineteenth century onward, innovation is considered a vehicle for progress of any kind. The arguments used to talk of innovation shift from the individual to the social, from individual accountability to social progress and social benefits. To be sure, the idea of innovation as liberty remains in the vocabulary.²⁰ But the study of innovation shifts from the individual to organizations and nations as innovators. On the whole, innovation is praised for its systemic effects.

NOTES

1. In the case of innovation, this period spans c. 1800–1850.
2. In many diverse writings, and particularly in his *Book of Fallacies*, Bentham offers a project for a neutral vocabulary. Yet in general, Bentham is not part of

the history of projects on a universal language. Apart from Ogden (1932), only brief mentions of Bentham's 'applied' rhetoric are made from time to time, as in Burke (1950), Spadafora (1990) and Hirschman (1991).

3. The seventeenth and eighteenth centuries are well known for their distrust of language and *Ars rhetorica*. Language is subject to much abuse, according to many, above all to the philosophers who in reply articulate projects for a universal language (Barny, 1978; Ricken, 1982; Slaughter, 1982). Such is the case with innovation. Everyone uses the concept, but everyone disagrees on what innovation is.
4. For some other accusations of philosophers as innovators, see McMahon (2001: 50, 81, 143).
5. Prayers for the dead, choral service, the sign of the cross, weekly offertory, daily celebration of the holy communion, elevation of the host, turning to the east in prayer or at the Creed, division of the sexes, mixed chalice in holy communion, adjuncts of worship like incense, vestments and lights on the altar.
6. Pretence is a frequent accusation: "pretence of reformation" (Poyntz, 1661: 6); "the spirit of novelty . . . under the mask of a liberal reform" (Kirwan, 1787: 13); "those persons who pretend only to improve" (Ackland, 1798: 15).
7. "Desperate designe" of those working to "overthrow the State of Church and Common weale", turning them "upside downe" (Burton, 1636b: 40–42).
8. "Schemes of innovation" (Burke, 1791b: 217); "innovations and experiments" (Burke, 1791b: 223); "desperate enterprises of innovation" (Burke, 1791a: 199).
9. Plato, *Republic*, IV: 424b–c: "Lawlessness [innovations in music and gymnastics] easily insinuates itself unobserved . . . By gradual infiltration it softly overflows upon the characters and pursuits of men . . . and proceeds against the laws and the constitution . . . till finally it overthrows all things public and private". "In the beginning, our youth must join in a more law-abiding play, since, if play grows lawless and the children likewise, it is impossible that they should grow up to be men of serious temper and lawful spirit". Aristotle, *Politics*: "It often happens that a considerable change in a country's customs takes place imperceptibly, each little change slipping by unnoticed" (V: iii, 1303a). It is "essential in particular to guard against the insignificant breach. Illegality creeps in unobserved; it is like small items of expenditure which when oft repeated make away with a man's possession. The spending goes unnoticed because the money is not spent once at all, and this is just what leads the mind astray . . . One precaution to be taken, then, is in regard to the beginning" (V: viii, 1307b). Tacitus: Koselleck mentions, without exact reference, that Tacitus (56–117 CE), historian of the Roman Empire, made a topos of the idea that minor causes have major consequences (Koselleck, 1972: 239). Polybius (*Histories* 3: 7): "There is nothing, therefore, which we ought to be more alive to, and to seek for, than the causes of every event which occurs. For the most important results are often produced by trifles; and it is invariably easier to apply remedial measures at the beginning, before things have got beyond the stage of conception and intention". Polybius (*Histories* 11: 4): "As when a man has once set a fire alight, the result is no longer dependent upon his choice, but it spreads in whatever direction chance may direct, guided for the most part by the wind and the combustible nature of the material, and frequently attacks the first author of the conflagration himself; so too, war, when once it has been kindled by a nation, sometimes devours first those who kindled it; and soon rushes along destroying everything that falls in its way, continually gathering fresh strength [innovation], and blown into greater heat by the folly of the people in its neighbourhood, as though by the wind".

10. "When a people begin to innovate 'tis hard matter to keep them within the bounds of any moderation, and therefore 'tis the policy of the Church of Rome to change nothing" (Manton, 1647: 21); "Évitez lez nouveautez dans vos discours, car les choses n'en demeureront pas là; une nouveauté en produit une autre, & on s'égare sans fin quand on a une fois commencé à s'égarer [Avoid novelties in your talking, as things will not stop there; one novelty produces another & one continually goes astray when one has once begun to go astray]" (Bossuet, 1688: Preface); "The alterations in the State and Government . . . if they are not discreetly handled, and affected by degrees in an orderly course, and carried still on with the ease and contentment of the people, they will in short time be disquieted, and either turne back into the old way like sheep driven, or violently run head-long into some new" (Poyntz, 1661: 18); Although "in these great attempts and dangerous experiments upon a state and Common-wealth" men's designs "do really aime at some good reformation, and intend to proceed upon justifiable grounds and reasons, or at least so seeming", yet "they slip almost insensibly into the use of dangerous and unlawful means" and are driven "to violent motions" (Poyntz, 1661: 54); "All Innovations in Government are Dangerous, for it's like a Watch, of which any one piece lost will disorder the whole" (Anonymous, 1681: 172); Singing in itself is not "a matter of the greatest moment," but if similar innovations multiply, in forms of praying for example, "it might tend to the utter ruine of Primitive Christianity" (Anonymous, 1696); "At first [innovation] runs in a gentle rill, but, by degrees, the rill swells into a mighty torrent that sweeps away every thing before it" (Berkeley, 1785: 34–35); "Dans une communauté religieuse surtout, les plus petites choses conservent & soutiennent les plus grandes. Si l'on se donne la liberté de changer aujourd'hui une chose, on en changera que plus aisément demain une autre; ainsi par des changements multipliés, bientôt rien ne sera plus reconnaissables dans un Monastère, tant la fin sera différente du commencement [In a religious community especially, the smaller things preserve and support the larger ones. If we permit ourselves the liberty of changing one thing today, we will only change another more easily tomorrow; thus by multiple changes, soon nothing will any longer be recognizable in a Monastery, so much will the end be different from the beginning]" (Anonymous, 1786: 295–96); "Every innovation upon record began by a gradual reform, timid in its birth, bolder in its progress, until at last it swelled into a torrent that swept away every scene and bulwark of religion" (Kirwan, 1787: 25–26); "No man can tell, when a river breaks through its banks, and rushes from its accustomed channels, what devastation it will occasion" (Anonymous, 1817: 13–14); "Innovation in a government, even when made with no treasonable designs, is often only the prelude to greater evil" (Anonymous, 1817: 14); "Innovation which, in every state where it begins, no one can tell where it will end" and "The French revolution was neither organized in a moment, nor accomplished at once. No, it was brought about by degrees" (Anonymous, 1817: 26–27).
11. In one of the very few pages that 'historians' have devoted to the concept of innovation, Melvin Lasky suggests that innovation is a precursor term to revolution (Lasky, 1976: 311). I would say rather that innovation (as sudden and violent) simply has connotations of revolution.
12. Burton (1636b): blind watchman, dumbe dogs, plague of soules, false Prophets, ravening wolves, theeves and robbers of soules; Dow (1637): captain of factions, broacher of novell opinions; Goddard (1684): fantastical cure, enthusiastical follies; August (1791): factieux, demagogues, audacieux, usurpateurs, criminels, abus de pouvoir, anarchie, esprit de schisme, club de souverains

imaginaires, téméraire entreprise, rage démocratique, revolution (seditious, demagogues, daring, usurpers, criminals, abuse of authority, anarchy, spirit of division, club of imaginary sovereigns, reckless enterprise, democratic mania, revolution); Ackland (1798): servants of corruption, false philosophy, democratic theorists, republican fury; Anonymous (1817): attractive poison, popular deluders, leaders of sedition, seditious and aspiring men; Quincy (1828): relâchement, bizarrerie, jeu fantastique, destruction, indigeste, imagination capricieuse (loosening, strange ways, fantastic game, destruction, indigestible, capricious imagination).

13. "The English Humours of affecting new Opinions" (Charleton, 1699: 51; Ackland, 1798); "We live in an age, my brethren, when both altars and thrones are assailed and attempted to be overthrown. We live in an age when the reason of poor frail man is set up against the revelation of the most high God, and when the proud philosophy and vain deceit of scepticks, or infidels and atheists, exalt themselves against the sacred scriptures, and the communications of the Holy Spirit of God" (Winslow, 1835: 12); spirit, age: Bancroft, 1792; running after fashions (Hawkins, 1672; Winslow, 1835); gout léger du siècle [the taste of the times] (Dupin, 1808); love of novelty (Poyntz, 1661; Fly, 1798); désir de créer, de passer pour inventeur [desire to create, to act as inventor] (Vernois, 1861); soif des innovations [thirst for innovations] (Blandenier, 1884).
14. "Res nova non tant utilitate, Proficiunt, quam Novitate efficiunt [Novelties do not serve utility; they rather produce more innovation]" (Anonymous, 1681); "Beware that it be the reformation that draweth on the change, and not the desire of change, that pretendeth the reformation" (Bacon, 1625: *Essay Of Innovation*); "il faut prendre garde que ce soit le désir éclairé de réformer qui attire le changement, & non pas le désir frivole du changement qui attire la réforme [we must ensure that it be the enlightened desire to reform that brings on change, & not the frivolous desire for change that brings on reform]" (*Encyclopédie*, 1751); "vain désir de produire à toute force du nouveau [the futile desire to produce novelty at any cost]" (Dessirier, 1860: 14).
15. On an analysis of conservative change in eighteenth-century politics, see Lienesch (1983).
16. Again, Guillaume Cave offered a similar argument in the seventeenth century: "Comme c'est une folie & une vanité de vouloir s'attacher à de sottes coutumes, & s'opiniâtrer dans une doctrine à cause de son antiquité, c'est aussi une absurdité de rejeter les meilleurs opinions, parce qu'elles sont nouvelles [As it is a folly & a vanity to wish to adopt foolish customs, & to persist in a doctrine because of its antiquity, it is also an absurdity to reject the best opinions, because they are new]" (Cave, 1673: 18–19).
17. Bentham drafted several essays dealing with France specifically. In many works too, he compared the situations in England and in France. In 1792 he was made an honorary citizen of France. Bentham's writings had no immediate impact. The impact was due to Dumont's early translation of Bentham's works. It has been estimated that by 1830, over 50,000 copies of Dumont's translations had been sold in Europe alone.
18. Two hundred years before, Francis Bacon offered an analogous critique of the use of the word antiquity in *Novum Organum*: "Men harbour a very lax view of [antiquity], and one barely in line with the very word itself . . . [Antiquity] ought to denote our times, and not the springtime of the world when the ancients lived. For in relation to ours that time was old and greater, but in relation to the world itself, new and slighter. And just as we expect greater knowledge of human affairs and maturity of judgment from an old man . . . so in the same way much greater things could reasonably be expected from our time . . . than from the earliest ages" (Bacon, 1620: 84).

19. An early exponent of the idea is Guillaume Cave. In his *La religion des anciens Chrétiens*, Cave included a chapter on “De l’innovation qui étoit imputée au Christianisme [On the innovation that has been ascribed to Christianity]”. Cave offers two arguments against those who “font passer la religion Chrétienne pour une religion moderne & qu’on venoit d’inventer [pass off the Christian religion as a modern religion that someone has just invented]” (Cave, 1673: 19). One argument is to the effect that all things that exist were new at their beginning. The other argument is progress: “Il est sans contredit naturel à l’homme, de préférer le meilleur au moindre, ce qui est utile à ce qui ne l’est pas [It is certainly natural for Man to prefer the greater to the lesser, that which is useful to that which is not useful]”. According to Cave, the Christian writer Arnobe (c. 240–304) says, “[D]e grace, quel tort cela nous fait-il (que notre religion soit nouvelle)? Ne pouvons nous pas reprocher le même défaut aux premiers tems du monde, que les gens vivoient pauvrement & misérablement, jusqu’à ce qu’ils soient peu à peu parvenus à une manière de vie plus magnifique & plus illustre . . . Il est sans contredit naturel à l’homme, de préférer le meilleur au moindre, ce qui est utile à ce qui ne l’est pas [Please, what harm does it do us (that our religion is new)? Can we not ascribe the same fault to the earliest days of the world, that people lived poorly and miserably, until they had little by little arrived at a more magnificent and more illuminated manner of living . . . It is certainly natural for Man to prefer the better to the worse, that which is useful to that which is not useful]” (Cave, 1673: 28–29). Second, according to Cave again, Saint-Ambroise (340–97) says: “Vous dites que nôtre religion est nouvelle, & la votre ancienne, mais . . . si la nôtre est nouvelle, elle vieillira avec le tems, & la vôtre qui est, dites vous, ancienne, a été nouvelle pendant un certain tems. Il ne faut mesurer ni la bonté ni la dignité d’une religion au tems qu’elle a duré, mais à l’excellence de son culte [You say that our religion is new & yours is old, but . . . if ours is new, it will age with time, & yours which is, you say, old, was new for a certain time. One must not measure the goodness or dignity of a religion by the time it has endured, but by the excellence of its worship]” (Cave, 1673: 30).
20. In the twentieth century, initiative and entrepreneur are keywords in the literature on innovation.

8 Innovation Transformed

From Word to Concept

L'esprit d'innovation . . . est le plus beau don que la nature ait fait aux hommes. Sans lui, l'espèce humaine croupiroit. [The spirit of innovation . . . is the greatest gift that nature has given to men. Without it, the human species would stagnate.]

(Brissot, *De la vérité*, 1782)

On ne doit jamais craindre d'innover, quand le bien public est le résultat de l'innovation . . . Chaque siècle ayant d'autres mœurs, & des usages nouveaux, chaque siècle doit avoir de nouvelles loix. [We must never fear to innovate, when the public good is the result of innovation . . . Every century having other morals and new usages, every century must have new laws.]

(Anonymous [Comte de M***], *L'innovation utile*, 1789a)

“Not one in a hundred amongst us participates in the ‘triumph’ of the Revolution society. . . . Thanks to our sullen resistance to innovation, thanks to the cold sluggishness of our national character, we still bear the stamp of our forefathers”. So spoke Edmund Burke (1729–1797) in *Reflections on the Revolution in France* (Burke, 1790: 64). To Burke, innovation is revolution—and revolution is innovation. “We have not (as I conceive) lost the generosity and dignity of thinking of the fourteenth century; nor as yet have we subtilized [*sic*] ourselves into savages. We are not the converts of Rousseau; we are not the disciples of Voltaire; Helvetius has made no progress among us”.

Burke, an Irish statesman and political philosopher, deputy (Whig) in the English House of Commons and founder of the political review *Annual Register*, offers two arguments against innovation. First, custom or “inheritance derived to us from our forefathers” is “the result of profound reflection; or rather the happy effect of following nature”. In contrast, “A spirit of innovation is generally the result of a selfish temper and confined views” (Burke, 1790: 31). Burke’s second argument is a preference for the middle ground—which amounts to what he calls reform. “As in most questions of state, there is a middle. There is something else than the mere alternative of

absolute destruction, or unreformed existence” (Burke, 1790: 158). According to Burke:

There is a manifest marked distinction, which ill men, with ill designs, or weak men incapable of any design, will constantly be confounding, that is, a marked distinction between Change and Reformation. The former alters the substance of the objects themselves . . . Reform is, not a change in the substance, or in the primary modification of the object, but the direct application of a remedy . . . *To innovate is not to reform.* (Burke, 1796: 290)

Burke held similar views throughout his life. Whether in his speeches to Parliament or his diverse correspondence, Burke cried out against “[t]he greatest of all evil: a blind and furious spirit of innovation, under the name of reform” (Burke, 1795: 271).

Today, we entertain a totally different representation of innovation. Innovation is essentially a good and positive thing. How, when and why did innovation become positive—and become a fashion? Innovation developed a positive connotation at the moment when it came to be defined as progress and utility. This change in the meaning of innovation was not a response to (contradictions in) disputes (on innovation *per se*), as has been the case for various political concepts (Ball and Pocock, 1988). To be sure, innovation is an eminently political and contested concept. Yet it does not figure in the vocabulary of statesmen and political theorists of the seventeenth and eighteenth centuries, except as a ‘nonconcept’: When talked of, it is talked of negatively. Innovation became an honourable concept in response to a new context. This chapter is about this key moment in the history of innovation. After centuries of experience with and talk of innovation in negative terms, innovation turned positive and became an object of thoughts and dreams. This occurred after 1789: Innovation is instrumental to social and political—and later economic—goals, so it was claimed.

In the previous chapters, I have dealt at length with the representation of innovation, particularly in England. This representation was shared in every Western country. This chapter extends the analysis to France and documents the emergence of a new representation of innovation. The first part traces the representation of innovation in the century before the French Revolution. As in England, innovation was a negative concept used for accusatory purposes. The second part documents the rehabilitation of innovation in the name of progress.

INNOVATION BEFORE THE FRENCH REVOLUTION

As in England, in both religion and politics in France, innovation is a bad word, statistically speaking.¹ Jacques-Bénigne Bossuet (1627–1704), French

bishop, theologian and polemicist, was an ardent opponent of innovation, particularly the Reformation: “Évitez lez nouveautez dans vos discours, car les choses n’en demeureront pas là; une nouveauté en produit une autre, & on s’égare sans fin quand on a une fois commencé à s’égarer [Avoid novelties in your talk, since things will not stop there; one novelty produces another, and one loses one’s way ceaselessly once one begins to go astray]” Bossuet, 1688: Préface). In every work and in many letters, Bossuet does not refrain from using the word innovation against the Protestants. *Histoire des variations des Églises protestantes* (1688) is a work against the Protestants’ “spirit of innovation”. To Bossuet, a society needs rules, and rules require an authorized interpreter. But the Protestants vary on fundamental points. They commit the “crime d’innovation [the crime of innovation].”

In his *Lettre pastorale* (1698) written in opposition to the bishop of Chartres, whom he accused of “variations”, Bossuet denies any innovation in the Catholic Church. These are only “accusations en l’air [idle accusations]”, claimed Bossuet (*Opuscules*, 1751: 226). The “novateurs [innovators]” are rather the Protestants:

Jamais on ne montrera dans l’Église Catholique aucun changement que dans des choses de cérémonie & de discipline, qui dès les premiers siècles ont été tenues pour indifférentes. Pour ces changements insensibles qu’on nous accuse d’avoir introduits dans la doctrine; dès qu’on les appelle insensibles, c’en est assez pour vous convaincre qu’il n’y en a point de marqués, & qu’on ne peut nous montrer d’innovation par aucun fait positif. Mais ce qu’on ne peut nous montrer, nous le montrons à tous ceux qui nous ont quittés: en quelque partie du monde Chrétien qu’il y ait eû de l’interruption dans la doctrine ancienne, elle est connue: la date de l’innovation & de la séparation n’est ignorée de personne [Never has there been any change in the Catholic Church other than in matters of ceremony and discipline, which since the earliest centuries have been held to be minor. As for the minor changes we are accused of having introduced into doctrine, as soon as you call them minor, that is sufficient to convince you that there is in it no distinguishing mark, and that they cannot show us innovation by any positive fact. But what they cannot show us, we show to all who have left us: in whatever part of the Christian world there has been any interruption in the old doctrine, it is known: the date of the innovation and of the separation is not unknown to anyone]. (*Opuscules*, 1751: 225)

Bossuet forgets here the controversy on innovation in England, when the bishops accused the Protestant church of innovations in discipline and doctrine, precisely because it was believed that the innovations brought this church toward the superstitious and “innovating” Catholic Church. He forgets also that what he calls “indifférentes” (minor) innovations (insensible changes or small innovations) are nevertheless innovations to many divines because of their symbolic value.

In the 1670s, Bossuet worked on a ‘book of advice’ to the Prince, namely the Dauphin (Louis XIV’s son), for whose philosophical, political and religious education he was responsible. At the time, many books of advice included instructions on innovation. So does Bossuet’s *Politique tirées des propres paroles de l’Écriture sainte*. The work is composed of 10 books, each divided into articles and each article into propositions. The work was published posthumously in 1709. *Politique* offers rules and duties in light of the Bible. It is God who speaks in this book, not Bossuet. Book Seven is concerned with the duties of a Prince. It starts with religion and includes the following propositions (Lachat, 1864: 32–39):

1. “La vraie religion a pour marque manifeste son antiquité [True religion has as its distinguishing mark its antiquity]”.
2. “Toutes les fausses religions ont pour marque manifeste leur innovation [All false religions have as their distinguishing mark their innovation]”.
3. “Cette marque d’innovation est ineffaçable [This mark of innovation cannot be erased]”.

Such a representation of innovation in France is far from unique. In 1746, Denis Diderot (1713–1784), philosopher and co-editor of the *Encyclopédie* (1751), published his first work—anonymously. The *Pensée philosophiques* is a pamphlet on religion, condemned to be burned by Parliament as soon as it appeared. Composed of a series of letters, the thirteenth starts as follows: “Toute innovation est à craindre dans un Gouvernement . . . Le Christianisme même ne s’est pas affermi sans causer quelques troubles. Les premiers enfans de l’Eglise sont sortis plus d’une fois de la modération & de la patience qui leur étoient prescrites [All innovation is to be feared in a Government . . . Christianity itself was not consolidated without causing some troubles. The Church’s first children departed more than once from the moderation and patience that were prescribed for them]”. To Diderot, citing the Emperor Julian, the Christians “n’épargnent aucun moyen, ne laissent échapper aucune occasion d’exciter des révoltes [spare no means, miss no opportunity to arouse revolts].” Yet, “C’est par la raison & non par la violence qu’il faut ramener les hommes à la vérité [It is through reason and not by violence that we must bring men back to the truth]”.

Many responses, most of them published anonymously, followed the publication of the pamphlet. The type of reply is shared by most of the writers involved in the controversy. Innovation *per se* is not a bad thing; everything is in the particular. “L’innovation est à craindre dans un Gouvernement, je n’en disconviens pas; mais ce n’est pas à dire qu’on doive s’abstenir de tout examen, & que l’ancienneté soit un titre incontestable de bonté [Innovation is to be feared in a Government, I don’t deny that; but that does not mean that we should abstain from any examination, and that antiquity is necessarily an indication of goodness]” (Anonymous, 1751b: 150). To the

anonymous author (Baron de M***), the problem is not religion; it is rather human nature (individuals) that is to blame.

To another critic, the issue is also individuals. A true religion is never the source of “dangerous innovation”. The problem is the disciples. Yet the writer introduces an argument that would become popular much later:

Toute innovation est à craindre dans un Gouvernement? Quoi! Lorsqu’il y a des défauts essentiels, des abus crians, qui menacent un Etat de sa ruine, il vaut mieux que tout périsse que de hazarder une innovation. Je sais bien qu’en Politique il faut une grande circonspection; qu’il y a certaines choses qui pourroient mieux aller, mais dont la Réformation entraineroit des désordres pires que ceux qu’on se propose de réformer. Cependant, en Politique même, le mal peut se trouver tel qu’il ne puisse plus être dissimulé ni toléré [All innovation is to be feared in a Government? What! When there are essential flaws, glaring abuses, that threaten a State with ruin, it would be better if everyone perished than to risk an innovation. I realize fully that in politics, a great deal of circumspection is required; that there are certain things that could go better, that a Reform would lead to worse disorders than those it was proposed be reformed. However, even in Politics, evil may find that it can no longer be concealed or tolerated]. (Formey, 1756: 161)

By the 1760s, many knew that Diderot was the author of the pamphlet. For example, a further critique that deserves mention, also published anonymously, refers to the *Encyclopédie* as containing from Diderot (not mentioned by name) a more credible source of information on Julian. This writer replies with the same kind of argument as Jean Henri Samuel Formey:

Est-il bien vrai, Monsieur, que *toute* innovation soit toujours à craindre? A parler en général, il seroit sans doute à souhaiter que tout gouvernement perséverat dans sa première constitution; parce qu’il n’est guères d’innovations qui ne causent un certain trouble . . . Mais si le bien peut quelquefois dégénérer en mal, ne peut-on pas aussi convertir le mal en bien? Ce n’est qu’à force de changemens qu’on arrive à la perfection [Is it really true, Sir, that *any* innovation is always to be feared? Generally speaking, it would no doubt be desirable that every government continue in its initial form; because it is hardly innovations that cause a certain trouble . . . But if the good may sometimes degenerate into bad, can we not also convert bad into good? It is only by continued changes that we may arrive at perfection]. (Anonymous, 1761: 254)

To the anonymous writer, innovation is progress:

C’est comme si [Diderot] disoit que la création du jour a été une *innovation* funeste, & qu’il eut mieux fallu demeurer dans une nuit éternelle.

Chaque Législateur a *innové*, puisqu'il a donné des Loix nouvelles, & prescrit une forme de gouvernement inconnue jusqu'à lui. Etoit-il plus expédient pour les peuples de rester dans leur état de rusticité & de barbarie, que d'écouter des hommes qui leur dictoient des Loix propres à les civiliser & à leur procurer tous les avantages de la société? (It is as though [Diderot] said that the creation of day was a disastrous *innovation* and that it would have been better to remain in an eternal night. Every Legislator has *innovated*, since he has created new laws and prescribed a form of government unknown before his time. Would it be more beneficial for people to remain in their rustic, barbaric state than to listen to men who dictate to them Laws that would civilize them and gain for them all the advantages of society?) (Anonymous. 1761: 254–55)

I will return to this kind of argument later in the chapter. Such an argument was very rare at the time. It was rather Bossuet's representation of innovation that got a hearing in France, including French politics. The debate in the National Assembly regarding the new constitution (1789) was in essence a debate on whether the constitution was to be a reformation of what was regarded as an existing constitution (or form of government) or inaugurating a constitution *de novo*, as Keith M. Baker puts it (Baker, 1990: 275). In the end, the French opted for the latter instead of tradition.²

Yet this debate was not conducted using the concept of innovation, particularly among the innovators themselves. No revolutionary thought of describing his project in terms of innovation. Innovation is a word used by the critics of the Revolution. When used, innovation is used without discussing its meaning. Above all, the denotations or criteria vary, depending on the speaker or writer. Two men may agree on the (lexical) meaning of innovation, yet they do not necessarily find the same things novel. To some, the General Estates is an innovation, to others, no—except for the *privilégiés* “qui ne se plaignent que de l'esprit d'innovation [who complain only about the spirit of innovation]”, as Emmanuel Joseph Sieyès puts it in *Qu'est-ce que le Tiers-État?* (Sieyès, 1789: 101). To Jacques-Pierre Brissot de Warville, executed *girondin*, the General Estates is rather a restoration (Brissot, 1789: 135). To some others, the new constitution is an innovation—an “innovation hasardeuse [dangerous innovation]”, as stated by Jacques Necker, comptroller of finances under Louis XVI (Necker, 1792: 351)³—to others, no. To still others, like the clergy, a new mode of election with more equal representation for the people (one house rather than three Orders) is an innovation; to others, no. Only the Revolution is unanimously declared an innovation—as Burke does—at least by its critics. In fact, the analogy with or association between innovation and revolution abounds in the literature of the time. “La réforme conduit à l'innovation, l'innovation à la révolution, la révolution à l'anarchie et au désordre [Reform leads to innovation, innovation to revolution, revolution to anarchy and disorder]”; such was

the common opinion, as reported by Abbé Arthur Dillon in his *Progrès de la révolution française en Angleterre* (Dillon, 1792: 13).

Yet compared to England, very few titles on the “spirit of innovation” were produced in prerevolutionary France. Nevertheless, the word appears in hundreds of documents, and the meaning is similar to that in England. The debates at the General Estates of 1789 are quite representative of the representation of innovation. Innovation is used essentially by the critics of the Revolution. It serves to qualify the changes made to the constitution as “dangerous” and to stress the nefarious (“alarmantes [alarming]”) effects of the Revolution. Every critic contrasts innovation, as Burke does, to custom. That no “innovation” be introduced that “would destroy or alter the essence of the monarchical government” is the message from Jean Marie Prudhomme, bookseller and author of over a thousand pamphlets, in his proposal for a constitution based on a summary of the *Cahiers* presented to the General Estates (Prudhomme, 1789). To this end, Prudhomme stresses particularly that no innovation be introduced in the mode of representation of the three Orders.

In a similar vein, an anonymous writer produced a pamphlet on the “précautions à prendre contre les innovations présentées aux ETATS-GENERAUX [precautions to be taken against innovations presented to the GENERAL-ESTATES]”. The writer lists the “innovations dangereuses [dangerous innovations]” brought into the mode of representation at the General Estates that add up to a change to the “droit résultant des formes antiques et constitutionnelles [law resulting from antique and constitutional forms]” (Anonymous, 1789b: 7). The innovations “portent l’empreinte de l’ARBITRAIRE, qui est le fléau des Empires [bear the imprint of the ARBITRARY, which is the scourge of Empires]” (Anonymous, 1789b: 8). The three Orders, he claims, “n’entendent nullement être tenus de se conformer à ces innovations [in no way intend to be required to conform to these innovations]” (Anonymous, 1789b: 14).

Again, political representation is the issue discussed by the *chevalier* Marie Thérèse Léon Tinseau-D’Amondans in his *Parallèle des deux déclarations du Roi*. To the chevalier, “Trois ans de crimes & de délire viennent de renverser cet empire florissant [Three years of crimes and delirium have just undone this flourishing empire]” (Tinseau-D’Amondans, 1792: 3). “Ce sont les innovations fondamentales qu’on y a faites [These were fundamental innovations that were made] (to the constitution), lors de la convocation des états-généraux, qui ont perdu le royaume [during the convocation of the general-estates, that have lost the kingdom]” (Tinseau-D’Amondans, 1792: vii). The *chevalier* discusses four “innovations fondamentales” [fundamental innovations] to “l’usage ancien & constant de la monarchie [the ancient and unvarying usages of the monarchy]”⁴ and concludes as follows (Tinseau-D’Amondans, 1792: 47–48): We must delay the discussion of “toute innovation qui a besoin d’essais, qui exige une longue discussion ou des rassemblements qui prolongés ne serviraient qu’à entretenir le mouvement & l’agitation des esprits. Il faut attendre que cette fièvre politique

soit calmée. Il ne s'agit pas d'améliorations . . . Tout a été détruit; il faut commencer par tout rétablir [any innovation that requires experiment, that requires a long discussion or assemblies which when prolonged act only to maintain movement and agitation of minds. We must wait until this political fever has calmed down. It is not a matter of improvements . . . Everything has been destroyed; we must begin by re-establishing everything]".

In contrast to the previous views, Guy Jean Baptiste Target, magistrate in the Parliament of Paris before the Revolution, argues for innovation in his *L'Esprit des cahiers présentés aux États-Généraux*. Written in the form of a law, with 693 articles, *L'Esprit des cahiers* sums up every matter discussed during the General Estates: constitution, administration and law, commerce, public finance, religion, education. Yet Target avoids using the word innovation. All over the text, Target's keyword is regeneration (and revolution), not innovation.⁵ Target wants a "réforme absolue [total reform]". "En général, les réformateurs se sont plus attachés à détruire qu'à édifier, à censurer les vices de l'administration qu'à les remplacer par une meilleure . . . J'ai cherché en vain un édifice complet & détaillé [In general, reformers are more partial to destroying than to building, to censuring the vices of the administration than to replacing them with something better . . . I have searched in vain for a complete and detailed project]" (Target, 1789: vi).

Yet in conclusion, Target admits to innovating: "Je m'attends qu'on me reproche de m'être livré dans cet écrit à l'esprit d'innovation, de l'avoir porté à l'excès . . . De ce reproche je ne supprime que le mot excès, tout le reste est vrai [I am waiting for someone to reproach me for being given in this writing to the spirit of innovation, of having carried it to extremes . . . From this reproach I eliminate only the word extremes, all the rest is true]" (Target, 1789: 493). To Target, to reform (regenerate) a corrupt state requires innovation. France wishes great changes ("ne demande-t-on pas à grands cris la *régénération du royaume?* [do we not loudly demand the *regeneration of the kingdom?*]" and the changes cannot be done without innovation. "J'ignore l'art de produire de très-grandes choses avec de très-petits moyens [I know nothing of the art of producing very great things by very small means]" (Target, 1789: 494).

When innovation is used by others than critics, it is normally used in a defensive mode. In a discourse pronounced before the National Assembly on 17 June 1789, the revolutionary Honoré Gabriel Riquetti, comte de Mirabeau (1749–1791) claimed that liberty is not a matter of philosophy (science) or principles but of daily experience. Before outlining his own proposal for a declaration of rights, Mirabeau praises the American Declaration for such a pragmatism or middle ground and at the same time minimizes any innovation in his own project:

Nous serons mieux entendus à proportion que nous nous rapprochons davantage de raisonnements [simples]. S'il faut employer des termes abstraits, nous les rendrons intelligibles, en les liant à tout ce qui

peut rappeler les sensations qui ont servi à faire éclore la liberté, et en écartant, autant qu'il est possible, tout ce qui se présente sous l'appareil de l'innovatio (We would be better listened to in proportion to how closely we approach [simple] reasoning. If we must employ abstract terms, we will make them intelligible, by linking them to anything capable of recalling the senses that served to kindle liberty and, to the extent possible, by keeping away anything presented under the trappings of innovation].

(Mérilhou, 1825: 208)

Similarly, Gérard-Trophisme Lally-Tollendal, member of the Assemblée nationale constituante (as representative of the Lords), in a discourse to the *Chambre de la noblesse* (House of Lords) on 15 June 1789 states⁶:

Et quant à cette expression d'innovation; quant à cette qualification de novateurs, dont on ne cesse de nous accabler; convenons encore que les premiers novateurs sont dans nos mains; que les premiers novateurs sont nos cahiers; respectons, bénissons cette heureuse innovation qui doit tout mettre à sa place, qui doit rendre tous les droits inviolables, toutes les autorités bienfaisantes, et tous les sujets heureux [And with regard to this expression innovation; with regard to this characterization of innovators, with whom we are incessantly overwhelmed; let us agree once more that the first innovators are in our hands; that the first innovators are our *Cahiers*; respect and bless this happy innovation that should put everything in its place, that should make all rights inviolable, all authorities beneficent, and all subjects happy]. (Lally-Tollendal, 1789: 164–65)

Law holds the same pejorative view of innovation, that “goût léger du siècle [frivolous taste of the times]” and “appât qu’employent les nouveaux docteurs [bait used by the new doctors]” because it is “la manie de ceux [à qui] ils enseignent . . . Ils peuvent ainsi combler leurs classes (the odd habit of those (to whom) they teach . . . They can thus fill up their classes)”. So wrote a professor of law on the spirit of innovation in education (Dupin, 1808: 118–19). Among several projects in the eighteenth century on the collection of ancient laws, the *Recueil général des anciennes lois françaises, depuis l’an 420 jusqu’à la révolution de 1789* offers the following rationale for the study of past laws. In the introduction to the first volume, François-André Isambert, lawyer and adviser to the King at the Cour de Cassation, contrasts England and France on innovation:

Le mérite d’un législateur consiste moins à créer, qu’à profiter de ce qui est, pour asseoir un édifice durable et solide . . . et cette manière de procéder est souvent préférable aux innovations. Nos voisins [England] ont leur raisons pour être plus attachés que nous à ces anciennes lois.

Constitués de bonne heure, ils ont eu plutôt à défendre les anciennes maximes de leurs pères, qu'à courir après les innovations . . . Aussi le cri des Anglais est-il aujourd'hui . . . *Nolumus leges Anglioe mutare*. L'idée d'une réforme, quelque nécessaire qu'elle paraisse, éprouve dans ce pays une résistance presque invincible (The value of a legislator consists less in creating than in taking advantage of what is, in order to build a solid, durable edifice . . . and this manner of proceeding is often preferable to innovations. Our neighbours [England] have their reasons for being more attached than we are to these old laws. Established early, they had rather to defend the old truisms of their fathers than to run after innovations . . . Also, the cry of the English today is . . . *Nolumus leges Anglioe mutare*. The idea of reform, however necessary it appears, in this country encounters an almost invincible resistance).

Chez nous, au contraire, l'esprit d'innovation a été permanent. Il a été favorisé par nos Rois . . . mais l'impulsion était donnée: le peuple . . . voulu, à son tour, conquérir un état politique, et participer au gouvernement; la révolution éclata; une constitution fut . . . improvisée . . .; la haine des anciennes institutions s'est montrée à un degré qu'on n'avait pas connu dans la révolution d'Angleterre [Here among us, to the contrary, the spirit of innovation has been permanent. It has been favoured by our Kings . . . but the impulse was given: the people . . . wanted to have their turn to conquer a political state, and participate in the government; the revolution exploded; a constitution was . . . improvised . . .; the hatred of the old institutions has increased to a degree we never saw in England's revolution]. (Jourdan, Decrusy and Isambert, 1789)

To Isambert, that a ruler's main task is "creating new laws" and that France is imbued with the "spirit of innovation" are insufficient reasons for not studying past laws. "Mais, parce que le système de Louis XIV et de Louis XV, a fait place à un autre, conforme aux nécessités du siècle où nous vivons, est-ce donc une raison, pour que nous dédaignons l'étude des monumens des siècles passés? [But because the system of Louis XIV and Louis XV gave way to another, conforming to the requirements of the century we live in, is that then a reason for us to despise the study of the memorials of centuries past?]"

All in all, the representation of innovation that prevailed in 1789 is not different from that offered in the French *Encyclopédie* of 1751, itself a representation of centuries of uses of the concept: Innovations are "difformités dans l'ordre politique [deformities in the political order]", as the *Table analytique et raisonnée des matières continues dans l'Encyclopédie* puts it (Diderot, 1780: 41). To the encyclopaedists, innovation is a "nouveau, ou changement important qu'on fait dans le gouvernement politique d'un état, contre l'usage & les règles de sa constitution [novelty, or important change one makes in the body politic of a state, against the tradition and the regulations of its constitution]". Innovation is contrasted to gradualism: "[L]es

révolutions que le tems amene dans le cours de la nature, arrivent pas-à-pas; il faut donc imiter cette lenteur [the revolutions that time brings in the course of nature arrive step by step; we should then emulate this slowness]" (*Encyclopédie*, 1774, Vol. 30, art, Innovation: 757). Similarly, "novateur"—to the French "on ne dit pas innovateur: ([L]e mot usité est *Novateur* [we don't say "innovateur": The commonly used word is [*Novateur*]" suggests a dictionary of the time (Féraud, 1787)—is "toujours en mauvaise part [always improper]" because men are attached to established things.

Yet at the same time, the representation of innovation began to change. The *Encyclopédie* admits both bad *and good* innovations: "Les novateurs en littérature peuvent corrompre ou perfectionner le gout; en religion, exciter ou calmer les troubles; en politique, sauver ou perdre une nation [Innovators in literature can corrupt or perfect taste; in religion, excite or calm troubles; in politics, save or ruin a nation]" (*Encyclopédie*, 1765, Vol. 11, art, Novateur: 254). In the same volume, *nouveauté* (novelty) is defined as "tout changement, innovation, réforme bonne ou mauvaise, avantageuse ou nuisible [any change, innovation, reform good or bad, beneficial or harmful]". However, such a positive acknowledgement is timid. Echoing, or rather citing, Francis Bacon, the *Encyclopédie* suggests that one should accept innovation only "peu à peu & pour ainsi dire insensiblement [bit by bit and, so to speak, imperceptibly]" (*Encyclopédie*, 1765, Vol. 11, art, Nouveauté: 265). "Il est bon de ne pas faire de nouvelles expériences pour accomoder un état sans une extrême nécessité & un avantage visible. Enfin, il faut prendre garde que ce soit le désir éclairé de réformer qui attire le changement, & non pas le désir frivole du changement qui attire la réforme [One must avoid creating new experiments to accommodate a state without an extreme necessity and a foreseeable advantage. Ultimately we must be careful that it is the enlightened desire to reform that brings about change, and not the frivolous desire for change that brings about reform]" (*Encyclopédie*, 1765, Vol. 11, art, Nouveauté: 266).

INNOVATION AND INSTRUMENTALITY

With time, many people became conscious that innovation is first of all a word, a word used for polemical purposes (Chapter 7). "On tremble au seul mot d'innovation [we cringe at the very word innovation]";⁷ a "mot maudit" [accursed word], as Considérant put it (Considérant, 1834: 312); "on abuse singulièrement aujourd'hui du mot *innovation* [we particularly abuse the word innovation these days]".⁸ To many, the "reproche d'innovation [reproaching innovation]" is only a "préjugé [prejudice]", "une maxime de la stupidité et de la tyrannie [the byword of stupidity and tyranny]",⁹ "une crainte peu réfléchie [an unthinking fear]",¹⁰ that of an "esprit borné [a short-sighted mind]".¹¹ "From this appeal", concluded an anonymous writer, "there is no appeal" (Anonymous, 1844).¹² Jean le Rond d'Alembert

(1717–83) summarizes the uses made of innovation perfectly. Innovation is a cry, “le cri de guerre des sots [the war cry of fools]”. In his *Éloge de L’Abbé François Régnier Desmarais* (1786), d’Alembert asks why organizations (corps) have “moins de sens & de lumières que les particuliers [less sense and enlightenment than individuals]”. It is because:

elles craignent le plus léger changement dans leurs principes, leurs opinions, leurs usages . . . [D]ès qu’on propose une chose nouvelle, quelque raisonnable qu’elle soit, le cri de guerre des sots est toujours, *c’est une innovation*. Il n’y a, disait un homme d’esprit, qu’une réponse à faire à cette objection, c’est de servir du *gland* à ceux qui la proposent; car le pain, quand on a commencé d’en faire, était une grande innovation (they fear the least change in their principles, their opinions, their usages . . . [A]s soon as someone proposes a new thing, however reasonable it may be, the war cry of fools is always, *it is an innovation*. There is, as an enlightened man put it, only one answer to be made to this objection, and that is to serve acorns to those who propose it; since bread, when it was begun to be made, was a major innovation”. (Alembert, 1786: 293)

Among the central arguments of the semantic rehabilitation of innovation are progress and utility. Thoughts on innovation as utility open an entirely new semantic field. From a focus on the past and the present (innovation as heresy and deviance), it allowed people to talk about the future: Innovation is an instrument for founding a new society and a new political order.¹³ Innovation is not harmful but useful. Beginning in the nineteenth century, the “dangerous innovation” turns into innovation with superlatives: the “Happy Innovation”, the “Great Innovation”. Innovation also gets ‘technicized’. People start talking of “political innovation”, “innovation in law”, “linguistic innovation” instead of just innovation. This is a sign that people were appropriating a word in general use for more specific purposes.

The increasing use of innovation in a positive sense amounts to a perceived change in the world and a corresponding change in the conception of society. There occurs a “shift in the conception of time and a reorientation towards the future . . . against which structural changes are perceived, evaluated and acted upon” (Richter, 1995: 35). Four characteristics of this change are:¹⁴

1. *Pervasiveness*. Change is everywhere, at least semantically (Koselleck, 1969; 1977): religion (Reformation), politics (revolutions), economics (industrial revolution), science (scientific revolution). While everything was perceived as continuous before, people now become conscious or aware of changes in every sphere of society. They accept change, even promote changes.

2. *Rapidity*. Change is radical and revolutionary. While it was previously thought that change is mainly gradual and evolutionary (Nisbet, 1969), change is now sudden. Revolutions become the emblem of change.¹⁵
3. *Temporal dimension*. Change is future-oriented, namely instrumental to social transformations, rather than oriented to preserving the past. Change is productive (useful) rather than destructive (of customs) or, if destructive, is so in a positive manner. Radical change and revolutions announce new possible futures (Koselleck, 1969; Lusebrink and Reichardt, 1988; Ozouf, 1989; Reichardt, 1997).
4. *Source*. Humans become conscious of their own action. While change was previously explained by God, nature or necessity, humans become aware of history and their capacity to shape their own destiny (Koselleck, 2002a).

Such changes could not but be named using new words, or redescriptions of existing words. Such is the case with innovation. After 1789, one central argument develops that gave the concept a positive connotation. Innovation is discussed in terms of progress: “If it had not been for this happy spirit of innovation, what would be the state of mechanics, mathematics, geography, astronomy, and all the useful arts and sciences” (Pigott, 1792: 171). On one hand, the literature on progress, including encyclopaedias and *dictionnaires critiques*, starts using “innovation” in a positive sense; such was not the case during the previous century (the Encyclopaedists, Nicolas de Condorcet, Anne Robert Jacques Turgot). On the other hand, the discourses on innovation begin making use of ‘progress’, thus contributing to make honourable what was, until then, an odious word. As Robert Nisbet puts it, like Auguste Javary before him,¹⁶ after 1750 progress is the dominant idea, the “developmental context for other ideas” (Nisbet, 1980: 171; Koselleck, 2002b).

Innovation as progress is understood as utility. Innovation is essentially what is useful or productive of good effects: the improvement of the material conditions of humankind but also their political and social conditions. One early (prerevolutionary) use of the argument is from Robert Robinson (1735–1790), an eminent English dissenting divine and Baptist minister, whose political views caused some concern in the Church—but were cited by Burke. In a pamphlet published in 1782, Robinson looks at the principles guiding the many petitions to Parliament asking for changes and new laws. To Robinson, the controversies (religious and political) that divide England rest on mistakes. One of the true principles guiding the petitions is innovation. There is “necessity of reforming abuses at all times, and in all places, where they are found, without being frightened at the din of novelty, novelty”:

Innovate! England . . . has done nothing but innovate ever since the reign of Henry the seventh. . . . She has imported the inventions and

productions of the whole earth, and has improved and enriched herself by so doing. New arts, new manufactories, new laws, new diversions, all things are becoming new . . . The truth is human knowledge is progressive, and there has been a gradual improvement in every thing; this age knows many things the last was ignorant of, the next will know many unknown to this, and hence the necessity of frequent innovations . . . The love of novelty is so far from being dangerous, that it is one of the noblest endowments of nature. It is the soul of science, and the life of a thousand arts. (Robinson, 1782: 62–63)

Contrast this statement to that of an anonymous gentleman of Worcestershire:

The history of modern times and of our own nation, is sufficient to put us on guard. What was it that made us accountable as a nation, for the murder of Charles 1st? Innovation. What was it that stamped the same eternal and disgraceful dye upon the French, when they guillotined their virtuous Sovereign and his amiable family? Innovation . . . What did the people of England obtain by their dissolution of Monarchy [Cromwell] . . . This was innovation, this was the progress, and this the end of that innovation . . . Unhappily for Englishmen . . . they have but little profited among the low orders of society, from its lesson. (Anonymus, 1817: 16–18)

As the nineteenth century progressed, such uses of innovation multiplied—including in religion.¹⁷ France was no exception. Echoing the anonymous replies to Diderot's *Pensées philosophiques*, Paul-Henry Thiry d'Holbach Dumarsais's *Essai sur les préjugés* contrasts the savage to progress and innovation. Similarly, to Abbé Guillaume-André-René Baston, vice president of the Academy of Sciences of Rouen, one of the few who offers an explicit definition of innovation at the time:¹⁸

L'innovation ne sert pas seulement à détruire ce qui est mauvais ou faux; elle sert aussi à perfectionner ce qui est bon et vrai . . . Ce n'est qu'à force d'innovations que les premières productions du génie acquièrent de la consistance, une juste étendue, des proportions régulières [Innovation doesn't only destroy what is bad or false; it also perfects what is good and true . . . It is only by continued innovations that the early works of a genius acquire consistency, a fair distribution, regular proportions]. (Baston, 1810: 133)

Auguste Comte too uses innovation in a positive sense in several of his writings (*Cours de philosophie positive*, *Système de politique positive ou Traité de sociologie*). Comte contrasts “esprit de conservation [the spirit of conservation]” to “esprit d'innovation [the spirit of innovation]” that, as

two fundamental instincts, explain social progress as the result of the latter. “L'évolution sociale eût été certes infiniment plus rapide que l'histoire ne nous l'indique, si son essor avait pu dépendre surtout des instincts les plus énergiques; au lieu d'avoir à lutter contre l'inertie politique qu'ils tendent spontanément à produire dans la plupart des cas [Social evolution would certainly have been infinitely more rapid than it has been if its development had been able to rely mainly on the most energetic instincts, rather than having to fight against the political inertia that they tend to produce spontaneously in most cases]” (Comte, 1839: 559). Similarly, François Laurent, jurist, historian and professor at *Université de Gand* (Belgium), discusses the “idea of progress” for over 80 pages in his *Études sur l'histoire de l'humanité*. Laurent compares religion (or rather the Church) to science, in which progress is the distinctive characteristic because of innovation. “Comment y aurait-il progrès sans changement, sans innovation [How can there be progress without change, without innovation]” (Laurent, 1866: 85). Laurent claims that the Church innovates too, but unconsciously.

Tout ce qui est nouveau est hérétique. C'est cette maxime que Bossuet oppose sans cesse aux protestants . . . [Mais] il y a, quoi qu'on dise, innovation mais on la cache . . . Si, malgré tout, le progrès se réalise, c'est en quelque sorte en cachette; on le nie au besoin (Everything new is heretical. It is this maxim that Bossuet offers continuously to Protestants . . . [But] there is, no matter what people say, innovation, but they hide it . . . If, despite everything, progress occurs, it is in a way on the sly; they deny it whenever necessary) (Laurent, 1866: 85).

Whether one writes on religion, politics, history, science or arts, in books or magazines, innovation gets rehabilitated in the name of progress. In 1850, the *Académie des jeux floraux* launched a prize for an essay on “Caractériser la double influence de la force de l'habitude et de l'amour de la nouveauté, et expliquer leur action respective sur les moeurs, l'état social et la littérature [Characterizing the two influences of habit and the love of novelty, and explaining their respective influence on morals, society and literature]”. The winner, Gabriel de Belcastel, compares Asia, which is in “a state of petrification”, to Europe and France, people “apôtre de la loi nouvelle . . . et poussée sans cesse en avant [advocates of the new law . . . and pushed continuously forward]” by innovation. “L'esprit d'innovation ne doit pas être le dédain irréfléchi des coutumes, mais l'étude sérieuse et calme des progrès à réaliser [The spirit of innovation should not be heedless scorn for customs, but rather the calm and serious study of the progress to be achieved]” (Belcastel, 1850: 19).

Let's take one more example, this time from politics. In 1866, J.-M. Dubeuf, *voyageur de commerce*, published a *Revue rétrospective des principaux faits et innovations et événements acquis depuis le règne de Napoléon III*. Because of the “règne glorieux [glorious reign]” of the Emperor, states Dubeuf, “le drapeau de la France représente partout la civilisation et le progrès [the flag of France everywhere represents civilization and progress]” (Dubeuf,

1866: 14). Dubeuf attributes six great innovations to Napoleon: universal suffrage, public services, free trade (“l’innovation la plus hardie et la plus radicale entre toutes de notre siècle [the most audacious and radical innovation of all those in our century]”), secularization, civilization (wars “mettent à la raison des peuples à demi-sauvages [bring a semi-savage people to civilization]”) and European diplomacy. “Aveugles seraient ceux qui nieraient”, claims Dubeuf, “les bienfaits que tirera l’humanité de ces grandes phases politiques au profit de son émancipation sociale [Blind are those who deny the benefits humanity will reap from these great political junctures to the benefit of its social emancipation]” (Dubeuf, 1866: 16).

These are just a few examples among many. Innovation is recognized as a fact of life; it is present in every sphere of society; it is praised for its radical or revolutionary effects. Innovation is revolution in a positive sense, and revolution is innovation. “L’innovation, mais l’innovation en grand, l’innovation qui annonce qu’on est entré dans une ère nouvelle de la pensée, déborde de partout, dans les livres, dans les journaux, dans les chaires de philosophie, et jusque dans la Chambre des députés [Innovation, but true innovation, innovation that announces that we have entered into a new era of thought, overflows from everywhere, in books, in newspapers, in chairs of philosophy, right up to the Parliament]”, claimed the *Revue encyclopédique, ou Analyse raisonnée des productions les plus remarquables dans les sciences, la politique, l’industrie et les beaux-arts*, published by H. Carnot and P. Leroux (1832). Similarly, in the opening prospectus of the *Tablettes universelles*, a monthly magazine of the nineteenth century on French society and history, the editors attribute the spirit of innovation of the time to the Revolution:

L’époque actuelle ne ressemble à aucune de celles qui l’ont précédée . . . infatigable activité des esprits, bruyant essor de la pensée et de la presse . . . La liberté, reconquise pas tout un peuple, a réveillé, ranimé, électrisé toutes les imaginations . . . Les sciences, la littérature, les beaux-arts et surtout l’art dramatique, ne marchent que par systèmes et par innovations; jamais l’esprit humain ne montra peut-être une pareille agitation en tous sens . . . [Ce] mouvement incessant [a été] autorisé et excité [par la Révolution] [The current era does not resemble any of those that preceded it . . . untiring activity of minds, resounding development of thought and of the press . . . Freedom, won back by a whole people, has reawakened, reanimated, electrified all imaginations . . . Sciences, literature, the fine arts and especially the dramatic arts, move only by systems and by innovations; never, perhaps, has the human spirit shown so much agitation everywhere . . . This incessant movement has been authorized and excited by the Revolution]. (Aumond and Gouriet, 1834)

The “spirit of innovation” is now one of praise. Both the Reformation and the Revolution are innovation because they are progressive, claimed

Laurent.¹⁹ “La réforme serait une innovation . . . Voilà ce que Bossuet ne cesse de dire . . . Sur ce terrain Bossuet est invincible . . . Toute révolution est une innovation . . . Il faut abandonner aux utopistes l’espoir d’un progrès régulier et sans entraves [The Reformation is an innovation . . . That is what Bossuet keeps saying . . . In this area Bossuet is absolutely right . . . Every revolution is an innovation . . . We must abandon to the Utopians the hope of continued progress without obstacles]”. Innovation is pervasive, perhaps too pervasive:

L’humanité est en révolution permanente; l’innovation est une condition de son existence; du jour où elle serait immuable, elle périrait . . . Le siècle dans lequel nous écrivons a été si fécond en révolutions, que le mot d’innovation qui effrayait tant Bossuet, est entré dans nos idées et nos sentiments habituels; nous avons plutôt à nous garder d’un autre écueil, c’est d’applaudir aux révolutions par cela seul qu’elles sont des innovations, ou de mal juger le passé, par amour pour les nouveautés [Humanity is in permanent revolution; innovation is a condition of its existence; on the day that it becomes immutable, it will perish . . . The century in which we write has been so rich in revolutions that the word innovation, which so frightened Bossuet, has entered into our everyday ideas and feelings; we should rather beware another pitfall, that is, applauding revolutions for this only, that they are innovations, or judging the past badly out of love for novelties].

A FULL AND CANDID HEARING

In the nineteenth century, innovation holds an exalted place in a growing number of texts. Among the terms and expressions used to talk of innovation as a new epoch are *âge d’innovation*, *siècle d’innovation*. Innovation is praised for its benefits: *grande et heureuse, intérêt public, utilité, incontestables avantages, progrès*. Innovation gradually gained a positive meaning in the public vocabulary precisely because of an idea seen as negative until then: revolution. Like innovation, revolution loses much of its pejorative connotation in the nineteenth century (Reichardt, 1997; Baker, 1988; Koselleck, 1969; Goulemot, 1967) and enters into thoughts on innovation in a positive sense. Innovation becomes revolutionary in a positive sense: *révolution permanente, révolution totale, bouleversement, changement radical, innovation révolutionnaire, profonde et radicale, importante, grave et profonde, hardie, téméraire, brusque*.

Let’s conclude with what is, to the best of my knowledge, the first ‘theoretical’ thought on innovation, John Patterson’s *Innovation Entitled to a Full and Candid Hearing*. This is a long analysis (60 pages), of a psychosocial kind, in three parts, published in New York in 1850. To Patterson, innovation is progress or newly discovered truths, and the innovator is a reformer

with a moral mind (a liberal). “The cry of ‘innovation’ and ‘infidelity’ arise, almost as loud . . . as that of heresy in the darker ages of the world . . . The effect of such a course of discipline is to put an effectual stop to all progress in the knowledge of truth” (Patterson, 1850: 19–20). Patterson begins his analysis with “examples of past resistance to novelty and change”, from Socrates to Christ, Luther and Calvin, from Columbus to Descartes, Galileo, Newton, Harvey, Fulton and many others. “No man who attacks the errors of his age, and proposes reform, can escape the ordeal of persecution. He is regarded by his contemporaries as a dangerous character, an overturner of society, philosophy, or religion, a fanatic, a heretic, a dreamer, a madman, a fool, and richly deserving, if not summary punishment, at least the unmeasured contempt of a wronged and insulted world” (Patterson, 1850: 37).

Then Patterson distinguishes the “reformer” and the “anti-reformer”; innovation is used mainly to discuss opposition to innovation by anti-innovators, while reform is used to discuss innovators. To each class, Patterson devotes a part of the work and develops an analysis of the character of the men (see Appendix 6). The anti-innovator is of two kinds: passive (neutral) and active. He “does not oppose what is novel, because it is right or wrong, but merely because it is new” (Patterson, 1850: 52). The anti-innovator has a bias against newly discovered truths because of “fear of popular disgrace”, envy and “desire to please the multitude”. Patterson reduces all the causes of opposition to innovation to three: ignorance, prejudice or passion, policy or interest. In contrast, the innovator is a man “of original genius” who advances “beyond the beaten paths of other days, and perceive[s] the dawn of light which ha[s] never arrested the attention of his fellow-man” (Patterson, 1850: 22). The innovator is open-minded and progressive: “He rejects nothing new because it is new . . . and clings to nothing old because it is old” (Patterson, 1850: 41).

Patterson’s analysis includes (almost) every kind of innovation (except the political): religion, philosophy, science and arts (steam engine, lighting) and travel. To be sure, Patterson’s study of innovation is loaded with moral values. Yet it remains an original work at a time when innovation was an understudied concept. It was not until French sociologist Gabriel Tarde’s time that the next theoretical work on innovation appeared (Tarde, 1890). In the meantime, the nineteenth century continued to produce ambivalent thoughts on the concept, although the positive attracted more and more adepts.

NOTES

1. One may find occurrences of positive uses before 1789, but they are very rare compared to the pejorative.
2. On the thesis that the goal of the French revolutionaries was the restoration (of rights and liberties) rather than innovation, see Arendt (1963). On the opposite thesis, see Dippel (1976) on the American Revolution.

3. The new French constitution is a source of anarchy ("vingt-six millions de Souverains [twenty-six million Sovereigns]"), as opposed to the English model. "C'est une entreprise hasardeuse que de vouloir porter une innovation politique à l'extrême; & c'est une entreprise singulière, que d'exécuter ce plan sans aucun sentiment profond [It is a risky undertaking to bring about an extreme political innovation, and it is a remarkable undertaking to execute this plan without any profound feeling]" (Necker, 1792: 350–51).
4. (1) "la double représentation accordée au tiers-état, donnant à celui-ci une supériorité de suffrages au détriment des deux autres ordres [the double representation ascribed to the third estate, giving it a superiority of votes to the detriment of the other two orders]"; (2) "la réunion des États-Généraux en une assemblée unique, assurant ainsi une majorité au tiers-état [the grouping of the General Estates into a single assembly, thus ensuring a majority for the third estate]"; (3) "les pouvoirs illimités données aux députés (voter selon leur conscience et intérêt et droit de ne pas reconnaître la décision adoptée à la majorité), en lieu et place des mandats impératifs [the unlimited power given to deputies (to vote according to their conscience and interests and the right to not recognize the decision adopted by majority), in place of imperative mandates]"; (4) "l'innovation que sont les États provinciaux (par rapport à un pouvoir unique)" [the innovation that the provincial States represent (as compared to a single power)]".
5. On regeneration, see Baecque (1988).
6. Twenty-five years earlier, Jean-Jacques Rousseau also used the word innovation when discussing the veto. "Il n'y eut jamais un seul Gouvernement sur la terre où le Législateur enchaîné de toutes manières par le corps exécutif, après avoir livré les Lois sans réserve à sa merci, fut réduit à les lui voir expliquer, éluder, transgresser à volonté [There has never been a single Government on earth where the Legislator, bound in every way by the executive body, after having delivered the Laws without regard for its approval, should be reduced to having them explained to him, evaded, transgressed at will]" (Rousseau, 1764: 156). Rousseau makes use of innovation only because the anonymous author he criticizes does so. To the anonymous author, a veto is a safe measure against innovations to the constitution. To Rousseau, this is the most subtle fallacy. It is rather a government that innovates: "Qui est-ce qui peut empêcher d'innover celui qui a la force en main, & qui n'est obligé de rendre compte de sa conduite à personne? . . . Celui qui a la Puissance exécutive n'a jamais besoin d'innover par des actions d'éclat. Il n'a jamais besoin de constater cette innovation par des actes solennels. Il lui suffit, dans l'exercice continu de sa puissance, de plier peu à peu chaque chose à sa volonté [Who can forbid the person with the power in his hands, and who need answer to no-one for his conduct, from innovating? The person who has the Executive Power need not innovate through glorious deeds. He need never acknowledge this innovation by any solemn proceeding. All he need do in the ongoing exercise of his powers is to bit by bit bend each thing to his will]" (Rousseau, 1764: 158–59).
7. Gaspard-Louis Rouillé d'Orfeuil, *intendant* under the Old regime, in his philosophical and political 'dictionary' *L'alambic des Loix* (Chapter Innovation). One should distinguish innovation as artifice coming from a "source empoisonnée [a poisonous source]" or an interested party, from an innovation which is "le fruit d'un long travail, & d'une expérience réfléchie [the fruit of extensive work and well-considered experiment]" (Rouillé d'Orfeuil, 1773: 76).
8. Cyprien Desmarais, royalist writer, on the *querelle* between classicism and romanticism. Romanticism is "un être tout libéral", [a wholly liberal being] an "innovation". Yet "on abuse singulièrement aujourd'hui du mot *innovation*, introduit dans le langage politique. Il est évident que le libéralisme, qui prétend

vivre d'*innovations*, ne devrait appeler de ce nom que les *innovations* qui peuvent avoir pour lui des conséquences fécondes; or, comment peut-il réclamer, comme étant de son domaine, une innovation [romantisme] qui le tue" [These days we overuse the word *innovation*, introduced into political language. It is obvious that liberalism, which claims to live by *innovations*, need call by this name only those *innovations* that may have fruitful consequences for it; how can it claim, as being part of its province, an *innovation* (Romanticism) that destroys it] (Desmarais, 1826: 116).

9. Pierre-Henry Thiry Holbach Dumarsais in his *Essai sur les préjugés*. "L'antiquité donne toujours du poids et de la solidité aux opinions des hommes . . . Ils s'imaginent que ce que leurs ancêtres ont jugé convenable ne peut être ni altéré ni anéanti sans crime et sans danger . . . Ils s'en rapportent aveuglément aux décisions de ceux qui sont plus âgés qu'eux . . . Il ne faut rien changer . . . toute innovation est dangereuse" [Antiquity always gives some weight and solidity to the opinions of men . . . They imagine that that which their ancestors deemed useful can be neither altered nor destroyed without crime and without danger . . . They blindly rely on the decisions of those older than them . . . nothing must be changed . . . any innovation is dangerous] (Dumarsais, 1822: 141–42). "Ne rien changer, ne rien innover, sont des maximes ou de la stupidité ou de la tyrannie" [Change nothing, innovate in nothing, these are the bywords of stupidity and tyranny] (Dumarsais, 1822: 143).
10. Isaac Beausobre, Calvinist divine and ecclesiastical writer, in *Introduction générale à l'étude de la politique, des finances et du commerce*: "S'il est déraisonnable de laisser le gouvernement des affaires à ces hommes qui passent leur vie à faire des projets; il l'est autant de ne jamais écouter ceux qui proposent de nouvelles vues, & de s'en tenir à ce qui se pratique, dans la crainte peu réfléchie du danger des innovations" [If it is unreasonable to leave the governance of things in the hands of those men who spend their lives undertaking projects; it is just as unreasonable never to listen to those who propound new views, and to hold to that which is currently done, out of an ill-considered fear of the danger of innovations] (Beausobre, 1791: 52).
11. In the frontispiece to Louis-Sébastien Mercier's *Fragments de politique et d'histoire*: "Innovation, innovation! dit ou répète un esprit borné. Oh! C'est bien l'erreur qui est nouvelle auprès de l'ordre éternel des choses" [Innovation, innovation! says or repeats the short-sighted mind. Oh! It is truly error which is new to the eternal order of things] (Mercier, 1792).
12. Similar accusations abound in England: cry of innovation, disease of the mind, deadly poison, conduct worthy of children.
13. To be sure, there was a future-oriented perspective before the sixteenth century. Yet it was eschatological rather than teleological. See Koselleck (1968).
14. On early representations of change, see Nisbet (1969), particularly pages 166–88. Nisbet analyzes the representations or theories of change according to six characteristics: natural, directional, immanent, continuous, necessary and proceeding from uniform causes. Burnett and Palmer (1967) also offer a typology of characteristics of changes—rapidity (rapid versus gradual), pervasiveness (total versus piecemeal or none), time (future: utopian ideal; versus past/present: classic ideal).
15. "Tout est révolution dans ce monde" [Everything is revolution in this world] (Louis Sébastien Mercier; cited in Koselleck, 1969: 48); "Le monde se conduit par des révolutions continuelles" [The world unfolds through recurrent revolutions] (Gabriel Bonnot de Mably; cited in Baker, 1988: 47); "My dear philosopher, doesn't this appear to you to be the century of revolutions?" (François-Marie Arouet Voltaire, in a letter to d'Alembert; cited in Baker, 1990: 203); "Les révolutions sont nécessaires, il y en a toujours eu, et il y en

aura toujours” [Revolutions are necessary, there have always been revolutions, and there will always be revolutions] (Diderot, *Encyclopédie*).

16. “L’idée de progrès . . . conçue comme loi générale de l’histoire et de l’avenir de l’humanité . . . appartient en propre à notre siècle [The idea of progress . . . conceived as the general law of history and of humanity’s future . . . belongs particularly to our century]” (Javary, 1851: 1).
17. For an example of rehabilitation of innovation in religion, see Finney (1835). In a series of Friday sermons on his return from Europe, the American pastor Charles Finney found that “the spirit of revival had greatly declined in the United States”. Finney argues that for a revival of religion to occur there must be innovation. Over the centuries, states Finney, the Church has done nothing but innovate (a “succession of innovations”, “by degrees”). God has imposed no rules in matters of discipline and ceremony. It is left to men to innovate. Yet “in the present generation, many things have been introduced which have proved useful, but have been opposed on the ground that they were innovations” (Finney, 1835: 242). Finney claims that “without new measures it is impossible that the church should succeed in gaining the attention of the world of religion . . . Novelties should be introduced no faster than they are really called for . . . But new measures we must have (Finney, 1835: 251–52).
18. In his discourse before the Academy of Sciences of Rouen in 1809, Baston attempts to “fixer le sens du mot innovation [determine the meaning of the word innovation]” and distinguish innovation from other words like novelty, renewing, change and variation. “Il n’en est pas un seul qui lui ressemble exactement. La nouveauté n’est pas toujours de l’innovation; le renouvellement en approche davantage, mais n’y atteint pas; le changement n’en est que la moitié; la variation est plus mobile qu’elle [There is not one that is exactly similar. Novelty is not always innovation; renewal comes closer but does not reach innovation; change is only the half of innovation; variation is more mobile than innovation]” (Baston, 1810: 130). Baston concludes, “pour qu’il y ait innovation, il faut que la chose remplacée par une chose nouvelle, ait été, dès l’origine, ce qu’elle fut en finissant, ou qu’elle ait eu une si longue durée, que ce qui avait été avant elle, soit presque entièrement oubliée [For there to be innovation, the thing that is replaced by a new thing must have been, since the beginning, what it ended up being, or what it had been for such a long time that what had been before it is almost entirely forgotten] (Baston, 1810: 131).
19. Interestingly for the time, Laurent defends an evolutionary view on innovation. Every revolution, “a ses racines dans le passé [has its roots in the past]” (Laurent, 1879: 10). “Nous ne dirons pas que sans Luther il n’y aurait pas eu de réforme; tout était mûr pour une révolution [We are not saying that without Luther there would have been no reform, everything was ripe for a revolution]”. People of genius are only “l’expression de l’état social dans lequel ils vivent [the expression of the social condition in which they live]” Laurent, 1879: 17). “Les plus grands des révolutionnaires ne sont pas les novateurs proprement dits; ceux-ci se bordent d’ordinaire à formuler les vœux des peuples, souvent en les exagérant; les vrais novateurs sont ces hommes obscurs” [The greatest revolutionaries are not innovators strictly speaking; they stay in line with the usual in formulating the people’s wishes, often by exaggerating them; the real innovators are obscure men] (Laurent, 1879: 21). In social matters, the Reformation “n’a pas innové, elle n’a fait que continuer le mouvement des idées qui s’étaient fait jour pendant le moyen-âge [did not innovate, it did nothing but continue the movement of ideas that had evolved during the Middle Ages]” (Laurent, 1879: 29).

9 When Science Had Nothing to Do with Innovation, and Vice Versa

After all the *Innovation*, of which they [new experiments] can be suspected, we find nothing will be indanger'd, but only the *Physics* of *Antiquity*

(Sprat, *The History of the Royal Society of London*, 1667)

Il faudroit, pour fixer la nomenclature des plantes, qu'il y eût, dans toutes les parties du monde, des Tribunaux qui se correspondissent; que par une autorité qui leur seroit commune, un changement devint universel, une découverte utile à tous les hommes, et que l'abus qui tient à la manie de l'innovation, fût sévèrement réprimé [It is necessary in order to fix the nomenclature of plants, that there be, in all parts of the world, Tribunals that correspond with each other; that by an authority they have in common, a change becomes universal, a discovery useful to all men, and that the abuse that insists on the habit of innovation, be severely suppressed].

(Bulliard, *Dictionnaire élémentaire de botanique*, 1783)

In the nineteenth century, progress came to be linked to science in public discourses. It is no exaggeration to say that science and progress are one. Yet until then, innovation was not part of the vocabulary of progress, nor of that of “men of science”. As to everyone, to natural philosophers, innovation was an essentially political and contested concept.

Innovation as positive got into science through the useful arts. From the nineteenth century onward, inventors start to make use of the word innovation in their writings. Innovation is progress, in the present case practical. Yet the practical rests or should rest on science. Such is the purpose of inventors when introducing the word into their vocabulary: to stress the science or rather the scientific method (as a revolutionary innovation, so it is believed, and used for this connotation precisely), behind the useful arts. For their part, writers on invention, like the encyclopaedists, do it to stress national progress. However, at the time, the rehabilitation of innovation was not yet complete. Many continued to hold a pejorative representation of innovation, and used the concept to contrast ancient and modern learning. Such

was the case with professors, among others, to whom the introduction of science in education was a most unwelcome innovation.

This chapter documents that “science” (natural philosophy) and innovation are two entirely different concepts—and things—that no one thought of combining before the twentieth century. Science is method while innovation is politics. Innovation as a concept entered the scientific vocabulary with a positive meaning much later. The first part of this chapter documents the representation of innovation of “men of science” before the nineteenth century. Francis Bacon is studied as an eminent example of this representation in the following sense. First, Bacon produced thoughts on both science and innovation. It is shown here that, to Bacon, the term innovation is pejorative, as it is to most people of his time. Positive thoughts on innovation are very few in “scientific” writings until late in the nineteenth century. Second, Bacon does not mix science and innovation. These are two distinct spheres of activity. Third, Bacon’s “solution” (gradualism) to the paradox of innovation was much cited and adopted later on: one must innovate slowly, as time itself does. The second part of the chapter documents when, how and why the concept of innovation entered science with a positive meaning. This started gradually in the nineteenth century. It is documented that at that time, the concept of innovation was different from today’s dominant definition as artefacts or goods for the market. Innovation then meant the ‘scientification’ of, or the introduction (application) of science or the scientific method into, education and what was then called the useful arts.

SCIENCE AND REPRESENTATIONS OF INNOVATION

Continuing a tradition of thought originating during the Reformation, men of the seventeenth century understood innovation as political. Such was also the view of men of science. As an innovator, Francis Bacon (1561–1626) discusses his project of a new scientific method in terms of novelty and originality, but he explicitly avoids using the word innovation. What is Bacon’s innovation and why isn’t his innovation an innovation?¹

“That knowledge has to bear fruit in works, that science ought to be applicable to industry, that men ought to organize themselves as a sacred duty to improve and transform the conditions of life”. So Benjamin Farrington describes Bacon’s project. “Men must consult nature rather than book” (Farrington, 1951: 3, 7). Bacon’s project aimed at the “restoration” (*restauratio*) of the sciences and their alignment to the benefit of humanity’s well-being. Bacon believes that the “operative” or practical “works and fruits” of science are and should be the aims of learning. “Natural philosophy shall not vanish in the fumes of subtle or sublime speculations, but shall be operative to relieve the inconveniences of man’s estate” (DD: 383). Yet “it is esteemed a kind of dishonour upon learning for learned men to descend

to inquiry or mediation upon matters mechanical" (DD: 413). In contrast, to Bacon, both science and the artificial are on a par:

An opinion has long been prevalent that art is something different from nature, and things artificial different from things natural . . . Most writers of Natural History think they have done enough when they have given an account of animals or plants or minerals, omitting all mention of the experiments of mechanical arts . . ., considering art as merely an assistant to nature, having the power indeed to finish what nature has begun, to correct her when lapsing into error, or to set free when in bondage, but by no means to change, transmute, or fundamentally alter nature . . . This has bred a premature despair in human enterprises . . . The artificial does not differ from the natural in form or essence, but only in the efficient. (DD: 410)

It is unanimously admitted today that Bacon is an innovator. His restoration contributed to science as we know it today (Rossi, 1973–74). Two things deserve mention here. First, Bacon is conscious of innovating against the established science. In all his works, Bacon never refrained from qualifying his ideas as "new". Second, Bacon is conscious of resistances to innovation. In a context of order, authority and customs, innovation is forbidden. At the same time, then, that he stresses his innovation, Bacon argues for a middle ground. As Charles Whitney puts it, Bacon uses traditional language to advance novel ideas (Whitney, 1986). "From the fourteenth through the sixteenth century", states Erwin Panofsky, "and from one end of Europe to the other, the men of the Renaissance were convinced that the period in which they lived was a 'new age' as sharply different from the medieval past as the medieval past had been from classical antiquity and marked by a concerted effort to revive the culture of the latter . . . [But] they experienced a sense of regeneration too radical and intense to be expressed in any other language than that of Scripture" (Panofsky, 1960: 36–37). Writers drew on theology, precedents and existing institutions and norms to justify radical changes.

What Bacon proposes as new science and method has been much studied in the literature, and will not be discussed here. A whole literature on Bacon is concerned with that.² The language that Bacon uses has also been studied by Whitney (1986) and some others (e.g., Malherbe, 1985). Yet Whitney does not study "innovation"—although he has a few words to say on Bacon's essay *Of Innovation*. This section concentrates on Bacon's representation of innovation and his use (or rather nonuse) of the concept innovation. The section discusses in turn (1) Bacon's innovation, in his own terms; (2) Bacon's consciousness of innovating; (3) Bacon's analysis of resistances to innovation, which led to (4) his refusal to use the concept of innovation in his scientific writings.

In the present section, I use innovation as a synonym for novelty and originality, as we moderns understand it. As the paper progresses, the reader

will learn that this is only one of the meanings of the concept and that, for reasons explained in the later part of this section, it is not Bacon's meaning. To Bacon, innovation and innovativeness are two different things.

Bacon's Innovation

Bacon's *Advancement of Learning* (1605) is a survey of present knowledge (updated in *De Dignitate et Augmentis Scientiarum*, published in Latin in 1623) and also a plea for the development or reformation and application of knowledge. According to Bacon, from the Creation of the world, God has promoted knowledge. Bacon's reading of the Scriptures and the history of the Church suggest to him that, together with the Reformation, "it was ordained by the Divine Providence that there should attend withal a renovation and new spring of all other [secular] knowledges" (AL: 153). Bacon invites the King to a reformation of learning and the endowment of the sciences: [Y]our Majesty "whose youthful and fruitful bed doth yet promise many the like [previous learned kings'] renovations" (AL: 169).³

To this end, Bacon produced *Instauratio Magna* (1620), of which the part titled *Novum Organum* develops a new scientific method. Knowledge is actually "false, confused, and overhastily abstracted from the facts" (IM: 18). To Bacon, science is "endless repetition of the same thing . . . not new in substance"; it "cannot generate for it is fruitful of controversies but barren of works" (IM: 26). Bacon wishes "that commerce between the mind and the nature of things . . . be restored to its perfect and original condition" (IM: 17).

Science is without "foundation" (*fundamento*). This is Bacon's keyword, together with reconstruction (*instauratio*). "The entire fabric of human reason which we employ in the inquisition of nature, is badly put together and built up, and like some magnificent structure without any foundation . . . [There is] one course left . . . Try the whole thing anew upon a better plan, and to commence a total reconstruction of the sciences, arts, and all human knowledge raised upon the proper foundation" (IM: 18), namely natural science (the compilation of facts and experiments). "The only hope therefore of any greater increase or progress lies in a reconstruction of the sciences" and "of this reconstruction the foundation must be laid in natural history" (IM: 47).

To Bacon, a reconstruction is a re-edification upon proper, solid and firmer foundations. The reconstruction that Bacon introduces is "a kind of logic" that differs from ordinary logic in three aspects (IM: 40–47): "invention not of arguments but of arts"; induction, not syllogism; facts and experiments. "It is useless to expect great growth in the sciences from the superinduction and grafting of new things on old; instead, the instauration must be built up from the deepest foundations" (NO: 31). It is not a matter of setting up a new philosophical sect,⁴ but of building "firmer foundations . . . for the generations to come" (NO: 116).

Bacon's Originality

"Not setting up a new sect" . . . because Bacon is aware that novelty is often ephemeral, a fashion and a frivolity: "Many things are new in the manner, which are not new in the kind" (AL: 211).⁵ Bacon is conscious of the originality of his project and claims it explicitly. His keywords are "difference" and "hitherto" (*adhuc*). Bacon compares his project to what has been done until then. "No man hitherto has applied his mind to the like" (IM: 19). This is "quite new, totally new" (IM: 23). Whitney and others have called this the *pathos* of novelty (Arendt, 1963; Whitney, 1986): "The almost violent insistence of all the great authors, scientists, and philosophers since the seventeenth century that they saw things never seen before, thought thoughts never thought before (Arendt, 1958: 226).

Bacon makes three kinds of comparison to distinguish himself. First, he compares his method to that of existing philosophy. The latter is composed of schools,⁶ books⁷ and idols⁸ and is not fruitful of useful arts.⁹ "A way must be opened for the human understanding entirely different from any hitherto known" (IM: 25).¹⁰ The second comparison Bacon makes is with antiquity. Certainly, "we have no reason to be ashamed of the discoveries which have been made [by] the ancients", claims Bacon, "but before we can reach the remoter and more hidden parts of nature, it is necessary that a more perfect use and application of the human mind and intellect be introduced" (IM: 32–33).¹¹

Finally, Bacon compares himself to great statesmen and politicians. On one hand, he compares himself to rulers in a positive sense.¹² Famous rulers like Julius Caesar or Alexander the Great "did greater things in fact than those shadowy heroes [the "projectors"]¹³ did in fiction" (NO: 87). "I promise myself the fortune of Alexander the Great" (NO: 97).¹⁴ On the other hand, Bacon stresses the difficulty of innovating—because of politics, specifically—as compared to the benefits that accrue from innovation in science. Inventions:

can reach out to the whole human race, whereas political improvements affect men in particular localities only, and while the latter last for but a few generations, the former as good last forever. Moreover improvements of political conditions seldom proceed without violence and disorder, whereas inventions enrich and spread their blessings without causing hurt or grief to anybody. (NO: 129)¹⁵

Resistances to Innovation

Bacon admits that innovating is not an easy affair. Civil governments (monarchies in particular) are "hostile to suchlike novelties [theories], even the contemplative ones, so that men dealing in them risk harm to their fortunes and not only go unrewarded but are open to contempt and spite" (NO: 62).

In politics and religion things are worse. "Political novelty is riskier than intellectual. In affairs of state even change for the better brings fears of disorder, since civil government rests not on demonstrations but on authority, consent, reputation, and opinion" (NO: 90).

Customs and preconceptions form Bacon's second argument explaining resistances to innovation. "Nothing finds favour with the many unless it appeals to the imagination or ties the intellect up in the knots of common notions" (NO: 77). Discovering the new is "rejected at first" (NO: 92). To Bacon, people "anticipate the new from what they know of the old".¹⁶ Bacon gives examples of new inventions and their reception: artillery ("dismissed out of hand"), silk ("the last thing to have entered their heads", "laught at", a "dream"), the compass ("fancy", "beyond belief") and printing (NO: 109). "In a new enterprise it is not only strong attachment to received wisdom that contributes to prejudice but also a mistaken preconception or advance view of the enterprise in question" (NO: 115).

But why, in spite of the resistances, does Bacon welcome innovation in science? Because science is the source of progress. "Studies are kept imprisoned in some few authors' writings, and he who quarrels with them is instantly attacked as a troublemaker thirsting for novelty . . . But in the arts and sciences, as in mines, all ought to echo the sound of new works and further advancement" (NO: 90). And he continues as follows: "Consider (if you will) the difference between the life of men in any of the most civilized provinces of Europe and in one of the most savage and barbarous regions of the New Indies . . . This difference does not spring from soil, climate, or bodily constitution but from the arts". The art of printing, gunpowder and the compass "have altered the whole face and state of things right across the globe". "No empire, no sect and no star seem to have exerted a greater effect and influence on human affairs than these machines" (NO: 129).¹⁷

Minimizing Innovation

Resistance to innovation brings Bacon to a middle ground. "Some intellects are captivated by admiration of antiquity, some by love and infatuation for novelty; but few are judicious enough to steer a middle ground, neither ruining what the ancients rightly laid down nor despising what the new men rightly put forward" (NO: 56). To be sure, "knowledge which is new and foreign from opinions received, is to be delivered in another form than that which is agreeable and familiar" (AL: 235). But this has to be done with "a mind of amendment [improvement] and proficience [progress], and not of change and difference [dispute]" (AL: 299). To this end, Bacon stresses that he uses old terms for novel conceptions.¹⁸

Bacon also uses both antiquity and nature to legitimize his innovation. We have seen that he contrasts his project to antiquity. But he also makes analogies with the ancients at the same time. Bacon does not launch an

attack on the ancients or on present philosophy: “[T]he honour and reverence due to the ancients remains [*sic*] intact and inviolate”.¹⁹ Bacon’s project is also “copied from a very ancient model”, that of “the world itself and the nature of things and of the mind” (MI: 23). Bacon uses nature (time) as his model. In the essay *Of Innovation* (more on this to come), Bacon suggests that “men in their innovations follow the example of time which innovates greatly, but quietly and by degrees scarce to be perceived”.²⁰

For our purpose, it must be stressed that Bacon never discusses his scientific project in terms of innovation. His vocabulary is rather composed of new and reconstruction and the like (restoration, regeneration, renovation, instauration, foundation) and terms for what is called today originality. Bacon has learned Machiavelli’s lesson (Machiavelli, *The Discourses* I: 25): He chooses to keep old words for new ideas, and he uses similitudes to communicate the new. This has already been studied by Whitney (Whitney, 1986: 144–58).²¹ Yet Whitney has not studied innovation, perhaps because Bacon does not use the word, at least in his scientific writings. The word innovation appears only once in *The Advancement of Learning*.²² There is no use of the term in *Instauratio Magna* (including *Novum Organum*). *De Dignitate et Augmentis Scientiarum* does not use it either, except as an example of commonplaces or then current views on innovation, discussed *utramque partem* (DD 9: 178–79).²³

Bacon is not alone. In seventeenth-century natural philosophers’ writings, the new is everywhere, as Lynn Thorndike has documented from a study of titles (Thorndike, 1957). But not innovation. Innovation is too radical. Given the risky nature of the scientific enterprise, scientists needed to distance themselves from radicalism and write in line with restoration values (Hunter, 1995). As “conservative reformers”, men of science dissociated their project “from any radical reform of church, state, the economy of society . . . and couched their reforming sentiments in vague terms of improving man’s health and estate through science” (Jacob and Jacob, 1980: 253). As Christopher Hill puts it, in a world “where innovation, novelty were dirty words traditional authorities had to be found for the untraditional” (Hill, 1969: 243). From Isaac Newton (Baillon, 2002) to Thomas Reid²⁴ to the opponents of the Royal Society like Meric Casaubon²⁵ and Henry Stubbe,²⁶ from satirist Jonathan Swift²⁷ to political philosophers like Edmund Burke,²⁸ innovation is a word of accusation against those “hunting after novelties”, as Casaubon puts it. But above all, innovation is subversive and destructive of the established order:

They [the “mysterious Society of wise and renowned Philosophers”] who bend their thoughts to change Commonwealths, to alter Religion, to innovate the Arts make use of very often most despicable instruments to doe their business . . . Such causes (I say) have produced many tumults and confusions . . . where men have been acted by vain thoughts

and foolish dreames . . . Instead of Reformation, they have disturbed all order, and law . . . In all these things they were belyed and abused. (Maier, 1656: 133–34)

Bacon has a similar representation of innovation. He makes no use of “innovation” in his scientific writings, despite his innovativeness, his consciousness of innovating and his use of new everywhere, including in titles (*Novum Organum*; *New Atlantis*).²⁹ This is not a semantic issue. Rather, it has to do with the fact that at the time, innovation had a very specific meaning, not appropriate to science. Innovation is political change. In this sense, it is pejorative. It has nothing to do with originality—not yet—but is destructive of the established order.

Nevertheless, there are works in which Bacon uses the word innovation: his moral and philosophical essays and other works than the scientific ones. Bacon’s essays (1625) cover many things, some of them already touched on. For example, *Of Customs and Education* discusses the “tyranny of custom”: men “do as they have done before”.³⁰ *Of Unity in Religion* is on quarrels and divisions or controversies of words (in religion).³¹ *Of Honour and Reputation* deals with novelty (versus imitation) as a source of honour.³² *Of Vicissitude of Things* is about how “matter [is] in a perpetual flux”.³³

Three essays discuss innovation using the word as such. In *Of Youth and Age*, Bacon discusses how young men, although inventive, commit the “error to innovate”, which causes conveniences or damages.³⁴ In *Of Seditions and Troubles* (1612), a Machiavellian text, Bacon suggests that “the Causes and Motives of seditions [against the State] are innovation in religion, taxes, alteration of laws and customs, breaking of privileges, general oppression, advancement of unworthy persons, strangers, dearths, disbanded soldiers, fractions grown desperate, and whatsoever in offending people joineth and knitteth them in a common cause”.

The third essay is *Of Innovation* (see Appendix 7), an essay produced some years before the controversy on innovation in the English Parliament in 1628–29 and among clerics in the late 1630s and early 1640s. This essay and the date of its writing say much about a concept that had already been contested for some time. The essay first became commonplace (for and against) innovation in *De Dignitate et Augmentis Scientiarum* (see Appendix 8). The essay also makes use of Bacon’s early thoughts from writings going back to 1604.

This essay is the key to understanding Bacon’s representation of innovation. To Bacon, innovations “at first are ill-shapen”. They “are like strangers” because “what is settled by custom . . . is fit . . . whereas new things piece not so well. . . . They trouble by their inconformity”. Yet, “he that will not apply new remedies, must expect new evils”: “A forward retention of custom, is as turbulent a thing as an innovation”. Bacon’s proposal is “[t]hat men in their innovations would follow the example of time itself; which indeed innovateth greatly [“time is the greatest innovator”], but quietly, by degrees scarce to be perceived”. “It is good also, not to try experiments

in states, except the necessity be urgent, or the utility evident; and well to beware, that it be the reformation that draweth on the change, and not the desire of change, that pretendeth the reformation. And lastly, that the novelty, though it be not rejected, yet be held for a suspect".³⁵

Such a gradualism is precisely what Bacon does in his scientific writings:³⁶ (1) not completely rejecting the ancients (there is "no reason to be ashamed of the discoveries which have been made . . . by the ancients"; IM: 248), being critical of both the ancients and moderns ("let not anyone be dazzled either by the great names of ancient philosophers or the great volumes of modern"; DD: 385); (2) not rejecting religion completely ("in respect of things Divine", IM 251; learning performs two duties and services to faith and religion: "exaltation of the glory of God" and "help and preservative against unbelief and error"; AL: 222).

Many other texts from Bacon also make use of innovation, in the context of religion and politics. For example, Bacon reminds his readers of both Queen Elizabeth's ³⁷ and King James's admonition not to innovate in matters of religion,³⁸ and he advises Kings, prime ministers and statesmen not to innovate.³⁹ He also discusses the difficulty of innovating in laws.⁴⁰ In two of these texts, Bacon denies innovating himself. He admits innovating only in the sense of restoration:⁴¹ because time corrupts institutions, there is necessity to "restore" the State.⁴²

Bacon's idea of innovation did not change over the years. His very first uses of the word were 1589,⁴³ 1594 and 1606⁴⁴ in a political context. The writings produced in the following two decades—professional writings, correspondence as well as philosophical, political and moral essays—carry the same connotation. Among the latter is *Of Innovation*. This essay continues to discuss innovation as a political concept. In fact, the essay borrows ideas suggested in previous writings: time⁴⁵ and medicine⁴⁶ as innovators; innovation and the risk of chain reaction (innovating in one thing changes the whole);⁴⁷ and gradualism. Let's conclude this section with an early use of gradualism, for gradualism is a perfect example of Bacon's representation of innovation and of how he defends his own innovation.

To Bacon, laws are "acts of perpetuity", and it would be a "pitty that the fruit of that Vertue, should dye with you[r Majesty]". In *A proposition to His Majesty . . . touching the Compiling, and Amendment, of the Lawes, of England* (1616), Bacon suggests "reducing and recompiling the laws of England". How this should be done? "I speak", writes Bacon, "only by way of perfitting them . . . What I shall propound is not to the Matter of the Lawes, but to the Manner" or giving "light" to laws rather "then any new Nature". Then Bacon discusses the "objections or scruples" that may arise against his work. First "the Law, as it is now is in good Estate". To Bacon, the laws are rather "subject to uncertainties and variety of opinion, delays, and evasions". Also, "there is such an Accumulation of Statutes . . . and they do crosse and intricate as the Certainty of Law is lost". The second objection Bacon addresses is that "[t]hat is a great

Innovation. And Innovations are dangerous, beyond foresight". To this objection, Bacon replies: "All purgings and Medecines, either in the Civile or Naturall Body are Innovations. So as that Argument is a Commonplace against all Noble Reformations. But the truth is that this work is not to be termed or held for any Innovation in the suspected sense. For those are the Innovations which are quarelled and spoken against . . . But this of General Ordinance pricketh not particulars . . . Besides, it is on the favourable part: For it easeth, it presseth not. And lastly it is rather matter of Order and explanation then of Alteration. Neither is this without Precedent, in former Governments". As examples, Bacon cites the Romans, Athens, Louis XI (France), the emperor Justinian, Henry VIII, Edward VI, Lycurgus, Solon, Ninos. And he concludes: "I dare not advise to cast the Law into a new Mould. The work which I propound tendeth to proyning and Grafting the Law; and not to plow up and Planting it again: for such a Remove, I should hold indeed for a perillous Innovation".

THE AGE OF INNOVATION

In the seventeenth century, Bacon's representation of innovation is shared by every man of science and every thought on science.⁴⁸ The representation continues to be that of the following centuries too. Things begin to change in the late nineteenth century. Two hundred and fifty years after Bacon, the Swiss biologist Alphonse de Candolle produced a ranking of countries in terms of the number of eminent scientists, using innovation in a positive sense. To Candolle, "les savants anglais auraient . . . été plus souvent originaux et novateurs que les Allemands [English savants would have . . . been more often original and innovative than the Germans]" (Candolle, 1873: 170). It is to this study that Francis Galton responded, producing his own surveys of men of science in England (Godin, 2007). A few years later, in a published copy of his thesis to the *Faculté des lettres de Paris*, French professor Victor Egger reminded his readers of the old distinction between *imagination créatrice ou reproductrice* (creative and reproductive imagination) and *mémoire imaginative* (imaginative memory). Only the first is productive innovation, and the term imagination should be reserved for it. It "combines" old elements (taken from memory) into a "new whole", a "new order" (Egger, 1881: 191–95).

As Candolle and Egger attest, by the nineteenth century the representation of innovation changes. While most of the titles on innovation until the nineteenth century come from religion and are produced in England, they now came from many other fields, including science. During the previous centuries, documents of the pamphlet type were the main medium carrying innovation in their titles. Now books, encyclopaedias, critical dictionaries and scientific articles also do so. Most of the titles in science are of French origin (see Table 9.1). Popular magazines are no exception (see Appendix 9).

Table 9.1 Early Titles on Innovation in Science

<i>17th century</i>	
1653	Anonymous, <i>Défense des nations de France, de Picardie, de Normandie, & d'Allemagne, faussement accusées d'innovations, troubles, entreprises, désordres & confusions par plusieurs Requetes . . .</i>
1668	Casaubon, Meric, <i>On Credulity and Incredulity in Things Natural, Civil, and Divine . . . the Use and Necessity of Ancient Learning Against the Innovating Humours, all Along Proved, and Asserted.</i>
1671	Maynwaring, Edward, <i>Praxis medicorum antiqua & nova. The ancient and modern practice of physick examined, stated, and compared . . .</i>
1696	Maurin, Jean, <i>Lettre de Mr Maurin, docteur en médecine, à son ami. Par laquelle on connoit les raisons qui ont engagé les Anciens à n'admettre point de Circulation du sang, & celles des Novateurs à se détacher des sentimens des Anciens.</i>
<i>18th century</i>	
1766	<i>Encyclopédie</i> , art. Innovation.
1795	Durtubie, Théodore, <i>Mémoire et observations sur l'artillerie à cheval, et remarque sur l'Innovation des Machines proposées pour l'équipage de cette artillerie.</i>
<i>19th century</i>	
1818	<i>Dictionnaire des sciences médicales</i> , art, Innovation.
1822	Touchard-Lafosse, George, and François Roberge, <i>Dictionnaire chronologique et raisonnée des découvertes, inventions, innovations, perfectionnements, observations nouvelles et importations, en France.</i>
1829	Cruveilhier, Jean, <i>Lésions de l'appareil des sensations et de l'innovation.</i>
1830	Lanfroy, H., <i>Au Diable les novateurs!! Ou coup d'œil sur le système d'éducation de J.P. Gasc.</i>
1835	Winslow, Hubbard, <i>On the Dangerous Tendency to Innovation and Extremes in Education.</i>
1836	Delepierre, Octave, <i>Aperçu historique et raisonné des découvertes, inventions, innovations et perfectionnements, en Belgique, dans les sciences, les arts, l'industrie, etc. depuis les Romains.</i>
1841	Werdet, Jean-Baptiste, <i>Innovation. Leçons d'écriture simplifiée.</i>

(Continued)

Table 9.1 (Continued)

19th century

1842	Quesneville, Gustave Augustin, <i>Précis historique et analytique sur les divers procédés de dorure sans mercure et par immersion; procès auquel cette innovation vient de donner lieu.</i>
1843	Vannier, H., <i>La tenue des livres telle qu'on la pratique réellement dans le commerce et dans la banque, ou cours complet de comptabilité commerciale essentiellement pratique et méthodique, et exempt de toute innovation dangereuse.</i>
1844	Vallée, Pierre-Joseph, <i>Mémoire sur une innovation apportée au stéthoscope.</i>
1846	Pélissier, Augustin, <i>Essai sur la corrélation des facultés intellectuelles avec l'organisme, suivi de quelques réflexions sur certaines innovations en médecine.</i>
1854	Raguet de Liman, Louis-Frédéric, <i>Nouveau cours d'horlogerie avec planches: à l'usage des fabricants et des rhabilleurs: contenant l'explication théorique et pratique de tout ce qu'il faut connaître pour bien fabriquer, repasser, réparer, visiter et régler toutes pièces d'horlogerie . . . : suivi de, L'explication des innovations les plus récentes</i>
1854	Chauvin, F.-L., <i>Nouveau niveau de pente. Innovations dans les nivellements et instructions pour l'entretien des routes ordinaires.</i>
1859	Chauvin, F.-L., <i>Innovation dans la géométrie pratique: nouvel instrument de géométrie appelé polygamètre.</i>
1860	Dessirier, Jean-Baptiste, <i>Symétrie des constructions dans les villes: innovations à ce sujet.</i>
1861	De Vernois, Prévost., <i>De la fortification depuis Vauban, ou Examen des principales innovations qui s'y sont introduites depuis la mort de ce grand homme.</i>
1879	Cresson, A.-J., <i>Quelques mots sur la construction des maisons d'école et sur le mobilier scolaire. Heureuse innovation dans la construction des tables et sièges.</i>
1879	Bertier, Firmin, <i>Simplicité, rapidité, précision. Le génie du tailleur. Innovation d'une méthode de coupe.</i>
1880	Espanet, Alexis d', <i>Des innovations dangereuses en homéopathie.</i>
1881	Fleury, Jules Augustin, <i>Des innovations introduites dans l'enseignement secondaire.</i>

- 1881 Balmoussières, J.-B., *Une belle Découverte et une précieuse innovation pour la science et l'humanité, ou la Manière d'envoyer et de guérir à la fois isolément le rhumatisme, la goutte . . . par la seule action des âtomes d'Ignatia amara.*
- 1884 Blandenier, A., *Une innovation scolaire et ses conséquences.*
- 1885 Gosselin, Léon, *À propos des innovations récentes dans les pansements antiseptiques.*
- 1885 Cambrelin, Alfred Léon, *La fortification de l'avenir. Innovations dans l'art de la fortification, basées sur l'emploi du fer.*
- 1888 Anonymous, *Innovations métallurgiques intéressant les hommes du fer.*
- 1889 Anonymous, *Amélioration des écuries de l'armée: nouvelles écuries avec stalles, box et ustensiles métalliques: innovations tendant à empêcher la propagation des maladies contagieuses, supprimer les accidents et diminuer les réparations.*
- 1893 Boé, Flaubert, *De quelques innovations malheureuses apportées ces dernières années aux opérations de cataracte.*
- 1893 Mallet-Chevalier, Alphonse, *Guérison de la tuberculose de vigne pour servir à l'intelligence du phylloxera devant la Nation. Recueil des plus instructifs pour les Novateurs et spécialement pour les Cultivateurs de toutes catégories.*
- 1894 Massart, Jean, *La récapitulation et l'innovation en embryologie végétale.*
- 1895 Bourget, Paul, *À propos d'une innovation à l'Académie française.*
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The use of innovation in science (or rather the useful arts, as will become clear to the reader in the pages to come) is not due first of all to ‘pure’ scientists. Certainly, one finds thousands of occurrences of the word in the scientific literature, but titles are few. Yet it is these titles that are the most interesting to intellectual history, for they include full-length discussions of innovation. Titles come from a diversity of people like professors (at different grades), physicians, inventors and engineers. Innovation covers medicine, biology, botany, agriculture, accounting, education and the practical arts like warfare, mining, metallurgy, construction and textiles. To the writers, innovation is quite broad, and includes new artefacts (e.g., machines, artillery, fortresses, furniture), new methods (instruments and processes),⁴⁹ new forms of organization (stables; farms) and new practices (education, medicine).

Essentially, innovation has two connotations: a negative and a positive one. There are as many titles that carry one as the other connotation. Innovation is not yet a virtue, although on its way to becoming such. To every writer, innovation is change or novelty, and it is not easy for the analyst to differentiate between the substantive (novelty) and the verb (introducing novelty). In fact, innovation is one of those words with a double meaning: the action and the result or outcome of the action.

Innovation in the negative sense is used for polemical purposes. This use of the concept has a long history, as we have seen already, going back to the Reformation at the very least. Three kinds of argument are offered here. One is against tradition and experience or the “danger auquel on s’expose en choquant l’opinion universellement reçue [danger to which one exposes oneself in shocking the universally received opinion]” (Vernois, 1861: 32). One of the very first titles on science is from Jean Maurin, physician, who wrote against innovators like William Harvey (and his theory on blood circulation) who destroy the principles of the ancients because they rely on experiments “douteux [questionable experiments]”. Like Quincy, Maurin claims that “Il n’y a rien de plus facile que d’innover [there is nothing easier than to innovate]” (Maurin, 1696: 20). H. Lanfroy, a student of law in Paris, complains against the “inventeurs de système [inventors of systems]” who want to reform the universities. The “novateurs”, says he, “heurte[nt] les opinions reçues et branle[nt] l’édifice de nos vieilles idées [innovators . . . offend received opinion and shake the foundations of our ancient ideas]” (Lanfroy, 1830: 6).

The new sciences fight against innovators too. In a communication to the International Congress of Homoeopathy held in Paris in 1880, Alexis d’Espanet opposes those who innovate and thus endanger progress in homeopathy with “productions stériles ou malfaisantes qui divisent nos forces et tendent à paralyser son essor [sterile or evil productions that divide our strengths and tend to paralyze its growth]” (Espanet, 1880: 2). “L’homoeopathie lutte avec succès, depuis quelques années, contre les ennemis du dehors [Homeopathy has fought successfully for some years against enemies from without]”, claims Espanet. “Elle doit [maintenant]

combattre les ennemis du dedans (It must [now] fight the enemies from within)" (Espanet, 1880: 15). Espanet reviews in turn the innovations in disease treatments, the growing number of medicines and the new ways of making medicines, all made in a spirit of mercantilism (Espanet, 1880: 6). Then Espanet discusses at length three "inventors" of new practices and medicines. To Espanet, *novateur* (innovator) is a label used to name inventors who do not respect classical science (represented by Hippocrates, Halne-mann) introducing "innovations excentriques ou funestes . . . qui cachent un danger sous les apparences d'un progrès [innovations that are eccentric or harmful . . . that hide a danger under the appearance of progress]" (Espanet, 1880: 14). "Il importe d'affirmer la vérité de l'homoeopathie contre le mensonge, de défendre son intégrité contre les innovations dangereuses [It is important to affirm the truth of homeopathy against falsehood, to defend its integrity against dangerous innovations]", "les opinions erronées [erroneous opinions]", "l'illusion et l'erreur [illusion and error]" (Espanet, 1880: 16).

Yet one of the most polemical writers is certainly the American Hubbard Winslow, in a talk delivered before the American Institute of Instruction in 1835:

Innovation seems to be the prevailing spirit of our age. . . . A large portion of the political, civil, and religious world is partaking of it. Ancient dynasties are crumbling; political maxims are revoked; venerable authorities are laughed at; established principles are contested; civil institutions are overturned; organized systems and measures, which have survived centuries, are broken up; and the whole framework of society seems to be in a progress of revolution. It is the reaction of an opposite extreme of a past age [The danger is to] cast away the good . . . By innovating upon doctrines and practices tested by long and wise experience, and by pushing out supposed principles to the extremes of altruism, instead of conducting the human mind steadily forward towards the goal, they [those who sympathize with innovation] will only send it round in a circle of revolution. (Winslow, 1835: 3–4)

To Winslow, there is a middle ground between "radicalism" and tradition: "There is a wise medium between the extremes of servile admiration and a reckless contempt of antiquity. The one prevents the aggressive movements of mind . . .; the other . . . keeps it continually revolving and sinking in a whirlpool of its own independent and furious conceits" (Winslow, 1835: 4–5).

The second argument, already used by Winslow, amounts to a war against or an attack on the age or "spirit of innovation". In his work against modern fortifications, *général de division* Prévost de Vernois claims that a professor:

ne se défendra jamais de l'envie d'innover et de façonner à sa guise les jeunes têtes qui lui sont confiées; d'introduire des nouveautés qu'il croira de bonne foi être des perfectionnements, et qui pourraient n'être que de

grosses bévues . . . Le novateur qui parviendra à introduire quelques changements à nos doctrines aura nécessairement une grande autorité sus ses collègues; car le désir de créer, de passer pour inventeur est une passion très vive . . . un grand nombre d'ingénieurs sont animés de cette passion [will never refrain from the desire to innovate and to fashion in his image the young heads entrusted to him; to introduce novelties that he firmly believes are improvements, and which cannot help but be enormous blunders . . . The innovator who manages to introduce some changes to our doctrines will necessarily have great authority over his colleagues; as the desire to create to an inventor seems like a very vigorous passion . . . many engineers are animated by this passion]. (Vernois, 1861: 120–22)

Similarly, A. Blandenier, in his case against introducing professional training in public primary schools, claims:

La soif des innovations est un malheur aussi grand que l'incapacité notoire, car elle excite l'ambition et hâte la ruine d'un pays. Perfectionner nos institutions actuelles vaut certes mieux que de tâtonner dans une demi-obscurité à la recherche de la panacée universelle . . . Avant de recommander ou de préconiser une innovation il est bon d'en mesurer les conséquences . . . Le peuple . . . ne s'est jamais refusé aux réformes urgentes pour peu qu'elles lui aient été démontrées; mais sa sagesse consiste particulièrement en ce qu'il a une peur instinctive des innovations à tout propos, lorsqu'une longue expérience n'est pas venue en confirmer la grande utilité . . . Il vaut dans tous les cas mieux trop de prudence que pas assez. Ce n'est pas s'arrêter dans le chemin du progrès que de ménager ses forces pour éviter une halte forcée [The thirst for innovations is a misfortune as great as acknowledged incapacity, as it excites ambition and hastens the ruin of a country. Perfecting our current institutions would certainly be better than to grope blindly in semiobscurity in search of the universal panacea . . . Before recommending or favouring an innovation it is good to weigh its consequences . . . The populace . . . has never refused urgent reforms if these should be demonstrated to them; but its wisdom consists particularly in that it has an instinctive fear of innovations for no reason, when long experience has not come to confirm its great utility . . . Better in all cases too much prudence than not enough. It is not so much halting on the road to progress, as marshalling ones forces to avoid a forced halt]. (Blandenier, 1884: 8, 17)

Yet despite this spirit or age of innovation, other writers complain that it has never been so difficult to innovate. In spite of what he calls an "époque d'innovations [era of innovation]", *colonel* Alfred Léon Cambrelin has difficulties, says he, producing inventions because of little support: "[O]n ne se soucie de se préoccuper que d'innovations ayant fait leurs preuves [[W]e

take care to concern ourselves only with innovations that have proven themselves]" (Cambrelin, 1885: xii). Cambrelin dedicated his work to young engineers because old ones "ont répugnance et défiance de tous genres de nouveautés [have a loathing and distrust for all types of novelties]" (Cambrelin, 1885: xvii). Similarly, Alphonse Mallet-Chevalier, inventor, viticulturist and publicist, believes that he has made "un grand pas, en avant, pour arriver à une prompte solution du problème [a great step forward toward arriving at a prompt solution of the problem]": the "guérison de la tuberculose de la vigne [curing vine tuberculosis]" (Mallet-Chevalier, 1893: 4). "L'erreur de ceux qui font autorité dans le monde savant [est d'avoir] confondu l'effet pour la cause; voilà aussi pourquoi l'ouvrier est si indifférent et rebelle à toute innovation, ne croit plus à rien de possible, parce qu'il sait positivement qu'on l'a trompé en haut lieu (The error of those who wield authority in the world of wisdom [is having] mistaken the effect for the cause; this is also why the worker is so indifferent and rebels against any innovation, no longer believes anything is possible, because he knows he has been mistaken) (Mallet-Chevalier, 1893: 9).

The third argument used against innovation involves making associations or personal attacks on innovators. The attacks are usually launched because of the danger or anticipated consequences of innovation, as the phrase "innovation funeste [harmful innovation]" suggests (Pélissier, 1846; Fleury, 1881). "Quelle bande de novateurs!", wrote Lanfroy about those who want to reform the universities, "Quel tas de charlatans cherche à entraver la marche régulière de nos études classiques [What a gang of innovators! . . . What crowd of charlatans seeks to disturb the orderly course of our classical studies]" (Lanfroy, 1830: 9). Théodore Durtubie offers a similar accusation in his mémoire on the *artillerie à cheval* (Durtubie, 1795): The inventors or "nouveaux charlatans [new charlatans]" forget that "le principe dont ne s'écarte jamais le véritable artilleur, est que dans toutes les machines destinées au service de l'artillerie, on doit toujours dans leurs constructions y trouver *simplicité, solidité, uniformité* [the principle from which the true artilleryman never varies, is that in all machines designed to serve the artillery, there must always be found in their construction *simplicity, solidity, uniformity*"]. A machine must be "utile sans beaucoup de dépense [useful without much expense]" too (Durtubie, 1795: 17). "L'expérience est là pour faire justice de toutes innovations dangereuses [Experience is there to disprove all dangerous innovations]" (Durtubie, 1795: 19). To others, innovators are simply "présomptueux [presumptuous]". Vernois wants to "remettre à leur place les novateurs présomptueux qui ont réussi à substituer leurs conceptions aux chefs-d'œuvre de notre grand maître [Sébastien Le Prestre de Vauban] (put the presumptuous innovators who have succeeded in substituting their conceptions for the masterpieces of our great master [Sébastien Le Prestre de Vauban] back in their place)" (Vernois, 1861: 7). To physician and professor Pélissier, innovation is a "conspiration universelle et flagrante [universal and flagrant conspiracy]" (Pélissier, 1846: 75). To

still others, like Hippolyte Vannier, whose book on accounting went into many editions and to whom “la loi que nous nous sommes imposée [est] de ne point innover (the law we have imposed on ourselves [is] not to innovate)”, innovation is “rêves de théoriciens [dreams of theoreticians]” (Vannier, 1843: vii).

In contrast, innovation in the positive sense involves two types of arguments. The main one is progress. The argument takes the form of discussing innovation in terms of advantage and utility. Echoing Durtubie, Firmin Bertier, *tailleur*, published a treaty on a “méthode de coupe [method for cutting]”, which received a prize in 1878 at the Exposition collective ouvrière for its “simplicité, rapidité, précision [simplicity, rapidity, precision]” (Bertier, 1879). Inventor F.-L. Chauvin also describes his inventions in terms of “advantages”—“niveau de pente” [high level] and more “facile à manoeuvrer [easy to manoeuvre]” (Chauvin, 1854; 1859). Jean Baptiste Werdet proposes a new method of writing for students, a method of “utilité majeure . . . qui n’a jamais eu lieu [major utility . . . which has never occurred]” (Werdet, 1841). Pierre Joseph Vallée, Belgian physician, discusses the innovation he made to the *stéthoscope*, which has “pour avantage de réunir en un seul quatre instruments indispensables au médecin (the advantage of combining in a single [instrument] four instruments essential to medicine)” (Vallée, 1844: 112). The innovation gives simplicity to the instrument and makes it mobile. Similarly, Alexis Didacus qualifies his scientific method of gymnastics as an “original innovation,” which he discusses in terms of utility and advantage (Didacus, 1884). Some others talk of economy of costs (Anonymous, 1889).

Didacus—as Werdet did—makes use here of a second type of argument: originality. Innovation is originality in the sense of both origin (being first) and being extraordinary or revolutionary, a major innovation as we say today. Bertier offers this same argument on his “méthode de coupe [method for cutting]”, making use of the argument at the national (rather than individual) level: “Notre nation étant réputée pour mettre à jour la première toute innovation concernant le bon goût, l’habillement ne devait certainement pas rester en arrière de toute autre branche d’industrie et de commerce [Our nation being valued for giving rise to the very first innovation concerning good taste, the garment industry should certainly not remain behind any other branch of industry and commerce]” (Bertier, 1879:1).

Yet the first documents carrying the argument for originality in full-length form are encyclopaedias and scientific dictionaries. In the *Dictionnaire chronologique et raisonnée des découvertes, inventions, innovations, perfectionnements, observations nouvelles et importations, en France, dans les sciences, la littérature, les arts, l’agriculture, le commerce et l’industrie, de 1789 à la fin de 1820* (falsely attributed to a *Société de gens de lettres*), Georges Touchard-Lafosse and François Roberge survey the progress made in science, industry, arts and literature since (Louis XIV in particular) the French revolution of 1789 and discuss, in a polemical style, the *supériorité* and *suprémacie* of France versus England. How did France get there? “Une

impulsion quelconque était attendue; elle fut donnée . . . Nous avons nommé la révolution [Some such impulse was expected; it was given . . . it was the revolution]" (Touchard-Lafosse and Roberge, 1822–24: 26). The editors use the term innovation widely, covering both scientific and industrial novelties (metals, agriculture, lighting, textiles, etc.). According to the editors, these industrial innovations—due to the scientific method—produced nothing less than “grandes et salutaires révolutions dans l’économie [great and beneficial revolutions in the economy]" (Touchard-Lafosse and Roberge, 1822–24: 31).

The dictionary is based on (or rather reproduces) about 6,000 “fiches [cards or sheets]" or “mémoires scientifiques, notices littéraires, et descriptions technologiques [scientific papers, literary notices, and technological descriptions]" received from as many men of science, men of letters, artists, artisans and industrialists. Sixteen volumes were published between 1822 and 1824. The seventeenth is a table of contents of over 400 pages. Each entry in the dictionary is classified either as invention, innovation, “perfectionnement (improvement)", new observation or importation. The latter category includes “brevets d’importation (patents from foreign goods)" and many products from agriculture (seeds, plants, etc.). It is introduced in order to show the readers the (few) novelties that are not original, namely not of French origin. *Invention* refers to machines and instruments, particularly those that are patented. *Perfectionnement* refers to improvements in machines, or what we call ‘minor’ innovations today. *Innovation*, never defined as such, is what is considered by the editors as original or revolutionary novelty. It covers scientific, technical as well as *arts et lettres* and industrial novelties. *New observation* is essentially scientific discovery.

The other encyclopaedia carrying innovation in its title is Octave Delepierre’s *Aperçu historique et raisonné des découvertes, inventions, innovations et perfectionnements, en Belgique, dans les sciences, les arts, l’industrie, etc. depuis les Romains*, published in 1836 in Belgium. In over 200 pages, Delepierre surveys “les hommes et les choses remarquables de la Belgique [remarkable men and things of Belgium]" in industry, agriculture, fine arts and science. The author makes use of the concept within a national perspective again. His aim is to “faire voir combien les Belges en toutes choses ont constamment été en progrès, et très souvent même, ont donné l’impulsion aux autres nations [show the world how much Belgians have been constantly progressing in all things and often have even given the impulse to other nations]" (Delepierre, 1836: 5). In spite of the word innovation in the title, this is an example of a work that does not really make use of the word as a substantial concept. Delepierre uses the word only a few times in the text (Delepierre, 1836: 14, 55, 69, 141). To Delepierre, innovation is a new invention or the introduction of an invention (novelty) for the first time (originality).

Finally, a dictionary deserves mention because it introduces a classification of innovations. The article (entitled Innovation) is perhaps the very first title carrying a positive meaning of innovation (*Dictionnaire des sciences médicales*, 1818). To the author, innovation is either bad (speculation)

or good (practical). The author of the article develops a reflection on the “mot innovation appliqué à la médecine [word innovation applied to medicine]”. He surveys the history of medicine, from speculation to facts and asks: “Comment se fait-il que l’art de guérir voit ses théories et ses méthodes changer tous les jours? [How is it that the art of healing sees its theories and methods change every day?]”:

La médecine, dit-on, a changé et change encore tous les jours; chaque siècle, et souvent des périodes moins longues voient proclamer, proscrire et renaître des méthodes de traitement diamétralement opposées. A quels traits peut-on distinguer une innovation dangereuse? Quelle est la marque d’un changement amené par les progrès réels de la science? Comment distinguera-t-on les produits d’une imagination capricieuse d’avec les résultats d’une sage expérience” . . . [Answer:] le sentier pénible de l’observation; c’est en partant de ce point essentiel, que les physiologistes modernes ont provoqué, non des innovations mais de véritables progrès dans l’histoire de notre économie (Medicine, we say, has changed and changes still every day; every century, and often shorter periods see proclaimed, proscribed and reborn treatment methods that are diametrically opposed. By what characteristics can we distinguish a dangerous innovation? What is the mark of a change brought about by real progress in science? How shall we distinguish the products of a capricious imagination with the results of wise experience . . . [Answer:] the hard road of observation; it is in starting off from this essential point, that modern physiologists have engendered, not innovations, but real progress in the history of our economy]. (*Dictionnaire des sciences médicales*, 1818: 248–49)

To the author, an innovation is “dangerous” when it is introduced “non en vertu d’une observation rigoureuse, mais par le seul effet de théories funestes [not by virtue of rigorous observation, but by the sole effect of harmful theories]” (*Dictionnaire des sciences médicales*, 1818: 251). All in all, there are three classes of innovations: “les innovations produites par l’esprit de système [innovations produced by the spirit of system]”, “les innovations qui sont le résultat d’une observation plus attentive et de faits mieux étudiés [innovations that are the result of careful observation and of facts]” and “les innovations venues de procédés perfectionnés, de remèdes introduits, de pratiques adoptées [innovations arising from improved processes, remedies introduced, practices adopted]” (*Dictionnaire des sciences médicales*, 1818: 254–55). “Espérons . . . que les innovations dont la science sera toujours possible, dont elle éprouvera même un constant besoin, soient désormais dirigés vers la pratique [traitement des maladies et méthodes cliniques] [Let us hope . . . that innovations coming out of fruitful and needed science be henceforth directed toward the practical]” (*Dictionnaire des sciences médicales*, 1818: 244).

One conclusion from this study of titles is that there was a relative absence of discussion on innovation and industry in the nineteenth century—in contrast to the discourses on the mechanical arts or technology and applied science (Bud, 2012; Schatzberg, 2012)—as well as explicit references to manufacturing. At the time, innovation had little to do with market issues, unlike the way many study innovation today. Only three documents cover industry. Yet two of these—the encyclopaedia of Touchard-Lafosse and Roberge and that of Delepierre—include many things under the concept innovation. Innovation is not exclusively concerned with industry. The third title comes from Doctor Gustave Augustin Quesneville on a British patent for a “procédé de dorure [gilding process]” (Quesneville, 1842). The French author deplores that the “innovation qui était appelée à produire une révolution [innovation that was called on to produce a revolution]” has not delivered on its promises. Quesneville claims that if the application for a patent is accepted in France, it may endanger trade.

To be sure, there exist dozens of documents in the nineteenth century in which innovation is used, in a positive sense, to talk about what we call technology today. Mining, particularly, is an example (Blavier, 1806, 1812; Villefosse, 1820). Auguste Comte, too, talks of the invention of printing as an “innovation capitale [a major innovation]” (Comte, 1877: 114). Yet technological innovation is only one of the many connotations of innovation. Innovation had not yet acquired the restricted and dominant connotation of the twentieth century (technology).⁵⁰

One important group of titles on innovation in science in the nineteenth century is the continuation of the seventeenth–eighteenth century *querelle* between the ancients and the moderns. Lanfroy (1830), Péliissier (1846), and Fleury (1881) are concerned, among other things, with the danger of innovating practices in education versus preserving the traditions, namely against the introduction of the sciences in place of teaching Greek and Latin. In turn, Winslow puts emphasis on the introduction of physical education to the detriment of intellectual education.⁵¹ In matters intellectual, Winslow objects to (1) the introduction of what he calls “devices to avoid severe study”, namely “modern adaptation of books”, which renders them “cut and dried”, too easy to read and made for pleasure; and (2) teaching methods (“visible signs, plates, figures, machines”) that neglect the work of the imagination (Winslow, 1835: 13–14).

In summary, innovation in nineteenth-century science refers to the introduction of the new science in learning and the (application of the) scientific method in useful arts—professional and, to a certain extent, industrial.⁵² The first connotation is, in general, negative, and the second positive. There is no title on innovation in the “pure” sciences like physics, mathematics or astronomy.⁵³ In the other sciences like medicine, innovation means essentially new scientific instruments. In education, innovation is essentially negative (new practices).⁵⁴

Two elements characterize innovation. First, the practical—as opposed to the theoretical, as the *Dictionnaire medical* puts it. Accountant Hippolyte

Vannier, for example, qualifies his new method explicitly as “practical”. The anonymous work on metallurgy claims that “La plupart [des ouvrages traitant les diverses manières d’employer les fers et les aciers] sont faits par de savants théoriciens qui ne donnent que des définitions au lieu de procédés pratiques” (Most [of the works dealing with the various methods of using iron and steel] are produced by theoretical savants who produce nothing but definitions instead of practical processes) (Anonymous, 1888: Préface). Second, the practical rests or should rest on scientific principles. Vallée contrasts the principles of the ancients to “positive medicine”, on which his innovation on the stethoscope rests. Louis Frédéric Raguet de Liman (1854) stresses the need for “sciences positives” [positive sciences] in clockmaking.⁵⁵ Didacus describes his teaching (of gymnastics) as “rationnel et méthodique [rational and methodical]”, namely based on anatomy and physiology. Touchard-Lafosse and Roberge attribute industrial innovations to the scientific method.

Yet in the end one must conclude that the pejorative connotation of innovation is only beginning to change. There is still an ambivalent tension between the negative and the positive. The use of the concept in the negative simply continues the tradition of the previous centuries: a linguistic weapon. In contrast, the use in a positive sense is due to many factors: a changing context (change is now accepted in every sphere of society); efforts to increase the social status of the arts (as the word technology does; see Schatzberg, 2006); and the value put on originality: stressing one’s own originality or that of his country for their contribution to ‘progress’.

ARTS AND INDUSTRY

The representation of innovation has changed considerably since the seventeenth century. To Bacon and his contemporaries, novelty is everywhere—to the point that it is often qualified as ephemeral and frivolous. Yet innovation is forbidden. This moment of history when innovation in science and the useful arts was pejorative because it was a political concept is a forgotten episode today. Over the twentieth century, innovation has shifted to technological innovation, in a positive sense, as the dominant ideology.

Bacon’s innovation (a new scientific method), or rather the introduction of a new scientific method into the useful arts in the nineteenth century, is one of the factors that gave a positive meaning to the concept innovation. From the late eighteenth century onward, innovation is talked of in terms of utility, and the useful arts are part of this new discourse. The useful arts also contributed to one, if not the dominant, meaning of innovation today, linking science to (technological) innovation. Here is the origin of the intimate association between science, technology and innovation.

In the nineteenth century, innovation in both science and the useful arts has little to do with technology. Yet over the twentieth century, engineers,

industrialists and theorists appropriated the word innovation—and the concept as science applied to industry. One may observe here an analogy (or extrapolation) between the early meaning of the concept (*introduction* of the scientific method into the useful arts) and modern uses of the term technological innovation (invention or science *applied* to industry). The application of science to industry refers to both the *scientific method* (through the setting up of industrial R&D laboratories) and the *results* of science (use of scientific discoveries and inventions in industry).

Yet one missing connotation in the early definition of the concept is the market, or commercialization. Technology may have acquired a meaning related to artefacts at that time, as Eric Schatzberg (2006) has documented, but innovation had not. This happened much later. We have seen that few authors make explicit reference to industry in the nineteenth century. In contrast, the representation of innovation developed over the last 65 years focuses on technological goods, firms and markets.

The two representations may be contrasted, but they are also evolving representations of innovation in the sense that one develops (extends) from the other, as a consequence of a new context. The definition, or rather the connotation of innovation as the introduction of the scientific method into useful arts (the ‘scientification’ of the arts), shifts to the application of invention or science to industry (the ‘scientification’ of industrial production). Yet again, this is part of the story. Innovation shifts a second time in the twentieth century, to the commercialization of technical inventions. This shift occurred in a matter of a few years, in the 1960s, as part of the larger trend towards the “economization” of science and technology, as Elizabeth Berman calls it, a shift toward thinking of science and technology in terms of the economy (Berman, 2014: 399).

NOTES

1. I use Vickers (1996) for *The Advancement of Learning* (hereafter referred to as AL) and Bacon’s *Essays*; Spedding, Ellis and Heath (1887) for *Instauratio Magna* (IM) and *De Dignitate et Augmentis Scientiarum* (DD); Rees and Wakely (2004) for *Novum Organum* (NO).
2. Some notable books on Bacon are, to name just a few, Farrington (1951), Rossi (1968), Pérez-Ramos (1988), Peltonen (1996), Zagorin (1998) and Gaukroger (2001).
3. “To the times of the wisest and most learned of kings belongs of right the regeneration and restoration of the sciences”. That your Majesty takes “order for the collecting and perfecting of a Natural and Experimental History . . . such that philosophy and the sciences may no longer float in the air, but rest on the solid foundation of experience” (IM: 24).
4. “I am labouring to lay the foundation, not of any sect or doctrine, but of human utility and power” (IM: 36).
5. There are “two extremities, the one Antiquity, the other Novelty, so one of them seeketh to devour and suppress the other” (AL: 144). There is “vain admiration of any thing, which is the root of all weakness. For all things are

admired, either because they are new, or because they are great" (AL: 164). On marvels Bacon writes, again: "I find books more than enough filled with fabulous experiments, for pleasure and novelty, but a substantial and methodical collection of Heteroclitites or Irregulars of Nature well examined and described I find not" (DD: 381).

6. "All the tradition and succession of schools is still a succession of masters and scholars, not of inventors . . . In the mechanical arts we do not find it so; they, on the contrary are continually growing and becoming more perfect. . . . Philosophy and the intellectual sciences, on the contrary, stand like statues, worshipped and celebrated, but not moved or advanced. . . . They fall to the servile office of embellishing certain individual authors" (IM: 27). "Their aim has been not to extend philosophy and the arts in substance and value, but only to change doctrines and transfer the kingdom of opinions to themselves" (IM: 30).
7. One of the sources of error in philosophy is "veneration of those works whose abundance has long since been available to the human race" (NO: 85).
8. Two of Bacon's four idols are related specifically to natural philosophy. (1) Idol of the Market (words) (NO: 43; 59–60): "empty disputes, countless controversies and complete fictions". This "has made philosophy and the sciences sophistical and inactive". "Great and solemn disputes of learned men often end in controversies about words and names". Bacon identifies two kinds of such idols: "names of things which do not exist"; "names of things which do exist but are muddled, ill-defined, and rashly and roughly abstracted from the facts". (2) Idols of the Theatre (philosophies, or theories) (NO: 44; 61–65). "Theories fit for the stage and by misguided laws of demonstration". To Bacon there are three kinds of false philosophy: (a) Sophistical: "Neither securely established nor carefully examined and weighted"; (b) Empirical: based "on a few experiments"; (c) Superstitious: "intermingle theology and traditions".
9. "All those who before me have applied themselves to the invention of arts have but cast a glance or two upon facts and examples and experience, and straightway proceeded, as if invention were nothing more than an exercise of thought" (IM: 33). Mechanical arts are "neither many nor profound", "attributable only to man's patience . . . and hand or instrument"; they "depend on just one or two of nature's axioms"; there are "poverty and barrenness of facts and discoveries"; "with philosophy and the intellectual arts . . . the discovery of useful works came to a standstill"; libraries are full of books but "repetitions" and scantiness of the matters; alchemists "have found out a fair few things and endowed men with useful discoveries" but based on tradition and craft; natural magic is speculation "suited to admiration and novelty and not to fruitfulness and utility" (NO: 85).
10. *Instauratio Magna*: "I begin the inquiry nearer the source than men have heretofore; submitting to examination those things which the common logic takes on trust" (IM: 43). "My history differs from that in use (as my logic does) in many things" (IM: 47). "I drag into light many things which no one who was not proceeding by a regular and certain way to the discovery of causes would have thought of inquiring after" (IM: 49). "In the selection of the relation and experiments . . . I have been a more cautious purveyor than those who have hitherto dealt with natural history" (IM: 49). *Novum Organum*: "The mind has been invaded by the habits, hearsay and depraved doctrines of daily life, and beset by the emptiest of *Idols*". "There remains but one way to health and sanity: to do the whole work of the mind all over again". "I mean to open up and lay down a new and certain pathway". "My business is to open up a completely new route for the intellect, one unknown and untried by the ancients" (NO: Preface). "There is no hope save in the *Regeneration* of the

sciences by eliciting them systematically from experience and founding them afresh—which no one (I judge) will claim has been done or thought of before” (NO: 97). We must “seek and get a greater abundance of experiments, an abundance of a kind different from that made hitherto; we must also bring in a quite different method, order, and process” (NO: 100). “This has never been done before” (NO: 104).

11. “It would not have been difficult for me to attribute what I have to say to ancient times” in order “to get testimonials and prestige in the way that parvenus do when, with convenient genealogies, they construct and cobble up a noble ancestry for themselves by forging links with some ancient pedigree”. But “the discovery of things is to be sought not from the shadows of antiquity but from the light of nature” (NO: 122). “People will perhaps think too that I am only reinventing the wheel and that the ancients themselves followed the same route as I do”. But “that was not natural history and experience” (NO: 125).
12. There are two differing “abilities” in princes, suggests Bacon in one of his *Essays*: “those which can make a small state great” and those that “bring a great and flourishing estate to ruin and decay”. It is the duty of a prince to “add amplitude and greatness to their kingdoms by introducing ordinances, constitutions, and customs . . . that may sow greatness to their posterity and succession” (*Of True Greatness of Kingdoms and Estates*, 1612). In *The Advancement of Learning*, Bacon describes how Hadrian, because he was learned, innovated. Hadrian spent his whole reign “re-edifying of cities, towns and forts decayed, and for cutting of rivers and streams, and for making bridges and passages, and for policing of cities and commonalities with new ordinances and constitutions, and granting new franchises and incorporations, so that his whole time was a very restoration of all the lapses and decays of former times” (AL: 157).
13. Projector was the name given to the technological innovators of the time.
14. In *De Dignitate et Augmentis Scientiarum*, Bacon makes analogies between politics and science as examples of axioms (laws) peculiar not to a particular science but to all of them (or first philosophy): “Things are preserved from destruction by bringing them back to their first principles is a rule in Physics; the same holds good for Politics (as Machiavelli rightly observed), for there is scarcely anything that preserves states from destruction more than the reformation and reduction of them to their ancient manners”. “Whatsoever contributes to preserve the whole state in its own nature has greater power than that which only benefits the particular members of that state” (DD: 407–48). “The force of an agent is increased by the reaction of a contrary is a rule of Physics. The same has wonderful efficacy in Politics, since every faction is violently irritated by the encroachment of a contrary faction” (DD: 408).
15. The French *Encyclopédie* of 1751 put it similarly: Mechanical “inventions have the advantage over political enterprise in that they bring about the public good without harming anyone. The most spectacular conquests are bathed only in sweat, tears, and blood. He who discovers some secret useful to life, such as, for example, the dissolution of stones in the bladder, would not have to fear the remorse that is inseparable from glory where crime and unhappiness are mingled. The invention of the compass and the printing press opened wider horizons and beautified and enlightened the world . . .”. “For the success of this enterprise, however, it is necessary that an enlightened government be willing to grant it a powerful and constant protection against injustice, persecution, and the calumny of enemies” (Jaucourt, Art. Invention, *L'Encyclopédie*).
16. “Nor is it easy to pass on or to explain what I have in mind, for people will still make sense of things new in themselves in terms of things which are old” (NO:

- 34). "Some things already discovered are of a kind that before their discovery the least suspicion of them could scarcely have crossed anyone's mind, but a man would simply have dismissed them as impossible. For men are accustomed to anticipate the new from what they know of the old, and in the light of fancies informed and colored by the latter; but this way of thinking is utterly fallacious, since many of the things we seek from the fountains of nature fail to flow in the usual channels" (NO: 109). "People will no doubt "imagine that my discoveries rest on false and doubtful foundations and principles . . . Such things necessarily occur when we are starting off" (NO: 118). "In the course of discovery the human mind is on many occasions generally so sloppy and badly set up that it begins by distrusting and soon after despising itself; at first it does not believe that any such things can be discovered" (NO: 110).
17. Rees and Wakely (2004) translate machines (*mechanica*) as innovations.
 18. "I retain with scrupulous care the ancient terms . . . I recede as little as possible from antiquity . . . Stirred by a spirit of difference and contradiction to wage war on all antiquity [Aristotle] coin[ed] new words of science at pleasure . . . for Glory and drawing followers and disciples" (DD: 414–15). Aristotle "learnt that humour from his scholar [Alexander the Great] , whom perhaps he emulated, the one aspiring to conquer all nations, the other to conquer all opinions, and to establish for himself a kind of despotism in thought" (DD: 415). I desire "to ground a sociable intercourse between the old and the new in learning . . . : retain the ancient term, though I often alter their sense and definitions, according to the moderate and approved course of innovation [*novandi*] in civil matters, by which, when the state of things is changed, yet the forms of words are kept" (DD: 416). The same argument is offered in *The Advancement of Learning*, yet the word innovation is absent; alteration is used instead (AL: 193–94).
 19. "I have no intention of toppling the philosophy which flourishes at present". "The honour of the ancients and of all the rest remains unimpaired, for I am not comparing wits and faculties but ways" (NO: 32). "The philosophy which I adduce will be of very little use in these matters". There are two types of learning, "in no way hostile or set apart from each other", one for "cultivating the sciences and the other for discovering" (anticipation of the mind, interpretation of nature). Bacon holds the same discourse again at the end of *Novum Organum*: "[w]hether I long to raze and destroy the philosophy, the arts and the sciences now in use". "I have no intention of interfering with the arts now flourishing . . . What I am bringing in will not be much use in these affairs" (NO: 128).
 20. In *New Atlantis* (1627), Bacon describes his utopian laboratory (Solomon's house) as *imitation* of nature, particularly when he discusses instruments.
 21. Regeneration has a Christian overtone. It has the sense of rebuilding and replacement (Whitney, 1986: 91). Restoration is back to the original. Instauration is renewal. Whitney argues, following Erwin Panofsky, that Bacon does not use renovation because of a pejorative meaning. This is a mistake.
 22. On forms (laws), Bacon writes, "there can hardly be discovered any radical or fundamental alterations and innovations of nature either by accidents or essays of experiments, or from the light and direction of physical causes; but only by the discovery of forms", namely the study of causes (AL: 201).
 23. *De Dignitate* includes two variants of the word: (1) *Novandi*: On retaining ancient terms, Bacon writes, "I often alter their sense and definitions; according to the moderate and approved course of innovation in civil matters, by which, when the state of things is changed, yet the forms of words are kept" (DD 8: 483–84). (2) *Innovari*: This is Bacon's translation of AL 201 (DD 8: 513)—see previous note.

24. Making innovation in philosophy ("using new words and phrases, or giving a different meaning to those that are received") is "hardly possible" because the "language of philosophers . . . is so adapted to the prevailing system". Innovation is "a liberty which, even when necessary, creates prejudice and misconstruction, and which must wait the sanction of time to authorize it". "Innovation in language, like those in religion and government, are always suspected and disliked by the many, till use hath made them familiar, and prescription hath given them a title" (Reid, 1796: Introduction).
25. Certainly, natural philosophers "abhor all innovation" in religion (Casaubon, 1669: 18), but they are nevertheless "hunting after novelties" (Casaubon, 1669: 22). The "prodigious propensity of innovation in all kind, but in matters of learning particularly . . . [Yet, there are] secrets of Nature, or of Heaven, if you will, which none will, upon pretence of any art, attempt to dive into" (Casaubon, 1668: 13–14).
26. Stubbe uses many words to attack the scientist, among them innovator: novelist (novelists), virtuoso, comical wit, new-fashion'd philosopher (Stubbe, 1670b). "To conquer [Flanders and lower Germany] there are but two wayes left now to be taken: the first of which is to sow the Seeds of Division amongst them: and the second to draw them forth of their own Countrey. Cadmus having a design of erecting a Monarchy at Thebes, whither he came a stranger, is said first to kill a Serpent; by which was signified, the Defence and Safe-guard of Thebes: and then afterwards to sow the Teeth of it; that is to say, to scatter abroad the Poysen of Desire of Innovation, and an earnestness to be instructed in the knowledge of Learning, namely in such new Sciences and Arts, as he had brought over with him from his own Countrey. And hence Souldiers are said to spring up, who through mutual discord, slew each other" (Stubbe, 1670a: 177).
27. Jonathan Swift on Descartes and others, the "grand innovators" who "reduce the notions of all mankind exactly to the same length, and breath, and height of his own. . . . This is the first humble and civil design of all innovators in the empire of reason" (Swift, 1704: 80).
28. "Men of letters, fond of distinguishing themselves, are rarely averse to innovation . . . What they have lost in the old court protection, they endeavoured to make up by joining in a sort of incorporation of their own [the academies]" (Burke, 1790: 109–10).
29. Malherbe (1985) has noted a similar discrepancy between Bacon's use of novelty (*novitas*) and new (*novus*) in *Novum Organum* (five occurrences versus 109 occurrences).
30. The essay is on "the force of custom upon mind and body", what Bacon calls the "reign or tyranny of custom". "Men's thoughts are much according to their inclination, their discourse and speeches according to their learning and infused opinions. . . . There is no trusting to the force of nature nor to the bravery of words, except it be corroborate [confirmed] by custom". "The predominancy of custom is every where visible . . . Men . . . do just as they have done before". "Custom is the principal magistrate of man's life". Education "is, in effect, but an early custom".
31. Quarrels and divisions about religion, discordant and contrary opinions, controversies, heresies and schisms are "the greatest scandal . . . , more than corruption of manners". There are two kinds of controversies: "The one is when the matter of the point controverted is too small and light, not worth the heat and strife about it, kindled only by contradiction [variety but no division]. . . . The other is when the matter of the point controverted is great, but it is driven to an overgreat subtilty and obscurity, so that it becometh a thing rather ingenious than substantial [it intends the same thing]. . . . The nature

of such controversies is excellently expressed by St. Paul Shun the profane novelties [*novitates*] of terms, and the objections of pseudo-knowledge. Men create oppositions which are not, and put them into new terms . . .”. Bacon argues against extremes (sanguinary persecutions). The same recommendation appears in the essay *Of Vicissitude of Things*.

32. “If a man perform that which hath not been attempted before, or attempted and given over, or hath been achieved but with no good circumstances, he shall purchase more honour than by effecting a matter of greater difficulty or virtue, wherein he is but a follower”. As examples, Bacon cites men acting for the good of the commonwealth, or political figures: founders of state, princes, saviours, and those who sacrifice themselves to death or danger. In *The Advancement of Learning*, Bacon also discusses honours to “inventors and authors of new arts, endowments, and commodities towards man’s life”, as in antiquity. While the heroic honours are “confined within the circle of an age and a nation”, the latter are “like the benefits of heaven, which are permanent and universal”, “without noise or agitation” (AL: 154). With the *New Atlantis*, Bacon added a new type of men eligible for honour, ordinary men: inventors to whom a gallery of statues is proposed in Solomon’s house.
33. “Solomon saith, There is no new thing upon the earth . . ., all novelty is but oblivion”. The essay is on how “matter is in a perpetual flux”: nature (deluges, earthquakes), religion (“new sects”), states (wars). “Certain it is that the matter is in perpetual flux, and never at stay . . . The greatest vicissitude of things amongst men is the vicissitude of sects and religions”. “In the youth of a state arms do flourish; in the middle of a state learning; and then both of them together for a time; in the declining age of a state, mechanical arts and merchandise”.
34. Men of age “adventure too little”, while “the invention [inventiveness] of young men is more lively . . .; and imaginations [ideas, projects] stream into their minds better”. “Young men are fitter to invent than to judge . . ., are fitter for new projects than for settled business”. The errors of young men are to “care not to innovate [have no qualms about] which draws unknown inconveniences [damages]”, to “embrace more than they can hold”, to “use extreme remedies”.
35. Bacon’s representation has been very influential among later writers. To take just one example, echoing, or rather citing Francis Bacon, the *Encyclopédie* suggests that one should only accept innovation “peu à peu & pour ainsi dire insensiblement [little by little & so to speak, insensibly]” (*Encyclopédie*, 1765: 265). “Il est bon de ne pas faire de nouvelles expériences pour accomoder un état sans une extrême nécessité & un avantage visible. Enfin, il faut prendre garde que ce soit le désir éclairé de réformer qui attire le changement, & non pas le désir frivole du changement qui attire la réforme [It is good not to make new experiences to accommodate a state without an extreme necessity & a visible advantage. Finally, we must be careful that it be the enlightened desire to reform that brings on change & not the frivolous desire for change that brings on reform]” (*Encyclopédie*, 1765: 266).
36. As seen in the previous chapters, gradualism has precursors among the ancients, to whom change happens over a long period of time, little by little: Isocrate, Aristotle, Plato, Polybius (Edelstein, 1967; Nisbet, 1969). Jeremy Bentham criticizes Bacon’s gradualism as a fallacy coming from those against innovation. It is too general because the word innovation is used, according to Bentham, in the sense of restoration (Bentham, 1822: 488).
37. “Her Publick Admonition in almost every Session of Parliament, that no Innovation should be made in the *Discipline and Ceremonies of the Church*”. “Her usuall Custom was, in the beginning of every *Parliament*, to forewarn the

- Houses, not to question, or innovate, any thing, already established, in the *Discipline, or Rites of the Church*" (*The Character of Queen Elizabeth*, 1925).
38. Bacon advises "that you divide all the Petitions, and the matter therein contained, under several [eight] Heads". The first is religion: Bacon reminds the Duke that "If at any time there shall be the least motion made for Innovation" in the Church, he should go back to the "Proclamation set out by the King Himself in the first Year of His Reign, and annexed before the Book of *Common-Prayer*" that "[i]t is most dangerous in a State to give ear to the least alterations in Government". In matter of order and ceremonies, "there must be great care, not to introduce innovations" (*A Letter to the Duke of Buckingham*, posthumous).
 39. "Things, I wish to be done. The one, that your Majesty, take this occasion, to redouble unto all your Judges, your antient, and true Charge, and Rule, That you will endure, no Innovating, the Point of Jurisdiction; But will have every Court, empaled, within their own Presidents; And not assume to themselves, new Powers, upon Conceits, and Inventions, of Law" (*A Letter, to the King, concerning the Premunire, in the Kings Bench, against the Chancery*, 1615).
 40. "For the *Lawes*, to make an entire, and perfect, *Union*, it is a Matter of great Difficulty, and Length . . . How harsh, *Changes*, and *Innovations* are. And we see, likewise, what Disputation, and Argument, the *Alteration*, of some one *Law* doth cause, and bring forth; How much more, the *Alteration*, of the whole *corps*, of the *Laws*" (*Certain Articles, or Considerations, touching the Union* . . ., 1603).
 41. In *A Proposal for a New Digest of the Laws of England* (1623), Bacon discusses "Objections and Scruples, that may arise, or be made against" his proposal on the collection of laws. Bacon claims that his proposal "ought not to be termed, or held, an Innovation in the suspected Sense . . . 'tis rather Matter of Order and Explanation, than of Alteration". The same argument is offered in *A proposition, to His Majesty* . . ., 1616. See the following note, p. 269.
 42. On imitating foreign churches: "Perhaps in civil States, a Republic is more political than Monarchy; yet God forbid that all lawful Kingdoms should be bound to innovate, and make Alterations" (*An Attempt to Promote the Peace of the Church*, 1589) because "it would make a Breach". "*Laws, unrefreshed with new ones, grow sour. And without changing what is bad, the Good cannot be continued . . . A contentious Retaining of Custom, is as turbulent a thing, as Innovation [novitas]*". There are "two Opinions, which directly confront and oppose all *Reformation in Religion* . . . The first asserts it to be against good Policy to innovate any thing in Church Matters". Yet to Bacon, "custom and usage . . . are no Warrant to guide and conduct". "All Institutions and Ordinances . . . corrupt and degenerate". Like time (a "Stream, which carries down fresh and pure Waters into that Dead-Sea of Corruption"), "the *Civil State* should be purged, and restored, by good and wholesome Laws, made every Session of Parliament, devising Remedies . . . Yet the *Ecclesiastical State* continue . . . and receive no Alteration at all". Another phrasing appears in *Certain Considerations, touching the better, pacification and edification, of the Church of England* (1603).
 43. See the previous note.
 44. On the physician Roderigo Lopez's treason against her Majesty "to move some Innovation in Scotland", namely to make a party against the Queen, take up arms and levy war (*A True Report* . . ., 1594). On the "intention of Spain to conquer this Kingdom" by "stir[ring] up by all means a Party . . . and desirous of innovation, that might adhere to the Forrainer . . . For this, they had no other Hopes, then the Difference in Religion . . . Priests were sent into England to plant and disperse a Love to the Romish Religion" (*In Happy memory, of*

Elizabeth, Queen of England, or, a Collection of the Felicities of Queen Elizabeth, 1606).

45. "Two opinions, which do directly confront, and oppose, to Reformation: The one, bringing it to a Nullity; And the other, to an impossibility. The first is; That it is against good Policy, to innovate any Thing, in Church matters . . . But . . . who knoweth not, that Time, is truly compared, to a Stream, that carrieth down, fresh, and pure Waters, into that salt Sea of Corruption" (*Certain Considerations touching* . . ., 1604).
46. "All purgings and Medecines, either in the Civile or Naturall Body are Innovations. So as that Argument is a Commonplace against all Noble Reformati-
ons" (*A proposition to His Majesty*, 1616).
47. That the Church of England be "innovated . . . would make a Breach, upon the Rest" (*An Advertisement, touching the controversies* . . ., 1589). "For the Lawes, to make an entire, and perfect, Union, it is a Matter of great Difficulty, and Length . . . How harsh, Changes and Innovations are. And we see, likewise, what Disputation, and Argument, the Alteration of some one Law doth cause, and bring forth; How much more the Alteration of the whole Corps of the Laws" (*Certain Articles, or, Considerations touching the Union of the Kingdomes of England and Scotland*, 1604).
48. Certainly, there exist (a few) positive thoughts on innovation and science during the seventeenth century, but they are the exceptions. Most come after Bacon. One example is Walter Charleton in a dialogue on the existence of God and the immortality of the human soul demonstrated by reason. In the first dialogue, Athanasius paints a positive portrait of the "Heroicall Wits among our Country-men, who have addicted themselves to the Reformation and Augmentation of Arts and Sciences" (Charleton, 1657: 33). Lucretius replies and asks, "why may we not refer these *Innovations* in Philosophy, Physick, and the Mathematics . . . rather to the English Humours of affecting new Opinions, than to any reall defects or errors in the Doctrine of the Ancients" (Charleton, 1657: 51). Athanasius agrees on the "pronesse of the English Genius to Novelties". Yet he continues with an analogy to the Reformation: "It hath been the Reformation, that drew on the Changes; not the desire of Change, which pretendeth the Reformation" (Charleton, 1657: 52). Right reason drew the changes. A third interlocutor, Isodicastes, agrees: "The Ancients indeed, (thanks be to their bounteous industry) have left us large and noble Foundations; but few compleat Buildings" (Charleton, 1657: 53). Another example is *A Brief Account of the Sect of Latitude-Men* from Simon Patrick. Patrick looks at the supporters of the new philosophy, or latitude-men as some call them. In reality, latitude-men are good Protestants, according to Patrick. Latitude-men is just a name used by the critics, which "serves to talke of when all other discourses fails" (Patrick, 1662: 5). To be sure, latitude-men are innovators, but in the sense of return to the original doctrine of the Church only. "I hear some men say, all innovations are dangerous . . . *new Philosophy* will bring in *new Divinity*. . . [Yet] true *Philosophy* can never hurt found *Divinity*" (Patrick, 1662: 22). Even the Church believes so: The priests are encouraged to skill themselves in nature, the "new kind of weapons" in the "Artillery" of the Church's enemies. "Let not the Church send out her Souldiers armed with Dock-leaves and Bullrushes, to encounter swords and Guns" (Patrick, 1662: 24).
49. Manières, as the French often call them (Balmoussières, 1881; Anonymous, 1888).
50. A different but then newly coined term serves to talk of technological innovation: technology. Jacob Bigelow, Jacob Beckman and Charles Babbage, to name just the most studied writers of the nineteenth century on technology,

as well as dictionaries of techniques, arts and manufacture, make no use of innovation in the positive sense.

51. "[T]here are two 'callings', either physical or intellectual: 'physical perfection is not essential to mental eminence' (Winslow, 1835: 6–7). As evidence, Winslow suggests that all great scholars from antiquity to modern authors "have been men of rather slender physical development or of some bodily infirmity", while "those students who bear the palm in gymnastic exercises, are usually the poorest scholars" and "seldom eminently intellectual" (Winslow, 1835: 8). The "professional student . . . rose early in the morning, they ate late, slept little, thought much" (Winslow, 1835: 9). He "avoids notions and extremes, think[s] as little of his body as possible" (Winslow, 1835: 10).
52. This is close to the French meaning of *science appliquée* (à l'industrie) (Bud, 2012).
53. A few exceptions are Land (1876), Heaviside (1893), Knott (1893).
54. One different use deserves mention. In *La recapitulation et l'innovation en embryologie végétale*, botanist Jean Massart from Université de Bruxelles discusses evolution and the principle of recapitulation, or how the development cycle of the individual (*ontogénèse*) is an abridgement of that of the species (*phylogénie*). Yet an individual also develops new organs "dont ses ancêtres étaient dépourvus [which its ancestors did not have]" (Massart, 1894: 4). To Massart, such an innovation is more frequent in plants: "chaque année, un frêne forme de nouvelles racines, de nouveaux bourgeons, de nouvelles fleurs [every year, an ash forms new roots, new buds, new flowers]" (Massart, 1894: 4). Innovation is a word used in botany before Massart, namely for the "'organes de fécondation' de la mousse *Webera annotina Schwaegr* qui apparaissent et se développent sur les feuilles et les tiges des plantes. Elles 'constituent [produisent] de nouvelles tiges qui remplacent la première et se comportent comme elle l'année suivante . . . et produisent, avant de mourir, des innovations ('reproductive organs' of the moss *Webera annotina Schwaegr* which appear and develop on the leaves and stems of the plants. They 'constitute [produce] new stems that replace the first and act like it the following year . . . and produce, before dying, innovations) (Bescherelle, 1865: 138). The *Dictionnaire de la langue française* from Émile Littré (1872–77) acknowledges this meaning as follows: "Terme de botanique applicable à la ramification des hépatiques [cryptogames] caulescentes. L'innovation est la continuation de la tige par le développement d'un bourgeon (Botanical term applicable to the ramification of stemmed liverworts [cryptogams]. The innovation is the continuation of the stem by development of a bud)". The *Oxford English Dictionary* (1989) translates as follows: "[T]he formation of a new shoot at the apex of a stem or branch; esp. that which takes place at the apex of the thallus or leaf-bearing stem of mosses, the older parts dying off behind; also a new shoot thus formed".
55. Clockmaking requires "connaissances très-étendues des sciences positives [wide-ranging knowledge of the positive sciences]" (Raguet de Liman, 1854: i). However, too often, "les principes sont négligés, les apprentis pullulent chez des maîtres ignorants [the principles are neglected, apprentices proliferate with ignorant masters]" and "des montres de pacotille vendues à vil prix et sans la moindre garantie [cheap watches sold at a very low price without the least guarantee]" substitute for clockmaking (Raguet de Liman, 1854: ii).

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Part IV

Diffusion of the Concept

The Value Episteme

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10 The Vocabulary of Innovation

A Lexicon

No one Language ever required the Use of a Dictionary more than the English [which] is founded in such a variety of other Languages [and where] daily Innovations are introduced.

(A Society of Gentlemen, *A General Dictionary of the English Language*, 1768)

Innovation has come to mean all things to all men, and the careful student should perhaps avoid it wherever possible, using instead some other term.

(Ames, *Research, Invention, Development and Innovation*, 1961)

Innovation is certainly one of the most popular words of the twentieth century. Yet innovation is only one of many words used to talk about novelty or newness. For example, in the nineteenth century, invention was the catchword. Today, artists talk of creation and, in the previous centuries, of imagination. It is only in the second half of the twentieth century that innovation has become a slogan, grouping a diversity of other words or concepts. Innovation is part of a semantic field concerned with change and novelty/newness in a large sense.

If innovation is one word or concept among many, the intellectual history of innovation has to take into consideration a whole semantic field, as Koselleck suggests, not identifying a concept with any single word. There exist a range of “synonyms, antonyms, associated terms, forming a more or less unified part of a vocabulary at a given time”. The historian seeks “to identify the variety of meanings [a concept] may bear” (semasiology) but also seeks “out all the terms and expressions that could be used to designate” the concept (onomasiology) (Hampsher-Monk, Tilmans and van Vree, 1998: 2).

There is a debate in intellectual history as to whether words are different from concepts. To Koselleck, concepts are words with a special historical meaning. Concepts condense a multiplicity of meanings for which a word is used. A concept abridges certain forms of stabilized word use. It is an abstraction from patterns of word usage, a “concentrate of several substantial meanings” (Koselleck, 1972: 85). In this sense, concepts are always

ambiguous and have a multiplicity of interpretations. The study of concepts continually demands contextualization according to the writers, the types of document, the fields of endeavour, and different countries and epochs. To Conal Condren, a concept does not belong to a different order of phenomena than that of words. It is words that have a conceptual space or semantic fluidity. This conceptual space may be larger or smaller. A concept has a wide capacity or area of operation, a capacity to subsume different doctrines due to extension by definition and redefinition (e.g., to avoid odious terms), conflation (synonymy at the expense of one of the terms) and distinction, borrowings (from neighbouring concepts), associations, substitutes and opposites (Condren, 1994: 16–17, 61).

I do not enter into this debate here. I totally agree with Condren: Concepts do not exist independently of words. I also agree with Koselleck: A concept is more than a word. The enlargement of an idea's semantics marks its passage from word to concept. Like many words that Koselleck studied, over the centuries the word innovation enlarges its meaning and becomes a concept used to talk of experienced and expected changes. Yet in practice a concept cannot be talked about and defined without using other words, or even contrasting it to other concepts. There is a whole vocabulary of inter-related words to talk about a concept.

Nevertheless, the historian has to start somewhere. In the previous chapters, I have limited the research area to the concept of innovation. The aim is, as Niklas Olsen puts it in his study of Koselleck's work, to trace the fate of a concept that has turned into "a particularly intense level of linguistic condensation", in the present case, a concept that has become a rallying cry and that carries romance and commendatory overtones. "All conflicting social layers and political parties are using [the same basic concept] to communicate their different experiences, interests, and party-political programs" (Olsen, 2012: 182). Yet innovation never stands alone in the analysis. I had to take into consideration the whole vocabulary with which innovation is discussed. For example, from the sixteenth to the nineteenth centuries, continuous references are made to "change".

This chapter studies the vocabulary used to talk of innovation in the twentieth century, and compares the vocabulary of the previous centuries. The *first and second episteme*, as I have defined in the Introduction, span from the Reformation to the nineteenth century, a period when innovation was most unwelcome. I have delimited this *period* with two moments, from the widespread use of innovation as a concept (seventeenth century) to the critique of the then current representation (nineteenth century). The vocabulary of this period consists of four words: change, reformation, revolution and innovation. The *third episteme* is that of the twentieth century, precisely when innovation changes meaning and acquires its *lettres de noblesse*. The vocabulary of the modern *episteme* also consists of four words—imitation, invention, action and creativity—that I study through the theorists' definitions of innovation.

Some of these words act as counter-concepts to innovation (e.g., reformation, imitation) and others as basic concepts (e.g., action). Still others are contested (e.g., invention), on the periphery or not theorized about (e.g., creativity).

The chapter is divided into three parts, the first two devoted to and comparing the vocabulary of the epistemes. The third part asks whether and to what extent theoretical definitions of the twentieth century have resolved the debates of the previous centuries as to what innovation is. The chapter documents a far more comprehensive view of innovation than that offered in the literature, particularly “innovation studies”, whose self-referencing “history” of the idea of innovation—which contains little study of primary sources but rests on venerated texts, as religion does, because it needs to demonstrate that it descends without interruption from some founding fathers—gets repeated again and again, like a myth. This legend of the late twentieth century is totally at odds with the diversity of meanings of the previous decades, even centuries. The few historical thoughts on theories of innovation—mostly banal references to history—neglect many writers and their contributions to the development of the idea of innovation. Theorists forget that they recapitulate older views and do not invent from scratch. They draw upon and are influenced by numerous analyses conducted before them. They repeat these views, work upon them and draw them together into a single representation.

INNOVATION: “ANYTHING THAT [THE NATION] HAS NOT BEEN USED TO”¹

Every language has its own word for innovation, or novelty of a certain kind: *kainotomia* to the Ancient Greeks, *novitas* to the Romans, *novatio* to Latin writers and those in pre-revolutionary France and Scotland, innovation in England. What innovation means may be defined explicitly, for example in dictionaries. One also expects definitions in theoretical works. However, theories of innovation do not exist before the twentieth century—although some, like Machiavelli and Bacon, offered some conceptual thoughts or a vision. There is no writer, no theory and no philosophy of innovation. One has to look at official documents (e.g., royal proclamations) and everyday discourses (e.g., sermons, pamphlets, etc.) to study what innovation means. In such documents, innovation is more often than not talked of in terms of contrasts to something else or in terms of synonyms.

When, in the late sixteenth and early seventeenth centuries people started using innovation in everyday discourse, they talked of it in terms of associations (e.g., heresy) and epithets (e.g., dangerous). Innovation belongs to a semantic field and a hierarchy of words used to talk about novelty, from the most neutral to the most subversive. There is a hierarchical semantic

construction or “ordering of significance” of words, to use Michael Freedén’s phrase (Freedén, 2011):

Change
Reformation
Innovation
Revolution

Before the nineteenth century, change and reform(ation) are accepted to a certain extent, provided they do not disturb the established order and are gradual. Yet the two words, particularly reformation, are often used to talk of innovation without using or to avoid using the word.² In this sense, reformation is innovation in disguise. In contrast, innovation and revolution are rejected by many as being subversive of the established order.

Change

The issue that concerns everyone who talks of innovation is change. “Were there not that DESIRE OF NOVELTY and SPIRIT OF CHANGING in the world”, states Hester Lynch Piozzi in his *British Synonymy*, an attempt at regulating the choice of words in familiar conversation, “fewer INNOVATIONS would perplex mankind, and fewer misfortunes distress them” (Piozzi, 1794: 313). The basic question is whether change is natural or human, gradual or radical.

Innovation is one of those words that admits of both concrete (substantive: novelty) and an abstract (verb: introducing something new) meanings, both end and means. However, dictionaries usually stress the verb form. As Samuel Johnson put it in his dictionary, innovation is “introducing novelty” (Johnson, 1755). The verb form points to the one who innovates—the innovator—as the agent requiring control. One had to wait until the nineteenth century for a definition of innovation as substantive in dictionaries, as in the *Dictionnaire de la langue française* from Émile Littré (1872–77): Innovation is defined as both “action d’innover [the act of innovating]” and “résultat de cette action [the result of this action]”.

Seventeenth- and eighteenth-century English dictionaries define innovation as changing the old *and/or* introducing something new in its place.³ To a certain extent, changing stresses the past: Innovation is change of “old customs” or “old fashions” (Phillips, 1658; Blount, 1661; Coles, 1677; Kersey, 1702, 1708; Manson, 1762). Making new has connotations of the future: Innovation is “bringing in of new opinions” or “new customs” (Phillips, 1658; Coles, 1677; Mieke, 1677; Manson, 1762), something “not known before”, “unknown to former times” (Johnson, 1755; Fenning, 1763; Sheridan, 1780), “not practiced before” (Rider, 1759; Fenning, 1763). However, from the mid-eighteenth century onward, making new is stressed rather than custom, and the key definition is “introduction of novelty”, a definition

suggested by Samuel Johnson, among others, and used in every later definition of innovation—up to today:

Innovation

A making new, also a bringing in of new customs or opinions.
(Phillips, 1658)

A bringing up of new customs, opinions, etc.
(Coles, 1677)

Change or alteration.
(Miege, 1677)

A bringing in of new customs or opinions
(Kersey, 1708)

Change by the introduction of novelty
(Johnson, 1755)

Change arising from the introduction of something unknown, or not practised before.
(Manson, 1762; Fenning, 1763)

Change by the introduction of novelties.
(Sheridan, 1780)

Innovate

To make new or become new, to renew or change his old fashions.
(Blount, 1661)

To make new or become new.
(Coles, 1677)

To bring up new customs, to cause a change.
(Miege, 1677)

To bring up new customs instead of old ones.
(Kersey, 1702)

Laying aside old customs and bringing up new ones [one's own].
(Kersey, 1708)

To bring in something not known before.
(Johnson, 1755; Fenning, 1763; Sheridan, 1780)

To bring in new opinions, customs.

(Manson, 1762)

French dictionaries carry the same definition but with more qualifications. Very often, change to the religious order (Furetière, 1690; *Dictionnaire de l'Académie française*, 1694; Féraud, 1787) and to the political order (Richelet, 1680; Furetière, 1690) are stressed because they are considered “important” matters (Puget, 1773) or “existing for a long time” (Furetière, 1690). Often these qualifications are made with regard to the verb innovate or to the innovator or *novateur*⁴—as the “cause” or agent of innovation, as some English dictionaries put it (Miege, 1677; Coles, 1677):

Innovation

Innovation [one 'n' only]: chose nouvelle qu'on veut introduire dans un état [new thing one wishes to introduce into a state].

(Richelet, 1680)

Innovation: changement d'une coutume, d'une chose établie depuis longtemps. En bonne politique, toutes les innovations sont dangereuses. Les innovations en matière de religion aboutissent à des schismes, à des guerres civiles . . . Pour vivre en paix, il ne faut rien innover, ni dans l'état ni dans la Religion [changing of a custom, of a thing established for a long time. In good politics, all innovations are dangerous. Innovations with regard to religion lead to schisms, to civil wars . . . To live in pace, we must innovate in nothing, neither in the state nor in Religion].

(Furetière, 1690).

Innovator

Novateur: celui qui introduit quelque nouveauté, quelque dogme contraire aux sentiments & à la pratique de l'Église [he who introduces some novelty, some dogma contrary to the feelings & the practice of the Church]. (*Dictionnaire de l'Académie française*, 1694). Les novateurs sont dangereux. Il se dit quelquefois De ceux qui veulent innover dans quelque matière que ce soit [Innovators are dangerous. It is said sometimes of those who wish to innovate in any matter whatever].

(*Dictionnaire de l'Académie française*, 1762 edition).

Novateur: celui qui entreprend des choses nouvelles dans des matières importantes telles que la religion, la politique, la jurisprudence . . . Toute innovation qui attaque les principes est destructive [he who undertakes new things in important matters like religion, politics, jurisprudence . . . Any innovation that attacks principles is destructive].

(*Dictionnaire des notions primitives*, 1773).

Novateur: celui qui innove. Longtemps on en l'a dit qu'en matière de religion [he who innovates. For a long time we said it only in matters of religion].

(Féraud, 1787)

That evaluative connotations appear in encyclopaedias⁵ and critical dictionaries⁶ is expected, being similar to England where political and law dictionaries refer, for example, to non-neutral or contextualized senses.⁷ Yet, that such connotations define innovation in standard dictionaries is unexpected to a modern. To Richelet and some others, innovation is “dangerous” (Richelet, 1680; Furetière, 1690; *Dictionnaire de l'Académie française*, 1762). French dictionaries of the nineteenth century also stress the founding of novelty or character of the innovator: “Changer par esprit de nouveauté [Change by a spirit of novelty]” (Littré, 1872–77) “qui cherche à innover [those who seek to innovate]” (Larousse, 1867).

How do we explain these connotations? I have already offered an explanation. When people started using the word innovation widely in the seventeenth century, it was in the context of discussing “important” matters: religious and political changes. Innovation serves the argument of the opponents to change. Authors of dictionaries hold the same representation, even denying innovating themselves. “To many words”, states Thomas Blount, “I have added the Authors’ names, that I might not be thought to be the Innovator of them” (Blount, 1661).

Innovation is a word used to talk of and/or name change in a pejorative way, as Bentham noted—change that is human-made rather than natural or from God, a radical or revolutionary change rather than gradual, a subversive change, a religious and political change. To be sure, change is generic—neutral, as Bentham suggests—and change is everywhere.⁸ However, it is another matter when change comes from humankind. For this purpose, *alteration* is a synonym used frequently to blame the one who changes things or who innovates. Innovation and/or alteration frequently appear together in the same expression or sentence.

Reformation

Dictionaries do not tell the whole story. A basic word in the semantic field of innovation is reformation. Since the Greek Fathers, reformation has had a positive and definite religious connotation (Ladner, 1959). It shares the place with a whole vocabulary concerned with “renewing the soul” of man by divine redemption or conversion toward God: renewal, regeneration, rebirth, restoration, redemption, resurrection, amelioration, transformation, conversion, purification, perfection. According to Gerhart Ladner, with Gregory VII, reformation came to be used not only for individuals but for organizations too (the Church). In both cases, reformation is a call back to origins, a return to purity. As Ladner puts it, *reformatio* is newness in

the sense of betterment, a new condition (a return to original perfection, a renewal) not in the sense of novelty (Ladner, 1959: 41–48).

Reformation acts as a counter-concept to innovation in the sense that it is change of a moderate nature. Reformation (and the like) is change for the better, a perfecting. “To innovate is not to reform”, as Edmund Burke puts it. A reform does not alter the substance or the principles of a thing (as innovation does) but remedies its deficiencies. A reform is gradual and conservative.⁹ Such is King Charles’s keyword in his posthumous *Eikón Basiliké* (Charles, 1648). This whole discourse is one of moderation and reformation. As “prudent reformer”, King Charles talks of “moderate desires of due reformation . . . as might still preserve the foundations and essentials of government . . . not shake and quite overthrow either of them”. To Charles, his opponents’ demands are “innovations masked under the name of reformation”. Charles is not alone. The contrast continues in the following centuries. “Dans le but de procurer à la France tout le lustre qu’elle mérite [In order to procure for France all of the lustre it deserves]”, suggests Louis Henri Duchesne de Voiron, Assemblée des notables, “il n’est question que de corriger les abus qui existent . . . [C]e n’est pas par des innovations qu’on rétablira l’ordre, mais en mettant de l’ordre dans l’Administration [it is simply a question of correcting the abuses that exist . . . It is not by innovations that we shall re-establish order, but by putting order into the Administration]”; (Duchesne, 1788: 1). And as Auguste, bishop and prince of Spire (Alsace), put it in a declaration against innovations at the French Assemblée *prétendument nationale*: Alsatians have always “demandé la réforme de quelques abus, mais non le renversement de l’ordre hiérarchique; ils ont respecté la forme du gouvernement, que Jesus-Christ a lui-même instituée, & que les Apôtres ont transmis jusqu’à Nous [demanded the reform of whatever abuse, but not a reversal of the hierarchical order; they have respected the form of government, which was instituted by Jesus Christ himself, & which the Apostles have transmitted to Us]” (August, 1791: 11).

Auguste Comte thought similarly. The sociologist uses innovation in a positive sense in several of his writings. Yet Comte is aware of the pejorative connotation of innovation. One needs, suggests Comte, to minimize his innovation and to erect or establish one’s own innovation as a “retour nécessaire vers l’ordre primitif [necessary return toward the original order]” because of resistances to innovation (Comte, 1851, vol. 2: 428). In fact, Comte’s own system on the organization of the sciences is explicitly presented as a “réforme nécessaire [necessary reform]” rather than a “véritable innovation [true innovation]” (Comte, 1851, vol. 1: 473).

One recurrent strategy, as in Burke, is contrasting innovation to reform. Many titles of the time express a distinction between reform and innovation: John Symmons’ *Reform without Innovation* on a proposal for a “simple measure [on Members of Parliament having immunity in credit matters], without any innovation on, or substantial alteration of, the existing laws” (Symmons, 1810: 17); Robert Lee’s defence of his changes to public worship

in *Reform not Innovation*: “Innovation in this present instance is Reform” (Lee, 1867b: 6). Such was also the case with “social innovation” (socialism) as we have already seen, as well as with progress: *Progress—Not Innovation* is the title of an editorial in an American magazine of the mid-eighteenth century (The Golden Rule, 1848).

To many English political and social reformers, (Church) Reformation is a model to which innovation is regularly contrasted. Yet reformation also has many detractors—above all the Catholics, who use it as a synonym for innovation, both words occurring together in the same phrase. In fact, one may read in a work on the ‘secret’ history of the University of Oxford, “There is not a word in the *English* language, which has more envy and ill-will attending it, than *reformation* . . . I never heard of any *reformation* . . . but what was strenuously opposed . . . The best men, and the best things in the world have, most of them, nicknames fix’d upon them, to render them odious or ridiculous” (Newton, 1726: 23).

Revolution

Like reformation, revolution constitutes a basic concept of the semantic field of innovation from the seventeenth to the nineteenth centuries—and even later. While reformation is moderate change, revolution is radical change.

Revolution is a concept that has been much studied, particularly its origins in science (Cohen, 1985) and its transfer to the political arena (Koselleck, 1969; Baker, 1988; Ozouf, 1989; Reichardt, 1997). I have stressed many times that revolution entered the vocabulary of innovation—and vice versa. This occurred after the French Revolution of 1789. Revolution gave to innovation a political connotation—or rather gave innovation back its political connotation because innovation already had such a connotation to the Ancient Greek philosophers. For centuries, innovation was talked of in terms of revolution. From the very early thoughts on innovation by Plato and Aristotle until the twentieth century, innovation is subversive. In fact, the vocabulary of innovation is contaminated by that of revolution (and the reverse), with similar synonyms (change and others), epithets (sudden and others) and imputation of (bad) motives to the innovator (design and others).

The association between revolution and innovation has made of innovation a sudden and violent affair. Revolution is an overall or total change, often with a violent overtone. Such a pejorative association is again essentially that of critics of innovation: “[T]he revolution was the work of innovation”, claims an anonymous writer on the danger of innovation to a government (Anonymous, 1817: 29). On the eve of the French Revolution, many critics started associating revolution and innovation. The analogy with or association between innovation and revolution abounds in the literature of the time, like that of Abbé Dillon (see Chapter 8). Thomas Reid also made explicit references to revolution: “The change made at the Revolution

in 1688 was violent indeed, but necessary . . . Since that time, we have had no Revolution but such gradual and peaceable changes, by new laws" (Reid, 1796: 14–15). The association continues during the nineteenth century. Revolution is innovation, and innovation is revolution (Anonymous, 1817: 27; Cooper, 1866: 32).

In many respects, the semantics of revolution is similar to that of innovation, and the connotation of revolution changed to positive at the same time as that of innovation did, from political rupture and *coup d'état* to social progress and liberation (Koselleck, 1969; Baker, 1988; Lusebrink and Reichardt, 1988; Ozouf, 1989; Reichardt, 1997): "The discrepancy between the traditional and the modern conception of 'revolution', and the change from the one to the other resemble the alterations in the usage of numerous other terms which, taken together, form the semantic transformation to the modern world" (Dippel, 1976: 116): originality (Mortier, 1982), curiosity (Daston, 1995; Kenny, 1998; Harrison, 2001), imagination (Engell, 1981) and . . . innovation.¹⁰ Like innovation, these words got rehabilitated gradually over the nineteenth century, some because of aesthetics or intellectual curiosity (originality) and others because of utility.

What distinguishes revolution and innovation is that revolution (like reformation) is collective, so it is believed or expected, and innovation is individual. A revolution is experienced as a result (historical) (Goulemot, 1967: 433f; Baker, 1988: 43; Ozouf, 1989: 811). It is the affair of groups, generations and whole nations. In contrast, innovation is the affair of, or comes from, an individual. It is a private liberty.

Innovation

Innovation, I have mentioned repeatedly, started being used widely (and pejoratively) after the Reformation in the context of religious debates, and then in political controversies on Republicanism. Before that date, innovation also had a political connotation (to the Greeks) but a positive connotation as well, as renewal in spiritual and in legal matters. Christianity innovated here with a representation of *innovo* as (spiritual) renewing. This positive connotation or usage continued for centuries, then changed to negative with the Reformation.

Innovation entered the late sixteenth–early seventeenth centuries' everyday vocabulary through two routes, first as a prohibition. Edward VI's proclamation against innovation was the first such royal decree in Western countries. Such an admonition not to innovate is regularly recalled by writers in the following century to support their own cases (ecclesiastics, Royalists, pamphleteers, natural philosophers like Bacon). Edward's proclamation was followed by conferences of bishops, sermons, visitations and discourses of clerics. The second route is criticism of the papacy in 1640s England. Citizens were invited to send petitions to the Parliament, which they did by the dozen.

As contrasted to reformation (and/or reform), which is ‘conservative’ or moderate change, innovation is radical change.¹¹ “Reformation certainly is nearly connected with innovation”, states Burke, but “where the latter comes in for too large a share, those who undertake to improve their country may risque their own safety” (Burke, 1791: 225–26). Innovation “requires some radical spirit” (Anonymous, 1844).¹² It is here that *novelty* acquires its full sense. Innovation brings about something entirely new (or considered entirely new), regardless of the consequences, while reformation changes only some aspects of things or brings about novelty in a gradual way.

What does innovation mean?¹³ The study of usages in the previous chapters reveals that innovation is “a change in the long-established order of things by the introduction of novelty, however trifling or inconsequential that innovation may at first appear” (Anonymous, 1817: 15–16). Innovation is introducing change in religion and in political power or the monarchy. In religious matters particularly, the controversy on innovation continued well into the late nineteenth century. Many church ministers exhort their disciples not to fall into innovation (Ackland, 1798; Fly, 1798; Symmons, 1810). Others deny that they innovate (Lee, 1867a; 1867b) or that the church innovates (Littledale, 1868).

The rhetoric of innovation up to the nineteenth century is a language game using the preceding four words: change, reformation, revolution, innovation. One recurrent strategy, as in Burke, is making contrasts to reform. Another strategy is making analogies to or associations with revolution, in a negative sense. A third strategy is denying innovating, using words like restoration and renewal instead. Innovation as restoration or return is a much repeated defence from those accused of innovation. As Pierre Bayle put it in his *Dictionnaire historique et critique* (1820): The innovators “se vantent toujours d’être les imitateurs des anciens [always assert that they do nothing but in imitation of the ancients]”.

As Erwin Panofsky suggests, the men of the Renaissance were convinced that the period in which they lived was a “new age”. However, writers drew on theology, precedents and existing institutions and norms to justify the changes.¹⁴ Using traditional language is precisely what Bacon does concerning his very innovative enterprise: a new scientific method. Bacon uses traditional and biblical language—*instauratio* (in Latin it means both restoration and new beginning)¹⁵—to advance his cause. Innovation is too radical. *Instauratio* (and *regeneratio*) means rebuild, not in the sense of innovate, but in the sense of replace, build a new building, new *fundamenta* (foundations) (Whitney, 1986: 23–54, 91, 95–98). *Instauratio* fuses the idea of revolution (discontinuity) with the ideology of reform (change). Bacon’s new learning (and method of discovery) is re-edification: a continuation of ancient learning towards something new (a new basis for hope and progress). Bacon offers a “moderate approach to innovation” (Whitney, 1986: 56). On innovation he argues for gradualism.

Yet other words are used as synonyms for innovation whose function is to stress precisely the revolutionary character of the enterprise or the change to come in a positive way, such as renovation. "The principle of government", states Joel Barlow, American politician, friend of Thomas Paine and advocate of the Revolution, "must be completely changed; and the consequence of this will be . . . a total renovation in society" (Barlow, 1792: 90). Similarly, at the very beginning of *The Spirit of the Age* (1831), John Stuart Mill suggests that "our own country . . . shall be renovated . . . Society demands, and anticipates, not merely a new machine, but a machine constructed in another manner" (Mill, 1831). Although renovation has an etymological root similar to reformation (the syllable *re*: return, going back to the past or the true or the original) and had a religious connotation for centuries (renewal of the soul), it is used in the sense of (revolutionary) innovation. Renovation is a radical innovation.

Frequent uses are made of other terms too. Invention and imagination (fancy) are legion among the critics of innovation. While discussing the state of government and the Commonwealth and the schisms and divisions that ensued in the Church, King Charles claims his intention to "tie and restrain all Opinions that nothing might be left for private Fancies and Innovations" (England and Wales. Sovereign. Charles, 1628). Before the eighteenth century, invention and imagination were essentially contested and had nothing to do with creativity. To be sure, invention and imagination are everywhere, in science for example, where titles emphasize the 'new' but not innovation: reformation yes, innovation no! During the quarrel between the Ancients and the Moderns, no Modern made use of the term innovation. When "men of science" from the seventeenth to the nineteenth centuries use innovation, it is in the political sense, not in the sense of originality or creativity.

From this vocabulary, every country has its preferred word: reformation in England, revolution in France. The twentieth century elected innovation. What distinguishes innovation above all from other words is a focus on the source or origin of innovation. Writers focus on the innovator. The stress placed on the verb form and the one who innovates is witness to this fact. The innovator is a non-conformist, or rather a deviant.

INNOVATION: "A SOCIALLY VALUED DEPARTURE FROM PAST PRACTICE OR THOUGHT"¹⁶

The preceding image of innovation lasted until the nineteenth century. If one turns to the twentieth century, one gets a totally different representation. "Innovation is the development of new ideas into marketable products and processes", states Paul Stoneman in the *Handbook of the Economics of Innovation and Technological Change* (Stoneman, 1995: 2). Another handbook carries the same representation: "Innovation is the first attempt to carry [invention] into practice . . . It occurs mostly in firms" (Fagerberg et al., 2005:

4–5). These definitions sum up to industrial innovation or “technological innovation”, a phrase that appears after World War II. They stress the market, the firm and new goods. They also highlight originality (‘first’) and make a contrast to invention: Innovation is a new idea or invention made *practical*.

The transition period from one vocabulary of innovation to another occurred gradually starting in the early nineteenth century. “Economic, social, and environmental alterations over the short and the medium term were sufficiently commonplace [for a couple of centuries], and occurred with such increasing frequency, that it was very difficult to escape an awareness of mutability” (Woolf, 2003: 43). What must be stressed here is the consciousness or *perception* of change (Koselleck, 1969; 1977). Whatever the extent of the changes, “it is the image rather than reality that allows us more clearly to understand the changes” (Rabb, 1975: 90). “Everything . . . [i]s conceived in terms of change and upheaval” (Koselleck, 1969: 48), and “change itself becomes the great theme of history” (Koselleck, 1972: 80). In such a context, innovation is positive because it is instrumental to political, social and material progress. Revolution is innovation in a positive sense, and innovation is revolution (Laurent, 1879; Aumond and Gouriet, 1834).¹⁷ Others start to critique the then pejorative representation of innovation, above all Bentham, pointing to the forgotten etymology of the word. From the twentieth century onward, a totally new representation of innovation develops:

- Innovation is no longer seen as subversive to the social order, but simply opposed to traditional ways of doing things. While sociologists of the early twentieth century still define innovation as negative,¹⁸ the representation changes completely in a few decades.¹⁹ The deviant (anti-innovator) is now the conservative.²⁰
- Innovators are no longer heretics. They are simply different from the masses or from their fellows. They may be deviants but in a sociological sense: an original, a marginal, a nonconformist, unorthodox.²¹
- Innovators are ingenious and creative. They are experimenters, entrepreneurs, leaders; they are the agents of change.

To many writers, stress is still placed on the individual, but non-conformity becomes difference or originality.²² To the sociologist, the innovator is the *first* adopter of a new idea, behaviour or thing (versus laggards). To the economist, innovation is the *first* commercialization of an invention (versus imitators). However, to many twentieth-century writers, innovation is the affair of organizations (firms) rather than of individuals, the affair of whole nations too.

Innovation started to be studied theoretically in the late nineteenth–early twentieth century. To be sure, there exist some (very few) conceptual thoughts before that date. Yet theories proper start with Gabriel Tarde (1890), Joseph Schumpeter (1934), Rupert W. Maclaurin (1949), Homer G. Barnett (1953), Everett M. Rogers (1962) and many others in their own

specialties: Charles Carter and Bruce Williams (1957, 1958), Tom Burns and George Stalker (1961), Matthew Miles (1964), Victor Thompson (1969), Sumner Myers and Donald Marquis (1969), Thomas Robertson (1971), Gerald Zaltman (1973), Christopher Freeman (1974), George W. Downs and Lawrence Mohr (1976). To this list one should add the many contributions of Elihu Katz, Jerald Hage and James Utterback.

The main concepts emerged in the 1940s–50s, with a diversity of approaches. Then publications exploded in the 1960s. Many new contributors also appeared from governments, supported by private consultants and theorists as consultants. Yet by the mid-1970s, the diversity had shifted to a dominant representation—with reference to one, and only one, iconic theorist, Schumpeter: Innovation is technological innovation. This chapter stops at this date. The following decades only added variations to a then emerging dominant representation.²³

These authors make explicit use of the concept of innovation. However, many early theorists deal with innovation without using the word. Such is the case with anthropologists in the early twentieth century and sociologists like William F. Ogburn (Godin, 2010b; Godin, 2014a). Such is still the case in the 1960s among many sociologists, who study the adoption–diffusion of innovation without much using the word innovation. Such is also the case with economists. From the 1930s onward, mainstream economists study what they call “technological change”, a precursor term to technological innovation (Godin, 2010a).²⁴ Again, this is not a semantic issue. Some argue that economists did not study innovation until a late date (Freeman, 1974), a statement that in fact depends on how one defines innovation. Equally, bibliometricians have recently started to map the field of “innovation studies”. They concentrate on the word innovation in counting articles. Not surprisingly, they ignore a whole literature (e.g., sociology).²⁵

An examination of over five hundred definitions of innovation from as many studies published over the twentieth century reveals that the semantic field of innovation in the twentieth century is larger than that of the previous centuries—but at the same time more restricted.²⁶ To be sure, like new, *change* (and to a certain extent alteration) remains a basic concept in the vocabulary of the twentieth century. In his review article “Innovation” in the *Encyclopedia of the Social Sciences* of 1930, Horace Kallen defines innovation as “changes or novelties of rites, techniques, customs, manners and mores” (Kallen, 1930: 48). Every theorist in the following decades agrees. Introducing innovation is the capacity to “undertake and carry through pioneering changes” (Williamson, 1951: 1). It is “effective change”—as contrasted to new knowledge (Drucker, 1957: 24), “a change which involves reorientation of individual value structure” (Bohlen, 1965: 272). To Richard Nelson and Sydney Winter, change is a “natural” definition of innovation (Nelson and Winter, 1974: 894).²⁷ Very often, change is used merely as a synonym for innovation, or a co-word. Organizational change is an example.²⁸ But so is social change,²⁹ a concept criticized long ago for its fuzziness.³⁰ To

some others, innovation is a stage in social change (Boskoff, 1957: 294) or a type of social change (Zaltman, Kotler and Kaufman, 1972). To still others, the words social change and modernization simply shift to innovation (Hill, 1974, 1975; Himmelstrand, 1982; Zapf, 1991). From one factor of (social) change, innovation becomes change (e.g., *Theory into Practice*, 1966; Watson, 1967a). The two are synonymous.

Every field studies change: culture change in anthropology; social change in sociology; organizational change, entrepreneurial change and educational change in management; attitude change in psychology; scientific change in philosophy; political change. In economics, I mentioned already that technological change has been a precursor or substitute term for (technological) innovation since the 1930s, either used interchangeably with innovation—as anthropologists and sociologists do, like Stern (1927, 1937), Ogburn (1936), Wilkening (1956) and Rogers and Beal (1958)—or, increasingly, defined as “substitution of machinery for labor” (Bowden, Lonigan and Murray, 1939) or change in methods of production, generally called change in production functions: “ways in which quantity of product [output] varies if quantity of factors [input] vary” (Schumpeter, 1939: 87).³¹

At the same time, some distinguish change from innovation. To Selwyn Becker and Thomas Whistler, there is a missing distinction in the literature between innovation and change: “[E]very change becomes an innovation simply because it has not been done before by that particular organization . . . Such a definition sterilizes the term innovation” (Becker and Whistler, 1967: 463). To these authors, innovation is first use, and change is the consequence or last stage of a process: invention → innovation → followers or late adopters → changes (in organizations). Ten years later, Becker distinguished change and innovation again. He holds that innovation is a subset of (organizational) change. “Innovation is the adoption of something new; change is the adoption of something different”. In other words, if it is new only to the organization, it is change (Daft and Becker, 1978: 4). In his work on social innovation, political scientist Jean-William Lapierre also distinguishes social change and innovation. Social change is adaptation. It is not innovative: It maintains the existing social structures. By contrast, social innovation changes the whole system. It is revolutionary: It transforms social roles and the social structure and gives rise to new political systems (Lapierre, 1977: 185).

Another word of the previous episteme remains in the vocabulary of the twentieth century: revolution. Innovation is revolutionary change—in a positive sense—or radicalism (Wolfe, 1921; Ogburn, 1936; Ogburn and Nimkoff, 1940). “An innovation is a change which involves reorientation of individual value structure”, as contrasted to “a simple change in materials and equipment” and to “an improved practice” (Bohlen, 1965: 272). Revolution is no longer destructive but is disruptive, even creative (Schumpeter’s “creative destruction”). Even ‘evolutionists’ focus on the revolutionary. To sociologist Colum Gilfillan, the development of

inventions is evolutionary (the combination of many small contributions), but it is “revolutionary” inventions (with an ‘s’) that change civilization (Gilfillan, 1935). Similarly, Joseph Schumpeter contrasts evolutionism (concerned with continuous change and equilibrium) to the “discontinuity” and “revolutionary” character of innovations (Schumpeter, 1934: 62–63). Innovation as revolutionary is a typical theorists’ representation of innovation—in contrast, to lay people, innovation is commonplace, daily and everywhere.³² Most of the time, revolutionary innovation is talked of in terms of ‘major’ or ‘radical’ innovation, and many theorists explicitly emphasize such innovation because of its effects on society—and because of the ease of measurement.³³ Typologies develop that classify change and innovation as to whether they are incremental (“nuts-and-bolts”), radical or systemic (Meierhenry, 1966; Engel, 1968; Marquis, 1969; Gitelman, 1972). Sociologists develop typologies of personality like the “innovational” versus the authoritarian (Hagen, 1962).³⁴

To a certain extent, innovation also continues to bear meaning similar to reformation (Bennett and Mcknight, 1956; Voget, 1957; Fairweather, 1967). A social reform (under different terms: social invention, social experiment, social technology, social innovation) is innovation—conducted using the scientific method (Fairweather, 1967; Fairweather and Tornatzky, 1977; Tornatzky et al., 1980, 1982).³⁵ Yet to others, innovation is different from reform: “[U]nlike reform [innovation] does not aim at curing a defect; it aims at creating something new” (Drucker, 1957: 45). As sociologist Newell Sims puts it: “The reformist attitude desires the maintenance of traditional structure and belief in modified form. It would remodel or renovate existing institutions but not create new ones” (Sims, 1939: 43).

Change, reform and revolution do not tell the whole story. The twentieth century develops its own vocabulary. Four new concepts make their appearance: imitation, invention, ‘action’ and creativity.

Imitation

For centuries, imitation has been a major category in the fine arts (Abrams, 1953). It also remains fundamental to defining innovation in the twentieth century. While the previous centuries make a contrast between innovation and tradition—a contrast that continues in the twentieth century³⁶—imitation becomes *the* counter-concept to innovation. French sociologist Gabriel Tarde’s *Les lois de l’imitation* (1890) is certainly an exception in defining imitation positively in the sense of diffusion (of innovation). He would have some successors among economists in the 1950s–60s (Yale Brozen, Edwin Mansfield). But in general, innovation is “opposed to conservatism and imitation” (Ward, 1903: 246). Imitation is contrasted to innovation, which is originality. A whole vocabulary develops defining innovation as “first introduction” or “first adoption” of an invention. As sociologist Everett Rogers puts it, “Innovators are the first [2.5 per cent] members of a social system to adopt

new ideas” (Rogers, 1969b: 55–56).³⁷ To economists, innovation is “the first regular commercial” application or sale (Maclaurin, 1949: 262; Enos, 1962a: 308). No one put it better than economist Jacob Schmookler: “The first enterprise to make a given technical change is an innovator. Its action is innovation. Another enterprise making the same technical change later is presumably an *imitator*, and its action, *imitation*” (Schmookler, 1966: 2).

One finds many similar views in the literature. To Theodore Levitt, one of the few authors who devoted himself to early conceptual thoughts on what innovation is, “When other competitors in the same industry subsequently copy the innovator, even though it is something new for them, that is not innovation, it is imitation . . . Strictly speaking, innovation occurs only when something is entirely new, having never been done before” (Levitt, 1966: 63). Economist Chris Freeman, a mainstream author on technological innovation, holds the same representation. When discussing firms’ strategies, Freeman limits and contrasts “the traditional strategy [use of invention as] essentially non-innovative, or insofar as it is innovative it is *restricted* [my italics] to the adoption of process innovations, generated elsewhere but available equally to all firms in the industry” (Freeman, 1974: 257). To Freeman and his colleagues, innovation “excludes simple imitation or ‘adoption’ by imitators” (SPRU, 1972: 7).

Definitions of innovation as originality or ‘first’ adoption or ‘first’ commercialization are voluminous.³⁸ Alongside first, the vocabulary is composed of ‘major’ and many other qualifications such as ‘important’ and ‘significant’.³⁹ There is no connotation of creativity (more on creativity to come). For example, to economists, originality refers essentially to market issues: being first to introduce a product on the market, in order to appropriate the whole economic benefit (profits) of an innovation.⁴⁰ Hence the several studies on lags and gaps between nations, or the study of the introduction in other countries of an invention produced commercially elsewhere for the first time (Freeman, 1963). Sociologists are no exception to such a representation of innovation. They have developed typologies contrasting the innovator (the first to adopt an innovation) to the laggard (the late adopter of an innovation) (Rogers, 1962).

In general, innovation is the object of definitions and classifications with regard to two dimensions. Innovations in kind: innovations on things that exist already (improvements) or that are *totally* new. This gave rise to classifications such as tradition versus innovation and the like among sociologists, and incremental versus revolutionary-radical (or minor versus major) among economists. From a class or subcategory,⁴¹ innovation shifted to a category of its own, with subclasses like product/process. The other dimension of innovation is time. Innovation is classified as either original (first introduction/adoption) or imitation.

The imitation-innovation opposition is a theoretical construct. To some others, imitation is innovation: The imitator does something new “instead of doing what he is accustomed to do” (Barnett, 1961: 34). In fact, to most

researchers from sociology, politics and business schools, with the exception of economists (neoclassical or evolutionary), innovation need not be new, in the sense of being first or new to the world. To anthropologists of the early twentieth century, (invention and) innovation build(s) on what already exists. But imitation is not mere copying. It involves invention (adaptations), or re-innovation, as later theorists say (Rice and Rogers, 1980; Rothwell, 1986). To Joseph Schumpeter, innovation “need not necessarily have occurred in the industry under observation, which may only be applying, or benefiting from, an innovation that has occurred in another” (Schumpeter, 1939: 89, fn. 1)—a “lesson” that the students of Schumpeter rapidly forget. Equally, to Charles Carter and Bruce Williams, a firm “may be highly progressive [innovative] without showing much trace of originality [research]. It may simply copy what is done elsewhere. . . . It is nonsense to identify progressiveness with inventiveness” (Carter and Williams, 1958: 108). Some natural scientists have also recently explored imitation as a successful strategy in human cultural evolution as being as successful as, if not more successful than, innovation (Rendell et al., 2010).

Yet few social researchers provide a positive view of imitation,⁴² and even fewer integrate imitation into their theories. Dennis Mueller and John Tilton are among the very few, over the period studied here, who considered imitation not as copy but as variant and made it a step in the process of innovation. To Mueller and Tilton, imitation is one stage of technological growth or development: innovation → imitation → technological competition → standardization (Mueller and Tilton, 1969: 571). Rare are those who, like sociologist Edward Shils, talk in terms of a dialectics between imitation and innovation: Tradition is past innovations, and innovation depends on tradition (Shils, 1981). Yet many theorists study imitation but without acknowledging it, using terms like acculturation, contagion, diffusion, transfer, absorptive capacities.

The debate on imitation is witness to the subjective connotation of innovation. To many, what innovation is depends on the innovating individual or organization. Everett Rogers, an influential author on innovation, as influential as Schumpeter, introduced a definition of innovation that has remained widely used in the literature. Innovation is “an idea perceived as new by an individual” (Rogers, 1962: 13) “or other unit of adoption” (Rogers, 1983: 11). Such a view of innovation existed before Rogers in Theodore Noss, Ernst Mowrer and Margaret Hodgen.⁴³ Many others have produced similar distinctions,⁴⁴ and such distinctions have remained commonplace among theorists,⁴⁵ despite Lyman Ostlund’s argument to the contrary (Ostlund, 1974). The OECD has lately espoused the idea in its manual on methodological standards for surveying innovation—an idea suggested early on: Innovation is production (generation) or use (imitation) (Marquis, 1969). The Oslo manual suggests three levels of novelty: new to the world, new to the market (or country) and new to the firm (OECD, 2005).

Invention

The core of the vocabulary of innovation in the twentieth century is composed of two words: invention and action. On one hand, innovation is contrasted to invention, a basic concept of the previous century (Macleod, 1988, 2007). Like imitation, invention is a counter-concept to innovation—but a basic concept at the same time. To be sure, to many researchers like anthropologists, invention is innovation of a specific kind. Yet to the majority of theorists, innovation is not invention. Invention is mental while innovation is practical. As Schumpeter puts it: “Innovation is possible without anything we should identify as invention and invention does not necessarily induce innovation” (Schumpeter, 1939: 84–85). This is a fundamental contrast included in many theoretical definitions of innovation.⁴⁶ Yet the idea goes back earlier than Schumpeter. “Since the writings of Ogburn (1922) and Linton (1936)”, writes Rogers, “most scholars have made a distinction between invention and innovation. Invention is the process by which a new idea is created or developed, while innovation is the process of adopting an existing idea” (Rogers 1978: 4). But the distinction is older still: innovation need not necessarily be invention, wrote American sociologist Lester Ward in 1903 (Ward, 1903: 243). And a similar distinction older yet: that between discovery and (material) invention.⁴⁷

However, to others the distinction invention-innovation is “not as sharp” (Nelson, Peck and Kalachek, 1967: 95–97). There is a spectrum of activities (Cole, 1949; Goldsmith, 1970), a continuum: “Invention and innovation shade into one another. It is impossible to specify the point at which a new product or process begins to be put in use” (Schon, 1967: 2–3). As a general rule, innovation is equated to applied invention. The large-scale funding of (public) research or research and development (R&D) after World War II—in the name of technological innovation—is certainly a major factor in the semantic association between invention and innovation—as the very popular phrase “science, technology and innovation (STI)” suggests. On one hand, R&D is defined as innovation. As the OECD puts it, “The guiding line to distinguish R. and D. activity from non-research activity is the presence or absence of an element of novelty or innovation. Insofar as the activity follows an established routine pattern it is not R. and D.” (OECD, 1962: 16). On the other hand, R&D (mainly basic research) is postulated as generation of innovation (Maclaurin, 1949; Kuznets, 1959; Pavitt, 1963) or the first step in the process of innovation. Finally, R&D is used as a measurement proxy for innovation in numerous empirical studies.

The idea that innovation is necessarily connected to R&D is so entrenched in the minds of theorists that it explains a controversy on innovation in the late 1960s–early 1970s. In 1967, the US Department of Commerce issued one of the first government studies on innovation (US Department of Commerce, 1967). It documented that R&D is only a very small part of technological innovation costs (10%). Economist Edwin Mansfield, followed

by Humphrey Stead, did not believe the numbers, basing their view on a critique of the methodology (Mansfield et al., 1971: 118–19; Stead, 1976). History proves that the two authors were wrong, but this demonstrates how powerful the view of innovation as R&D is among theorists.

One thing is sure: In the twentieth century, the technological connotation of invention enters into innovation, adding a new and hegemonic word to the semantic field—*technology*. Technology brings to innovation its connotation as industrial and material (Morère, 1966). Technology becomes innovation, and innovation becomes technology. Even to sociologists like Everett Rogers “the adoption of a new idea almost always entails the sale of a new product” (Rogers, 1962: 261). To Elting Morison, historian and founder of MIT’s program on Science-Technology-Society (STS) in 1976, mechanical innovations present for study “a concrete, durable situation” compared to “other innovating reagents—a Manichean heresy, or Marxism, or the views of Sigmund Freud—that can be shoved and hauled out of shape by contending forces or conflicting prejudices. At all times we know exactly what [the innovation] really is” (Morison, 1950: 593). Similarly, every economist concentrates on technology and “exclude[s] social invention” from study (e.g., Kuznets, 1962: 19).

The same happened to invention in Bacon’s time: Invention got ‘technological’. In *The Advancement of Learning*, Bacon distinguishes two kinds of invention: invention in sciences and arts and invention in rhetoric (Bacon, 1605: 219). Up to then, the latter was the common meaning of what invention is: a step to bringing forth good arguments. As Bacon put it, invention “draw[s] forth or call[s] before us that which may be pertinent to the purpose which we take into our consideration” (Bacon, 1605: 223). However, to Bacon such invention “is not properly an invention for to invent is to discover what we know not, and not to recover or resummon that which we already know” (Bacon, 1605: 222–23). It may serve to “direct inquiry” and for “wise interrogating”, yet it is not invention but memory (Bacon, 1605: 224).

To Bacon, real invention is invention relative to science and the useful arts. In fact, Bacon was noticing an increasing use of the term invention in the matter of ‘technological’ or useful arts.⁴⁸ However, this kind of invention is actually “deficient” according to Bacon. It relies on chance rather than on reason and on a form of induction that is “vicious and incompetent”. Bacon’s *Novum Organum* is entirely concerned with this kind of invention and with its division between *experientia literara* and *interpretatio naturae*. In this work, Bacon offers a systematic method for invention in science and arts.

One may ask to what extent Bacon’s view has contributed to the modern representation of invention as technological invention. In the centuries after Bacon, invention meant finding (discovery) as well as making (constructing, fabricating) and was applied, generally with few qualifications, to both activities. Later, a distinction was made between two concepts: Discovery refers to facts or things that already exist out there and that one finds out, while invention combines and makes new things (Seely, 1883; Mason, 1895;

Wyman, 1929; Harrison, 1930a, 1930b; Linton, 1936; Kneale, 1955). Discovery is reserved for science, and invention for the useful arts. Today, to many people, invention relates to technology.

The twentieth century is witness to a similar change in the meaning of innovation, from the general to the technological. Yet in spite of the technological connotation, innovation in the twentieth century is first of all industrial or market innovation (commercialization).

Action

Innovation appropriates a very large vocabulary to talk of the practical (versus the speculative, including invention or basic research). Like revolution, innovation is a meta-concept (Koselleck, 1969) that has the “ability to combine conflicting ideas” and resolve all problems at once (Ozouf, 1989: 817), characterized by linguistic inflation, fuzziness and a large semantic field (Goulemot, 1967; Mailhos, 1968; Saint-Gérard, 1988). Innovation is also like progress—it ties together numerous experiences and encompasses more and more spheres of life (Koselleck, 2002)—and civilization: a synthetic and unifying concept (Bowden, 2011: 30).

Together with invention, action is a concept at the core of the vocabulary of innovation in the twentieth century.⁴⁹ Innovation is *doing*—doing something new (as opposed to the mental).⁵⁰ It requires “energy”, as French sociologist Auguste Comte put it in discussing the opposition, or “fundamental battle . . . between the spirit [or instinct] of conservation and the spirit of improvement”.⁵¹ Sociologists Thorstein Veblen⁵² and Lester Ward⁵³ and economist Schumpeter talk in similar terms (energy).⁵⁴

The vocabulary used to talk of “the act of innovation” (Merton, 1965: 50) is multiple: “putting ideas to work” (Levitt, 1963: 73; Morse and Warner, 1966: 17); practical (“practical use” (Carter and Williams, 1957: 15); “practical form” (US Senate, 1965: 1074); “operational” (Allen, 1967b: 1); “bringing into being” or “into use” (Schon, 1967: 29; Mohr, 1969: 112) an “economic reality” (Bright, 1964: 4); “put into useful form” (Bolz, 1975: 43). This culminates with Richard LaPiere’s statement: An idea is not “socially significant apart from its actual manifestation” (LaPiere, 1965: 197). The concept makes use of the following words and ideas:

- Introduction: Introducing something new to the world. This concept first appeared among anthropologists and sociologists⁵⁵ but is most popular among economists and management.⁵⁶
- Application,⁵⁷ assimilation, transformation, exploitation, translation, implementation: Applying (new) knowledge in a practical context. These concepts stress the source of innovation. Innovation is the application of:
 - Ideas.
 - Inventions.

- Science—in spite of Gilfillan's (1935: 6) and Schumpeter's lesson.⁵⁸ This is a major idea of the twentieth century: Science and innovation form a pair, and many theorists focus on the initiation step of innovation: the generation or R&D.
- Adoption, acceptance, utilization (use), diffusion: Adopting a new behaviour or practice. These concepts are mainly used by sociologists.⁵⁹
- Commercialization: Bringing a new good to the market. Used concurrently with introduction or application, this concept applies to industrial innovation.⁶⁰

In general, these concepts make reference to two key ideas: input, or 'push', on the one side—knowledge or science as the source of innovation—and output, or 'pull', on the other—innovation to meet market demand. These two ideas crystallized into what came to be called "models" (Godin, 2006; Godin and Lane, 2013) and led to the study of innovation as a "process". Herein lies a semantic innovation of the twentieth century, an innovation that has had a major impact on the modern representation of innovation. Until then, innovation was either a substantive (novelty) or a verb (introduction, adoption), an end or a means. Sometimes it was also discussed in terms of a faculty (combination, creativity), an attitude (radicalism) or aptitude (skill) or quality (creativity, originality, departure, difference). In the twentieth century, innovation is a process, a sequential process in time:

Substantive: Novelties (new ideas, behaviours, objects)
 Action: Introducing (or bringing in) something new
 Process: From invention to diffusion (commercialization)

The nuance between innovation as a verb and innovation as a process is not as clear-cut as it might appear at first sight. This is not unlike innovation as substantive or verb. In fact, innovation is a word that admits of two meanings: action (introduction of a novelty) and result/outcome (the novelty itself), a fact noted by some theorists (Parks, 1959; Siegel, 1962, Chakrabarti, 1973; Hildred and Bengston, 1974; Osborne, 1998; Hellstrom, 2004). For example, sociologists use innovation as a substantive but focus on the verb (diffusion). Similarly, economists stress the verb as a process in time. Be that as it may, innovation as a process contributed to giving the concept of innovation a very large function: Innovation encompasses *every* dimension of an invention, from generation to diffusion.

Economic historian Abbott P. Usher was one of the firsts, together with political scientist Karl Deutsch (1949) and anthropologist Homer Barnett (1953), to offer a view of innovation as a (mental) process, which "consists in the assimilation of particular data into a [deliberate] pattern previously recognized as incomplete" (Usher, 1929: 13). To Usher, this process is composed of the following steps: elaboration of the concept → primary synthesis

→ critical revision. Over time, innovation as a process, composed of sequential steps or stages (like the life cycle), took many forms, of which three are dominant. Economic historian William Rupert Maclaurin and his colleagues from MIT (George Baldwin, Arthur Bright and Yale Brozen) deserve mention here, as the first theorists on (technological) innovation as a process (Godin, 2008).⁶¹ One form—of which anthropologists in the early twentieth century were precursors (Godin, 2014a) and on which Victor Thomson, together with James Utterback, provides an influential terminology,⁶² and whose root goes back to Sumner Myers and Donald Marquis (1969),—starts with the generation of an idea and ends with its realization or transformation into reality—most of the time an economic (market) reality.

The innovation process is generally defined and studied as a sequence that includes two, three or four phases, depending on the writer:⁶³

Invention⁶⁴ → innovation⁶⁵ → diffusion⁶⁶

The other form of the sequential process puts the emphasis on a series or “chain” of activities, as Maurice Goldsmith calls it (Goldsmith, 1970), from pure research, to applied research, then development, then production,⁶⁷ or, as Keith Pavitt and William Walker call it, “the technical, industrial and commercial steps” (Pavitt and Walker, 1976). Such sequences gave rise to the highly popular “linear model of innovation”.

Another very influential sequence, at least among sociologists, is Rogers’ sequence of adoption, composed of five stages—awareness → interest → evaluation → trial → adoption (Rogers, 1962)—a sequence from rural sociology first suggested by George Beal and Joe Bohlen in 1955.

Before leaving this section, we should mention two associations or keywords of the modern vocabulary. To every theorist:

- Innovation is advance, or *progress*, in the name of (social) needs to sociologists, of organizational performance to business schools, and of industrial competition to economists. Yet in general, progress does not define innovation explicitly (but see McVoy, 1940; Gray, 1974: 693).
- *Entrepreneurs* are emblematic figures in many theories of innovation. They are contrasted to managers and to routine (Schumpeter, 1934; 1939)—a contested idea (Cole, 1949; Ruttan, 1959; Chandler and Redlich, 1961).

Combination/Creativity

The fourth basic concept in the vocabulary of innovation in the twentieth century is creativity. While in the previous centuries innovation was subversion, the connotation now shifts to creativity as combination. In fact, combination is a precursor term to innovation, a term that goes back to studies of the imagination in the eighteenth century (Godin, 2014b). Combination

continues to be used in *lieu et place* of innovation in early theories of innovation like Gabriel Tarde's (Tarde, 1890). In his study of social classes, sociologist Vilfredo Pareto uses combination rather than innovation, defining combination as "uniting disparate elements together in a new entity" (Pareto, 1917: 89–90). Schumpeter's main concept in *The Economic Theory of Development* (1926) is also combination—not innovation—combination shifting its characteristics to innovation in the 1934 edition.⁶⁸ Over the twentieth century, innovation is regularly defined as (creative) combination.⁶⁹ The first (or rather unique) theory of innovation as combination ("configuration") comes from anthropologist Homer Barnett (1953).

Innovation as creativity finds a place in several theorists on innovation⁷⁰—and defines R&D too.⁷¹ It is interesting to contrast the definition of the 1972 edition of the *International Encyclopedia of the Social Sciences* to that of 1930. The reference to change shifts to origin(ality): the introduction of a "hitherto unknown element . . . say, for example, a new technical device, a new way of allocating social roles, or a new cultural manifestation" (Hagerstrand, 1972: 174).

Nevertheless, to most theorists of innovation, creativity remains a word, a sleeping concept. It is not theorized about, at least not in "innovation studies" and in contrast to the literature on invention where creativity is treated more felicitously for decades. Creativity is taken for granted. With few exceptions (Barnett, 1953), creativity has no connotation of the mental act of creating or inventing something new.⁷² To be sure, innovation is regularly talked of in terms of originality, in the sense of origin in time (first). But most of the time creativity refers to the outcome/result (something different, original)⁷³ of a creative act that remains mysterious, or it frequently refers to the market: combining factors of (industrial) production or activities.⁷⁴ In general, creativity ends up as a synonym for change or novelty (Barnett, 1953) or innovation⁷⁵ or as a metaphor (Schumpeter's "creative destruction"). At best, creativity is creation in the sense of making new (LaPiere, 1965: 197–98): generating, originating things judged great by the analyst.

INNOVATION: "NO ADEQUATE GENERAL DEFINITION WHICH OFFERS COMMON GROUND"⁷⁶

In spite of the theories, linguistic and semantic issues remain important in the twentieth century. A new concept, or a concept whose meaning is changing, faces contrasting points of view. Over the twentieth century, many talk of innovation but make no use of or refuse to use the word. This is the case with anthropologists, whose main concepts are invention and diffusion and with sociologists, who use adoption and diffusion.⁷⁷ Change remains a central concept too (social change, organizational change, technological change). Innovation is part of a cluster of words used in the same text, and poorly defined (Tarde, 1890; Stern, 1927, 1937; Noss, 1944; Deutsch, 1949;

Posner, 1961; Edwin Mansfield in the early 1960s), and many words are used interchangeably with innovation, sometimes explicitly.⁷⁸ In fact, the absence of explicit definitions in theoretical works is a recurrent pattern, as in the previous centuries.

In contrast, one finds many different definitions in the same document (Schumpeter, 1939; Enos, 1962a) or multiple meanings of the concept by the same author (Posner, 1961; Mansfield, 1961). Theorists merely appropriate a new popular term: Innovation is used in titles, but not inside texts (e.g., Hunter, 1955; Baum et al., 1957); innovation is the object of relabeling previous concepts: combination (Schumpeter, 1912 versus 1934), induced invention (Brown, 1946; Fellner, 1961), change (Ogburn and Nimkoff, 1940 versus Ogburn and Nimkoff, 1964), technological change (MacLaurin: 1947 versus 1949; Robinson, 1938 versus 1952). Innovation functions as a “portmanteau”, as Richard Nelson and Sydney Winter define the concept (Nelson and Winter, 1977: 36), or a “packaging”, as *Nature* put it in 1979: [I]nnovation “provides a central theme around which otherwise disparate activities can be arranged” (*Nature*, 1979: 119).

Yet some concepts have become basic to innovation and remain so in the twenty-first century. In fact, recent theories merely recapitulate the older views, using a different vocabulary. The epistemes studied in this book share a central characteristic. Innovation is intentional. Such was the case with the Reformation. When people portray innovation as “private opinion”, they stress the intentional character of the individual or innovator, in the sense that the innovator voluntarily opposes the social order. Authors of dictionaries think similarly. For example, a law dictionary declares that “precedents [are the] best and safest Rule to Walk by, because they are generally not only the Opinion of the Makers” (Jacob, 1743, 1797). Over the twentieth century, innovation was also studied as an intentional or purposive affair: Initiative,⁷⁹ deliberate⁸⁰ and motivation⁸¹ are key terms, as well as planned change, directed change and managed change. However, the innovator is now a genius, an original, an eccentric, and innovation is said to come mainly from outsiders (Gilfillan, 1935: 89–91): the young and the poor (a statement already found in Plato, Aristotle, Machiavelli, Bacon and Comte), the dissatisfied and maladjusted (Barnett, 1953), the frustrated (a statement already found in William Ogburn, Abbott Usher and Joseph Rossman), the low social status class (Linton, 1936: 344–45) and the deviants (Rogers, 1962: Chap. 7; see also his tradition-modernity norms: 59).⁸² Yet, to modern writers, innovation is organizational, social and national too, because it is progressive.⁸³ Still, innovation is intentional or purposive in the sense that it can be planned.

Despite the theoretical definitions of innovation in the twentieth century, theorists have not settled the old controversies on what innovation is. To a certain extent, they have settled one debate: the controversial nature of innovation. Theorists stress the successful and minimize failures.⁸⁴ Innovation is praised everywhere: “researchers have implicitly assumed that to adopt

innovations is desirable behaviour [rational] and to reject innovations is less desirable [irrational]" (Rogers, 1962: 142), a situation that has not always been so. For example, the publication explosion of the 1960s–70s produced many conceptual analyses, including critical thoughts on Schumpeter.⁸⁵ Today, such discussions are relatively absent in the literature. Few theorists define their concepts, unlike the economist Simon Kuznets in several of his papers on innovation. Writers distinguish types or classes of innovation but rarely define what innovation is. A theorist brings out his own representation from the start, as handbooks do.⁸⁶

What innovation is differs depending on the author and the discipline. It is both wide and restricted. To anthropologists like Homer Barnett (1953) and Margaret Hodgen (1952), innovation is "any thought, behavior, or thing that is new because it is qualitatively different from existing forms" (Barnett, 1953: 7). Innovation here is more or less a synonym for novelty. To John Gardner, innovation is new ways of thinking and doing: political, social, economic and organizational (Gardner, 1963: 30–31, 68, 75–85). In 1958, the magazine *Scientific American* published a special issue on innovation in science, also defined broadly. Broader definitions are legion in the literature.⁸⁷

To be sure, some definitions of innovation are disciplinary: organizational,⁸⁸ political,⁸⁹ educational,⁹⁰ social⁹¹ . . . and economic. Yet the latter is what some call a "restricted" definition of innovation that has become a spontaneous representation or "common meaning" of innovation: "invention introduced into the market" (Nutter, 1956: 522, fn. 4). However, innovation "is more—much more—than machines" (Enarson, 1960: 496). But few follow anthropologist Homer Barnett, the second theorist of innovation broadly defined (after Gabriel Tarde)—essentially Schumpeter's theory is just ten pages (Schumpeter, 1939)—whose views were regularly cited until the 1970s, using the term innovation as an alternative to the 'popular' and 'restricted' meaning of invention as technological.⁹² Gardner contrasts his broad conception to a "narrow and immature" conception restricted to technology (Gardner, 1963), and Dennis Gabor contrasts his to a "restricted sense", namely "the process that turns an invention through development, pilot manufacture, sales propaganda, etc., into a marketable product" (Gabor, 1970: 10), as do students of social innovation. In fact, writers on both organizational and social innovation start by making a contrast with technological innovation.⁹³ "In general", states Kenneth Warner, "sociologists have studied a far wider range of innovations" than economists (Warner, 1974: 439).

Innovation is at the same time contested and taken for granted. Over the period 1950–75, innovation was regularly contested for the fuzziness of the concept⁹⁴—and remains so today.⁹⁵ As a consequence, some authors suggested abandoning the term.⁹⁶ At the same time, what innovation is has become taken for granted. Several writers talk of technological innovation without the qualifier 'technological' in the phrase, either unthinkingly (more often than not) or deliberately (Battelle, 1973; Freeman, 1974: 18). In fact,

few students of technological innovation name the innovation studied as a technological innovation. Innovation suffices.

Governments, international organizations and consultants have all espoused the technological and market view of innovation.⁹⁷ To a great extent, governments—together with academics as consultants—are at the origin of the current and dominant representation of innovation as technological innovation. Among the many meanings and usages available, governments elected one, the industrial one. Some of the official definitions even became those of the theorists, like that of the first report of the UK Advisory Council for Science and Technology (1968), under Sir Solly Zuckerman, reproduced by researchers at the Science Policy Research Unit (SPRU) (SPRU, 1972; Rothwell and Robertson, 1973; Jervis, 1975; Pavitt and Walker, 1976), and that of the US Department of Commerce (1967) used by researchers in the United States (Goldsmith, 1970; Twiss, 1974).

AN ELUSIVE CONCEPT

The representation of innovation has changed dramatically over the last four centuries. Writers of the seventeenth and eighteenth centuries believed that “[t]he desire of innovation” is that “to which Unquiet and Injudicious Men are commonly enclined” (Madox, 1702: Preface). Innovation was subversive. To repair (reform) is not to destroy (innovate). The theorist of the twentieth century thinks otherwise. Innovation is revolutionary, in a positive sense, and is most welcome—for its contribution to (economic) progress.

Innovation defies definition, like many abstract concepts such as change and development.⁹⁸ No one has yet offered definite answers to the following three questions (first formulated by Robert Buzzell and Robert Nourse, 1967) on what a new product is:

- Innovation to whom? First worldwide, first to a user or first to the market?
- Innovation in what ways (how new)? Radical or incremental?
- Innovation when? Invented or applied?

To some, innovation is simply novelty or change, and it includes invention. This view takes innovation as a substantive. To others, innovation is the introduction of something new. Here, the verb form is stressed. It is using, adopting, applying or commercializing; the theorists exclude invention (inventing) from this definition. To still others, innovation is a meta-concept, a process, from generation to diffusion. Given this large semantic spectrum, a jargon has ample space to develop, which it has.⁹⁹ One writer suggested recently that due to the complexity of innovation but also “the academic desire to either create new words or redefine existing words, . . . the language of innovation suffers from a rich vocabulary” (Linton, 2009: 729).

Right. But the performative stance of many theorists (e.g., national system of innovation; social innovation) explains as much. Where the performative view reigns, there is no place for history, reflexivity and semantic nuances.

The conceptual space of innovation is quite large but at the same time limited. It is large in the sense that innovation is used for everything new, from change to reformation to revolution. What is common to every writer is the idea of change and novelty. Besides this, innovation has no stabilized meaning. Innovation may be originality (an entirely new or different thing, not hitherto existing) or improvement or renewal; it may include imitation (restoration) or not. At the same time, the conceptual space of innovation is limited. It is left to the audience or reader to put a meaning on the term. More often than not, this person has a spontaneous representation of innovation as subversive (as in the past) or technological—the result of an economic ideology to which the theorists have contributed.

This later representation is quite recent. Technological innovation is a phrase that appeared after World War II. Certainly, the term technology existed before that date, as well as technological change, “a modern sounding term” (Watson, 1960: 193). However, in a matter of decades, technological innovation eclipsed other terms and became the canonical representation of innovation and a “national hot topic” (Hahn, 1980: 2).

NOTES

1. Clarendon, 1702: 71.
2. The same is true for many other words, like Republicanism in America before 1776 (Hanson, 1988).
3. By the seventeenth century, renewing appears only occasionally in dictionaries' definitions of innovation (e.g., Blount, 1661; Innovate: to make new or become new, to renew or change his old fashions). This meaning is reserved for translation of Latin words (Cooper, 1578: *Innouo*, *innouas*, *innouare*: to make new, to renew; Baretti, 1760: *innovare*: to innovate, to renew, to make innovations), old French word *novalité*; (Cotgrave, 1611, and Miegé, 1679: *novalité*: innovation, or a renewing) and novation; (Phillips, 1658: *novation*: a renewing, or making new).
4. “Ce mot d'innovateur n'est pas approuvé, on dit novateur [this word innovator is not approved, says one novator]” (Richelet, 1680); “on ne dit pas innovateur: le mot usité est Novateur. Innovateur manque à la langue . . . Novateur ne le supplée pas. Celui-ci ne se dit que des opinions, et pour d'autres objets, il ne peut exprimer le sens de celui qui innove [one does not say innovator: the common word is Novator. Innovator does not exist in the language . . . Novator does not substitute for it. This is said only of opinions, and for other objects, it cannot express the sense of the one who innovates]” (Féraud, 1787)
5. Innovations are “deformities in the political order” (Diderot, 1780).
6. Innovations are “une peste dans les académies et dans les états; il faudrait se contenter de s'opposer aux fondamentales; il y en a qui sont de courte durée, et il y en a qui ne durent pas [a plague in academies and in states; one must content oneself with opposing the fundamentals; there are those of short duration, and there are those that do not last] (Bayle, 1820).

7. "Restoring the British Constitution to its original purity" (Pearson, 1792); "a term applied to every species of improvement, and particularly dreaded by corrupt rulers, as well as by all placemen and pensioners" (Pigott, 1795).
8. The ancient Greek philosopher Protagoras's famous sentence is "All matter is in a state of flux". "All human affairs are ever in a state of flux and cannot stand still", claims Machiavelli in *The Discourses* (I: 6). Bacon wrote similarly in his essay *Of Vicissitude of Things*: "[M]atter is in a perpetual flux".
9. For an analysis of reform as conservative change, see Lienesch (1983) on the American anti-Federalists in the 1780s.
10. For a sample of the vocabulary or terminology used in the literature on progress, see Spadafora (1990); on reform, see Ladner (1959); on revolution, see Goulemot (1996); on technological invention, see Long (2001).
11. "Reform suggests that the existing system is not inherently bad, that it has a potential goodness if acquired or institutional deficiencies are remedied. Radicalism, in its insistence upon root and branch change, must show the whole to be unsoundly based upon false principles" (Davis, 1982: 204). The moderate-radical duality is a commonplace throughout history and a much studied phenomenon. For example, see Israel (2010) on the radical versus moderate Enlightenment.
12. Radicalism is a frequent accusation at the time: "Moderate Reformers . . . who are really radical reformers" (Anonymous, 1817: 4); "the present age . . . [is] prone to a reckless radicalism" (Winslow, 1835: 5).
13. Writers of the time rarely define what innovation is. Some exceptions are: (1) Baston (see Chap. 8); (2) Robert Lee: Innovation is "the introduction of a Ritual" ("One of the elements of a Ritual is its being imposed by authority; another is its fixity and sameness") (Lee, 1867b: 44). (3) Richard Frederik Littledale: Innovation "is the introduction of a new thing, unknown before. If something which is old, and has been worn out by use, or has been stolen, is replaced ["new to us", p. 15], we do not call that replacement Innovation, but Restoration" (Littledale, 1868: 4–5).
14. On the Middle Ages, see Preus (1972) and Smalley (1975); on the Renaissance, see Palonen (2003: 76–77); on Modernity, see Israel (2010: 29). "The situation of the humanists was that of innovating ideologists. They had to face the novelty of their situation but made use of it by appealing to the ancient world as something that was more easily acceptable in their context than openly declaring that they were entering into a new world, for which there were as yet no conceptual tools" (Palonen, 2003: 76–77). "If one wished to attract the support of governments, churchmen, and magistrates in the eighteenth century one had to couch proposals for reform in terms of support for monarchy, for the existing social hierarchy based on privilege, and for the existing moral norms—in other words, propose only slight repairs to the existing edifice" (Israel, 2010: 29).
15. A term used by Augustine and Calvin (and many other writers). See Whitney (1986: 26, 50, 222).
16. Merton (1965: 50).
17. Single or particular innovations are also called revolutionary and the like. On an innovation in chemical process: "[U]ne innovation qui était appelée à produire une révolution [an innovation that was called on to produce a revolution]" (Quesneville, 1842: 1); Other words used are "remarquable [remarkable]" (Delepierre, 1836: 13), "majeure [major]" (Werdet, 1841), "first" (Bertier, 1879) and "original" (Didacus, 1884).
18. Innovators as "obstructionists, non-conformists and social offenders" (Chapin, 1928); innovation as "a departure from institutional norms", "the use of institutionally proscribed norms" (Merton, 1938: 144).

19. Robert Merton's negative connotation of 1938 (see the previous note) shifts to positive in 1965: "a socially valued departure from past practice or thought" (Merton, 1965: 50).
20. "Conservatives are given to predicting that dire results will flow from innovation" (Wolfe, 1923: 212).
21. Innovation is "iconoclast, divergent, revolutionary thinking" (Kuhn, 1959).
22. Over time, originality has had at least three meanings: origin, difference and creativity.
23. To be sure, theories have evolved and the field has enlarged its scope since the 1970s. The diversity of meanings also remains. However, the modern representation of innovation and its basic concepts, including what is qualified today as new concepts (like social innovation), emerged before 1980.
24. In general, technological change is a very loose concept, synonymous with technical "advance" of the economy or society. Innovation is new ideas *and* techniques, while technological change is specifically used for change in new techniques—for example, anthropologists like Mead (1953), Spicer (1952), Foster (1962); sociologists like Everett Rogers (Rogers and Beal, 1958) and Eugene Wilkening (1956). To some others, technological change refers to the *result* or *outcome* of innovation; innovation is the *action* leading to technological change (Marquis, 1969; Gerstenfeld, 1979). To economists, technological change has a specific meaning related to the production function: change of the input/output combination (Godin, 2010a).
25. The main concepts of sociology are adoption–diffusion and new practices, and before there was adaptability (and adaptations and adaptors) in studies of change in education.
26. This sample has been constructed from a study of bibliographies from sociology (Rogers, 1962), management (Zaltman, Duncan and Holbek, 1973), history (Kelly and Kranzberg, 1974) and others (e.g., Tornatzky et al., 1980), and my own knowledge of authors and theoretical works. The list also includes documents from practitioners, like managers and engineers: A representation develops from many sources, not only academics.
27. "Change of existing decision rules" (Nelson and Winter, 1974: 894); "change . . . if there has been no prior experience" (Nelson and Winter, 1977: 48).
28. Sapolsky (1967), Sieber (1968), Aiken and Hage (1971), Gross et al. (1971), Holt (1971), Corwin (1972), Zaltman, Duncan and Holbek (1973), Baldridge and Burnham (1975).
29. Ogburn (1922), Sims (1939), Mowrer (1942), Hagen (1962), LaPiere (1965).
30. "A 'pure' theory of social change, independent of substantive identification of the patterns undergoing transformations [is] uninteresting" (Moore, 1960). Similarly, to Raymond Boudon, "the sociology of social change . . . suffer[s] from a misplaced conception of generality". To Boudon, the general and formal models, frameworks and systems of concepts of theories of social change can be applied to no specific social process (Boudon, 1983).
31. Lange (1943), Goodwin (1946), Brozen (1951), Scoville (1951), Baldwin (1951), Soho (1951), Robinson (1952), Bruton (1956), Fellner (1961), Penn (1958), Hamberg (1959). Schumpeter calls the "setting up of a new production function" a "rigorous definition" of innovation (Schumpeter, 1939: 87).
32. On people's representations of innovation, see: www.nesta.org.uk/publications/innovation-population; <http://vtinnovation.weebly.com/>; http://ec.europa.eu/research/innovation-union/index_en.cfm?pg=videos.
33. "Major changes" of "economic importance" to a firm's growth (Mueller, 1962: 324); "A unique and to a significant degree unprecedented mental construct" (LaPiere, 1965: 197–98). "An innovation (or more precisely a major innovation since we are not concerned with trivial changes) is a 'fundamental'

- change in a 'significant' number of [an organization's] tasks" (Wilson, 1966: 196); the criterion for defining innovation is "a major change in the curriculum" (Carroll, 1967: 532); "radically new", "great economic importance" (Myers, 1967: 1); "innovation represents a *qualitative* and not merely a *quantitative* change" (Wilkening, 1968: 387); "disrupt complex and valued roles, identities and skills" (Taylor, 1970: 70); "grand and relatively rapid changes or revolution" (Zaltman, Kotler and Kaufman, 1972: 3); "the development and implementation of a program or policy which . . . have systemic significance" (Gitelman, 1972: 11); "an innovation may be defined as a change in the basic structure of an organization" (Fainstein and Fainstein, 1972: 513); "the word innovation carries connotations of discontinuity and suddenness" (Bailey, 1973: 9); "significant" (Gordon and Fisher, 1975: 3); covering a large number of people, important (real promise for change) and with long-term potential (Baldrige and Burnham, 1975: 167); "major . . . great importance" (Hayward, Allen and Masterson, 1976: 16); "significant, unprecedented, and qualitative departures" (Downs, 1976: xv); changes, transforms the whole system (Lapierre, 1977: 185); "of economic and social importance" (IIT Research Institute, 1968); "significant (non trivial) departure from previous patterns" (Bernstein, 1975: 86); "non-trivial" (Nelson and Winter, 1977: 48).
34. Other classifications concern types of change and attitudes to change: innovation-conservatism (Veblen, 1899; Graham, 1956); conformity-innovation-ritualism-retreatism-rebellion (Merton, 1938); innovator-rebel-revolutionary (Mowrer, 1942); innovator-laggard (Rogers, 1962); innovator-advocate-adopter (Hagen, 1962).
 35. On the early use of "social invention", see Ogburn (1922), Bernard (1923), Chapin (1928), Weeks (1932), Grazia (1961).
 36. For example, Thomas Kuhn on tradition and innovation (Kuhn, 1959); Robert K. Merton (1938) and Michael Mulkay (1972) on conformity and innovation.
 37. The idea first appeared in Beal and Bohlen (1955) and in Hildebrand and Partenheimer (1958) and then became popular in marketing: Bell (1964), Robertson (1967, 1968), Robertson and Myers (1969), Uhl, Andrus and Poulsen, (1970), Boone (1970).
 38. "First regular commercial broadcasting" (Maclaurin, 1949: 262); innovators are "first to adopt certain practices in the community" (Wilkening, 1952: 272); "first commercial production" of an invention (Freeman, Young and Fuller, 1963: 39); an innovator is a person "who brought the drug into his practice soon after it became available" (Coleman, Katz and Menzel, 1966: 37); innovation is the step "in which the new concept is first introduced into the economy, the society, or into the 'business' of government (Hollomon, 1967: 32); the "first 10 percent" of purchasers of a new product (Robertson, 1968: 330); an invention "applied for the first time" (Mansfield, 1968: 83); used or applied "for the first time" (Aiken and Hage, 1971: 64; Mansfield et al., 1971: 11; also "first to apply"; Utterback, 1974: 621); "first use" (Utterback, 1971b: 78; 1971: 143; Crane, 1972: 18); "first or early use" of an idea (Becker and Whistler, 1967: 463); "first commercial application or production" (Freeman, 1974: 166); "first use or application" (Goldhar, Bragaw and Schwartz, 1976); "earliest or extent of use" (Downs and Mohr, 1979: 385).
 39. See note 33.
 40. Such is the essence of David Teece's much cited article: "Innovating firms often fail to obtain significant economic returns from an innovation while customers, imitators and other industry participants benefit" (Teece, 1986: 285). As a consequence, theories of innovation are concerned with ways of preventing imitation or "keeping imitators/followers at bay" (Teece, 1986: 290); that is, how can firms get the full benefit of their innovation, how the "innovator is to

- avoid handing over the lion's share of the profits to imitators" (Teece, 1986: 292). Teece discusses the "strategies the firm must follow to maximize its share of industry profits relative to imitators and other competitors" (Teece, 1986: 300–01).
41. A type of change or attitude to change; types of adopters: innovators—the first 2.5%—early adopters, early majority, late majority, laggards (Rogers, 1962).
 42. Exceptions are Arthur D. Little (1963), National Planning Association/National Science Foundation (1966), Schon (1967), Myers (1967), Marquis (1969), Myers and Marquis, (1969: 19–20), Mueller and Tilton (1969).
 43. Innovations "are not necessarily new . . . They may already be in existence in some areas of culture and may spread to other areas, or may have been borrowed . . . They may be only a slight modification . . . They are innovations because they are new in some particular situations" (Noss, 1944: 2–3); "may be borrowings from other cultures", recognized "by the group as new" (Mowrer, 1942: 36–37); "technological changes are envisaged as having taken place when a tool, a device, a skill or a technique, however unknown or well-known elsewhere, is adopted by an individual in a particular community and is regarded as new by the members of that community" (Hodgen, 1952: 45).
 44. Fritz Redlich, in an early study of Schumpeter's typologies, distinguishes between primary or genuine innovation versus re-innovation, and between imitation and copy (Redlich, 1951). See also initiative versus imitation (Deutsch, 1949); newness from existing products (radical or incremental); newness in time (introduction to the market); newness in terms of sales level; newness to the customer (subjective perception) (Robertson, 1971).
 45. "An idea that is perceived as new" (Myers, 1966: 300); "new to the firm under study, whether or not it is technologically new to the civilian economy as a whole" (Myers, Olds and Quinn, 1967: II-1); not "the first known use by mankind" (Knight, 1967: 479); "new to the states adopting it, no matter how old the program may be or how many other states may have adopted it" (Walker, 1969: 881); the innovator as the first person to take up a new idea that "may or may not be original in an absolute sense" (Havelock, 1968: 80–81, 1969: 7–13); original (first use) or adopted (imitation) (Myers and Marquis, 1969: 3); "new to an American city"; "need not be first appearance" or first use but "successful implementation" (Aiken and Alford, 1970: 843); "Most innovations of great economic impact are not causally related to sophisticated scientific discoveries . . . [but are] based on well-known, not too recent, scientific and engineering knowledge" (Charpie, 1970: 6); "There are few totally innovative ideas . . . They have been advocated and debated for years . . . What is new or innovative . . . is the transformation of existing ideas into concrete policy proposals" (Johannes, 1972: 2); "new for the organization". It does not have to be an invention. "It had only to be new for the particular organization being scored" (Hage and Dewar, 1973: 283); "perceived to be new by the relevant unit of adoption" (Zaltman, Duncan and Holbek, 1973: 10; Zaltman and Duncan, 1977: 12; Duncan, 1976: 167); "new to the state adopting it" (Gray, 1973: 1174); "It may be new under the sun, or . . . new only under this roof" (Kelly and Kranzberg, 1974: ii); "new to the adopting unit" (Downs, 1976: 701); "new to the political units adopting them" (Downs, 1976: xv); "in a particular innovator-client/use combination" (Goldhar, Bragaw and Schwartz, 1976); "new in relation to the organization's technological environment" (Daft, 1978: 197); "new to the adopting agent, not necessarily to the world in general" (Downs and Mohr, 1979: 385).
 46. Carter and Williams (1957), Eckaus (1966), Allen (1967b), Simone (1966; 1969), Mohr (1969), Charpie (1970), Kuznets (1972), Fainstein and Fainstein (1972), Freeman (1974), Utterback (1974), Twiss (1974), Jervis (1975), Locke (1976).

47. Francis Bacon (speculative versus operational); anthropologists' distinction between discovery and invention (Godin, 2014a). That invention is intellectual is true only if defined according to the older sense of (scientific) discovery or if contrasted to innovation in the sense of application or commercialization. Yet to others, invention is action or innovation too: making something new, like a new machine.
48. See Long (2001) for many quotations using the word invention in very old books and treatises on 'technology'. On the concept of invention in the context of technology in the seventeenth and eighteenth centuries, see Macleod (1988b). On the history of the concept of technology, see Schatzberg (2006; 2012).
49. For a rare piece in the literature that discusses innovation as action, see Hellstrom (2004).
50. "Dynamic action" (Ward, 1903: 246, 248); "doing something differently" (Schumpeter, 1934: 89, 1939: 84).
51. "The spirit of innovation is primarily the result of essentially personal instincts . . . Man . . . is, by his nature, like any other animal, eminently conservative . . . Social evolution would certainly have been infinitely more rapid than history tells us, if its development had been able to depend mainly on the more energetic instincts; instead of having to fight against the political inertia that it tends to produce spontaneously in most cases" (Comte, 1839: 558–59). Then Comte discusses civilization or social progress as a shift from animalism to humanity, a triumph of reason over instincts. Social development encourages individuals "to attempt new efforts to ensure themselves, by more refined means, of an existence that otherwise would thus become more difficult, and also by requiring societies to react with a more stubborn and more concerted energy to battle sufficiently against the more powerful growth of specific divergences" (Comte, 1839: 642). Population and cities create "new needs and new difficulties, this gradual agglomeration spontaneously develops new means . . . The fundamental antagonism between the instinct for conservation and the instinct for innovation . . . having evidently to acquire from then on a significant increase in energy" (Comte, 1839: 643). "The essential and permanent battle, which establishes itself spontaneously between the instinct for social conservation, the usual characteristic of old age, and the instinct for innovation, the usual attribute of youth" (Comte, 1839: 636).
52. "Innovation calls for a greater expenditure of nervous energy in making the necessary adjustment than would otherwise be the case"; it requires "some surplus of energy" (Veblen, 1899: 126).
53. As "dynamic action", innovation is exceptional and limited to a few people: "Surplus social energy is confined to these favored groups, and all social innovation emanates from them" (Ward, 1903: 244).
54. In *The Theory of Economic Development*, Schumpeter talks of the entrepreneur as innovator in terms of energy. The words used (and contrasted to routine) are energy—"exercising one's energy and ingenuity"—motive power, effort, strength and great surplus force (Schumpeter, 1934: 81–94).
55. "The inventor, or innovator, is a person who introduces into man's response to his environment new tools, new techniques, or new ideas" (Mowrer, 1942: 36); "the introduction of new features [cultural traits] in culture" (Rose, 1948: 255).
56. "The introduction of new commercial products" (Maclaurin, 1949: xvi); "the introduction of new machines" or design ideas (Brown, 1957: 406); "the introduction [into a firm] of a new process which reduces costs, or of a new product which diverts demand from an old product" (Carter and Williams, 1958: 55); "capacity of industry to introduce a rapid succession of new products and

- processes" (Allen, 1958: 9); "the introduction of innovations which increase the efficiency of production of existing goods in addition to replacing older commodities in capital and consumption goods markets" (Dernburg, 1958: 4); "introduction of new products or new processes of production or distribution" and "changes in organization and the addition or expansion of particular administrative units" (Hill and Harbison, 1959: 16); "introduction of a commercial process" (Enos, 1962b: 225); "the introduction of a new product or a cheaper way of producing an existing product" (Rosenberg, 1963: 218); "the introduction of new developments . . . that are produced and actually used" (Knight, 1965); "the introduction of new and improved processes and products into the economy" (Johnston, 1966: 158); "the introduction to widespread use of new products, processes or ways of doing things (Allen, 1967a: 7).
57. Application often has the connotation of imitation, as in Schumpeter and others: "applying outside innovation to one's own organization" (Williamson, 1951: 1).
 58. Innovation is "the application of new discoveries on a commercial scale" (Boulding, 1946: 86); the use of new technical knowledge "in order to derive new products" (Burns and Stalker, 1955: 249); "practical applications of fundamental and applied science" (Rostow, 1952); "the application of new knowledge" (Carter and Williams, 1958: vii); "a new application of either old or new knowledge to production processes" (Kuznets, 1959: 29), a definition reproduced in Pavitt, 1963: 206; technological innovation is a translation process "which begins with pure science" (Croome, 1960: 9); innovation "springs from scientific research or invention and proceeds from theory, experiment, or speculation to economic reality" (Bright, 1964: 4); "a new development in fundamental science" is a "requirement for innovation" (Cockcroft, 1965: 89); "Technological innovation means improving the old or developing new industrial products or services from a science base" (Morton, 1968: 57); "technological innovation is the perception, creation, and transformation of relevant science into new and improved products and services" (Morton, 1971: 4).
 59. Resistances to the adoption of technological innovation (Stern, 1937); "[s]ocial innovation or progressivism" is "laws and practices adopted by various states" (McVoy, 1940: 220). "We call any particular advance in the technology of production an innovation, when it is adopted by enterprise" (Keirstead, 1948: 132-33); "technological changes are envisaged as having taken place when a tool, a device, a skill or a technique, however unknown or well-known elsewhere, is adopted by an individual in a particular community" (Hodgen, 1952: 45). "Innovators are the first to adopt new ideas" (Beal and Bohlen, 1955: 9); "innovators are not necessarily the same persons as inventors. Inventors are the individuals who create new ideas. They unite cultural elements into new combinations. Innovators adopt . . ." (Rogers, 1962: 195-96); "innovators are the first members of a social system to adopt new ideas" (Rogers, 1969b: 55); "an idea, practice or object that is perceived as new by an individual or other unit of adoption" (Rogers, 1983: 11); "a process-innovation is defined as any adopted improvement in technique which reduces average costs per unit of output" (Blaug, 1963: 13).
 60. "Introduction of a new commercial product" (Maclaurin, 1949: xvi); "when an invention is introduced commercially as a new or improved product or process, it becomes an innovation" (Clemens, 1951: 14; Maclaurin, 1953: 105); "first commercial production" of an invention (Freeman, Young and Fuller, 1963: 39); "commercial application of the results of previous inventive work and experimental development" (SPRU, 1972: 7); "first *commercial* [Freeman's italics] application or production of a new process or product"

- (Freeman, 1974: 166); "the technical, industrial and commercial steps which lead to the marketing of new manufactured products and to the commercial use of new technical processes and equipment" (Jervis, 1975: 20); "innovation refers to technology actually brought into first use or application" (Goldhar, Bragaw and Schwartz, 1976: 51). The first such view comes from economist Josiah Stamp (1929) and sociologist Gilfillan (Gilfillan, 1935: 96).
61. A process composed of "four distinct stages": fundamental research, applied research, engineering development and production engineering (Maclaurin, 1947); "[s]cience and technology [the section is entitled "Stages in the Process of Technological Change and Some Definitions"] can be broken down into five distinct stages: (1) fundamental research, (2) applied research, (3) engineering development, (4) production engineering, and (5) service engineering" (Maclaurin, 1949: xvii); "the gradual accretion of technical knowledge, from the birth of a new idea to commercial fruition" (Bright, 1949: 449); a process of the "successful introduction of *new products*"; science, engineering (invention), innovation (entrepreneurship) (Maclaurin, 1950: 91); the invention of a new product and its introduction to the market ("commercial exploitation"): "invention, development, and manufacture" (Baldwin, 1951: 97, 99); invention, innovation and diffusion, or three "levels" or roles of technological change in economic growth, all interrelated (the "movement" of one is reflected in the others): what is technologically possible (invention), what is possible with techniques currently used (innovation) and what is occurring in the economy as a whole (imitation) (Brozen, 1951). For similar early views, see also: a "process of innovation" or "sequence of events", according to three "steps": development of the idea, introduction, reception (Morison, 1950: 599); the "steps . . . from the imaginative mind to the customer": research, development, pilot-plant, commercial-plant, production, marketing (Mueller, 1957: 85).
 62. Generation, acceptance, implementation (Thompson, 1969); idea generation, problem solving and implementation/diffusion (Utterback, 1971a).
 63. Innovation as a process in two phases is generally the exception. For a two-step sequence (initiation, implementation), see Johannes (1972), Zaltman, Duncan and Holbek, (1973), Duncan (1976).
 64. Other terms used are generation, initiation or conception of an idea.
 65. Other terms are proposal or acceptance/rejection or adoption or translation or actualization or transformation or incorporation or realization or introduction or commercialization.
 66. Other terms are adoption or implementation or reception.
 67. Maclaurin and colleagues from MIT in the late 1940s-early 1950s; Furnas (1948), Mueller (1957), Croome (1960), Enos (1962a, 1962b), Goldsmith (1970), Stead (1976).
 68. Schumpeter makes no use of innovation in the German edition of 1911. In the 1926 edition, innovation appears regularly but as a secondary idea to that of combination. Innovation is never defined. It is novelty of any kind and is used interchangeably in the sense of a "new task", "doing something differently" or simply "something new" and, in one place, "the function of entrepreneurs" (Schumpeter, 1934: 89). Overall, combination rather than innovation is the term used to talk about innovation. It is combination that is explicitly defined (as innovation): [C]ombination is "directed towards something different and signifies doing something differently from other conduct" or "innovation". It presupposes a specific kind of "aptitudes" (p. 81, fn.). This "carrying out of new combinations" is composed of five cases: new good, new method, opening of new market, conquest of a new source of supply, and new organization (Schumpeter, 1934: 66). My reading of Schumpeter is different from Heertje,

- who argues that in 1926 Schumpeter “now introduces the concept of innovation” (Heertje, 1988: 75). Yes, he introduced the concept but with no discussion of it.
69. “New recombination of old parts” (Deutsch, 1949: 28); “aggressive assemblage of information and analysis of results deriving from novel combinations of factors” (Danhof, 1949); “a combination of two or more traits” (Heinrich, 1950); “new combination of elements” (Redlich, 1951: 286); “stepping from one combination to another” (Robinson, 1952: 33–34); “an intimate linkage or fusion of two or more elements” (Barnett, 1953: 181); “a new combination of some pre-existing elements” (Hagerstrand, 1972).
 70. Pareto (1917): cunningness, ingenuity, creativity; Schumpeter (1939, 1942): creative destruction (1947), Deutsch (1949): creative steps; Terborgh (1950): creative capitalism; Redlich (1951): creative (primary) versus semi-creative (subjective); Maclaurin (1955): innovation requires “the right combination of creative vision and action”; March and Simon (1958): “closely related to . . . creative thinking”; Gardner (1963), Argyris (1965) using psychologists’ studies; Simone (1968a): innovation is engineering teaching [methods] “for stimulating creative thinking” (1968b); Gabor (1970): “methodical creations of the human spirit”.
 71. “Research and experimental development may be defined as creative work undertaken on a systematic basis to increase the stock of scientific and technical knowledge and to use this stock of knowledge to devise new applications” (OECD, 1970: 8).
 72. The artist and the literary critic do not use the word innovation either. One exception is B. Bergonzi, to whom innovation is avant-garde in contemporary art. Because “the ‘avant-garde’ label has come to seem a little old-fashioned”, Bergonzi “settle[s] for ‘innovation’, an innocuous but precisely descriptive term” (Bergonzi, 1968: 11–12).
 73. Entirely new (Levitt, 1966: 63); new and different (Zaltman, 1965: 2); qualitatively different (Robertson, 1967: 14); “differ substantially” from existing policies (Johannes, 1972: 1); depart (“from traditional concerns” (Mohr, 1969: 111); departure (Merton, 1965; Rosenblum, 1976: 4).
 74. A new combination in techniques of production (Goodwin, 1946); “by innovation we mean the combining of factors of production in new ways” (Griffin, 1949: 317–18); “the combination of many different activities” (Enos, 1962a: 299); “the carrying out of new combinations” or “reducing an invention to practice and exploiting it commercially” (Scherer, 1965: 165).
 75. As J. H. McPherson, manager, Psychology Department, Dow Chemical Company, puts it in his paper on “creative engineers”: “[E]ngineers expect to carry their brain children on out to maturity—through pilot plant and production plant on out to the marketplace . . . to carry an idea out though the verification stages, reduction to practice . . . to get ideas off the ground” (McPherson, 1965: 33–35). See also Gruetzkow (1965) for a discourse on creativity as synonymous with innovation.
 76. Warner (1974: 441).
 77. Under diverse words, scientific innovation has been studied for decades (e.g., scientific change). Thomas Kuhn is certainly an emblematic representative of such a study (Kuhn, 1962). Kuhn also produced a paper contrasting tradition and innovation in science (Kuhn, 1959). Yet apart from David Mulkay, Joseph Ben-David and a couple of others, social theories on scientific change do not use the word innovation.
 78. For example, “R&D/innovation, technological innovation, and innovation will be used interchangeably in this paper” (Rubenstein and Ettlie, 1979: 65).

79. Tarde (1890), Cole (1949), Terborgh (1950), March and Simon (1958), Simon (1962), Deutsch (1949), Zaltman (1973), Brewer (1973), Ettlie and Rubenstein (1980).
80. Drucker (1957), Miles (1964), Corwin (1975).
81. Mohr (1969).
82. Sociologist Pitirim Sorokin argues to the contrary, "It is the upper-urban civilized groups who have been 'innovators' . . . contradictory to the current opinion, according to which the upper classes are supposed to be 'conservative' while the lower classes are thought of as innovators" (Sorokin, 1937–41: 574).
83. To Rogers and Gerald Zaltman, adoption is individual (a mental process), while diffusion is social (among persons) (Rogers, 1962: 76). See also Hornell Hart on invention as individual and innovation as social (Hart, 1931: 511–12).
84. Gilfillan (1935), Noss (1944), Allen (1958), Enos (1962a), Myers and Marquis (1969), Aiken and Alford (1970), Stead (1976), Pavitt and Wald (1971), Battelle (1973). On failures, see Coe and Barnhill (1967), Evan and Black (1967), SPRU (1972), Utterback, Allen and Hollomon (1976).
85. Cole (1949), Deutsch (1949), Taymans (1950), Redlich (1951), Scoville (1951), Baldwin (1951), Barnett (1953), Drucker (1957), Ruttan (1959), Bowley (1960), Katz, Levin and Hamilton (1963), 1963; Schon (1967); the contributors to the special issue of *Journal of Business* (1967) (Becker, Knight, Evan, Carroll), Robertson (1967, 1971), Mohr (1969), Fores (1970), Zaltman, Duncan and Holbek (1973), Warner (1974), Downs and Mohr (1976), Daft and Becker (1978), Levitt (1963; 1966), Rowe and Bozie (1974).
86. In addition to the two handbooks discussed at the beginning of this chapter, other handbooks take the dominant representation (industrial) for granted, and many editors do not define innovation as such, at least in their introductory chapters: Dogson and Rothwell (1994), Karlsson (2008), Lundvall, Joseph, Chaminade and Vang (2009). One exception is Shane (2008). The absence of definition is also the case in (the introduction to) a handbook that studies a large conception of innovation (Shavinina, 2003). The few handbooks' discussions of what innovation is come mainly from writers on non-technological innovation: Cozijnsen and Vrakking (1993); Poole and Van de Ven (2004); Fallouj and Djellal (2010); Hall and Rosenberg (2012).
87. Tarde (1890), Stern (1927), Usher (1929), Kallen (1930), Hart (1931), Schumpeter (1939), Rose (1948), Cline (1948), Jaffe (1948), Redlich (1951), Noss (1944), Hogden (1952), Barnett (1953), Boskoff (1957), Drucker (1957), Ruttan (1959), Rogers (1962), Gardner (1963), Jones (1963), Levitt (1966), Lapierre (1968), Toulmin (1969), Gabor (1970), Kuznets (1972), Zaltman, Duncan and Holbek (1973).
88. Williamson (1951), Maclaurin (1955); March and Simon (1958), Hill and Harbison (1959), Lorsch (1965), Burns and Stalker (1961), Miles (1964), Argyris (1965), Wilson (1966), *Journal of Business* (1967: Becker, Knight, Evan, Carroll), Mohr (1969), Turner and Williamson (1971), Gross et al. (1971), Morton (1971), Zaltman, Duncan and Holbek (1973), Aiken and Hage (1971), Rowe and Bosie (1974), Baldrige and Burnham (1975), Downs (1976).
89. McVoy (1940), Scott (1968), Thomson (1969), Walker (1969), Johannes (1972), Gray (1973, 1974), Savage (1973), Solesbury (1976), Downs (1976), Rosenblum (1976).
90. Enarson (1960); Miles (1964); Carlson (1965); Gross (1971); Daft and Becker (1978)

91. Ogburn and Nimkoff (1940) (social invention), McVoy (1940), Noss (1944), Drucker (1957), Garvey and Griffith (1966), Fairweather (1967), Taylor (1970), Holt (1971), Kuznets (1972), Brewer (1973), Lapierre (1977), Tornatzky et al. (1980).
92. Economist Josiah Stamp talks in similar terms: “[I]nvention has too mechanical a connotation . . . We must include processes and the consequences of discovery” (Stamp, 1933: 383).
93. Another contrast (to writers on organizational innovation) is to individual innovation.
94. “Like all analytical concepts, the terms ‘invention, innovation, and diffusion’ lose some of their preciseness when one attempts to apply them to historical facts” (Scoville, 1951: 347). Innovation “lacks precise definition” (MacLaurin, 1955). “Every change becomes an innovation simply because it has not been done before . . . Such a definition sterilizes the term innovation” (Becker and Whisler, 1967: 463); US Senator Philip A. Hart, to the Senate Hearings before the Subcommittee on Antitrust and Monopoly: “It is important to have a clear conception of what we are talking about”. The problem involves “a confusion of the concepts of invention, on the one hand, and innovation or development on the other hand” (US Senate, 1965). “The most outstanding feature of innovation is its mysteriousness . . . Many problems arise in defining innovation . . . because of the value judgment attached to the term . . . The difficulty here is that most of us expect an innovation to be something good” (Knight, 1967: 478); “the term innovation has been employed so widely and ambiguously” (Mohr, 1969); “one of the vogue words these days is innovation. For some people it is even more—it is a value word that implies something good and positive. As with most popular words, it is misused and has different meanings for different people” (Holt, 1971: 235); “little consensus about the meaning” of innovation (Aiken and Hage, 1971); “there is no adequate general definition which offers common ground” (Warner, 1974: 441).
95. See the recent OECD examination of innovation survey questions (OECD, 2012, 2013).
96. “Innovation has come to mean all things to all men, and the careful student should perhaps avoid it wherever possible, using instead some other term” (Ames, 1961: 371); “we shall do better without the word innovation” (Machlup, 1962: 179); “the use of the term innovation is counterproductive” because each individual has his or her own interpretation. “It may be useful to drop the term ‘technological innovation’ for purposes of survey design” (Roberts and Romine, 1974: 4).
97. Other similarities of official definitions and theorists concern the contrast to invention, the subjective nature of innovation, innovation as originality in time (first), innovation as a process and a series of activities, and innovation as revolutionary (major).
98. On change, see Moore (1960) and Boudon (1983); on development, see Arndt (1987) and Cowen and Shenton (1996).
99. Seventeenth century: novelist, noveller, novellism. Twentieth century: innovative, innovationist, innovatory, innovational, innovativeness, innovatively, innovistic, innovativity.

11 Appropriating Innovation

For What Purpose?

It is obvious . . . that research and development is by no means synonymous, with innovation.

(US Department of Commerce, *Technological Innovation*, 1967)

There is a growing feeling that *new* knowledge and especially new *scientific knowledge* must be put to good use.

(Ronald G. Havelock, *An Exploratory Study of Knowledge Utilization*, 1967)

The 1960's saw the emergence of a new awareness that research by itself does not provide direct answers to the problems faced in the practical world.

(Ronald G. Havelock and Mary C. Havelock, *Educational Innovation*, 1973)

It is not enough for the inventor to invent; he must also bring his idea for a new product or process to market.

(US Advisory Committee on Industrial Innovation: Final Report, 1979)

Innovation owes its central position in discourses, policies and theories today to the dominant representation of innovation as technological. Technological innovation is one of the connotations that gave the word innovation a positive value after 2,500 years of condemnation. But why has the phrase technological innovation acquired such an aura in the modern imaginary, and what is the root of the ideology or worldview of innovation? The word technology has existed in the vocabulary for over a century, and before technology there was invention.

This chapter suggests that innovation is a counter-concept to science—and more particularly to basic research—as a dominant cultural value of the twentieth century. Since the seventeenth century at least, scientists have developed a discourse on science as being the ultimate source of progress. Then, from the early twentieth century onward, industrialists appropriated the idea that basic

research is a resource for the development of enterprises. Thereafter, science entered into the public discourse and got the attention of public organizations. Public funding of R&D developed on a large scale after World War II.

Technological innovation emerged as a category in the twentieth century because in discourse, action and policy, it was useful to include a large(r) number of people (than scientists) and activities (than science or basic research).¹ Innovation is a *process* that includes several people and activities, so it is claimed. Science or research is only one step or factor in the process of innovation and often not even necessary.

INNOVATIVE IDEOLOGISTS

Technological innovation is a phrase that appeared after World War II. To take just one example, Schumpeter made only two uses of the phrase (Schumpeter, 1939: 289).² Certainly the term technology—which remains far more popular than innovation today—existed before that date, as did technological change. However, in a matter of decades, technological innovation eclipsed other terms and became the dominant representation of innovation.

Social researchers began theorizing about innovation in the early twentieth century—anthropologists (most often without using the word innovation) and then sociologists. In turn, in the 1960s, management schools and economists appropriated a then popular word for their own purposes—today theorists invent their own word (acronym) or label—and made themselves so-called innovative ideologists, to use Quentin Skinner's phrase. They introduced a new meaning for innovation, different from that of the previous decades or even centuries. Until then, the concept of innovation was either a verb or a substantive, an action or the outcome of that action. In contrast, innovation is a *process* to the theorists, a process in time, from the generation of an idea to its application in a practical context, from theory to practice.³ This representation takes many forms, depending on the discipline. To the sociologists, the process (along with its sequence) is one from (individual) adoption to (social) diffusion; to the economists, from invention to commercialization; to management schools, from (product) development to manufacturing.⁴

Among the firsts to use the phrase technological innovation is Rupert William Maclaurin. An economic historian at the Massachusetts Institute of Technology (MIT) and the first theorist on technological innovation (Maclaurin, 1949), although never mentioned in 'histories' of technological innovation (Godin, 2008), Maclaurin defines innovation as (1) a process, (2) a sequential process in time, (3) a process that starts with science (research), and (4) a process whose ultimate stage is commercialization. Technological innovation as a process encompasses *every* dimension or factor involved in technology application or use, from the generation of invention to diffusion. Next to Maclaurin's pioneering analyses of innovation as a process is Sumner Myers and Donald Marquis's study for the US National Science Foundation (Myers and Marquis, 1969), followed by James Utterback in the 1970s.

Engineers (as managers) are no strangers to the idea of innovation as a process. They may even be considered pioneering theorists. In fact, there have been two discourses on technological innovation in the twentieth century. One (early 1960s) comes from policy-makers, natural scientists and science and technology theorists. Innovation results from the application of science to industry. The issue discussed is R&D and qualified human resources—as assets to a country’s competitiveness. Here, innovation is an article of faith (the ultimate outcome of basic research), not really theorized about (Pavitt, 1963).⁵ The other discourse (late 1960s) comes from practitioners, above all engineers/managers.

Like the ‘projectors’ of the eighteenth century (project is a precursor term to technological innovation), the engineers of the early twentieth century do not theorize about innovation. Innovation is a mere word for one’s novelty or originality. Innovation serves to name not only new ‘machines’ for *industrial* production but also instruments/devices for the *sciences* and the *professions*. The industrial connotation shares place with the scientific. The first thoughts on technological innovation among engineers appeared in the 1960s. In fact, innovation is the latest reimagination of engineering (technology) over the twentieth century. In *Engineers for Change*, Matthew Wisnioski suggests that a new rhetoric emerged among engineers in the 1980s: information technology and globalization (Wisnioski, 2012: 190). To this list, one could add innovation, beginning in the 1960s. To engineers turned managers of R&D in the first decades of the century, engineering was said to rely on (basic) science. Then, as Wisnioski documented, beginning in the 1960s, engineers got into a movement of “social responsibility” in order to raise the status of the discipline. Third, and as part of this movement, I suggest that engineers recruited innovation and got into the new discourse on innovation. “Engineering is a profession, an art of action and synthesis and not a simply body of knowledge”, states Daniel de Simone, electrical engineer, Director of the Office of Invention and Innovation, US National Bureau of Standards, in his introduction to *Education for Innovation*, a book on the changes to engineering education required. The “highest calling [of engineering] is to invent and innovate” (Simone, 1968: 1–2).

John Clifford Duckworth is a perfect example of an engineer looking conceptually at technological innovation. Managing director of the UK National Research Development Corporation (NRDC) from 1959 to 1970, Duckworth claims that “the future national welfare of our country depend[s] largely on the speed with which industry could turn to new, commercially viable, processes and products . . . [Yet] the pure scientist appears to be held in higher esteem than the engineer and technologist . . . [There is a] lack of status of the professional engineer as compared with the scientist” (Duckworth, 1965: 186). Similar views were expressed in the United States in the early 1960s, by Herbert Hollomon (discussed later in the chapter), among others. To Duckworth, “inventions and innovations are not necessarily meritorious in themselves, but only so far as they contribute to higher efficiency

and enable us to compete more effectively in world markets” (Duckworth, 1965: 188). This is the task of the manager. “I have no regrets whatever at having deserted the more academic scientific pursuits, and I would advise any young scientist or engineer, who has other than purely academic abilities to move unhesitatingly towards application and management. In my view, it is wrong to say—as is often done—that it is a waste of a scientist when he enters management” (Duckworth, 1965: 186).

Prophesying a bit, Duckworth adds: “Perhaps one of the most helpful contributions we could ask from the classicists is that they should coin a new and socially acceptable single word to replace the clumsy expression ‘Chartered Engineer’” (Duckworth, 1965: 186). Innovation did the job. History demonstrates that the concept of innovation offers an organizing and mobilizing idea for what Duckworth calls a “reorientation of our sense of values” (Duckworth, 1965: 190). “Engineering is the extension of man’s capabilities—no less noble an object than the extension of his knowledge” (Simone, 1968: 7).

To many engineers, the process of technological innovation seems little studied. This is a frequent assessment made by the engineers writing in the 1960s. Theories of innovation are incomplete when they stress basic research as the source of innovation. There exists a range of activities in addition to research. Jack A. Morton, engineer and research director at Bell Laboratories, who brought the transistor from invention to market and who is author of numerous articles and a book on innovation, suggests that innovation:

is not a single action but a *total* [my italics] process of interrelated parts. It is not just the discovery of new knowledge, not just the development of a new product, manufacturing technique, or service, nor the creation of a new market. Rather, it is *all* [my italics] these things: a process in which all of these creative acts, from research to service, are present, acting together in an integrated way toward a common goal. (Morton, 1968: 57)⁶

As Duckworth says, such a task is that of the manager. “The manager’s job is the “innovation of innovation . . . His job is to renew the purpose, content, and structure of his [*sic*] process . . . He is the selective agent of change, the catalyst, the mutation selector” (Morton, 1968: 60). Edwin Gee, senior vice president at E. I. du Pont, writes in similar terms in his analysis of the innovation process:

A promising new research result emerging from the bench must pass through and be molded by many hands, be understood and accepted by many minds . . . All along these lines there is constant danger that the development will lose momentum, be diverted onto expensive and fruitless bypaths, or fall into incapable or unsympathetic hands . . . The

key to carrying a development through *all* [my italics] the stages with smoothness and efficiency lies largely in adequately coordinating the work of various groups. [This responsibility lies with the] venture manager. (Gee and Tyler, 1976: 79–80)

These views constituted a widespread discourse among engineers and managers of the time. A symposium sponsored by the US National Academy of Engineering in 1968 concluded, “There appears to be general agreement that the process of successful technological innovation depends on many more factors than the mere generation of scientific and engineering information” (US National Academy of Engineering, 1968: Foreword). To managers, too, innovation is a process. The summary statement of the annual meeting of the Industrial Research Institute (IRI) on innovation, where over a hundred research managers gathered in April 1970, begins with the following “authoritative picture” of innovation: “Innovation is the process of carrying an idea—perhaps an old, well known idea—through the laboratory, development, production and then on to successfully marketing of a product . . . The technical contribution does not have a dominant position” (*Research Management*, 1970: 435).

The phrase technological innovation sums up to a desire to enlarge the discourse on science—yet at the same time there is a restriction of innovation to technological innovation. Innovation is action contributing to the practical, while science is strictly mental. The theorists of the twentieth century stress that:

- Innovation is application, as contrasted to invention, particularly market application or commercialization. “Having a new idea and demonstrating its feasibility is the easiest part of introducing a new product. Designing a satisfactory product, getting it into production, and building a market for it are much more difficult problems . . . the technical innovators are men who not only have some scientific knowledge but who are also inspired to put it to work on every new idea that comes their way” (Morse and Warner, 1966).
- Innovation is a “people process”, as Morton puts it, a system composed of people acting collectively and cooperatively. It concerns not just scientists, but “the *totality* [my italics] of human acts by which new ideas are conceived, developed and introduced” to the market (Morton, 1971: 3). Everyone is an innovator, as the recent literature puts it; hence the need to enrol users in the process.
- Innovation is driven by society or social needs (demand), not by science; hence the debate in the 1960s–70s on science-push *versus* demand-pull, which pitted engineers, managers and management schools “against” the science-technology scholars (Godin and Lane, 2013). “Most technological change, most innovation, most invention, and most diffusion of technology”, states Herbert Hollomon (successively head of General

Electric Engineering Laboratory, First Assistant Secretary for Science and Technology at the US Department of Commerce, founder of the US National Academy of Engineering, then professor of engineering at MIT) “are stimulated by demand . . . and [are] only indirectly science-created” (Hollomon, 1967: 34).⁷ From then on, the place of science in the process of innovation shifted from being the first step to a coupling factor with demand, or one factor among many, and with feedback loops rather than strictly linear. To study this process, Morton—and others like Donald Schon (1969, 1971) and Robert Burns (1975)—promoted a systemic view of innovation (Morton, 1964, 1966, 1971), an idea that remains influential today in studies of technological innovation (e.g., national systems of innovation).

- Innovation necessitates a national policy to support innovators in their efforts. “It is logical to me”, states Robert Charpie, director of technology, Union Carbide Corporation, “for the Federal, State and local governments to become active endorsers, supporters, and encouragers of the technological innovation process” (Charpie, 1967: 363).

An influential but forgotten input to these views is the US Department of Commerce. In 1964, the US president asked the Department to explore new ways for “speeding the development and spread of new technology”. To this end, Hollomon, as Secretary for Science and Technology, set up a panel on invention and innovation, whose chairman was Charpie and the executive secretary Simone. The report was published in 1967 as *Technological Innovation: Its Environment and Management*.

The report begins by making a distinction between invention and innovation as the difference between the verbs “to conceive” and “to use” (US Department of Commerce, 1967: 2). To the Department, innovation is a “complex process by which an invention is brought to commercial reality” (US Department of Commerce, 1967: 8). R&D is only one phase or step of this process. Innovation includes R&D, engineering, tooling, manufacturing and marketing. Using rule-of-thumb figures from “personal experience and knowledge” of the member of the panel, the Department reported that R&D correspond to only 5–10% of innovation costs (US DoC, 1967: 10). These numbers were rapidly contested, as I have mentioned in a previous chapter. Yet they pave the way to an influential representation of innovation in the following centuries. Policy-makers, managers, engineers and theorists have embraced the representation without reservation.

A COMMUNITY OF INNOVATORS

These ideas gave rise to the study of the “economics, management and policy” of technological innovation, or “innovation studies” (the quotation marks indicate the distinction between “innovation studies” and

studies of innovation). What “innovation studies”—in collaboration with governments, by the way—have brought to the study of innovation is the idea of technological innovation contributing to economic growth. The discipline did this by using a national framework to account for technological innovation (see the next chapter). Innovation is discussed in national terms, exactly as the Industrial Revolution had been a century before (Hardy, 2006):

- Technological innovation is good not only for individuals or groups (as studied by sociologists, for example) but also for the nation: It brings revolutionary changes to the national economy.
- Technological innovation is the source of national wealth: It is the source of productivity for firms and world leadership for nations.

Such a national framework has been very influential as a *rationale* for the development of policy to stimulate technological innovation. In turn, policy has been influential in transforming the concept of innovation. In fact, the theorists were not acting in a vacuum. Many of them borrowed a definition of technological innovation from government sources, as mentioned in the previous chapter. In the 1960s, governments and international organizations produced some of the first titles on technological innovation: the UK Advisory Council on Science and Technology, the US Department of Commerce and the Organisation for Economic Co-operation and Development. The US National Science Foundation is also a major funder of studies—the organization appropriates a concept instrumental to document the idea that basic research is useful to society (see Appendix 10). As with the theorists, to policymakers, technological innovation is a process, from basic research to the exploitation of research results⁸—and again with the theorists, there is need to study a poorly known process.⁹ Equally, technological innovation is not just R&D,¹⁰ but a “total process”, an “entire venture”, embedded in a “total environment” (US Department of Commerce, 1967: 2, 8, 11, 14):¹¹

Invention and innovation encompass the *totality* [my italics] of processes by which new ideas are conceived, nurtured, developed and finally introduced into the economy as new products and processes; or into an organization to change its internal and external relationships; or into a society to provide for its social needs and to adapt itself to the world or the world to itself.

(US Department of Commerce, 1967: 2)

The term ‘technological innovation’ can be defined in several ways . . . At one extreme innovation can imply simple investments in new manufacturing equipment or any technical measures to improve methods of production; at the other it might mean the *whole* [my italics] sequence

of scientific research, market research, invention, development, design, tooling, first production and marketing of a new product.

(UK Advisory Council for Science and Technology, 1968: 1)

Technological innovation got into government discourse in the 1960s in a context of debates on industrial competition and competitiveness between nations. There are “technological gaps” between countries, it was said, due largely to time lags between invention and the commercialization of invention (“time lag” is a key phrase in the 1960s)—hence the idea of espousing the concept of innovation as a process from invention to commercialization. As Duckworth puts it on the British attitude to the exploitation of research results, “It is often said that as a nation we are good at fundamental research and invention but not so good at putting results to profitable use; for many years there has been too great a tendency for the better men to turn to pure science” (Duckworth, 1965: 190). At the time, British discoveries (and others from European countries) were being exploited commercially and patented in the United States, so it was claimed (UK ACSP, 1964: 8; UK Advisory Council for Science and Technology, 1968: 1, 3, 6).¹² “It is likely”, stated the Organisation for Economic Co-operation and Development (OECD), “that Western Europe will continue to be a ‘net importer’ of technology from the USA for some time to come” (OECD, 1966: 12).

As a result, innovation became an instrument of economic policy. “It is unlikely”, claims Keith Pavitt of the OECD Directorate for Scientific Affairs, discussing policies for research, innovation and growth, “that an adequate level of expenditure on research and development for economic purposes will be achieved without governmental encouragement and help” (Pavitt, 1963). “There is little doubt”, adds an OECD report to Ministers, “that if governments succeed in helping to increase the pace of technical innovation, it will facilitate the structural changes in the economy, and increase the supply of new and improved products necessary for Member Governments to achieve rapid economic growth with full employment and without inflation” (OECD, 1966: 8).

The purpose of policy—the innovation ideal—is to develop a large community of innovators, by speeding up the process of innovation, or shortening the amount of time (time lag) between invention and its exploitation—time lag deprives nations of the benefits of inventions. This is an endless task—in fact, innovation is not the natural goal of industry; the objective is monopoly—hence the success of innovation policy.

A NEW SEMANTIC PAIR

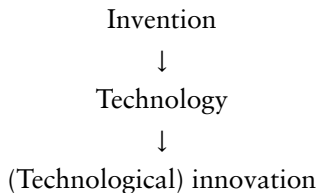
Why the concept of innovation, when machine, invention, technology and technological change exist in the vocabulary already? The answer is to stress application—*versus* mere discovery and scientific research. Innovation

appropriates a very large vocabulary to talk of the practical (*versus* the speculative, including basic research). Innovation becomes a *supercategory*, to use Ron Harris's term: It "integrates what would otherwise be separate activities and inquiries" in order to redraw the intellectual world that society adopts (Harris, 2005: xi).¹³

Over the twentieth century, technological innovation has given rise to a new semantic pair. The century-old basic research/applied research dichotomy is concerned with or internal to science. It contrasts two types of scientific research. The twentieth century brought in a new pair, or dichotomy: (basic) research/innovation. Technological innovation sprang from a tension between science (for its own sake) and society, or aspiration to action. The contrast is no longer internal to science—that is, one between types of research—but between research and society. Innovation is contrasted to research, particularly basic research, in society's name. "The 1960's saw the emergence of a new awareness that research by itself does not provide direct answers to the problems faced in the practical world" (Havelock and Havelock, 1973: 1). Research has to be useful to society—through the market. Innovation is a culture of openness—a total process that includes different people and activities—rather than scientific closure and boundaries.¹⁴

Today, basic research is relatively absent from the vocabulary of industry and governments, except that of scientists. Policy documents are few and come mainly from scientists' representative organizations, like the National Science Foundation and the National Academy of Sciences in the United States and the European Research Council in Europe. Government white papers concern innovation and generally include only a couple of paragraphs on basic research.¹⁵ National statistics on basic research are very few too, as compared to 40 years ago (Godin, 2003).

In recent years, historians have started to study the semantics of diverse concepts of science: natural science (Phillips, 2012), basic research (Clarke, 2010), applied research (Bud, 2012), technology (Schatzberg, 2006, 2012), social technology (Derksen and Wierenga, 2013), "popular" science (Topham, 2009).¹⁶ The present paper adds one more concept to the list: innovation. Over time, technological innovation has become an umbrella term, encompassing or replacing previous concepts in discourse:



Technological innovation is a theoretical concept. While the concept of basic research (pure research, fundamental research) originates from natural scientists (Kline, 1995; Lucier, 2012), technological innovation comes from

(social) theorists, including engineers and managers. Every discipline has its own story on the origins of the study of technological innovation. Science and technology theorists stress Robert Solow—for having statistically correlated research, or rather a residual, to economic growth—while “innovation studies” theorists cite Schumpeter. This chapter has offered a different story. Engineers (as managers) and managers are pioneering but neglected theorists, whose contribution remains to be written.

NOTES

1. On a similar broadening in the nineteenth century, see Denise Phillips on the concept of “natural science” (*naturwissenschaft*) in Germany, “a loosely organized cause that many different kinds of people might join” (Phillips, 2012: 9).
2. To Schumpeter, innovation (not technological innovation) is (1) doing things differently, (2) composed of five types, of which one is “new goods” (not technology and not technological innovation), (3) a new combination of factors of production (technological change), as it is to American mainstream economists (Schumpeter, 1939).
3. The vocabulary used is process, sequence, spectrum (and continuum), chain, flows.
4. Anthropologists and sociologists are pioneers in the study of innovation as a process. Anthropologists study invention and its diffusion in space, and sociologists study the adoption of new practices in time.
5. It remains to be documented whether and to what extent the theorists and users of the ‘linear model of innovation’ really believed in linearity. Every writer stresses that the model is a heuristic tool only.
6. Morton first suggested such a definition in 1964 (Morton, 1964: 82, 84). Then he proposed a similar definition in 1966—at a conference on technology transfer and innovation, organized by the US National Planning Association and the US National Science Foundation (Morton, 1966: 21)—and after (Morton, 1968: 57, 1969: 40). The report of the Association to the National Science Foundation reproduced this definition, almost *verbatim*: “Innovation is not a single action, but a total process of interrelated subprocesses. It is not just the conception of a new idea, nor the invention of a new device, nor the development of a new market. The process is all these things acting in an integrated fashion toward a common objective” (Myers and Marquis, 1969: 1). Donald Marquis, professor of management at MIT and director of the Sloan School’s program on the Management of Science and Technology, puts it similarly in a paper from 1969: “Innovation is not really a single action, but a total process of interrelated subprocesses. It is not just the conception of a new idea, nor the invention of a new device, nor the development of a new market. The process is all these things acting in an integrated way toward a common objective—which is technological change . . . The management of technical innovation is far more than the maintenance of a technically productive R&D laboratory” (Marquis, 1969: 31, 36).
7. Hollomon’s views evolved over the years. This statement is in total contradiction to a previous one, made in 1962: “Science is . . . the resource from which new technology derives, and science is crucial to [innovation]” (Hollomon, 1962: 254). Hollomon was not alone, in the early 1960s, in thinking that “fundamental research is, in the long run, an essential pre-requisite for innovation and economic growth” (Pavitt, 1963: 209).

8. Technological innovation is a “complex subject” that involves “not only pioneering by means of research and invention but also the diffusion of improved design and manufacturing practices” (UK Advisory Council on Scientific Policy, 1964: 8); technological innovation is a “process by which an invention or idea is translated into the economy . . . a complex process by which an idea is brought to commercial reality” (US Department of Commerce, 1967: 2, 8); “technical innovation is the introduction into a firm, for civilian purposes, of worthwhile new or improved production processes, products or services which have been made possible by the use of scientific or technical knowledge”. This “innovation process” is composed of three parts: invention, (initial) innovation (“when a firm introduces a new or improved product into the economy for the first time”) and (innovation by) imitation (diffusion) (OECD, 1966: 9); technological innovation is “the technical, industrial and commercial steps which lead to the marketing of new manufactured products and to the commercial use of new industrial processes and equipment” (UK Advisory Council for Science and Technology, 1968: 1).
9. “The process by which innovation comes about . . . should be more widely understood” (UK Advisory Council on Science Policy, 1964: 8); “there is need for promoting a basic understanding of the innovative process in all sectors of our society . . . We know very little about the process of technological change and growth” (US Department of Commerce, 1967: iii, 45); “it is the aim of this Report to consider some major factors which determine the competitiveness of new products and processes, in the hope that this may help clarify the significance of technological innovation for the effectiveness of manufacturing industry” (UK Advisory Council for Science and Technology, 1968: 1).
10. “The factors involved are by no means all, or mainly scientific; some of the most important are indeed sociological” (UK Advisory Council on Scientific Policy, 1964: 8); “it is obvious that research and development is by no means synonymous, with innovation” (US Department of Commerce, 1967: 9); “a high level of R and D is far from being the main key to successful innovation . . . Government support should be given to the whole process of technological innovation, in contrast to its present overwhelming emphasis on the opening phases of research and development . . . The most difficult and complex problems in the process of technological innovation generally lie in this final phase [of marketable products which the customer wants and the producer can make at profit], the phase which includes aggressive and sophisticated marketing” (UK Advisory Council for Science and Technology, 1968: 9, 15).
11. In terms of government action, total means the “co-ordinated and concerted action” of several ministries (OECD, 1966: 7), and the combination of direct (funding) and indirect (climate) measures (OECD, 1966: 10).
12. In the 1950s, several studies were published on this subject: for one, Manchester Joint Research Council (1954), *Industry and Science*, Manchester: Manchester University Press. A few years later, two researchers from the University of Manchester (Charles F. Carter and Bruce R. Williams) conducted a study for the British Association for the Advancement of Science on the application or use (innovation) of science in industry. Three books came out of this study, among the first ones on technological innovation (Carter and Williams, 1957, 1958, 1959).
13. Already in 1950, Kenneth Burke talked of “words for universal ground” or “over-all terms”, “god-terms”, “summarizing terms” as covering devices. They subsume “a tangle of relationships”, “reduce a whole complexity to one apparently simple term . . . [They] look absolute and unconditional” (Burke, 1950: 110–11). Innovation is a “packaging”, as *Nature* puts it, whose purpose is to “heighten awareness” (*Nature*, 1979).

14. Innovation as a total process: a concept similar to the “total history” of Lucien Febvre and Marc Bloch in the 1920s and 1930s (all social dimensions of history—economic, political and ideological—should be investigated together).
15. Many theorists talk of a transition from science policy to technology policy to innovation policy over the last 50 years.
16. To this list, one may add truth (Shapin, 1994) and objectivity (Daston and Galison, 2007).

12 “Innovation Studies”

The Invention of a Specialty

Innovation is far too important to be left to scientists and technologists.
It is also far too important to be left to economists or social scientists.

(Freeman, *The Economics of Industrial Innovation*, 1974: 309)

In 1974, British economist Christopher Freeman reported that few economists “have stopped to examine” technological innovation (Freeman, 1974: 16). This is a much repeated statement in the literature on technological innovation. Economists came late to the study of technological innovation—but late compared to when and to whom? From a long-term perspective, the statement deserves qualification. Whether one looks at Adam Smith, John Rae or William Stanley Jevons, economic writings on invention and the use of machines in production, although often short, did in fact exist (Macleod, 2008), and ‘art’ as a production factor was discussed among the mercantilists early on (Johnson, 1930). Furthermore, at the time of Freeman’s writing, the systematic study of technological innovation had existed for many decades among economists. Leaving aside economic historians like Usher and Maclaurin, an economic tradition named technological change was a precursor to the phrase technological innovation.

The economic tradition regarding technological change concerns innovation as technological invention applied to the industrial production process. It is not concerned with the origins of technological innovations. It is not alone. The tradition simply follows the sociologists and others, who focus on the use (adoption and diffusion) of inventions, whatever their origin. At the time, among economists, only economic historians like Maclaurin and his colleagues at MIT got into the so-called black box, but Maclaurin was soon forgotten, although his ideas have remained influential for decades (Godin, 2008).

The tradition on technological change is of American origin. It emerged in the 1930s. It was quite productive (number of papers written) in the following decades, and it remains alive and well today. The economists involved in this tradition are mostly, if not entirely, ‘mainstream’ economists. The tradition is fundamentally quantitative. It uses the existing framework of neoclassical economics, its theory and method—above all

econometrics and the ‘production function’—to study technological innovation. The issues are those of established economic theory: factors of production, market structure, economies of scale, and the like. There is no real interest in developing a distinctive and comprehensive theory of technological innovation.

At the opposite end of the spectrum, a second tradition developed starting in the early 1970s. It is concerned with innovation as the commercialization of technological inventions. Here lies Freeman’s point and originality. He was in fact inventing a second tradition (“innovation studies”), different from the first. Some Americans paved the way, as will be discussed, but the tradition owes its origins mainly to Europeans, among them Chris Freeman. Unlike the first tradition, this tradition did not benefit from (or insert itself into) a then well-developed conceptual framework (neoclassical economics). Instead it developed its own. At least four characteristics define this European tradition, as contrasted with the American one. First, it is descriptive rather than econometrical, and ‘institutional’ in focus. Second, it studies product innovation as well as, if not more than, process innovation.¹ Third, it has a major concern with policy issues. Fourth, one of its tasks has been to develop a theory of technological innovation.

Recently, papers have appeared that map the field of “innovation studies”, its founders, its basic ideas and its contemporary authors. In general, these stories are linear, from Schumpeter as the ‘father’ (ancestor) of studies on innovation to today’s field. In fact, an examination and history of studies of industrial innovation should take into consideration the existence of two specialties (which have become traditions), each with its own community of researchers and each with a different agenda. A (brief) history on the origins of the first tradition, that of American origin, has been conducted in a previous paper (Godin, 2010). There, I showed how interest in *invention* among economists gave way to interest in *technological change*. The next step occurred with the study of *technological innovation*, the focus of this chapter.

This chapter is a study on the European tradition as an invention or ‘original’ construction and examines why it emerged in Europe. The chapter is restricted to a limited aspect of the tradition: the representation of innovation and its source. From the 1970s onward, innovation came to be restricted to industrial innovation or the commercialization of technical invention in the school or tradition studied here, a representation that became hegemonic in the following decades.

I use Chris Freeman (1921–2010) as a case study. In this chapter, I study him as the ‘founder’ (or one of the builders) of the tradition. I examine his 1974 book *The Economics of Industrial Innovation* and the additions made to it in the second edition (1982). The latter has remained a much cited work ever since its publication. In it, Freeman invented a new tradition based on a new representation of innovation, and for years many students returned to this book to study the field and the ideas involved.

FREEMAN'S REPRESENTATION OF INNOVATION

To Freeman, technological innovation is "an essential condition of economic progress and a critical element in the competitive struggle of enterprises and of nation-states". It is also important for improving the quality of life (Freeman, 1974: 15). Given the centrality of technological innovation to modern society, Freeman's purpose in *The Economics of Industrial Innovation* is the study of the "system" behind the phenomenon, namely "the professionalized industrial R&D [research and development] system". He identifies three characteristics of this system over time: its growing complexity, the increased scale of processes, and the specialization of research work (Freeman, 1974: 25, 33).² To Freeman, research is conducted in professional specialized laboratories, unlike the past when research was unorganized and much more a trial-and-error affair. This is a familiar description, suggested by industrialists and historians since the beginning of the twentieth century. However, they spoke not of the professionalization of research but of its institutionalization, as did Freeman. In fact, professionalization refers to the social process by which an occupation transforms itself into a body, group or association with qualifications and identity credentials (like diplomas, journals and grants, in the case of scientists). This is not what Freeman was interested in, although he did use the term. Freeman was rather interested in institutionalization: when and how research and scientists got into organizations—industries in the present case.

Be that as it may, to Freeman, the twentieth century is the growth period of the "research-intensive sector" and saw the rise of a "research-intensive economy": "[T]he balance has gradually shifted towards a more research-intensive economy, and a higher rate of technical change. It is the contention of this book that this is one of the most important changes in twentieth-century industry" (Freeman, 1974: 277). To the increase in scale and "professionalization", Freeman adds the idea that technology relies increasingly on science, giving rise to what Freeman called "science-related technologies". Together, these three characteristics of the R&D system strongly suggest the need to "monitor and control the direction and pace of technical change" (Freeman, 1974: 31).

To Freeman, the monitoring and controlling of technology "depends upon understanding, and an important part of this understanding relates to economic aspects of the process, such as costs, return on investment, market structure, rate of growth and distribution of possible benefits" (Freeman, 1974: 32). Freeman deplores the "elementary state of our present knowledge" (Freeman, 1974: 32). To Freeman, invention and innovation are "outside the framework of economic models, or more strictly, exogenous variables". Innovation remains a residual (Freeman, 1974: 17), a black box (Freeman, 1974: 27). Freeman's objective is to open the black box and look at the technological innovation process.

What is innovation? In a footnote, Freeman brings in the following definition: “Technical innovation or simply innovation is used to describe the introduction and spread of new and improved products and processes in the economy and technological innovation to describe advances in knowledge” (Freeman, 1974: 18). However, the book is fundamentally concerned with following a definition of innovation as distinct from invention, a distinction that Freeman attributes to Schumpeter and states as follows: “An *invention* is an idea, a sketch or a model for a new or improved device, product, process or system . . . An *innovation* in the economic sense is accomplished only with the first commercial transaction” (Freeman, 1974: 22). This is an important distinction to which I will return.

Having offered a rationale (the importance of technological innovation to society, and the poor state of knowledge we have on the phenomenon) and a definition of innovation (as commercialized technological invention), Freeman conducts his analysis in three parts. Part I of the book looks at “science-related technologies” based on a “historical approach” (I would say contextual rather than purely historical) designed to illustrate the three basic aspects of the R&D system: growing complexity, increased scale of processes and specialization of research work. It documents the rise of “new research-based industries” (also called “research-intensive industries”) in chemicals (including oil refining), nuclear energy, synthetic materials and electronics (radio, television, radar, computers and electronic components). “It is the contention of this book that the[se] industries . . . represent the most important trends of technical change” (Freeman, 1974: 37).

Having studied the institutionalization of the R&D process in Part I, Freeman next turns to how it has changed the behaviour of firms. Part II offers empirical evidence designed to “support or refute” theories of technological innovation in relation to firms. Freeman looks at factors that lead to success and failure in technological innovation, the size of firms most conducive to technological innovation, the difficulties of decision-making given the inherent uncertainty and risk of technological innovation, and the strategies available to firms for coping with this uncertainty. Here, he offers the rudiments of an “evolutionary” alternative to neoclassical economics: Firms do not maximize and are not rational optimizers, but rather adapt continuously to changes in the environment (technical change and market competition).

Part III concentrates on government and policies. Freeman discusses public funding of R&D and changing priorities. He compares research expenditures of the “military-industrial complex” type and big science since World War II to emerging demands and values on technological innovations more oriented toward consumers’ needs. He suggests that “a more explicit policy for science and technical innovation is increasingly necessary” (Freeman, 1974: 31) for “assisting firms” and for technological innovation of a more social nature, rather than an implicit policy or, worse, “*laissez-innovate*”.

A THEORETICAL CONSTRUCTION

I highlight only two perspectives from Freeman and the tradition. This is certainly a biased selection. Two considerations drove my selection. First, the perspectives are macro, and examining these perspectives explains many micro perspectives omitted from this chapter. Second, they clearly distinguish this tradition from the one on technological change. The two perspectives are:

- A representation of innovation as commercialization. This explains the study of innovation as a process, from invention to diffusion.
- A consideration of policy issues. This gave rise to an applied or policy-oriented discipline and explains a representation of innovation as technological.

I have deliberately not included the ‘institutional’ perspective, a major one according to the promoters of the tradition. In fact, a lot has been written on the institutional perspective as a distinctive trait of the tradition. To many authors in the tradition, this perspective serves to distinguish the tradition from the literature produced by mainstream economists (Nelson, 2008, 2009). It gave rise to a whole literature on a National System of Innovation. This perspective is certainly absent from the econometric approach of the first tradition. In the present case, the perspective is mainly descriptive, although it makes use of statistics. In fact, another distinctive trait of the tradition is that researchers conduct their own surveys (like the SAPPHO project at Science Policy Research Unit [SPRU] in the early 1970s) rather than using only official statistics. (This has changed recently, with national innovation surveys conducted by governments and their statistical bureaus.)

Innovation as Commercialization

The study of technological invention introduced into industrial production is the bread and butter of the tradition on technological change. In this tradition, technology being used or adopted represents technological innovation—but without using the term (the tradition talks of technological change rather than innovation). This is in fact one meaning of innovation that is widely shared by many researchers, including sociologists.

The tradition on technological change emerged in the 1930s, when the issue of technological unemployment of the previous century re-emerged (Godin, 2010). Technologies were sources of unemployment, so many then said, but to others they were sources of productivity for firms too. Economists started measuring labour productivity (assumed to be due to changes in factors of production) as an indicator of technology: An increase in labour productivity is an indicator of technology used in industrial production. Economists from many horizons (governmental organizations like the US

Works Projects Administration, nonprofit organizations like the US National Bureau of Economic Research) contributed dozens of studies. Such a focus on productivity was quite ‘original’. Until then, it was profit, not productivity, that was the focus of mainstream economics. Thereafter, academics formalized the discussion using the production function (a mathematical equation linking the quantity produced of a good or output to the inputs) to analyze the issue, producing hundreds of papers.

Given the early scientific productivity of this tradition, we could discuss Freeman’s statement that “economists have made a deferential nod in the direction of technological change” (Freeman, 1974: 16). However, one thing is certain: Technological change was concerned with a meaning of and a representation of technological innovation different from Freeman’s. Technological innovation in this tradition was concerned with the adoption of invention as process innovation (methods of production),³ not with the invention as products (for customers or other firms) and their commercialization (Godin, 2010). “Innovation studies” gave greater place in analyses to product innovation. Freeman (and his followers) brought a “balance in coverage of process and product innovations” to the field (Freeman, 1974: 37). Indeed, in the historical part, Freeman documented both processes (in the chemical industry) and products (in synthetic materials and electronics, as well as their use as processes). This was a fruitful innovation.⁴ The focus on products led to examining firms as suppliers of technological inventions rather than as users or adopters: how firms invent new products, the conditions for success and the difficulties encountered in introducing technological inventions to the market, the possibility of an optimal size for innovating, the strategies available to the firm, and other factors.

The interest in technological innovation as product innovation provided the seed for defining technological innovation as commercialization: a firm bringing a new product to the market for the first time. An important semantic point needs to be made here. Theorists in “innovation studies” talk of technological innovation, but most of the time they are concerned with marketed goods. Such goods are named technology (or technological innovation) because they are either (1) new and complex or (2) used as means (processes, as it is called) to industrial production or (3) include a body of knowledge or R&D. Yet whether such a good with these characteristics is a technology depends on how one defines technology. Technology as a body of knowledge has simply shifted, over the last century, to technology as a product (Schatzberg, 2006).

The study of technological innovation is more often than not that of industrial innovation. “Innovation studies” are concerned with the economics, management and policy of innovation for industrial purposes or in an industrial setting. To Freeman, technological innovation is the commercialization of technological inventions—for either consumers (as products) or firms (as processes)—in contrast to technological change: the use or adoption of technological inventions in production. While productivity (ensuing

from the adoption of technological invention in industrial production) was the major issue to the technological change tradition, the issue of "innovation studies" became the market (the commercialization of the technological invention). However, at the time, Freeman was not interested in studying market share, profits, and related concepts ensuing from commercialization. He merely wanted to open the black box and look at how firms generate and commercialize new products.

When Freeman reported that Schumpeter had defined innovation as commercialization, he was in fact putting words into Schumpeter's mouth that he himself wanted to focus on. To Freeman, "[T]echnical innovation is defined by economists as the first *commercial* [Freeman's emphasis] application or production of a new process or product" (Freeman, 1974: 166).⁵ Yet application (the use or introduction of an invention or change into a firm) and commercialization (the introduction of a product to the market) are two different things. To Schumpeter, innovation is not (first) commercialization but "any doing things differently" (Schumpeter, 1939: 84). Schumpeter did not discuss his five types of innovation—new commodities (not technologies), new methods, new forms of organization, new sources of supply and new markets—in terms of commercialization (only the first, as "standard case", is discussed in such terms). He has rather formalized his idea using the vocabulary and method of the technological change tradition—the production function—combining factors of production in a new way (Schumpeter, 1939: 87–88)—in the sense of the application or introduction of change. To Schumpeter, entrepreneurs innovate in the sense that they combine—not commercialize. Freeman's definition is witness to the elusive meaning of innovation.

It was not Schumpeter but Maclaurin who first defined innovation as commercialization, in the late 1940s. In the following decade, this understanding was relatively 'common' among economists but not theorized about yet. Following some few authors (like W. F. Mueller and J. L. Enos at a 1960 National Bureau of Economic Research conference) and public organizations (UK Advisory Council on Science Policy, 1964; Office of Economic Co-operation and Development [OECD], 1966, 1968; US Department of Commerce, 1967; UK Advisory Council for Science and Technology, 1968; Pavitt and Wald, 1971; Layton, 1972), Freeman studied technological innovation as commercialized invention.⁶ He was transforming an old meaning of technological innovation (the 'introduction' or adoption of technological invention in firms) and extending it ('commercialization' of technological invention) to theorize about it and build a new tradition. Freeman adopted the view of the inventor turned businessman (commercializing a new product), rather than that of the adopter (using a new product) as the tradition on technological change had.

Freeman did make a limited use of the literature on technological change to discuss innovation, including process innovation.⁷ To Freeman, this literature was concerned not really with innovation but rather with imitation.

To Freeman and colleagues, innovation “excludes simple imitation or ‘adoption’ by imitators” (SPRU, 1972: 7). This is totally different from previous understandings going back to the beginning of the twentieth century—and before then: anthropologists, sociologists and classical economists studied innovation as the use or adoption of invention—and Freeman’s representation of innovation is controversial (Carter and Williams, 1957: 108). Schumpeter also suggested that innovations “need not necessarily have occurred in the industry under observation, which may only be applying, or benefiting from, an innovation that has occurred in another” (Schumpeter, 1939: 89, fn. 1). References are legion, including authors who have defined innovation as “adoption” (see Chapter 11).

On another concern of the technological change tradition, Freeman certainly started his discussions of chemical processes as being “fundamental to the growth of *productivity* [my italics] and of the economy” and used some input and output measurements as empirical evidence (Freeman, 1974: 43). However, this is all the use he made of productivity, a central concept of the tradition on technological change. Rather, what Freeman used from the literature on technological change is essentially related to firm size. Some writers, among them the Americans Jacob Schmookler and Frederic Scherer, for several years worked to validate (or invalidate) the late “Schumpeterian hypothesis” concerning the role of large firms in technological innovation (or rather R&D). Freeman makes some (but only some) references to these authors (see also Freeman, 1971), so he was not ignorant of the tradition on technological change. However, in choosing not to discuss part of this tradition—not ignoring it completely but certainly minimizing it—he was constructing a new perspective, one that became a new tradition.

In fact, there exist at least two strategies for inventing a new tradition: contrasting it to a previous one or ignoring the previous tradition. The tradition on technological change had already produced a voluminous series of studies at the time of Freeman’s book, particularly on gains in productivity from the use of technological invention in industrial production. Freeman did not discuss these findings.⁸ He recommends what he calls a “direct” measurement of innovations (counting their number based on lists) as an indicator,⁹ rather than productivity gains, which is not mentioned at all. The aim in using this indicator is identifying “first commercial production”, in line with the interest of economists or what that should be (Freeman, 1974: 166, 174), rather than with invention as R&D expenditures and patents documented (Freeman, 1974: 91–96, 199, 206–09; see also Freeman, 1971).¹⁰ Ironically, productivity issues would later come back more strongly in the tradition in another form: national productivity as an indicator of competitiveness between countries. Similarly, unemployment issues continue to be discussed in the tradition as well (Freeman, Clark and Soete, 1982).

In his Introduction, Freeman deplores the fact that economists had not studied technological innovation and had retained it only as a residual (Freeman, 1974: 16–17, 32). This deserves qualification. Certainly, it is

true for Robert Solow—who got into the field by accident—and his much cited (because formalized) paper of 1957. Nevertheless, there was for some decades, as mentioned, a literature on the technological change of American origins whose several authors worked to reduce the residual in the 1960s. It is on his evaluation of these efforts that, in the 1982 edition of his book, Freeman finally offers a reason for rejecting the tradition: "[M]ost economists have given up now on the purely statistical attempts to aggregate the production function and the disaggregation of the components of technical change". To Freeman, the accuracy of these estimates is poor (Freeman, 1982: 196). Freeman's cherished statisticians are rather the English and left-wing scientist John Desmond Bernal and his measurements of a national "budget of science", as well as the OECD—although he takes pains to document the limitations of the organization's statistics.¹¹ Freeman's statistics are descriptive statistics, either absolute or comparative (Freeman, 1974: 175), rather than econometric. In his negative evaluation of econometrics, Freeman was quite severe. The tradition was in good shape at the time of his book, has continued since, and is alive and well today, as demonstrated by the voluminous working paper series (started in 1979) of the Productivity Program of the US National Bureau of Economic Research (NBER), directed by Z. Griliches until 1999.¹²

Secondly, many researchers at the US RAND Corporation and at the NBER conference of 1960 (as well as John Jewkes, 1958) had already started to open the black box, as Nelson pointed out at the time (US National Bureau of Economic Research, 1962: 9). Certainly, the researchers opened the black box of invention, not that of innovation, as S. Kuznets deplored.¹³ Nevertheless, invention is part of what "innovation studies" calls the innovation process. Freeman extended this analysis to innovation and the role of market uncertainty.¹⁴

Thirdly, a few years after the NBER conference, a group that called itself the Inter-University Committee on the Microeconomics of Technological Change, members of which were Alf Conrad, Zvi Griliches, Edwin Mansfield, Jessey Markham, Richard Nelson, Merton Peck, Frederic Scherer and Jacob Schmookler, got a grant from the Ford Foundation to conduct studies on technological change. This enabled the group of young American economists (most of them present at the 1960 conference) to meet from time to time. The work culminated in a 1966 conference held in Philadelphia, attended by most of the Americans who would work on technological change issues in the coming years.

This network produced two early combinations of what we may now identify as two traditions: technological change and innovation studies. These combinations, or syntheses, have remained exceptions in the technological change tradition, but they are similar in scope to that of Freeman some years later. One is Nelson, Peck and Kalachek's *Technology, Economic Growth and Public Policy* (1967). The authors discussed what has been learned from the analysis of technological change, added perspectives on the

industrial process of technological invention and diffusion of technological innovation, ending with unemployment issues. Many of Freeman's ideas are discussed here, from product innovation to the role of users in the experimentation stage. The other synthesis is Mansfield's *The Economics of Technological Change* (1968b). Mansfield brought together the latest findings on technological change and productivity, on technological unemployment, on management of R&D and on the diffusion of technological innovation, and he added perspectives on public policy. His discussion was framed into a highly influential sequential model: invention (R&D) → innovation (first use) → diffusion (spread of use). To this were added → impact (unemployment) → policy.

As long as Freeman's purpose was not to write history, his 'selective' combination of previous writers was in a sense 'normal'. This is what conceptual construction is. However, it is more problematic when such a selection comes from 'histories' of the field. In the last few years, papers have appeared that attempt to 'map' the field of technological "innovation studies" and identify the classic authors behind current research. Such studies are definitely witness to the fact that this field is becoming 'mature' enough to look back at its own scientific production. At the same time, these studies help to provide or to strengthen the identity of a community of scholars around key ideas and authors. However, the danger is that such assessments may function as promotional material for a particular representation of innovation. These studies portray the field as a linear progression from Schumpeter to a neo-Schumpeterian (or 'evolutionary') tradition, without discussing the tradition on technological change as such or most of the authors involved. I will come back to Schumpeter.

Policy as Application

The second perspective Freeman brought to the field is the national policy dimension, consideration of which is relatively absent in the tradition on technological change but which contributed to Freeman's representation of innovation as technological and commercialized. This explains why this tradition developed in Europe. In fact, efforts toward developing a national science policy first emerged in England and led to the setting up of advisory committees as early as 1915 and, more systematically, the 1940s (Gummett and Price, 1977; Gummett, 1980). The demands of scientists for national coordination got a supplementary hearing in the following decade. In the late 1950s, a whole discourse developed in Europe about 'lags' and 'gaps' in science and technology between Europe and the United States. This fed the Organisation for European Economic Co-operation (OEEC) and the OECD efforts to promote the development of science policies among European countries (OEEC, 1959; OEEC, 1960; OECD, 1963a) and to measure trends in R&D and the outcome of policies (OECD, 1962). The route through which discourses on national policies developed is definitively from

England to the OECD. In fact, the first Director General for Scientific Affairs at OECD was Alexander King, who had been first Secretary at the UK Advisory Council for Science Policy (ACSP), created in 1947.

To the OECD, technological innovation became a means to economic growth, productivity and market share (OECD, 1966, 1970). The then fashionable model was (and still is) the United States. Adopting American technology and producing more innovative products would improve firms' productivity and open new markets to European firms. The European discourses on lags and gaps, largely fed by the OECD, got into studies of technological innovation early on and still continues to be discussed today.¹⁵ To a certain extent, SPRU, founded by Freeman in 1966, is a spinoff from the OECD. Freeman had acted as consultant to the OECD since the early 1960s. He wrote the first edition of the Frascati manual (OECD, 1962), then co-produced a policy paper for the first ministerial conference on science (OECD, 1963b) and a methodological study on measuring science (Freeman and Young, 1965). Thereafter, Freeman remained a consultant to the organization (as well as to UNESCO) and participated as expert in many committees responsible for OECD policy reports. Many of his concepts owe their inception to Freeman's work with this organization.¹⁶

Together with some other public organizations in England and the United States, the OECD is responsible for one of the full-length discussions on technological innovation as commercialized invention. Between the early 1960s and 1974, namely between Freeman's first thoughts on technological innovation and his book, the representation of technological innovation as commercialized innovation matured, and governments have been a major contributor to the diffusion of this representation. Many authors in sociology, management and political science were developing new definitions of innovation, but there was no accepted and standardized definition. The OECD and governments selected one of these definitions (commercialization) because of its relevance to policy issues (market share and competitiveness). In fact, among the early titles published on technological innovation, those from public organizations are all concerned with technological innovation as commercialized invention (Arthur D. Little, 1963: 6; OECD, 1966: 9; 1968: 14; US Department of Commerce, 1967: 8; UK Central Advisory Council on Science and Technology, 1968: 1; Pavitt and Wald, 1971: 19; Layton, 1972: xi).¹⁷ These reports contributed to crystallizing a representation on which Freeman could theorize.¹⁸

These public reports also carried a policy perspective, and Freeman was following in these footsteps when he suggested that technological "innovation may be regarded as the ultimate aim [and output] of most applied research and experimental development" (Freeman, 1969) and that it necessitates public support. Yet according to Freeman, over 75 percent of public R&D is devoted to national security and prestige types of R&D (nuclear, military, space). In contrast, low priority is accorded to welfare and environment. To Freeman, the preferential treatment of public R&D to technological

innovation of a “non-economic nature” (the “military-industrial complex”) is due to an advocacy process (“habit, lobby and prestige”, as he put it), rather than “any sophisticated project evaluation techniques” or “elaborate calculations of return on investment” (Freeman, 1974: 286–87). To Freeman, “there is a failure in the market mechanism and also of the political mechanism in relation to technical change in consumer goods and services” (Freeman, 1974: 308). Freeman believed that “new factors are at work” that could and should change the priorities. These new factors were the reduction of tensions between the superpowers, the change in public opinion and social values and the emergence of new problems.

There was a need for “a social mechanism for stimulating, monitoring and regulating innovation, which does not yet exist in any country” and a need for greater “public participation in the process of consumer-oriented innovations”, stated Freeman (Freeman, 1974: 308). Freeman argued for “consumer sovereignty” in relation to technological innovation, a concept first used by the OECD (OECD, 1972: 7). Users of technology (buyers and consumers) should have a say in designing technology. To this end, he offered several suggestions and “coupling mechanisms” like standards and regulations (including on advertising), “direct stimulus” for designs and product development, public representation on committees and, above all, technology assessments. Furthermore, to Freeman, “national science priorities” should be established to support science and technology based on “its contribution to social welfare” (Freeman, 1974: 307). “Present R&D project selection techniques are biased overwhelmingly towards technical and short-term competitive economic criteria . . . [They] should take into account aesthetic criteria, work satisfaction criteria, environment criteria and other social costs and benefits which today are almost excluded from consideration” (Freeman, 1974: 309).

As mentioned, researchers from “innovation studies” contrast their own tradition to the black box of mainstream economists. They developed one more contrast: neoclassical economics *versus* evolutionary economics. Neoclassical economists focus on prices and equilibrium to explain firms’ (rational) behaviour, while evolutionary economists look at the adaptive response of firms to changes in their environment (Freeman, 1974: 253–55, 281–82). In policy matters, the former is said to explain and justify the government’s role in the economy on the basis of market failures, while the latter looks at a more complex set of institutions and rules (Nelson, 2009).¹⁹ However, recent studies have documented that there is much less difference here between the two traditions than commonly assumed (Schroter, 2009; Berman, 2014). Certainly, there is one characteristic shared by the two traditions: their normative and prescriptive orientation. This is clearly evident in Freeman’s vocabulary (*italics mine*): “Quite different priorities *should* be established in the last part of the twentieth century and national policy *should* be concerned to promote other kinds of innovation” (than those “largely determined by the Cold War”) (Freeman, 1974: 41): The

reallocation of R&D resources²⁰ "must therefore be the main concern of national policy for science and technology" (Freeman, 1974: 41), better coupling with the users of innovations, and improvements in consumer goods and services must become priorities (Freeman, 1974: 41–42).

While the policy perspective distinguishes "innovation studies" from technological change, as I have argued, it thus also makes the field an application-oriented specialty.²¹ As reflected in the journal *Research Policy* and in the many books published at Edward Elgar, every discussion on technological innovation includes policy recommendations. Whether the policy perspective drives the conceptual construction and representation of academics on technological innovation or *vice versa* is difficult to say precisely. One thing is certain: given that many researchers work in both academia and public organizations as consultants, both perspectives go hand in hand, and the ideas travel in both directions (Miettinen, 2002).

LEGITIMIZATION

Two authors contributed substantially to Freeman's framework in 1974. The conceptual construction begins by using Fritz Machlup's "wide definition of knowledge industries" (Freeman, 1974: 18), as covering the "generating, disseminating, and applying advances in technology" (Freeman, 1974: 20). It allows Freeman to suggest the idea of an "R&D system" (first suggested in a paper produced for UNESCO in 1969). There is no explicit definition of what a system is, but one understands that it means a complex whole and process responsible for "the ultimate source of economic advance" (Freeman, 1974: 20): production of new products and processes, management and marketing, diffusion (including education and training) and interaction with science (Freeman, 1974: 20–21). Above all, Freeman's system refers to a "professionalized system" whose "growth is perhaps the most important social and economic change in twentieth-century industry" (Freeman, 1974: 21).

The use of Machlup's approach is interesting, as it is totally foreign to the tradition on technological change. Machlup's vision is a broad one, looking at both technological invention and its diffusion, and it would come to characterize the institutional perspective of "innovation studies". Furthermore, Machlup's systemic analysis of the knowledge system in terms of flows of measurable quantities of input and output (his table is reproduced in Freeman's book: 22–23) became that of innovation studies—as well as that of later studies on research evaluation. Freeman's appendices (over 70 pages) are entirely devoted to reproducing parts of OECD and UNESCO manuals on measurements of input and output, manuals to which he contributed. Freeman's use of Machlup is also interesting because the latter had been criticized early on by economists precisely for not being in the 'mainstream' tradition, and, in turn, Machlup criticized econometrics early

on. For example, in 1963 Nelson stated: "Machlup is concerned principally with identifying and quantifying the inputs and outputs of the knowledge-producing parts of the economy and only secondarily with analyzing the function of knowledge and information in the economic system" (Nelson, 1963).²² Despite criticism in America, this kind of analysis and the descriptive statistics suggested by Machlup became very influential among European researchers.

However, it was not Machlup but Schumpeter who got pre-eminence in "innovation studies". On many issues, Freeman gives credit to Schumpeter: Schumpeter "gave innovation pride of place in his models" (Freeman, 1974: 22); "we owe to Schumpeter the extremely important distinction between inventions and innovations" (Freeman, 1974: 22); Schumpeter "rightly pointed out the crucial role of the entrepreneur" (Freeman, 1974: 22). Nevertheless, in the end, Freeman did not defer to Schumpeter. Schumpeter was treated like any other author; he is discussed on one page only and his name does not even appear in the index. Freeman deplored the fact that Schumpeter treated innovation as exogenous to economics (Freeman, 1974: 22); "still less did he have any concept of science policy" (Freeman, 1974: 22). Yet to Freeman, the R&D system "can be subjected to economic analysis"—in line with Machlup's suggestion: "For the economists, it is obviously desirable to examine the operations of this R&D system from the standpoint of its efficiency in employing scarce resources [input-output]" (Freeman, 1974: 26). The resistance to looking at R&D in this sense led to neglecting the study of the whole process of innovation. To correct the situation, Freeman suggested a series of specific questions of an economic nature (Freeman, 1974: 26–27).

This critical (or balanced) use of Schumpeter in the emerging stage of "innovation studies" would soon begin to change. The 1982 edition of Freeman's book contained a "new chapter on unemployment" (presented as such in the Acknowledgements: vii). However, the chapter is more than this. It gives central place to Schumpeter and elects the label "neo-Schumpeterianism" as defining "innovation studies". Although Schumpeter "had relatively little to say about unemployment and wages" Freeman stated (Freeman, 1982: 209) that he nevertheless made "an outstanding original contribution": "more than any other twentieth-century economist [Schumpeter] attempted to explain cycles in economic growth largely in terms of technical innovation" (Freeman, 1982: 207). "Major structural crises, or adjustment", led by technical innovations, explain economic growth and employment. These innovations were seen as major ones (discontinuous), together with the minor innovations that follow and form clusters. To Freeman, such would be a neo-Schumpeterian interpretation of the postwar boom (Freeman, 1982: 208).

Freeman then complemented this interpretation on autonomous invention and entrepreneurship, or supply, with an opposite one on demand, as represented by Jacob Schmookler, and concludes: "science and technology

would tend to dominate in the early stages, whilst demand tends to take over as the industry becomes established" (Freeman, 1982: 211). Following Almarin Phillips, Freeman thereafter discovered two models in Schumpeter—and brought forth two schematic representations (Freeman, 1982: 212–13): one in which science and technology are exogenous (1912), and the other in which they are endogenous (1942).²³ He next added diffusion to the models (and contrasts it to the previous diffusion theory, like E. Mansfield's studies of the 1960s, which put the emphasis on the adopters' profit rather than suppliers): Innovators are attracted by potential profits too. The result is that, over time, innovations tend to focus increasingly on cost-reducing processes rather than new products (a recurrent topic of the tradition on technological change). This is a source of unemployment—hence Freeman's interest in products rather than processes as sources of employment.

Over time, Schumpeter has become *the* starting point of "innovation studies", as though he stood alone. This reductionist view is present elsewhere in the academic literature. History is quite different. From its very beginning, the study of technological innovation was represented by a plurality of voices. The above ideas developed over time, many authors having incrementally contributed to their construction, both before and after Schumpeter (see Chapter 10). There has been no direct (or explicit and continuous) tradition of research from Schumpeter to "innovation studies"—Maclaurin is an exception—but rather a resurrection or "renaissance" (Freeman, 2003). And it is Maclaurin's ideas that are resurrected, as much as those of Schumpeter. It is interesting to note that the very first survey of the field made no reference to Schumpeter—but did refer to Maclaurin (Nelson, 1959).²⁴ Similarly, the early students of technological innovation—like Carter and Williams (1957), Jewkes et al. (1958) and Langrish Gibbons, Evans and Jevons, (1972), as well as Freeman himself (Freeman, 1971; SPRU, 1972)—did not cite Schumpeter. In fact, they did not need Schumpeter at all to discuss many of the issues that would occupy "innovation studies," above all the commercialization of technological invention. When some did cite Schumpeter, it was to discuss his very general and later hypothesis (or speculation) on the size of firms (Nelson, Peck and Kalachek, 1967; Mansfield, 1968a; 1968b); on this issue Freeman used Galbraith and others in his early papers rather than Schumpeter (Freeman, 1971a; 1971). It is these studies, together with the early contributions of Americans beginning in the mid-1950s,²⁵ that constitute the missing link in recent 'histories' of the field, which focus on Schumpeter and jump too quickly directly to 'neo-Schumpeterianism'.

At the same time as Schumpeter was taking central place in "innovation studies," other authors really got eclipsed. I have already mentioned the absence of references to the tradition on technological change, as well as to the historical tradition (or approach) from Maclaurin. The latter was killed (literally: he committed suicide) for being a historiographer and not

an econometrician. "Innovation studies" 'killed' Maclaurin a second time. Certainly, Freeman cites Maclaurin (Maclaurin, 1949)—as some others did at the time in footnotes—but for his work on the history of radio (Freeman, 1974: 112, 115) and not for his 'theory' (or model as most researchers called the linear view of technological innovation) which has nevertheless remained influential for decades. Sociologists on technological innovation merited the same neglect.

Why was Schumpeter resurrected? There is nothing wrong with resurrecting a forgotten author. One may find in a lost author the framework and ideas he seeks for his own construction. However, it may also have to do with identity, originality and legitimacy. Having no established conceptual framework on which to build its case, as the tradition on technological change did—"innovation studies" itself is the 'inventor' of the framework—authors have used the old to justify the new. They have elected Schumpeter, made of him an authority and a symbolic father, and invented a genealogy (widely shared in handbooks, surveys—or mappings—and "histories"—or stories—of the tradition). By also 'killing' other authors, the field could pretend to an autonomous status. 'Big names' like Schumpeter, often help 'sell' one's own idea, more so if they were poorly esteemed in their own time. Without doubt, Schumpeter is an original author among economists. But many more contributors must be added to a story (or history) of thoughts on technological innovation to make it 'scientific'.

But let's go on from Schumpeter. The new chapter from the 1982 edition of Freeman's book was concerned with another topic. It doubled the space accorded to policy in the previous Part III of the book. "The emergence of new technologies and their assimilation . . . is not a smooth continuous process", stated Freeman: [I]t is uneven over time, among industries, and among countries (Freeman, 1982: 220). What does this mean? Policy must come to the rescue: "[T]he promotion of major new technological systems and of *productivity* [my italics] based on technical change may be an important means to help restore the economic health of the mature industrialized countries" (Freeman, 1982: 220). To Freeman, following a then recent OECD document in which he participated as expert (OECD, 1980), three "sets of technology policies seem particularly relevant": encouraging firms to take up radical inventions/innovations, improving the diffusion of technological innovations and importing foreign technology.

To Freeman, government policy *should* be explicit (deliberate) policy rather than implicit. The vocabulary used to discuss such an explicit policy is normative and prescriptive, as in 1974: Policy is *relevant, important, meritorious, essential, useful* . . . (Freeman, 1982: 220–22). To support his case, Freeman's vocabulary makes use of 'universals' (values no one would debate, like social welfare): technology as a strategy (the only one) for improving the income of the population and reducing unemployment (Freeman, 1982: 224).

THE POLITICS OF INNOVATION

Freeman developed a synthesis of previous findings on innovation and introduced a national framework. Until then, innovation was discussed in disciplinary terms (sociology concentrating on social groups, economics and management focusing on firms). Following governments' discussions of innovation, Freeman introduced a national perspective: Technological innovation is not only good for individuals and groups that sociologists study, or for firms as management analyzes, but it is a source of economic growth for a nation as a whole, and there is a need for policy to support the innovators. Certainly, Freeman's perspective remains selective. His synthesis is biased toward certain ideas (minimizing innovation as adoption) and toward emblematic authors like Schumpeter (for reasons of legitimacy); his representation of innovation is "restricted" to industrial innovation and is firm centered; and over time the tradition on "innovation studies" has had little concern with social issues. Nevertheless, the attention devoted to policy gave the tradition a national perspective and consequently got it a government hearing.

With *The Economics of Industrial Innovation*, Freeman launched a whole tradition of research on technological innovation. SPRU researchers would continue with Freeman's perspective and would soon be imitated by other groups worldwide. Certainly the tradition has evolved considerably since Freeman's book, and Freeman himself has been a major contributor to this development. However, the root of the tradition as it now exists was (to many extents) established in this book.

At the same time as being an (academic) innovator, Freeman has been an advocate, or "innovative ideologist", as Quentin Skinner would say. Freeman wrote in response to existing theories and promoted or defended a new point of view: [I]nnovation is the commercialization of technological invention, the method of study is descriptive, and policy has a large role to play in the analysis, which gave the field its normative dimension. While the tradition regarding technological change grew out of issues of technological unemployment and productivity, "innovation studies" developed from interest in management and policy, as much as from purely economic interest—that is, opening the black box to help society (government?) get more out of technological innovation. Innovation as technological innovation emerged out of the 'instrumentalization' of innovation for policy purposes.

In recent years, "innovation studies" has been used to name the field by many researchers involved in studies of innovation. As such, the labeling suggests a monopoly, as if the tradition covers all that concerns innovation, while it rather studies it from a particular perspective: industrial/technological innovation. Different perspectives on innovation exist, but these are eclipsed in the tradition. Few critical discussions are conducted on what innovation is, but, as Freeman did, a particular definition is brought

forth from the start. “Innovation studies” specialize in technological innovation in industrial/organizational settings. To take just one example, both the recent *Oxford Handbook of Innovation* (Fagerberg, Mowery and Nelson, 2005) and the literature on the National System of Innovation gravitate toward the firm and the market: how best to facilitate the commercialization and use of technological inventions. The institutional (and social) aspects of the innovation system are studied for their contribution to the innovative performance of firms. Social issues remain a residual (a residual similar to the one Freeman criticized earlier) and are relegated to others to study.

Over the past decades, “innovation studies” succeeded more than other disciplines (e.g., sociology), that is, got a hearing in governments because, to paraphrase Kevin Sharpe on revolutions (Sharpe, 2000: 6–7), they established a cultural dominance that contributed to political discourses. “Innovation studies” are part of the political culture that was essential to its ascendancy and was instrumental in its creation and survival.

NOTES

1. Product and process innovations are often discussed in term of a dichotomy. However, one industry’s new product often becomes another industry’s process. As Pavitt and Walker once put it, “[P]roduct innovations in capital and intermediate goods automatically become process innovations in the industries and services that buy them” (Pavitt and Walker, 1976: 20; see also Scherer, 1982b).
2. In 1982, the three characteristics were presented as follows: the scientific character of technology, its complexity and the division of labour (specialized laboratory).
3. Process innovation is a concept distinct from that of innovation process.
4. On early studies on innovation as product (or consumer) innovation (within a completely different framework), see Dernburg (1958), Lancaster (1966) and Usher (1964).
5. See also Freeman, 1979: “Innovation is defined (as it usually is, following Schumpeter) as the commercial introduction and exploitation of an invention” (Freeman, 1979: 211).
6. Freeman’s first use of such a meaning goes back to the early 1960s (Freeman, Young and Fuller, 1963: 38). See also Freeman (1971b: 1).
7. Nevertheless, Freeman uses “technological change” regularly in a loose sense, as many did and still do: changes in technologies (new technologies). He also adapted “technological change” into “technical change” and would in many later papers use the term interchangeably with innovation. He also talked of “function”, a term widely used in the tradition on technological change: R&D “function” (Freeman, 1974: 25), “function” of the technology critic (Freeman, 1974: 308–9) and information “function” (Freeman, 1974: 274). Schumpeter also used “function” regularly: entrepreneur function, production function, managerial function, social function (Schumpeter, 1939).
8. R. R. Nelson used a different strategy. He criticized the first tradition explicitly on many occasions since the late 1970s, contrasting it to the second one. However, Nelson’s polarity refers to “method” only: The tradition on technological change is characterized by formal theorizing (statistical and logical) as distinct from the second, which is rather appreciative theorizing (empirical and

interpretative). But there is one more difference: the object of study and the meaning of innovation (use of invention versus commercialization of invention). In matters of method, I would rather suggest a threefold distinction: mathematical, descriptive (rather than interpretative), and historical. Each is typical of a specific community: technological change, "innovation studies" and economic historians. The historical approach is largely absent from the first two traditions.

9. Lists of (important) innovations are a type of data available from surveys. The first such lists were published in the 1930s (US National Research Council), followed by Carter and Williams in the late 1950s. Freeman originally suggested the idea as an afterthought on output indicators in the *OECD Frascati Manual*, which he wrote (OECD, 1962: 37) and then suggested to UNESCO (Freeman, 1969: 25).
10. In 1982, one more rationale was offered: technological innovation as a measurement of R&D efficiency (output) or "cost-effectiveness" (Freeman, 1982: 53–54).
11. Freeman also cherished new techniques like project evaluation, operations research and planning (technology assessment).
12. Productivity issues may be criticized from a theoretical point of view, as Nelson did regularly. However, the issues remain, together with the tradition responsible for them, essential to writing a history of the field and for understanding the emergence of "innovation studies."
13. Two exceptions from the conference were Willard Mueller and John Enos.
14. At about the same time as Freeman (late 1960s), researchers at Manchester had started conducting similar analyses to Freeman's (Langrish, Gibbons, Evans and Jevons, 1972). On precursors on risk and technological innovation, see Lange (1943) and Strassman (1959).
15. Freeman used the concepts (together with that of disparity) regularly in the 1960s in his study conducted at the British National Institute for Economic and Social Research, some of which was financed by the OECD (Freeman, Young and Fuller, 1963; Freeman and Hirsh, 1965; Freeman, Harlow and Fuller, 1965; Freeman, 1968; Freeman and Ray, 1969). See also Freeman, 1971b.
16. In addition to gap (called "disparity" in Freeman and Young (1965) produced for the OECD), Freeman's concept of "research-intensive industries" was first suggested in his report to the first OECD ministerial conference on science (OECD, 1963b), an addition to 'explicit' (and 'direct') policy, as will be discussed, had precursors in the organization too (OECD, 1963a; OECD, 1966).
17. The discussion of innovation as commercialization goes hand in hand with that of competitiveness in terms of market share of new products.
18. Freeman never cited any source for his (early) conception of technological innovation as commercialized invention (see Freeman, Young and Fuller, 1963: 38; Freeman, 1971b: 1). Then, in 1974, he attributed it to Schumpeter. However, in 1972, Freeman cited a government source (the UK Central Advisory Council on Science and Technology, 1968) as authority (SPRU, 1972: 7). Rothwell and Robertson did the same (1973).
19. Sometimes this set is called "historical" or "historical context" (Freeman, 1974: 255), but I prefer institutional or contextual. Certainly, the context and institutions have a history, but most of the analyses of the tradition are not historical. More often than not, history (of a rather recent time span, by the way) comes after the conceptual work in "innovation studies", as a background or residual piece of evidence, although placed first in books and papers.
20. From the military to environment, energy, natural resources, transport, quality of life and underdevelopment.

21. The most active researchers on science policy in the early years of SPRU were Keith Pavitt and Roy Rothwell. Pavitt, as well as Jean-Jacques Salomon in France, worked at the OECD before starting an academic career.
22. Nelson was then working within the mainstream framework, as most American economists did. See Nelson (1964).
23. Freeman (1974: 214) makes much of this short essay-type chapter from 1942 (Schumpeter, 1942: Chap. 12). Freeman, following others, rather offers a personal construction that goes further than Schumpeter's own thought.
24. To be honest, this survey was concerned with invention not innovation. However, Maclaurin was concerned with the latter.
25. A. A. Bright, Y. Brozen, J. L. Enos, B. Gold, W. R. Maclaurin, W. F. Mueller, N. Rosenberg, W. C. Scoville, P. Strassman, and some others.

Conclusion

The history of the concept of innovation has scarcely been studied. To be sure, there are hundreds of studies on technological innovation, particularly after 1970. Yet this literature takes the meaning of innovation for granted, and it attributes the origin of the concept to economics and to one and only one author, Schumpeter. “The term ‘innovation’”, states historian of technology John Staudenmaier, “appears to have originated in a tradition of economic analysis” (Staudenmaier, 1985: 56). Staudenmaier is not alone.¹ This is a common mythic attribution of origin, one of the several mythic attributions to Schumpeter (Godin, 2014).² It is perhaps due to the absence of history on the concept in the literature.

In this book, I have gone farther back in time and documented some eminently political connotations and uses of the concept that may, if taken seriously, lead to more critical studies of innovation, a concept that has become “naturalized” and “legitimized” over the last 60 years. For most of its history, the concept of innovation is a contested and political concept. As ‘introducing change into the established order’, innovation is deviant behaviour, forbidden and punished. It is through religion that the concept of innovation first entered public discourse in the Western world. It was precisely during the Reformation that the fate of the concept was determined for the centuries to follow. In 1548, Edward VI, King of England, issued a declaration *Against Those That Doeth Innouate*. Trials and punishments followed. In the following century, documents by the hundreds made use of innovation to discuss the reformer as heretic, according to counter-reformers, using the word explicitly. Over a hundred of these documents made use of innovation in their titles, a way to emphasize a polemical idea and get a hearing.

Later the concept came to be equated with political revolutions and revolutionaries. The democrat or republican is simply an innovator who proceeds by ‘violent methods’. The word innovation was rarely used by early Republican theorists to make a case for the commonwealth in the seventeenth century. As used by these authors, it was in the then traditional pejorative sense, and more often than not in historical writings or passages or while discussing religious issues. Such would also be the case among political writers in the eighteenth century and philosophers of the Enlightenment.

Next, it would be the social reformers' turn to be accused of being innovators. Like the religious and political innovator, the "social innovator", as some called the social reformer in the nineteenth century, was accused of overthrowing the economic order, particularly property and capitalism. The social innovator is a radical, as many accused French and British socialists of being in the 1830s and after.

The nineteenth century changed these representations. The representation of being revolutionary, which had been negative until then, in turn gave innovation a positive meaning and gave a new life to the concept. Innovation acquired real political significance. While until then innovation had not been part of the vocabulary of innovators but rather a derogatory label and a linguistic weapon against innovators, it became a catchword in every discourse. Innovation gradually acquired a definite positive connotation due to its instrumental function. Innovation is a means to political, social and material ends. This culminated in the application of the concept to economic progress, through industrial or technological innovation in the twentieth century.

Over the centuries, innovation has shifted from being a 'private' (individual) and subversive affair to a social and progressive one. To this end, innovation had to move to another social 'arena' and get disentangled from both religion and state: Innovation serves goals intended to advance society rather than serving (or deserving) government. The value of innovation no longer depends on an assessment of impurity but rather of output. When contested, innovation is the object of satires instead of fears.

The history of the concept of innovation is one of enlargement. Over time, innovation encompasses more and more spheres of life and society:

The more we succeed in persuading people that a given evaluative term applies in circumstances in which they may never have thought of applying it, the more broadly and inclusively we shall persuade them to employ the term in the appraisal of social and political life. The change that will eventually result is that the underlying concept will come to acquire a new prominence and a new salience. (Skinner, 1999: 71)

The first enlargement occurred in the seventeenth century. Innovation as liberty or private opinion is a successor term to or secularized term for heresy. Yet the concept is more than heresy. It includes the political revolutionary or republican and was subsequently to include the social reformer. The next enlargement gave to innovation a positive connotation. In the nineteenth century, innovation condenses or crystallizes into a single word a whole semantic field or cluster of other concepts and ideas: change, novelty, invention, reform, revolution, creativity, originality, utility. Innovation enlarges its meaning and becomes a concept used to talk about the future. The latest enlargement is that of the twentieth century. In the writings of theorists, innovation becomes a *total* process that includes many activities and

people—to the extent that they are concerned with technological innovation (ironically, this enlargement is also a reduction: innovation is technological innovation, as the dominant representation). Last but not least, innovation now serves to include (and relabel) previous views on science and technology, e.g., policy for science and technology becomes (part of) innovation policy; indicators on science and technology become (part of) indicators of innovation. Yet today this canonical representation is shifting again. Recent extensions of the concept are the OECD *Oslo Manual*, which now includes organizational and marketing innovation (OECD, 2005), the literature on “social innovation” (Godin, 2015) and the use of the concept as a metaphor in biology (Reader and Laland, 2003).

A concept integrates multiple meanings, suggests Koselleck. Such is the case with innovation. In the twentieth century, innovation retains the ancients’ connotation of revolution—in a positive sense—as well as the instrumental and purposive connotation. The old dichotomy revolution/reformation has given rise to that of innovation/alteration or major/minor innovation; alteration, a synonym for innovation in the past, is often used in place of minor today. Over the centuries, the concept of innovation has also enriched its scope, from the religious to the political, the social and the economic. Yet this is only part of the story. At the same time, there is “death of historical context”, loss of meanings and mystification (Burke, 1950: 112). “The frequent use of words or indeed names tends to wear down their meaning. They contract and at the same time expand their significance” (Nitzsche, 1948: 464). Today, innovation has lost, to take one example, the spiritual meaning of the Middle Ages (renewing of the soul). Innovation is a concept for inducing action oriented toward practicality.

Enlargement makes of innovation a concept difficult to define equivocally. Innovation is a perfect candidate for valuation. Characterized by an ideal of ‘completeness’ and by subjectivity, innovation is used for diverse ends: political, polemical, instrumental, evaluative. Over the twentieth century, innovation has become:

- *Normative*: Innovation is always good. “Innovation tends to be viewed in positive terms socially. It is a good thing to advocate to participate in”, states John Kimberly, one of the rare critical scholars on the concept of innovation. Rogers has called this normativeness the “pro-innovation bias” (Rogers, 1976). “For the most part, researchers have asserted that innovation is good, and have sought the conditions under which innovation takes place, the conditions which facilitate its diffusion, and the characteristics which distinguish more innovative individuals, groups, and organizations from less innovative ones. One implicit assumption appears to be that research should foster innovation . . . Rarely if ever is not adopting an innovation considered to be a possibly important, adaptive strategy [e.g., “exnovation—the removal of an innovation from an organization”]” (Kimberly, 1981:

84–85, 88). The representation of innovation in “innovation studies” particularly, is essentially unreflexive. It evolves around a key ideology of modernity, namely economic issues and the ‘positive’ contribution of industrial/technological innovation to economic growth. As a consequence, there is little if any questioning of what innovation really is, a normative perspective being offered from the start. Very few researchers stop to examine what innovation means, starting rather with their preferred definition.

- *Performative*: Discourses make innovation happen. Upon pronouncing the word innovation, one has said it all. The theorists study innovation *per se*, with few analyses of the socioeconomic problems it is supposed to contribute to solving. What counts is the *a priori* solution: innovation. In contrast to scholarly disciplines like history and sociology, “innovation studies” is a policy-oriented field. It studies innovation as a phenomenon but also strives to persuade policymakers (and others) of the desirability and inevitability of innovation, said to be the latest or most recent stage of development in society or the economy (e.g., the knowledge-based economy). Together with national governments and international organizations like the OECD and the European Union, the theorists develop narratives, conceptual frameworks and models aimed at supporting innovation.
- *Utopian*: Innovation is an abstract panacea, anti-historical and disconnected from the study of social problems (the problems are taken for granted) but aimed at solving all of humankind’s problems and bringing about in a radical way a perfect society. Innovation has become a panacea for every socioeconomic problem. “Innovation theorists and researchers or public technology policymakers forget that what matters about innovation is its consequences, not innovation *per se*” (Roessner, 1979: 189).
- *Industrial/Market-Centeredness*: The representation of innovation in “innovation studies”, the dominant one, is essentially industrial—and market oriented: Innovation is the commercialization of technological inventions. Invention is not innovation unless it is put on the market. Imitation (adoption of existing innovation) is not innovation because it is not original (first introduction to the market). The study of types of innovation other than technological (cultural, social and political) is relegated to the residual, if discussed at all, and ‘societal’ studies are excluded from the field as it is defined (constructed) in bibliometric studies of “innovation studies”.

Two further examples may serve to illustrate these characteristics. In 2010, the OECD published a document intended to contribute to integrating innovation into the policy agendas of developing countries. *Innovation and the Development Agenda* is part of the OECD Innovation Strategy of that same year. To the OECD, innovation is the new (miracle) solution to

development issues. “The last half-century has seen different approaches to development which have achieved varying degrees of success” (OECD, 2010: 14). In their place, innovation should now be considered a strategy for development: “[M]ost current social, economic and environmental challenges require creative solutions based on innovation and technological advance” (OECD, 2010: 30, 32). But is this really the case, and how so precisely? The document starts with innovation as a panacea, not with problems of development (except in general terms) or the extent (and limitations) to which innovation is or is not a (*the*) solution. But how do people change their behaviour in response to new knowledge (like AIDS)? How do organizations (schools, hospitals) contribute to people adopting new behaviours? It is as though every solution to health, poverty and education needs a technology, a firm, a market.

What would the role of innovation be if the study of problems or demand (social needs) rather than supply (innovation) were the focus of interest? Paradoxically, innovation may appear not to be the universal solution. The majority of developing countries are, first of all, and for better or worse, consumers of knowledge and technology produced elsewhere. There is therefore a need to emphasize these countries’ efforts to absorb (imitate) what comes from outside as much as their own inventive and innovative efforts. To this end, one must shift attention from an exclusive focus on firms as innovators.

The second example is social innovation. Social innovation is generally presented as a new idea, or at least the interest in the idea is presented as new or relatively new (Godin, 2015). This suggests that the phrase appeared after that of technological innovation. In fact, social innovation dates back to the beginning of the nineteenth century as we have seen—a time when technological innovation did not exist in discourse, emerging only after World War II. The recent use or explosion of the phrase social innovation in the literature (its ‘newness’) is only a resurrection. The phrase re-emerged (in a positive light) in the last 30 years as a reaction to technological innovation and to the hegemonic discourses on technological innovation. Social innovation came to mean alternatives to established solutions to social problems or needs, that is, alternatives to technological (industrial) innovation and state or government-supported social reform. In this sense, residues of the nineteenth century’s concept of social innovation as socialism inhere in the theories. To many theorists, the phrase is placed within a left-wing ideology, either explicitly or implicitly. Social innovation favours (should favour, to be so named) the non-institutional, the ‘alternative’ and the ‘marginal’. The ‘community’ and non-profit organizations are favoured sources of social innovation and the focus of many studies. Autonomy, liberty, democracy, solidarity and liberation are keywords that came into use in theories on social innovation. Social innovation is “democratic, citizen- or community-oriented and user-friendly”; it assigns significance to what is “personalized, small, holistic and sustainable”; its methods are diverse, not restricted to

standard science and include “open innovation, user participation, cafés, ethnography, action research”, and the like (Mulgan, 2007).

These two examples show that thinkers from as diverse milieus as policymaking and academia share the same ideology. There is a community of spirit on innovation today—as there was in the past. Innovation is good for everyone: individuals, groups, firms and nations. Innovation is a value, embedded in an ideology. In response to the reactionaries—to whom the “perversity thesis” (innovation is dangerous) is “the most single popular and effective weapon” (Hirschman, 1991: 140)—the progressives have made of innovation a “magic word”, a “rallying-cry”, to use Kenneth Burke’s phrases (Burke, 1950: 110–14), a word as evaluative as it has always been, but now with “prestige and selling-power” (Lewis, 1960: 103–07). Innovation has become a powerful cultural force invested with emotional intensity and enthusiasm. In fact, innovation has never been a descriptive term. Innovation is a word used for both acts of condemnation and acts of praise. In the end, innovation remains a political concept to most of us, including the theorists, as it has been for centuries.

The shift from a vice to a virtue is clear over the centuries. The modern rhetoric is the exact opposite of the past one, “the reaction of an opposite extreme of a past age”, as Hubbard Winslow put it long ago. Yet the shift has been the result of a complex operation: gradual, *parsemé de tensions* and full of controversies. What is new today is a new idea of society, of how the future should be. The present idea of innovation emerged when people started to celebrate progress. Over the twentieth century, industrial/technological innovation assumed the central role and came to define the essence of what innovation is. The concept of innovation is a new outlook on the way people see the world, make sense of it and work to change it. Innovation serves a narrative, a narrative for action, a narrative for action of a specific kind. And this narrative is a successful one. To paraphrase Edward Shils on rationalization, “[Innovation] has thus far been successful because it has not been completely successful” (Shils, 1981: 316).

The changing fortunes of innovation over the centuries shed light on the values of a time. In the seventeenth century, the uses of the concept were essentially polemical. It served as a linguistic weapon, attaching a pejorative label to the views of innovators. Innovation was a word used to exploit emotions, to insult and, as many other words do, to make “the enemy odious or contemptible by asserting he was like somebody or something we already disliked or looked down on” (Lewis, 1960: 323). In *Studies in Words*, Clive Staples Lewis speaks of a “tendency to select our pejorative epithets with a view not to their accuracy but to their power of hurting . . . not to inform . . . but to annoy” (Lewis, 1960: 326). A “word is selected solely because the speaker thought it was the one that the enemy (if he could hear it) would most dislike”. The use of words is tactical—and emotional. It is an attempt to appropriate for one side (praise) and deny to the other (disapproval) a potent word. “The purpose of all opprobrious language is,

not to describe, but to hurt”, suggests Lewis. “We call the enemy not what we think he is but what we think he would least like to be called” (Lewis, 1960: 122).

In contrast, from the nineteenth century onward, innovation started to refer to central values of modern times: progress and utility. As a consequence, many people started appropriating the concept for their own ends. A concept that acquires a positive connotation in one sphere is soon used in others.³ In his book *The Idea of Progress in Antiquity*, Ludwig Edelstein suggests that “ideas themselves, once they are formulated, have a life of their own” (Edelstein, 1967: xxvii). Yet there is danger here that a word, as a “rallying-cry”, may become “semantically null” (Lewis, 1960: 86). “Terms of abuse cease to be language” (Lewis, 1960: 328). Some words, Lewis suggests again, have nothing but a halo, a “mystique by which a whole society lives” (Lewis, 1960: 282). The word seeps into almost every sentence. Over the twentieth century, innovation has become quite a valuable buzzword, a “magic” word. But, as John Pocock puts it on the word revolution, “the term [innovation] may soon cease to be current, emptied of all meaning by constant overuse” (Pocock, 1971: 3).

NOTES

1. “The founding framework of innovation” is Schumpeter (Alter, 2000: 8); “innovation is a concept that belongs first to the business world” (Durance, 2011: 7); “the study of innovation began in economics, notably in the works of Schumpeter” (Cajaiba-Santana, 2013: 43). Bibliometric mappings of the field also put Schumpeter at the forefront. For similar mythic attributions on social innovation, see Chapter 6.
2. Freeman and many others, as mentioned, attribute the “important” distinction between invention and innovation to Schumpeter and suggest that it “has since been generally incorporated into economic theory” (Freeman, 1974: 22). There is also the sequence: invention → innovation → diffusion, which is (wrongly) attributed regularly to Schumpeter. See M. J. Peck and I. R. Siegel in National Bureau of Economic Research (1962: 317, 445), T. S. Kuhn (1962: 451), Georgiou et al. (1982: 1) and N. Rosenberg (1976: 67). In Freeman (1994: 480), Freeman talks of the “Schumpeterian concept” of “diffusion”. Schumpeter was rather concerned with “imitation” and followers among entrepreneurs, not diffusion (a term he uses only once) of innovations through the economy and society. Schumpeter did not study diffusion but jumped from innovations to their effects on the economy (business cycles). Schumpeter may have had the ‘idea’ of diffusion but not the ‘concept’.
3. This story is the same as that of the term revolution. See Koselleck (1969) and Reichardt (1997).

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Appendices

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Appendix 1

A Typology of Usage of Innovation

Isolated occurrences. A document contains only a few uses of the word. Almost every author does so, from the anonymous to the most famous. Innovation is a word used to praise or disparage change and novelty.

Titles. A document has a title containing the word innovation, the purpose of which is to discuss some aspects of innovation (generally one aspect). The document does not necessarily make use of the word in the text. It may use another vocabulary to talk of novelty (change, reformation, revolution).

Discourses. A document develops a full-length rhetoric or argument for or against innovation (with or without the word in the title). Sermons are examples of such discourses. Most of the time, both titles and discourses are produced as replies either to a tract or pamphlet or to the 'context' of the time.

Theories. Theories include a study of what innovation is, how it occurs, with what effects, who innovates, and so on. No theories exist until the late nineteenth century.

Appendix 2

The Etymology of Innovation

FRENCH DICTIONARIES

From *innovare*, *innovatio*

innovation: 1297 (first a legal term, a synonym of novation)

innovate: 1315 (first in a legal context)

novateur: 1500 (1578 according to *Dictionnaire historique de la langue française*)

Source: Oscar Bloch (1968), *Dictionnaire étymologique de la langue française*, Paris: PUF; *Lexilogos*; *Dictionnaire historique de la langue française*.

innovateur: 1483 (1529 according to the *Oxford English Dictionary*)

Source: *Centre national de recherche textuelles et lexicales*; *Dictionnaire historique de la langue française*.

ENGLISH DICTIONARIES

From *in* + *novus*

innovate: 1322

innovation: 1297

innovator: 1598

Source: *Oxford English Dictionary*, 1989.

innovate: 1540s

innovation: 1540s

innovative: 1806

Source: *Online Etymology Dictionary*.

NEOLOGISMS

Ancient (Early Occurrence)

novelist: 1605 (listed in Johnson's *Dictionary of the English Language* (1755)
as innovator; affecter of novelty)

noveller: 1609

novellism: 1629

Source: Early English Books Online (first occurrence)

Modern

innovative: 1608

innovationist: 1800

innovatory: 1853

innovational: 1959 (1946)

innovativeness: 1962 (1957)

innovatively: 1971

Source: Oxford English Dictionary, 1989 (except parentheses, my finding).

innovativity: 2006

innovistic: 1966

Italian Dictionaries

innovare: 1313–19

innovazione: 1364

innovatore: 1527

Source: Manlio Cortelazzo and Paolo Zolli (eds.), *Dizionario etimologico della lingua italiana*, Bologna: Zanichelli, 1979.

innovare: fourteenth century

innovatore: sixteenth century

innovazione: fourteenth century

Source: C. Battisti (ed.), *Dizionario Etimologico Italiano*, Florence: Barbèra, 1952.

Appendix 3

Henry Burton's Vocabulary

The Innovator

abuse
antichrist
beast
builders
changers
creeping gangrene
desperate
devil
distractors
disturbers
dividers
dragon
enemies
false prophets
heretics
malicious
miserable
monster
new Babel-builders
new masters
new reformers
novell doctors
novellers
oppressor
parasites
persecutor
perturbers
planters
pretend
rebel
re-builders
reformers (of religion)

re-founders
Sabbath breakers
Satan
traitors
transgressors
troubler
tyran
usurper
vipers and pests
wicked
workers of iniquity

The innovation

confusion
contrary
corruption
danger(ous)
defection
design
device
different
dishonor
engine
error
evil
faction (factors)
fashion
flattery
fooleries
idol
idolatry and imagination
impiety
infection

invention
libertism
machination
novelty
opposition
original
poison
profanes
rebellion
res novas
sacrilegious
scandal
sedition
separation
subtlety
superstition
toy
zect

Innovating

abrogate
break
bring in
incensing

institute
intoxicate
introduce
metamorphose
overthrow
pollute
prostitute
reduce
reform
remove
restore
turn
undertake
usurping
violate

Effects

destruction
disorder
disunion
division
schism
trouble

Appendix 4

The Vocabulary of Heresy

(Terms are taken from sources studied in Peters, 1980.)

Heresy

(depraved) artifices
absurdity
against the light
babble
baneful doctrine
blaspheme
contest
contradiction (with scripture)
controversy
corruption
damnable
danger
darkness
deception
default
destruction
deviation
devilish and deceitful art
diabolic
discord
discussion
disputation
dispute
dissension
division
doctrine and rite
dogma
emptiness
enemy of the truth; opposed to the truth
enormity
error

evil
fable; fabulous
faction
falsehood
foresake
fraud
illusion
impiety
in conflict (with scripture)
incompatible (with scripture)
infamy
insinuation
insolence
insurrection
mischief
morbidity
myth
nefarious teaching
obscure and abominable
obscurity
obstinacy
offense
opposition
peril
perjury
perversion
pollution
pravity
presumptuous
sacrilege
sacrilegious doctrine
schism
sect

sedition
seductive doctrine
sin
strife
subversion
superfluous
superstition
tare
transgression
uncertainty
vanity
vice
wickedness

The Heretic

a wolf in sheep's clothing
abominable
adversary
ape
appearance
audacious
barbarian
beast; raging beast
blind
cancer
contagious
contradictor
corruptor
crafty animal, poisonous animal
criminal, unlawful
damnable
dangerous
deceiver
defaming
demented
despicable and rustic race
destroyer
devil
devoid of education
diabolical
disease
disfigure
disguise
disobedient
disparage

disrespectful
dissimulator
dragon
enemy
ensnare
excessive
execrable
extreme ignorance
faithless
fautor
feign
flatterer
fool
fox
frantic dog
generate horror
guilty
guise
harmful
heinous
horrible
hostile
hurts, slanders and perils
hypocrite
idol, idolatry
impenitent
impious
improper
improvident
impudent
infamous
infected
insane
insinuate
insolent
intoxicated
invite to revolt
liar
madness
malicious
malignant
miserable
mislead
monstrous
nefarious

not conforming
 obstinate
 opponent
 pedant
 perfidious
 pernicious
 persecutor
 persuasion
 perverse spirit
 perverted
 pest(ilent)ial)
 pestiferous
 poison
 praise for themselves
 presume
 pretend
 profession of words
 propagate
 rashness
 rebel
 ridiculous
 Satan (Apostle of Satan)
 scandalous
 scornful
 scorpion
 seditious
 seducer
 senseless
 separate
 serpent
 sinner
 slave
 snake

son of depravity
 sophist
 stupid
 subject of scandal
 subverted
 talk nonsense
 transgressor
 unlearned
 unlicensed and conceited
 unreasonable
 usurping
 usury, theft, or rapine
 vanity
 vicious
 virus
 weakness of mind
 wolf, ravening wolf, violent wolf
 words and insolence

‘Creativity’

art, artifice, device
 artful deception
 artfully, craftily
 curiosity
 extravagantly, extraordinary
 imagination
 inquiry
 invent
 lover of originality and eager for
 novelty
 new, novelty
 philosopher of modern stamp
 unusual

Appendix 5

The Vocabulary of Innovation (Seventeenth-Century England)

1. On an Age of Innovation

addiction to innovation
age of innovation
age of novelties
challenge of innovation
daily innovations
days of innovation
deluge of innovation
eternal fountain of innovations
innovating (self-love) age
innovating humour
innovating spirit
phantastik age
plague of innovation
scandal of innovation
spirit of innovation
trumpet of innovation

device/design/artifice
disobedience
disorder
disquiet
doubt
encroachment
endeavor
error
evil
extreme
fable
faction
fancy
fashion
folie
fondness of
given to/inclined to/prone to
greedy of
guilty of
heresy
human invention
humane
humour of
idol of fancy
idolatrous
idolatry
illegal
imposture
inducer of
invention
irrational
long for/strive for
love of/desire of

2. On Innovation

abuse
addicted to
affection to
alteration
ambition
apt to/propensity to
change
confusion
corruption
criminal
danger
degeneration
design of

misbelief
 new-fangledness
 novellism
 novelty
 obstruction
 odious
 pollution
 prejudice
 profane
 project; device; design
 purpose of
 rebellion
 reformation
 repugnant
 revolution
 scandal
 schism
 schismatic
 sect
 sedition
 spur of/itch of
 sudden
 superstition
 thirst of/lust of
 trumpery
 tumult
 tumultuous
 turbulent
 tyranny
 unlawful
 usurpation
 violent
 zeal for/labour for

3. On Innovators

absurdity
 abuse
 adversary
 adversary
 agressor
 alterer
 ambiguous
 ambitious
 arbitrary
 arbitrary power

artifice
 assaults
 audacious
 backslider
 blasphamer
 blundering cavils
 bold
 boldness
 boutefeu
 calumnist
 changeable
 changer
 conjectures
 contentious (humour)
 corruptor
 creed-hated
 culpable
 cunning
 dammed errors
 danger
 dangerous
 depraver
 design
 desperate
 despiser (of authority)
 destructive
 device
 dissenter
 disturbed
 disturber
 divider
 doctrines and fooleries
 dreamer
 enthusiast
 erroneous
 especial
 factious (spirit)
 fanatick
 fancies
 fantastick
 fantastik reformer
 fool
 forwardness
 full of confusions
 giddy-brain

giddy-pated	novelty
given to change	obstinacy
grand rebel	obstinate
grossness	odd
heretick	oppressor
hotbrain	overturner
humour	parent of iniquity
idolater	persidious
ignorant	perturber
illegal	perverted
illeterate	pestilent
impertinent	platter
impious	pragmatical agitator
importuner	presumptuous
incendiary	pretender
iniquities	projector
innovating bee	prophanenous
innovating party	propounder
insolent	proud boaster
interested	rash/rude
introducer/bringer in of . . .	rebel
intruder	reformer
irrational	repugner
itching	ridiculous
itinerant	rigid
lawless/unlawful	rude
leading	sacrilegious
leveller	scandalous
libeller	scheme
mad	schismatic
malicious	sect
malignant	sectary
manifest	sectary
matchiavilian	sedition
mean	seditious
men to be avoided	seducer
mis-begotten	self-conceited
mischievous	separatist
misleader	setter up
mutinous	simple
new modeller	simplicities
new/modern	sinful
notorious/notable	sons of innovation
novellist	sophistical
novellizing humorist	sophistications

soul-poisoning
 spirit of error
 stranger
 superstitious
 sworn-men
 temerarious
 trayterous
 trumpet blower
 tumultuous
 turbulent
 turbulent spirit
 tyranny
 undertaker
 unhappy
 unlearned
 unnecessary
 unquiet
 unquiet disposition
 unrestrainable
 upstart
 usurped power
 usurping
 vain
 vain glorious
 vain practices
 vanities and singularities
 vice
 wantonness
 whimsical
 zealous

4. On Innovating

(new) things
 a new fangle
 abrogate/abolish
 act against
 add/diminish
 affected to
 afflict
 all things
 alter
 amend
 anything
 attempt
 bold to

breed disorder
 by degrees
 certain things
 change
 chestise
 conspire
 continually
 corrupt
 de novo
 desire to
 destroy
 detract/depart
 differ
 dispose to
 dispute
 disturb
 divide
 dreams
 endeavour
 enterprise
 establish
 everyday/daily
 everything
 fain/pretend
 falsify
 fit to
 forwardness to
 greatly
 in so high (great) a matter
 inconsiderably
 infringe
 innovating . . .
 intermeddle
 interrupt
 interrupt
 introduce/bring up
 invade
 invent
 invert
 itch to
 labour to innovate
 love to
 many things
 most things
 multiply

mutine
neglect
new opinions
often
omit/leave
omnious to
oppose
pervert
prejudge
prompt to
purge
ready to
reform
remove/withdraw
seek to/wish to
separate
some things
sophisticate

spoyle
strive to
suspected to
take away
things contrary to
too much
transform
transgress
trouble
trumperies
tumultuously
turn
undermine
unjustly
varie
violate/break
violently
wrestling

Appendix 6

John Patterson's Characteristics of Innovators and Anti-innovators

The Anti-innovator

1. Those who cannot appreciate the evidence. These men are “innocent in their opposition . . . [and] in no respect culpable”.
2. Those who will not make themselves acquainted with the new doctrines”.
 - a. Those who are too dilatory to examine. “Light is of no use to them”; “new things are repulsive, and the ‘good old way’ the best”.
 - b. Those who are merged in worldly cares. These are “the slaves of ambition, avarice, or necessity”; they are “the friends of nothing new, till it becomes popular”.
 - c. Those who are actuated by selfish interest, that is, those “educated in a certain school”, the partisan, the orthodox.
 - d. Those whom envy actuates. He envies success or talents.
 - e. Those who want to lead in every thing.
 - f. Those who are naturally of an incredulous and wary disposition.
 - g. Many oppose reform just because some reputed great man does, or because it is fashionable to do so.
 - h. Such as have been deceived once or have discovered deceptions on other occasions.
 - i. Those who fear to investigate lest they will be obliged to receive.
 - j. Those who inherit all true doctrines, that is, biases in early life (education). These men “have furnished the world with nearly all the persecuting sectaries. They had recourse to the more effectual method of the sword, fire and faggot, the scaffold, the rack, the dungeon, and all the instruments of torture”.
3. Those who appreciate the claims of the new doctrine but do not espouse it (conservatives).
 - a. Those subject to temporal necessities. “They would be abandoned by their patrons, lose their salaries, and, perhaps, unable to find other employment, become beggared”.
 - b. Those who are the slaves of habit.
 - c. Those who are bound to hoary error by the ties of friendship.
 - d. The votaries of false honour (“fear of losing the reputation they have won”).

- e. Those who have predominant pride of opinion.
- f. Timid spirits. They lose ease, they choose peace.
- g. Those who apprehend danger from reformatory efforts.
- h. Those who doubt the expediency of engaging in the work of reform themselves.

The Innovator

- 1. Receives no doctrine or opinion upon the mere authority of others.
- 2. Condemns nothing unheard.
- 3. For the purpose of being able to deliberate with candour and impartiality, he studies himself (mental discipline: he studies his judgments and the prejudices of his education).
- 4. Is willing to be convinced. "He rejects nothing new because it is new . . . and clings to nothing old because it is old". He is open-minded.
- 5. Adopts his views regardless of praise or censure. "He chooses the right rather than the popular".
- 6. Fearlessly proclaims his honest convictions.
- 7. The true reformer rather courts than shuns the censure of errorists. He is independent; he examines carefully; he stoops to artifice.
- 8. Adapts himself to progress ("an essential characteristic").
- 9. Is not afraid of heresy. He is liberal.
- 10. Has no vulgar fears about stability of mind. He is changeable but yields to no influence. He investigates. His basis is evidence. His changes are advances.
- 11. Never condescends to vulgar abuse.
- 12. In matters of mere opinion, he usurps no undue authority. He accepts differences of opinion and "wishes the kind of assistance of those who are better informed".
- 13. Extends the hand of fellowship to all mankind. He tries to alter the sufferings of man.
- 14. In faith, as in other things, he is progressive, "regardless of consequences".

Appendix 7

Bacon's Essay *Of Innovation*

As the births of living creatures, at first are ill-shapen so are all innovations, which are the births of time. Yet notwithstanding, as those that first bring honor into their family, are commonly more worthy than most that succeed, so the first precedent (if it be good) is seldom attained by imitation. For ill, to man's nature, as it stands perverted, hath a natural motion, strongest in continuance; but good, as a forced motion, strongest at first. Surely every medicine is an innovation; and he that will not apply new remedies, must expect new evils; for time is the greatest innovator; and if time of course alter things to the worse, and wisdom and counsel shall not alter them to the better, what shall be the end? It is true, that what is settled by custom, though it be not good, yet at least it is fit; and those things which have long gone together, are, as it were, confederate within themselves; whereas new things piece not so well; but though they help by their utility, yet they trouble by their inconformity. Besides, they are like strangers; more admired, and less favored. All this is true, if time stood still; which contrariwise moveth so round, that a forward retention of custom, is as turbulent a thing as an innovation; and they that reverence too much old times, are but a scorn to the new. It were good, therefore, that men in their innovations would follow the example of time itself; which indeed innovateth greatly, but quietly, by degrees scarce to be perceived. For otherwise, whatsoever is new is unlooked for; and ever it mends some, and pairs others; and he that holpen, takes it for a fortune, and thanks the time; and he that is hurt, for a wrong, and imputeth it to the author. It is good also, not to try experiments in states, except the necessity be urgent, or the utility evident; and well to beware, that it be the reformation, that draweth on the change, and not the desire of change, that pretendeth the reformation. And lastly, that the novelty, though it be not rejected, yet be held for a suspect; and, as the Scripture saith, that we make a stand upon the ancient way, and then look about us, and discover what is the straight and right way, and so to walk in it.

Appendix 8

Bacon's Commonplaces on Innovation

For	Against
Every medicine is an innovation.	Things new born are ill-shapen.
He that will not have new remedies will have new evils.	The only author I like is time.
Time is the greatest innovator, why then should we not imitate time?	There is no novelty that does not some hurt, for it unsettles what is.
Ancient precedents are unfit, modern ones corrupt and interested.	Things settled by custom, though they be not good, yet at least they fit one with another.
Leave it to the unskilful and the contentious to act by precedent.	What innovator imitates time, who so insinuates his innovations that they are not perceived?
As those who first bring honour into their family are commonly worthier than their descendants, so are the first precedents commonly better than the imitations of them.	That which comes unlooked for gets the less thanks from him whom it helps, and gives the more annoyance to him whom it hurts.
A forward retention of custom is as turbulent a thing as an innovation.	
Seeing that things alter of themselves to the worse, if counsel shall not alter them to the better, what shall be the end?	
The slaves of custom are the sport of time.	

Appendix 9

Popular Magazines

- 1836 *Le Novateur, journal médical*
- 1839 *Revue des spécialités et des innovations médicales et chirurgicales*
- 1850 *L'innovateur, journal des cordonnier-bottiers* (then *Le moniteur de la cordonnerie* in 1860; an English edition, beginning in 1857: *The Innovator or Boot-and-Shoemaker's Monitor*)
- 1854 *Journal des novateurs dans l'industrie, les sciences, les lettres et les arts*
- 1862 *L'innovateur, revue industrielle et commerciale de la carrosserie*
- 1881 *Le novateur financier*
- 1881 *Le novateur littéraire*
- 1884 *Le novateur*
- 1890 *Le Novateur, journal des inventions pratiques*
- 1896 *L'innovateur médical, journal de médecine et de chirurgie*
- 1897 *L'oeuvre du siècle. Inventions, progrès, innovation* (then *Arts, Sciences, Agriculture*)
- 1901 *Le vulgarisateur des innovations agricoles, organe trimestriel des intérêts agricoles, viticoles du potager et du verger*
- 1901 *L'innovation, journal coopératif bi-mensuel* (then *Revue encyclopédique des connaissances utiles, littéraires et scientifiques*)
- 1902 *L'innovation, journal commercial et industriel*
- 1908 *Journal innovateur: commercial et littéraire*
- 1919 *L'innovateur, chronique du nouveau*

Appendix 10

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Study on the Survey as Instrument for Measuring the Costs of Innovation (1970s–80s)

Reports from Hildren and Bengston, Roberts and Romine, Possner and Rosenberg, Fabricant and Ansari

Studies on Indicators

Reports from Gellman (results published in *Science and Engineering Indicators*, 1976).

Reports from Hill; Hansen

Program on Innovative Networks (1977), aimed at helping state and local governments to use science as a means for solving problems. Seventeen innovative groups supported.

Surveys of innovation (1985 and 1993). Results published in *Science and Engineering Indicators*, 1987 and 1996).

New R&D survey, including innovation (2008).

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