mechanical revolution, and they are still only in their opening stage to−day.

LVIII. The Industrial Revolution

THERE is a tendency in many histories to confuse together what we have here called the mechanical revolution, which was an entirely new thing in human experience arising out of the development of organized science, a new step like the invention of agriculture or the discovery of metals, with something else, quite different in its origins, something for which there was already an historical precedent, the social and financial development which is called the industrial revolution. The two processes were going on together, they were constantly reacting upon each other, but they were in root and essence different. There would have been an industrial revolution of sorts if there had been no coal, no steam, no machinery; but in that case it would probably have followed far more closely upon the lines of the social and financial developments of the later years of the Roman Republic. It would have repeated the story of dispossessed free cultivators, gang labour, great estates, great financial fortunes, and a socially destructive financial process. Even the factory method came before power and machinery. Factories were the product not of machinery, but of the "division of labour." Drilled and sweated workers were making such things as millinery cardboard boxes and furniture, and colouring maps and book illustrations and so forth, before even water−wheels had been used for industrial purposes. There were factories in Rome in the days of Augustus. New books, for instance, were dictated to rows of copyists in the factories of the book−sellers. The attentive student of Defoe and of the political pamphlets of Fielding will realize that the idea of herding poor people into establishments to work collectively for their living was already current in Britain before the close of the seventeenth century. There are intimations of it even as early as More's Utopia (1516). It was a social and not a mechanical development.

Up to past the middle of the eighteenth century the social and economic history of western Europe was in fact retreading the path along which the Roman state had gone in the last three centuries B.C. But the political disunions of Europe, the political convulsions against monarchy, the recalcitrance of the common folk and perhaps also the greater accessibility of the western European intelligence to mechanical ideas and inventions, turned the process into quite novel directions. Ideas of human solidarity, thanks to Christianity, were far more widely diffused in the newer European world, political power was not so concentrated, and the man of energy anxious to get rich turned his mind, therefore, very willingly from the ideas of the slave and of gang labour to the idea of mechanical power and the machine.

The mechanical revolution, the process of mechanical invention and discovery, was a new thing in human experience and it went on regardless of the social, political, economic and industrial consequences it might produce. The industrial revolution, on the other hand, like most other human affairs, was and is more and more profoundly changed and deflected by the constant variation in human conditions caused by the mechanical revolution. And the essential difference between the amassing of riches, the extinction of small farmers and small business men, and the phase of big finance in the latter centuries of the Roman Republic on the one hand, and the very similar concentration of capital in the eighteenth and nineteenth centuries on the other, lies in the profound difference in the character of labour that the mechanical revolution was bringing about. The power of the old world was human power; everything depended ultimately upon the driving power of human muscle, the muscle of ignorant and subjugated men. A little animal muscle, supplied by draft oxen, horse traction and the like, contributed. Where a weight had to be lifted, men lifted it; where a rock had to be quarried, men chipped it out; where a field had to be ploughed, men and oxen ploughed it; the Roman equivalent of the steamship was the galley with its bank of sweating rowers. A vast proportion of mankind in the early civilizations were employed in purely mechanical drudgery. At its onset, power−driven machinery did not seem to promise any release from such unintelligent toil. Great gangs of men were employed in excavating canals, in making railway cuttings and embankments, and the like. The number of miners increased enormously. But the extension of facilities and the output of commodities increased much more. And as the nineteenth century went on, the plain logic of the new situation asserted itself more clearly. Human beings were no longer wanted as a source of mere indiscriminated

power. What could be done mechanically by a human being could be done faster and better by a machine. The human being was needed now only where choice and intelligence had to be exercised. Human beings were wanted only as human beings. The drudge, on whom all the previous civilizations had rested, the creature of mere obedience, the man whose brains were superfluous, had become unnecessary to the welfare of mankind.

This was as true of such ancient industries as agriculture and mining as it was of the newest metallurgical processes. For ploughing, sowing and harvesting, swift machines came forward to do the work of scores of men. The Roman civilization was built upon cheap and degraded human beings; modern civilization is being rebuilt upon cheap mechanical power. For a hundred years power has been getting cheaper and labour dearer. If for a generation or so machinery has had to wait its turn in the mine, it is simply because for a time men were cheaper than machinery.

Now here was a change−over of quite primary importance in human affairs. The chief solicitude of the rich and of the ruler in the old civilization had been to keep up a supply of drudges. As the nineteenth century went on, it became more and more plain to the intelligent directive people that the common man had now to be something better than a drudge. He had to be educated−if only to secure "industrial efficiency." He had to understand what he was about. From the days of the first Christian propaganda, popular education had been smouldering in Europe, just as it had smouldered in Asia wherever Islam has set its foot, because of the necessity of making the believer understand a little of the belief by which he is saved, and of enabling him to read a little in the sacred books by which his belief is conveyed. Christian controversies, with their competition for adherents, ploughed the ground for the harvest of popular education. In England, for instance, by the thirties and forties of the nineteenth century, the disputes of the sects and the necessity of catching adherents young had produced a series of competing educational organizations for children, the church "National" schools, the dissenting "British" schools, and even Roman Catholic elementary schools. The second half of the nineteenth century was a period of rapid advance in popular education throughout all the Westernized world. There was no parallel advance in the education of the upper classes−some advance, no doubt, but nothing to correspond−and so the great gulf that had divided that world hitherto into the readers and the non−reading mass became little more than a slightly perceptible difference in educational level. At the back of this process was the mechanical revolution, apparently regardless of social conditions, but really insisting inexorably upon the complete abolition of a totally illiterate class throughout the world.

The economic revolution of the Roman Republic had never been clearly apprehended by the common people of Rome. The ordinary Roman citizen never saw the changes through which he lived, clearly and comprehensively as we see them. But the industrial revolution, as it went on towards the end of the nineteenth century, was more and more distinctly seen as one whole process by the common people it was affecting, because presently they could read and discuss and communicate, and because they went about and saw things as no commonalty had ever done before.

LIX. The Development of Modern Political and Social Ideas

THE INSTITUTIONS and customs and political ideas of the ancient civilizations grew up slowly, age by age, no man designing and no man foreseeing. It was only in that great century of human adolescence, the sixth century B.C., that men began to think clearly about their relations to one another, and first to question and first propose to alter and rearrange the established beliefs and laws and methods of human government.

We have told of the glorious intellectual dawn of Greece and Alexandria, and how presently the collapse of the slave−holding civilizations and the clouds of religious intolerance and absolutist government darkened the promise of that beginning. The light of fearless thinking did not break through the European obscurity again effectually until the fifteenth and sixteenth centuries. We have tried to show something of the share of the great winds of Arab curiosity and Mongol conquest in this gradual clearing of the mental skies of Europe. And at first it

was chiefly material knowledge that increased. The first fruits of the recovered manhood of the race were material achievements and material power. The science of human relationship, of individual and social psychology, of education and of economics, are not only more subtle and intricate in themselves but also bound up inextricably with much emotional matter. The advances made in them have been slower and made against greater opposition. Men will listen dispassionately to the most diverse suggestions about stars or molecules, but ideas about our ways of life touch and reflect upon everyone about us.

And just as in Greece the bold speculations of Plato came before Aristotle's hard search for fact, so in Europe the first political enquiries of the new phase were put in the form of "Utopian" stories, directly imitated from Plato's Republic and his Laws. Sir Thomas More's Utopia is a curious imitation of Plato that bore fruit in a new English poor law. The Neapolitan Campanella's City of the Sun was more fantastic and less fruitful.

By the end of the seventeenth century we find a considerable and growing literature of political and social science was being produced. Among the pioneers in this discussion was John Locke, the son of an English republican, an Oxford scholar who first directed his attention to chemistry and medicine. His treatises on government, toleration and education show a mind fully awake to the possibilities of social reconstruction. Parallel with and a little later than John Locke in England, Montesquieu (1689−1755) in France subjected social, political and religious institutions to a searching and fundamental analysis. He stripped the magical prestige from the absolutist monarchy in France. He shares with Locke the credit for clearing away many of the false ideas that had hitherto prevented deliberate and conscious attempts to reconstruct human society.

The generation that followed him in the middle and later decades of the eighteenth century was boldly speculative upon the moral and intellectual clearings he had made. A group of brilliant writers, the "Encyclopaedists," mostly rebel spirits from the excellent schools of the Jesuits, set themselves to scheme out a new world (1766). Side by side with the Encyclopaedists were the Economists or Physiocrats, who were making bold and crude enquiries into the production and distribution of food and goods. Morelly, the author of the Code de la Nature, denounced the institution of private property and proposed a communistic organization of society. He was the precursor of that large and various school of collectivist thinkers in the nineteenth century who are lumped together as Socialists.

What is Socialism? There are a hundred definitions of Socialism and a thousand sects of Socialists. Essentially Socialism is no more and no less than a criticism of the idea of property in the light of the public good. We may review the history of that idea through the ages very briefly. That and the idea of internationalism are the two cardinal ideas upon which most of our political life is turning.

The idea of property arises out of the combative instincts of the species. Long before men were men, the ancestral ape was a proprietor. Primitive property is what a beast will fight for. The dog and his bone, the tigress and her lair, the roaring stag and his herd, these are proprietorship blazing. No more nonsensical expression is conceivable in sociology than the term "primitive communism." The Old Man of the family tribe of early palaelithic times insisted upon his proprietorship in his wives and daughters, in his tools, in his visible universe. If any other man wandered into his visible universe he fought him, and if he could he slew him. The tribe grew in the course of ages, as Atkinson showed convincingly in his Primal Law, by the gradual toleration by the Old Man of the existence of the younger men, and of their proprietorship in the wives they captured from outside the tribe, and in the tools and ornaments they made and the game they slew. Human society grew by a compromise between this one's property and that. It was a compromise with instinct which was forced upon men by the necessity of driving some other tribe out of its visible universe. If the hills and forests and streams were not your land or my land, it was because they had to be our land. Each of us would have preferred to have it my land, but that would not work. In that case the other fellows would have destroyed us. Society, therefore, is from its beginning a mitigation of ownership. Ownership in the beast and in the primitive savage was far more intense a thing than it is in the civilized world to−day. It is rooted more strongly in our instincts than in our reason.

In the natural savage and in the untutored man to−day there is no limitation to the sphere of ownership. Whatever you can fight for, you can own; women−folk, spared captive, captured beast, forest glade, stone−pit or what not. As the community grew, a sort of law came to restrain internecine fighting, men developed rough−and−ready methods of settling proprietorship. Men could own what they were the first to make or capture or claim. It seemed natural that a debtor who could not pay should become the property of his creditor. Equally natural was it that after claiming a patch of land a man should exact payments from anyone who wanted to use it. It was only slowly, as the possibilities of organized life dawned on men, that this unlimited property in anything whatever began to be recognized as a nuisance. Men found themselves born into a universe all owned and claimed, nay! they found themselves born owned and claimed. The social struggles of the earlier civilization are difficult to trace now, but the history we have told of the Roman Republic shows a community waking up to the idea that debts may become a public inconvenience and should then be repudiated, and that the unlimited ownership of land is also an inconvenience. We find that later Babylonia severely limited the rights of property in slaves. Finally, we find in the teaching of that great revolutionist, Jesus of Nazareth, such an attack upon property as had never been before. Easier it was, he said, for a camel to go through the eye of a needle than for the owner of great possessions to enter the kingdom of heaven. A steady, continuous criticism of the permissible scope of property seems to have been going on in the world for the last twenty−five or thirty centuries. Nineteen hundred years after Jesus of Nazareth we find all the world that has come under the Christian teaching persuaded that there could be no property in human beings. And also the idea that "a man may do what he likes with his own" was very much shaken in relation to other sorts of property.

But this world of the closing eighteenth century was still only in the interrogative stage in this matter. It had got nothing clear enough, much less settled enough, to act upon. One of its primary impulses was to protect property against the greed and waste of kings and the exploitation of noble adventurers. It was largely to protect private property from taxation that the French Revolution began. But the equalitarian formulae of the Revolution carried it into a criticism of the very property it had risen to protect. How can men be free and equal when numbers of them have no ground to stand upon and nothing to eat, and the owners will neither feed nor lodge them unless they toil? Excessively−the poor complained.

To which riddle the reply of one important political group was to set about "dividing up." They wanted to intensify and universalize property. Aiming at the same end by another route, there were the primitive socialists−or, to be more exact, communists−who wanted to "abolish" private property altogether. The state (a democratic state was of course understood) was to own all property.

It is paradoxical that different men seeking the same ends of liberty and happiness should propose on the one hand to make property as absolute as possible, and on the other to put an end to it altogether. But so it was. And the clue to this paradox is to be found in the fact that ownership is not one thing but a multitude of different things.

It was only as the nineteenth century developed that men began to realize that property was not one simple thing, but a great complex of ownerships of different values and consequences, that many things (such as one's body, the implements of an artist, clothing, toothbrushes) are very profoundly and incurably one's personal property, and that there is a very great range of things, railways, machinery of various sorts, homes, cultivated gardens, pleasure boats, for example, which need each to be considered very particularly to determine how far and under what limitations it may come under private ownership, and how far it falls into the public domain and may be administered and let out by the state in the collective interest. On the practical side these questions pass into politics, and the problem of making and sustaining efficient state administration. They open up issues in social psychology, and interact with the enquiries of educational science. The criticism of property is still a vast and passionate ferment rather than a science. On the one hand are the Individualists, who would protect and enlarge our present freedoms with what we possess, and on the other the Socialists who would in many directions pool our ownerships and restrain our proprietary acts. In practice one will find every gradation between the extreme individualist, who will scarcely tolerate a tax of any sort to support a government, and the communist who would deny any possessions at all. The ordinary socialist of to−day is what is called a collectivist; he would allow a

considerable amount of private property but put such affairs as education, transport, mines, land−owning, most mass productions of staple articles, and the like, into the hands of a highly organized state. Nowadays there does seem to be a gradual convergence of reasonable men towards a moderate socialism scientifically studied and planned. It is realized more and more clearly that the untutored man does not co−operate easily and successfully in large undertakings, and that every step towards a more complex state and every function that the state takes over from private enterprise, necessitates a corresponding educational advance and the organization of a proper criticism and control. Both the press and the political methods of the contemporary state are far too crude for any large extension of collective activities.

But for a time the stresses between employer and employed and particularly between selfish employers and reluctant workers, led to a world−wide dissemination of the very harsh and elementary form of communism which is associated with the name of Marx. Marx based his theories on a belief that men's minds are limited by their economic necessities, and that there is a necessary conflict of interests in our present civilization between the prosperous and employing classes of people and the employed mass. With the advance in education necessitated by the mechanical revolution, this great employed majority will become more and more class−conscious and more and more solid in antagonism to the (class−conscious) ruling minority. In some way the class−conscious workers would seize power, he prophesied, and inaugurate a new social state. The antagonism, the insurrection, the possible revolution are understandable enough, but it does not follow that a new social state or anything but a socially destructive process will ensue. Put to the test in Russia, Marxism, as we shall note later, has proved singularly uncreative.

Marx sought to replace national antagonism by class antagonisms; Marxism has produced in succession a First, a Second and a Third Workers' International. But from the starting point of modern individualistic thought it is also possible to reach international ideas. From the days of that great English economist, Adam Smith, onward there has been an increasing realization that for world−wide prosperity free and unencumbered trade about the earth is needed. The individualist with his hostility to the state is hostile also to tariffs and boundaries and all the restraints upon free act and movement that national boundaries seem to justify. It is interesting to see two lines of thought, so diverse in spirit, so different in substance as this class−war socialism of the Marxists and the individualistic freetrading philosophy of the British business men of the Victorian age heading at last, in spite of these primary differences, towards the same intimations of a new world−wide treatment of human affairs outside the boundaries and limitations of any existing state. The logic of reality triumphs over the logic of theory. We begin to perceive that from widely divergent starting points individualist theory and socialist theory are part of a common search, a search for more spacious social and political ideas and interpretations, upon which men may contrive to work together, a search that began again in Europe and has intensified as men's confidence in the ideas of the Holy Roman Empire and in Christendom decayed, and as the age of discovery broadened their horizons from the world of the Mediterranean to the whole wide world.

To bring this description of the elaboration and development of social, economic and political ideas right down to the discussions of the present day, would be to introduce issues altogether too controversial for the scope and intentions of this book. But regarding these things, as we do here, from the vast perspectives of the student of world history, we are bound to recognize that this reconstruction of these directive ideas in the human mind is still an unfinished task−we cannot even estimate yet how unfinished the task may be. Certain common beliefs do seem to be emerging, and their influence is very perceptible upon the political events and public acts of today; but at present they are not clear enough nor convincing enough to compel men definitely and systematically towards their realization. Men's acts waver between tradition and the new, and on the whole they rather gravitate towards the traditional. Yet, compared with the thought of even a brief lifetime ago, there does seem to be an outline shaping itself of a new order in human affairs. It is a sketchy outline, vanishing into vagueness at this point and that, and fluctuating in detail and formulae, yet it grows steadfastly clearer, and its main lines change less and less.