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Two methods in search of science

Skocpol versus Trotsky

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[M]ethodology can only bring us reflective understanding of the means which have demonstrated their value in practice by raising them to the level of explicit consciousness; it is no more the precondition of fruitful intellectual work than the knowledge of anatomy is the precondition of "correct" walking. ... If methodological work – and this is naturally its intention – can at some point serve the practice of the historian directly, it is indeed by enabling him once and for all to escape the danger of being imposed on by a philosophically embellished dilettantism.

Max Weber

Sociology has founded its scientific credentials on imitating the method of the physical sciences as understood by philosophers. Regulative principles such as Mill's "canons of induction," Hempel's "deductive-nomological explanation," or Popper's "falsificationism" are laid down as *the* scientific method. However, these principles evolved more from philosophical speculation than from careful empirical examination of the "hard" sciences from which they derived their legitimacy. Indeed, when philosophers turned to history and the actual practice of science they found their principles violated. New understandings of science emerged, motivated less by the search for a single abstract universal method and more by the need to explain the *growth* of scientific knowledge. My purpose in this article is to explore the implications for sociology of adopting one of these historically rooted conceptions of science, namely the methodology of scientific research programs proposed by Imre Lakatos, by comparing it with the standard methodology of induction.¹

Organizing and concretizing the comparison requires examples of each methodology that study a similar object in a substantively similar manner. For reasons that will become apparent it is difficult to find pure cases of each methodology, let alone cases that combine comparable

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theories with different methodologies. I chose Theda Skocpol's *States and Social Revolutions* and Leon Trotsky's *Results and Prospects* for the following reasons. First, with important qualifications, they do exemplify the methodologies of induction and research program. Second, both works deal with the causal logic of social revolutions in comparative perspective. Third, they dwell on very similar explanatory variables. Both stress the importance of class struggle, the autonomy of the state, and international relations in the causes as well as the outcomes of revolutions. Thus, Skocpol stresses politico-military crises of state and class domination, the emergence rather than making of revolutionary situations, the uneven development of capitalism, transnational economic relations, and an international system of competing states, world time, and organizational and ideological developments between revolutions, and finally the state as a potentially autonomous structure and independent actor both at home and abroad.² These are precisely the factors Trotsky lays out not only in the work cited above but in his monumental *The History of the Russian Revolution*.³ Because the similarities are so considerable the differences can be more easily isolated and attributed to their divergent methodologies.

It is one of the merits of Skocpol's *States and Social Revolutions* that it attempts to follow rigorously Mill's canons of induction. With a resolution unmatched in historiography Skocpol pursues the causes of social revolutions by examining what "successful" ones have in common and then trying to isolate those causal factors that distinguish successful from "failed" revolutions. Her intent is clear, "How are we ever to arrive at new theoretical insights if we do not let historical patterns speak to us, rather than always viewing them through the blinders, or heavily tinted lenses, of pre-existing theories?"⁴

Induction then is the process of inferring causal explanations from "pre-existing facts." Among the philosophers of science Karl Popper has been the most celebrated opponent of this view, arguing that without a mechanism for selecting among the facts there is no way of inferring theories.⁵ Theories or, as he calls them, conjectures are necessarily prior to the facts that they organize and select. Furthermore, facts are not to be used to verify conjectures but to refute them. Although this is a widely defended position, it is also untenable. Because all theories are born refuted and remain refuted, if we followed Popper's prescription knowledge would be in perpetual chaos rather than grow. We would have no theories if we always abandoned them when they were refuted by facts.⁶

These conclusions led Lakatos to argue that science develops not through refuting theories but by refuting refutations or at least refuting some refutations and ignoring others.⁷ Research programs emerge out of the attempt to protect the premises of earlier scientific achievements against refutation. Scientists define certain *hard core* postulates, which they accept by convention. According to the methodological principle Lakatos calls the *negative heuristic*, refutations of the hard core are not allowed. Scientists defend the hard core of their research program against falsification by various strategies, some of which lead to progressive problemshifts and others to degenerating problemshifts. Protective strategies lead to *degenerating* research programs when they reduce the empirical content of the core postulates by restricting their scope or by labelling anomalies, that is, puzzles or theoretically unexpected outcomes, as exceptions.⁸ *Progressive* problemshifts, on the other hand, resolve anomalies by introducing auxiliary theories that expand the explanatory power of the core postulates. Here scientists follow the methodological principle Lakatos calls the *positive heuristic*, which is a research policy, made up of models and exemplars, for digesting anomalies by constructing theories consistent with the hard core. In other words, a progressive defense of the hard core takes the form of an expanding belt of theories that increase the corroborated empirical content and solve successive puzzles. Scientists should not evaluate one isolated theory against another but rather sequences of theories that make up research programs. According to Lakatos, therefore, scientific revolutions replace degenerating with progressive research programs.

I shall try to show that Trotsky's theory of the Russian revolution can be viewed as part of a progressive Marxist research program. The main focus will be on his 1906 formulation in *Results and Prospects*: "the most radical restatement of the prognosis of the Socialist revolution undertaken since Marx's *Communist Manifesto*."⁹ That Trotsky long predated Lakatos is no reason to deny the relevance of the methodology of research programs. Successful science does not depend on following an articulated methodology.¹⁰ Indeed, some would even say that too much methodological self-consciousness is an obstacle to good science. According to Michael Polanyi, scientists work with inexplicit "tacit skills" and "personal knowledge" that stem from "dwelling in" a research tradition.¹¹ This is one, but not the main, reason why the elaboration of the principles of the research program will, of necessity, have a less definitive character than the corresponding elaboration of the principles of induction. More importantly, the canons of induction

claim to apply to all scientific contexts whereas each research program has its own distinctive principles, or “heuristics” as Lakatos calls them. There cannot be any methodological prescriptions that apply across all research programs.¹²

But I am not concerned simply to compare the two methodologies. In addition I evaluate them in terms of their capacity to advance the science of sociology. However, we need to be clear about the meaning of “scientific advance.” I propose to use Popper’s three criteria for the growth of knowledge.¹³ First a new theory should proceed from some “simple, new, and powerful, unifying idea.” Second, the new theory should be “independently testable,” that is, it must lead to the prediction of new, unexpected phenomena rather than simply accounting for existing phenomena. Third, we require that the theory “pass some new, and severe tests,” that is, some of the predictions must be corroborated.

How do the two approaches measure up to these criteria? Both Skocpol and Trotsky introduce a “simple, new, and powerful, unifying idea.” Skocpol proposes that successful revolutions occur as a result of structural circumstances whereas Trotsky elaborates his theories of combined and uneven development and of permanent revolution to explain the causes and outcomes of different revolutions. Are their theories “independently testable” and do they “pass some new and severe tests?” Skocpol, as I shall try and show, balks at predicting novel phenomena and so avoids the challenge of severe tests whereas Trotsky, in 1906, successfully predicts the outcome as well the outbreak of the Russian revolution but fails in his anticipation of revolution in the West.

With respect to Popper’s criteria of scientific advance Trotsky surpasses Skocpol. This is particularly surprising since – in contrast to Skocpol’s detachment, aspirations to science and claims to be true to “historical patterns” – Trotsky, as a leading participant in the events he analyzes, casts norms of positivist objectivity to the wind. He does not pursue the “treacherous impartiality” of the historian who would “... stand upon the wall of a threatened city and behold at the same time the besiegers and the besieged.”¹⁴

The question then has to be posed: why should the one have fallen short and the other succeeded in fulfilling Popper’s second and third criteria? One answer is that Trotsky’s innate genius allows him to stand head and shoulders above all of us, even Skocpol. But that’s not very

helpful, there's method even in genius. A second answer, the essential rival to the one given in this article, is that the execution of the method rather than the method itself is the source of the differences. This view has two variants. One might argue, as Stinchcombe has, that there is only one true method, the method of induction and Trotsky executes it better than Skocpol.¹⁵ Or one might argue there are indeed two methods but Trotsky carries out his method with greater finesse than Skocpol carries out her's. In this article I hope to demonstrate the opposite. First, there are indeed two methodologies that hold different implications for the development of science. Second, Skocpol carries out Mill's canons with consummate skill until it breaks down, whereas Trotsky, at decisive points, deviates from the research program methodology. That is, neither follows a single method consistently – as I shall show, fortunately for Skocpol and unfortunately for Trotsky. *Skocpol rises above her method while Trotsky sinks below this, yet Trotsky still makes the greater scientific advance, thereby underscoring the superiority of research programs over induction.*

The inherent limitations of Mill's canons of induction compelled Skocpol to violate its principles at crucial points. However, to the extent that she actually does follow Mill's method her work tends to suffer. First, the method of induction denies her the possibility of demonstrating the theory she claims to be demonstrating. Second, far from being a neutral algorithm for deriving theories from facts the method of induction generates theories independent of facts. Third, the method protects its self-generated theory from falsification and competition from other theories. This is encouraged by two methodological assumptions of induction, namely, that in the final analysis the facts (historical patterns) are uncontroversial and that they converge toward one unique theory. Finally, if the method embraces a conception of a one true history, it also tends toward a history of the past discontinuous with the present, a history that pretends to locate the historian outside history. In other words, I try to show that a grounding in the facts turns out to be a grounding in method that separates her from the facts. All this inhibits prediction of novel phenomena. That Skocpol was still able to develop such a powerful theory of revolutions is a tribute to her macro-sociological imagination that *overrode* Mill's methods at crucial points.

Trotsky's strength, on the other hand, lies in his implicit commitment to the methodology of research programs. He grounds himself in a Marxist research program that he elaborates in the light of anomalies, leading him to predictions, some of which are corroborated and others

refuted. But refutation does not lead to the rejection of the Marxist research program but to the construction of new theories on the same Marxist foundation. By throwing up anomalies, history is continually forcing the reconstruction of Marxism, leading, in turn, to the reconstruction of history but also of possible futures. In this conception the historian stands in the midst of history, caught between the future and the past, entering a dialogue with a developing research tradition about the potentialities of the surrounding world. Where Trotsky falls short of the methodology of the research program it is to the detriment of his analysis. His insistence on the revolutionary character of the Western working class is the most startling case of primitive “exception barring” – the refusal to recognize a global counterexample – and certainly limited his contributions to the Marxist research program.

In short, Trotsky does better than Skocpol on Popper’s criteria because his *modal* methodology is that of the research program, while her’s is that of induction. Skocpol’s analysis shines when she repudiates Mill’s canons of induction and pales when she embraces them, just as Trotsky’s Marxism flourishes when he adheres to the methodology of research programs but regresses when he departs from its guiding principles. Therefore, emphasizing the inductive features of *States and Social Revolutions* and the research program features of *Results and Prospects* – as I must do in order to make my argument – inevitably presents Skocpol in a poorer and Trotsky in a richer light than is warranted by an overall assessment of their respective works.

The analysis that follows is a conjecture that calls for refutation, that is, for an alternative explanation for Trotsky’s relative success. To facilitate such a refutation I have organized this article to highlight its general claims. The first part examines Skocpol’s work, mainly *States and Social Revolutions*, and the second part examines Trotsky’s work, mainly *Results and Prospects*. The two works are contrasted in terms of seven antinomies designed to reveal (a) the context of discovery, where we examine how the methodology shapes theory (induction versus deduction, freezing history versus “non-repeating” history, causal factors versus causal processes), (b) the context of justification where I examine how theories are validated (non-falsifiability versus falsifiability, no predictions versus predictions), and (c) the context of the scientist, where I examine how methodology situates the scientist in relation to the world being studied (history of the past versus history of the future, standing outside history versus standing at the center of history).¹⁶

Skocpol

1. *The method of induction*

Skocpol writes that comparative historical analysis has “a long and distinguished pedigree in social science. Its logic was explicitly laid out by John Stuart Mill in his *A System of Logic*.”¹⁷

Basically one tries to establish valid associations of potential causes with the given phenomenon one is trying to explain. There are two main ways to proceed. First, one can try to establish that several cases having in common the phenomenon one is trying to explain also have in common a set of causal factors, although they vary in other ways that might have seemed causally relevant. This approach is what Mill called the “Method of Agreement.” Second, one can contrast the cases in which the phenomenon to be explained and the hypothesized causes are present to other cases in which the phenomenon and the causes are both absent, but which are otherwise as similar as possible to the positive cases. This procedure Mill labeled the “Method of Difference.”¹⁸

Skocpol applies these two principles to discover “the generalizable logic at work in the entire set of revolutions under discussion.”¹⁹ She defines social revolution as “the coincidence of societal structural change with class upheaval; and the coincidence of political and social transformation.”²⁰ For the purposes of her analysis of classical revolutions in France, China, and Russia she reduces social revolutions to two components: political crisis and peasant revolt.

She begins with an examination of the common factors that give rise to a political crisis in France and China:

[R]evolutionary crises emerged in both France and China because the Old Regimes came under unwonted pressures from more developed nations abroad, and because those pressures led to internal political conflicts between the autocratic authorities and the dominant classes ... [A]utocratic attempts at modernizing reforms from above in France and China ... triggered the concerted political resistance of well-organized dominant class forces. In turn, because these forces possessed leverage within the formally centralized machineries of the monarchical states, their resistance disorganized those machineries. ... [T]he successful opposition to autocratic reforms inadvertently opened the door to deepening revolutions in France and China alike.²¹

In Russia, however, the dominant classes were much weaker and succumbed to state reforms. “In Russia, a weak landed nobility could

not block reforms from above. Yet the agrarian economy and class structure served as brakes upon state-guided industrialization, thus making it impossible for tsarist Russia to catch up economically and militarily with Imperial Germany, her chief potential enemy in the European states system.”²² But in all three cases, the state was caught between international pressures calling for reform and the constraints of the agrarian structure which obstructed such reform. “[R]evolutionary political crises emerged in all three Old Regimes because agrarian structures impinged upon autocratic and proto-bureaucratic state organizations in ways that blocked or fettered monarchical initiatives in coping with escalating international military competition in a world undergoing uneven transformation by capitalism.”²³

The task now is to show that both international pressure and an “organized and independent dominant class with leverage in the state” were necessary ingredients for political crisis. Her two contrasting cases are the Meiji Restoration (1868–1873) in Japan and the Reform Movement in Germany (1807–1815). In both cases, but for different reasons, the dominant class was either not powerful (Germany) or did not have leverage in the state (Japan) and therefore did not create a revolutionary political crisis. So the state was able to introduce reforms without sowing the seeds of revolution.

The different fates of these agrarian monarchical regimes faced with the challenges of adapting to the exigencies of international uneven development can be explained in large part by looking at the ways in which agrarian relations of production and landed dominant classes impinged upon state organizations.²⁴

So far so good, but note immediately that the contrasting cases do not demonstrate “international pressure” as necessary for the development of a revolutionary political crisis.

In the next chapter Skocpol examines the necessary conditions for the second component of revolution: peasant revolt. She proceeds as in the previous chapter first with the “method of agreement” and then the “method of difference.” She shows how agrarian structures in France and Russia gave autonomy and solidarity to peasant communities, which combined with a political crisis of a repressive state to produce peasant revolt. She now has to demonstrate that both political crisis and peasant autonomy were necessary for peasant revolt. Let us first take political crisis. For long periods of French, Chinese, and Russian history peasant autonomy only gave rise to localized peasant

rebellion. Only with a revolutionary political crisis does societal peasant revolt occur. To establish the necessity of peasant autonomy, on the other hand, Skocpol must produce cases where political crisis did not lead to peasant revolt.

Given that revolutionary political crises had deposed the absolute monarchs and disorganized centralized administrations and armies, agrarian class relations and local political arrangements in France and Russia afforded peasant communities sufficient solidarity and autonomy to strike out against the property and privileges of landlords. Conditions so conducive to peasant revolts were by no means present in all countries. And their absence could account for why a successful social revolution could not occur, even given a societal political crisis.²⁵

In both the political revolution in England and the failed social revolution in Germany (1848), there was a political crisis but the crucial ingredient for peasant revolt, and thus for social revolution, was missing – an autonomous peasant community. Finally, Skocpol turns to the complex case of China where the peasant community was only potentially autonomous. The potentiality was only realized after 1930 under the direction of a peasant army.

It appears that Skocpol has made a very convincing argument that a successful social revolution involves an agrarian structure paralyzing a state's response to heightened international pressures, leading to a political crisis, which in turn triggers peasant revolt where peasant communities are autonomous and solidary. Only by combining her two sets of arguments into a single table do some of the flaws become visible (see Table 1).

Establishing the necessity of community autonomy for peasant revolt depends on their being a political crisis in Germany in 1848 and England in 1640. But if this is so, then the original analysis of political crisis for France, China, Russia, Japan, and Germany in 1807 no longer holds. For, examining England in 1640 and Germany in 1848, we discover that neither international conflict nor “an organized and independent dominant class with leverage in the state” is necessary for the development of a political crisis, and therefore of social revolution. In short, the application of Mill's method to peasant revolt in chapter three undermines its application to political crisis in chapter two.

Mill's method doesn't deliver what Skocpol claims for it – namely a generalizable logic of revolutions.²⁶ While it is true that in France, China, and Russia the state was unable to respond effectively to inter-

Table 1. Skocpol's arguments

	Method of agreement Successful revolutions			Method of difference Unsuccessful revolutions			
	France	China	Russia	Germany 1807	Japan	England	Germany 1848
International pressure	Y	Y	Y	Y	Y	N	N
Organized & independent dominant class with leverage in state	Y	Y	N	N	N	Y	N
Prosperous agrarian economy	Y	N	N	Y	Y	Y	Y
Solidary and autonomous peasant communities	Y	Y*	Y	N	N	N	N
Political crisis	Y	Y	Y	N	Y	Y	Y
Peasant revolt	Y	Y	Y	N	N	N	N

Y = Yes, Y* = Yes after 1930, N = No.

national pressures due to constraints posed by the agrarian structure, there is nothing in the data to suggest that either such agrarian constraint or international factors were *necessary* for a classical revolution.²⁷

I am not suggesting that Skocpol's insight into the structural determinants of revolution are invalid. Not at all, it remains the "simple, new, and powerful unifying idea" that makes her book a classic. I am suggesting that it does not emerge from nor is it confirmed by Mill's principles of induction. Quite the opposite, applying those principles would seem to falsify her theory.

To sustain her conclusions Skocpol has had to drop her comparative historical method and effectively adopt a conjunctural analysis in which political crises have different causes, according to whether the outcome is a social revolution or not. There is, after all, no reason to

believe that political crises have a unique set of causes. As we shall see, this is an arbitrary assumption that derives from her application of Mill's method.

2. *Freezing history*

We have just seen how Skocpol's historical intuition gets the better of her proclaimed comparative historical method. At other points, however, her method gets the better of her intuition. In crucial respects her theory is an artifact of the two principles of induction. Method becomes a substitute for theory.

To carry out Mill's method of agreement, she *has* to make three assumptions. First, the French, Chinese, and Russian revolutions are members of the same class of objects. She defines revolution as "the coincidence of societal structural change with class upheaval; and the coincidence of political with social transformation"²⁸ so that these three revolutions do indeed appear as particular examples of a single species.²⁹ Second, the same causal factors operate in all three revolutions, i.e., there is indeed *one* theory of social revolutions. Third, the causal patterns leading to failed revolutions are different from the causal patterns leading to successful revolutions. That is, the distinction between revolutions that transform political structures and ones that transform social structures is causally salient.³⁰

These assumptions are tantamount to freezing world history for three centuries from 1640 to 1947, in the sense that throughout this period revolutions are of a single kind and have the same causes. You might say she is keeping history constant or controlling for history. So that, for example, she dismisses the rise of the working class in Petrograd and Moscow in 1917 as *necessary* for the Russian revolution because a similar uprising and was not found in the other two revolutions.³¹ This conclusion is an artifact of her methodology.³² She does not justify it on the basis of an examination of the events of the Russian Revolution.

The methodological assumption of a common causal logic has a second consequence. It rules out the possibility that one revolution might inaugurate new conditions for subsequent revolutions. Here too Mill's method prevails over Skocpol's own judgement. Before getting on with the actual analysis of the revolutions, she writes in the introduction,

[A]ttention should be paid to the effects of historical orderings and of world historical change. ... One possibility is that actors in later revolutions may be influenced by developments in earlier ones; for example, the Chinese Communists became conscious emulators of the Bolsheviks and received, for a time, direct advice and aid from the Russian revolutionary regime. Another possibility is that crucial world-historically significant “breakthroughs” – such as the Industrial revolution or the innovation of the Leninist form of party organization – may intervene between the occurrence of one broadly similar revolution and another.³³

One might add, following Sewell, that the French Revolution enlarged political discourse through the introduction of the ideas of “revolution” and “nationalism.”³⁴ But the method of agreement leads her to smudge out any such historical emulation, borrowings, or breakthroughs. The revolutions have to be constituted as isolated and disconnected events in space and time. They are thereby wrenched out of the organically evolving world history of which they are part.

3. *No causal processes*

I have argued that the application of Mill’s principles of induction to the explanation of peasant revolt undermines its application to the explanation of political crises. On the one hand, in applying the method of difference to the causes of peasant revolt, Skocpol allows political crises to develop out of very different causal contexts. On the other hand, the application of the method of agreement to successful revolutions *assumes*, without empirical or theoretical justification, that for three centuries the causes of political crises are the same. I will now argue that this same inductive procedure also predisposes toward the central feature of her theory, viz. that revolutions are not “made” but “happen.”

According to Mill, “The Law of Causation, the recognition of which is the main pillar of inductive science, is but the familiar truth, that invariability of succession is found by observation to obtain between every fact in nature and some other fact which has preceded it; independently of all considerations respecting the ultimate mode of production of phenomena, and of every other question regarding the nature of ‘Things of Themselves.’ ”³⁵ In seeking a causal logic of social revolutions one therefore looks for empirical regularities or what Skocpol calls “causal associations.”³⁶ That is to say, Skocpol looks for the antecedent conditions common to all successful revolutions and

absent in failed revolutions. This use of Humean causality leaves two things unexplained: the existence of the antecedent conditions and the way they cause their outcome.³⁷ It is precisely these explanatory silences that predisposes toward the view that revolutions “happen.”³⁸

Her *method* leads to an account of the *factors* of social revolutions but not the social *processes* that make those factors *causes*.³⁹ To put it in slightly different terms, the canons of induction aim to discover the *necessary* conditions but not the processes that make those conditions *sufficient* for revolution. An examination of those social processes would involve examining how revolutions are “made.” In short, she comes to the conclusion that revolutions “happen” because her *method* suppresses how they are “made,” because it collapses necessary and sufficient conditions.

This is not to deny that Skocpol spends a great deal of energy describing the processes of revolution – in the analysis of the causes of peasant revolts, or the perceptions of the French landed classes or the struggles among the landed classes in the explanation of the Chinese revolution. Indeed, were it not for these rich and compelling treatments of revolutionary process her book would never have received its well-deserved acclaim. This virtue exists *despite*, not because of, her declared method. The social processes stand outside that method, incidental to the methodological purpose and therefore remain untheorized. She has no theory of how antecedent conditions lead to revolutionary acts.

If Mill’s method, far from being a neutral instrument for deriving a theory from the facts, smuggles in its own undefended theoretical assumptions, a change in method should give different results. In examining the outcomes of revolutions Skocpol drops the strict application of the method of agreement and of differences for the looser strategy in which the ways the old regime collapsed, the timing and nature of peasant revolt, old regime socioeconomic legacies, and world historical events set in motion social struggles among political leaders trying “to assert and make good their claims to state sovereignty.”⁴⁰ Her explanations are “overidentified,” with more independent variables than cases. With so many explanatory factors to manipulate she cannot fail to account for any variation in “state building” particularly when defined as vaguely as “the consolidation of new state organizations.”⁴¹ If her analysis of outcomes does not have the virtue of boldness and precision, does it at least avoid the pitfalls of her theory of revolutionary

causes, namely the absence of causal mechanisms and the artificial separation of cause and consequence?

In principle, yes; in practice, no. Even such a loose use of the method of agreement and differences compels her to locate the differences and similarities of revolutionary outcomes in the exigencies of the revolutionary crisis. So she is forced to present a picture in which the outcome was already present in the crisis. Stalin's victory was inevitable because, in the circumstances of socialism in one country, his economic and political strategy had greater appeal to political elites. We hear nothing of the struggles between Stalin and the Left Opposition, while the struggle between Stalin and the Right Opposition is reduced to the lack of realism in Bukharin's economic strategy. But why then did not Trotsky triumph in 1924, when he was already advocating collectivization and central planning? Why do we have to wait for Stalin to do this in 1929? Although Skocpol acknowledges their importance, her comparative method does not encourage an analysis of the struggles either within the state or outside the state. In her conception, therefore, revolutionary outcomes are immanent in the revolutionary crisis, while revolutions happen as a result of a constellation of structural factors. So history is reduced to either conditional laws or accidents. In both cases the *method* leaves no room for human agency.

4. *Non-falsifiability*

We have seen how the method of induction leads, in some instances to its own rejection (section one) and in other instances to its own arbitrary explanations (sections two and three). So much for the context of discovery, what about the context of justification? Skocpol immunizes her methodologically induced theory against falsification by two different methodological stratagems: by assuming that only one theory can "fit" the "facts" and by refusing to entertain predictions. We deal with the first in this section and the second in the next section.

How does Skocpol claim the superiority of her theory over others? Only in her introduction does she deal with other theories in a sustained fashion. There she argues by assertion. The "purposive image" of revolutions falsely assumes the necessity of value consensus for societal order.⁴² Or relative deprivation theory is too general to disprove,⁴³ although she actually invokes a variant of it herself when she gives an account of peasant rebellions.⁴⁴ There is in fact no adjudica-

tion process among different theories. She assumes that if her theory is correct then others must be wrong, that is to say, she assumes a body of unambiguous “pre-existing” facts that, following the right method, uniquely determine theories. The assumption that a body of indisputable facts provide the bedrock of knowledge is fallacious for two reasons. First, facts themselves are not “given.” Historical facts, in particular, are created out of a vast body of past events. Second, different theories might fit the same facts equally well.⁴⁵ I deal with each fallacy in turn.

Facts are *selected*. For example, to demonstrate that her own “structural” theory fits the facts Skocpol pays little attention to historical facts that would address the importance of the legitimacy of states, or to the role of political parties. She ignores the very facts that would address the validity of competing theories. But more important, facts are already *interpretations*. Here Skocpol’s work is remarkable for ignoring the controversies that are the bread and water of historians’ debates. François Furet’s conservative treatment of different interpretations of the French Revolution shows just how debates over “the facts” have been orchestrated around political interests in the present.⁴⁶ According to Furet himself the French Revolution was not a revolution at all in Skocpol’s sense of a “coincidence of political with social transformation.” He would argue that her interpretation mistakes the mythology of the revolution for its reality and that what marks the revolution is not a transformation of social structure but the “collective crystallization” of a new political discourse. The issue here is not who is right, Soboul, Lefebvre, Mazauric, or Furet, but simply that for Skocpol the facts have a certain obviousness that they don’t for historians. This becomes particularly problematic when she assumes the existence of a societal political crisis (e.g. in Germany in 1848 or in Japan in 1868) or makes claims about “international pressure.” The irony is that, while Skocpol follows the method of induction and insists that historical patterns have their own voice, she pays little attention to the controversies that rage around the historical “facts.” She is forced into this blindness in order to get her induction machine off the ground.

In relying on the method of induction, Skocpol not only assumes that the facts are unproblematic but also that, once constituted, they give rise to a unique theory. Alternative theories are compatible with the same “facts.” For example, Stinchcombe’s reconstruction of the Tocqueville’s and Trotsky’s accounts of the French and Russian revolutions is a variant of the weak state theory.⁴⁷ Revolutions happen when

regimes become ineffective and alternative centers of power emerge. Does Skocpol provide any evidence that this theory is incorrect? If it explains both the successful and the unsuccessful cases then how can she claim the superiority of her theory?

Mill's canons of induction can generate any number of causal explanations from the same facts but cannot discriminate among them on the basis of their truth content. Accordingly, Morris Cohen and Ernest Nagel conclude that the method is useless as a means of discovery or proof.⁴⁸ Instead they suggest that it be adapted to eliminate rather than confirm proposed theories. In other words, Skocpol might have been better off using Mill's method to eliminate Marxist or structural functionalist theories of revolution as violating accepted facts while presenting her theory as a bold conjecture. Instead she does the opposite: dismisses alternative theories by fiat and misconstrues induction as confirming the superiority of her own.⁴⁹

5. *No predictions*

Commitment to principles of induction allows Skocpol to protect her theory from competition with other theories, but does she also protect her theory from facts? Does she make predictions that might be falsified? I have already referred to the passage at the beginning of her book where she lays out her goal: "[T]his book is concerned ... primarily with understanding and explaining the generalizable logic at work in the entire set of revolutions under discussion."⁵⁰ At the end she writes:

Such broad resemblances raise the issue of the generalizability of the arguments presented in this book. Can they be applied beyond the French, Russian, and Chinese cases? In a sense, the answer is unequivocally "no." One cannot mechanically extend the specific causal arguments that have been developed for France, Russia, and China into a "general theory of revolutions" applicable to all other modern social revolutions.⁵¹

Instead of confronting predictions derived from her explanation of classical revolutions, Skocpol develops the rudiments of an alternative theory of modern social revolutions, suited to the political and economic conditions of the last forty years.

Dividing history into two periods, one that is three centuries long (the era of classical revolutions), in which one set of causal factors operate, and one that is forty years long (the era of modern revolutions) in

which a different set of causal factors operate, is certainly a convenient strategy for saving her theory. But it also threatens to undermine her theory. For how does one justify dividing up the entire period from the English revolution to the present into two rather than say four segments? Why isn't there a different causal logic for each of her classical revolutions? After all, the similarity of causal logic was a methodological rather than a theoretical stricture.

It seems that there are only two ways to justify this freezing of history into two blocks. She could claim that modern revolutions are not social revolutions. Or she could derive a set of more general uniformities that encompass the logics of both the modern period and the classical period. Skocpol explicitly repudiates the first alternative in her more recent analysis of the Iranian Revolution. She identifies it as a social revolution and acknowledges that her earlier theory doesn't work: Shi'a Islam was an essential ingredient in an urban-based revolt. "Fortunately [sic], in *States and Social Revolutions* I explicitly denied the possibility of the fruitfulness of a general causal theory of revolutions that would apply across all times and places."⁵²

What about the second justification for distinguishing between modern and classical social revolutions? Are there any underlying uniformities that their causal logics share? She recognizes this strategy and draws the following final conclusion from her analysis: "It suggests that in future revolutions, as in those of the past, the realm of the state is likely to be central."⁵³ Did she have to undertake such an elaborate historical analysis to come to this conclusion? Indeed, isn't the centrality of the state embedded in her very definition of social revolution?

How might she have proceeded if she were interested in developing a causal logic that would span both modern and classical revolutions? According to Skocpol one of the critical aspects that separates the modern period from the classical one is the ability of states to counter revolutions with modern military technology and organization.⁵⁴ This would suggest making state capacity a critical variable in her theory of classical revolutions. Throughout the text, Skocpol does indeed make reference to the ability of states to weather storms of international pressure, resistance from the landed classes, and pressure from peasant rebellions. She notes, for examples, that after 1750 England's war-making capacity was greater than France, and that Prussia was financially and militarily stronger in the 1848 crisis than was France in 1789 or Russia in 1917. She calls attention to the strength of the Tsarist state

vis-a-vis its own landed classes and, before the Crimean War, vis-a-vis other major powers. However, she does not theorize the concept of “state capacity” so as to afford her a link between modern and classical revolutions. Such an approach might, for example, have thrown some light on her original interest in the prospects for revolution in South Africa.⁵⁵

Theories can always be rescued when they fail to correspond to some old or new set of facts. Indeed, according to Lakatos, that is the essence of the growth of scientific knowledge. What is important, however, is the way we deal with such counterexamples. “Monster-barring” (redefining the meaning of social revolution, which Skocpol repudiates) or “exception-barring” (limiting the scope of the original theory to classical revolutions) strategies reduce the empirical content of the theory whereas “lemma-incorporation” (building in an auxiliary theory of state capacity) would enrich the original theory.⁵⁶ Skocpol’s division of the history of the world into two – one where her theory works and one where it doesn’t – is not a stratagem that furthers our understanding of revolutions. But it does follow from induction’s suspicion of prediction and even more fundamentally from its interest in improving conjectures by an increase in truth rather than by the reduction of falsehood. Induction seeks to improve conjectures by avoiding refutations. It purges “the growth of knowledge from the horror of counter-example.”⁵⁷

6. *History of the past*

We have seen that the application of the method of agreement and method of differences does not discriminate among a number of possible theories and introduces arbitrary and undefended theoretical presuppositions of its own, while creating an air of certainty by insulating the theory from both falsification and competition from other theories. These problems derive from the assumption that history is a “corpus of ascertained facts,”⁵⁸ a bedrock of “irreducible and stubborn facts.”⁵⁹ This inductivist school of history sees the present as a vantage point of objectivity from which we can infer generalizations about the past. The remoter the region of the past we investigate the greater the potential for objective history. Insofar as she is committed to induction, Skocpol assumes that the past speaks to us a single message, or a series of messages that converge on some truth, that we can in fact have a history of the past independent of the shifting present. The barrier she erects

between classical revolutions and modern revolutions is only the most startling testimony to her separation of the past from the present. Her refusal to extract any tangible lessons from her analysis of social revolutions equally cuts off the past from the future. But history is inescapably the connection between the past and a future emerging out of the present. "It requires us to join the study of the dead and of the living."⁶⁰ The present constitutes the lens through which we see the past, it generates the problems in whose solution the past can assist, it supplies the vocabulary, the concepts, the theories through which we translate the past into history. As Croce put it, "All history is 'contemporary history.'"

Even if Mill's method calls for it, Skocpol herself knows better than to separate the past from the present. In the opening page of her introductory chapter she justifies her interest in revolutions as follows: "[They] have given rise to models and ideals of enormous international impact and appeal – especially where the transformed societies have been large and geopolitically important, actual or potential Great Powers."⁶¹ As ever, Skocpol's strength lies in her repudiation of Mill's canons of induction.

7. *Standing outside history*

Separating the analysis of the past from the present is necessary to stand outside history as an objective observer. Skocpol, however, makes no such claim to stand outside history. In the preface to *States and Social Revolutions*, she describes the formative experiences that led her to study social revolutions: political engagement in the early 1970s, the puzzle of South Africa, and her exploration of the historical origins of the Chinese revolution. In her compelling reflections on her career, Skocpol again emphasizes the historical and biographical context to explain how it was that she came to undertake such an ambitious project for her dissertation.⁶²

But these reflections only underline the point I am trying to make. While Skocpol recognizes that both she and her theory bridge the past to the future, this recognition is presented as incidental background information, relegated to the preface, to introductory remarks or to an autobiographical statement, but abandoned as she gets on with the method of agreement and difference.⁶³ The interaction of past and present, of social scientist and the world she inhabits, is included only

to be discounted. It is irrelevant to the scientific process, the serious business of deriving theory from data. And yet we saw in section one above that her method, far from explaining how she obtained her theory of revolutions, actually refuted that theory. In other words Mill's canons conceal rather than reveal the source of her theory.

So where does her theory come from? We may now conjecture that wider social and political currents of the civil rights movement and then the post-Vietnam era also insinuate themselves into her theory. It is not farfetched to argue that the emphasis on international factors reflects, not just a critical appropriation of Barrington Moore and Marxism, but the growing consciousness of the rise and then precipitous fall of U.S. dominance in the international arena, just as the autonomy of the state reflects an executive seemingly beyond the control of the public. Her "structuralism" could be traced to a reaction to the social movements of the 1960s in which she participated, movements that carried with them illusions of dramatic change. Finally, the very adoption of a conventional scientific mode to present such a challenge to reigning orthodoxies might be seen as a strategic move for an "uppity" graduate student to gain credibility within the sociological profession. The irony is that Skocpol *is* sensitive to currents around her but denies their contribution by falsely presenting their refracted presence in her theory as the product of her method.

8. *The paradox of induction*

States and Social Revolutions is a rich and complex work. It is not univocal but multi-vocal. At one level it is a careful and determined application of Mill's canons of induction. This is certainly how Skocpol announces her method and organizes her analysis. It is her scientific mode. Closer inspection reveals two other, unannounced modes. When the generic method, in which each case is an exemplar of a general law or pattern, breaks down she substitutes the genetic method in which the causal logic is particular to each case. Second, prior theories insinuate themselves without justification as though they emerged from the application of Mill's canons or as macro-sociological imagination. Ironically, these deviations from Mill's method are the source of her "simple, new, and powerful, unifying idea." Her work suffers to the extent that she rigidly adheres to the method of induction. But for my purposes here her doggedness has the advantage of laying bare the limitations of induction. I now summarize these limitations.

(a) *Context of discovery.* In pretending that theory emerges from the facts, induction hides other sources of theory, namely sociological intuitions and methodological rules. Rather than theory being elaborated as a logical structure with empirical implications, it is presented as a summary of the facts.

(b) *Context of justification.* Should further facts appear to refute the theory, the theory is not reconstructed but simply limited in its scope. There is little attempt to put theories to the more severe test of elaborating their implications for the anticipation of novel facts.

(c) *Context of scientist.* Because facts are given and relatively unproblematic, they are best grasped through methods that strip the researcher of “blinders,” “lenses,” “biases,” etc., that stem from identification with historical traditions and involvements in the present.

We are left with two paradoxes. Induction starts out from pre-existing facts but ends up with unexplicated pre-existing theories. Induction strips the scientist of biases and blinders, but overlooks the biases and blinders of method. If “pre-existing facts” are an illusory foundation for social science, does a foundation in “pre-existing theory” fare any better?

Trotsky

1. *The method of deduction*

Skocpol situates herself in a *positivist* tradition and *induces* her structural theory from “the facts.” Trotsky situates himself within a Marxist *research program* and *deduces* the direction of history.⁶⁴

All scientific research programmes may be characterized by their “*hard core*.” The negative heuristic of the programme forbids us to direct the *modus tollens* at this “hard core.” Instead, we must use our ingenuity to articulate or even invent “auxiliary hypotheses,” which form a *protective belt* around this core, and we must redirect the *modus tollens* to *these*. It is this protective belt of auxiliary hypotheses which has to bear the brunt of tests and get adjusted and re-adjusted, or even completely replaced, to defend the thus-hardened core. A research programme is successful if it leads to a progressive problemshift; unsuccessful if it leads to a degenerating problemshift.⁶⁵

Trotsky takes as his irrefutable hard core Marx’s famous summary of

his studies in the preface to *The Contribution to the Critique of Political Economy*. There Marx describes how history progresses from one mode of production to another. We can divide it into the three postulates of historical materialism:⁶⁶

1. At a certain stage of their development, the material productive forces of society come in conflict with the existing relations of production. ... From forms of development of the productive forces these relations turn into their fetters.
2. Then begins an epoch of social revolution. ... In considering such transformations a distinction should always be made between the material transformation of the economic conditions of production, which can be determined with the precision of natural science, and the legal, political, religious, aesthetic or philosophic – in short, ideological forms in which men become conscious of this conflict and fight it out. ...
3. No social order ever perishes before all the productive forces for which there is room in it have developed; and new, higher relations of production never appear before the material conditions of their existence have matured in the womb of the old society itself.

This is obviously not the only way of constructing the hard core of a Marxist research program. It is the one, however, that Trotsky defends against refutation through the development of his theory of “permanent revolution” and that leads him to predict that socialist revolution will first break out in a country of the second rank rather than in the most advanced capitalist country, as Marx had anticipated.

In *Results and Prospects*, written in 1906, Trotsky defends the three postulates as follows. First, “Marxism long ago predicted the inevitability of the Russian Revolution, which was found to break out as a result of the conflict between capitalist development and forces of ossified absolutism.”⁶⁷ Trotsky describes how Russian absolutism sowed the seeds and then stifled the growth of capitalism in its attempt to defend itself against European states that had grown up on a more advanced economic base. As international rivalry intensified so the Russian state swallowed up more of the surplus and at the same time was unable to develop the parliamentary forms necessary for the growth of capitalism. “Thus, the administrative, military and financial power of absolutism, thanks to which it could exist in spite of social development, not only did not exclude the possibility of revolution, as was the opinion of the liberals, but, on the contrary, made revolution the only way out”⁶⁸

Second, what was to be the character of this revolution? Following Marx the revolutionary outbreak “depends directly not upon the level attained by the productive forces but upon relations in the class struggle, upon the international situation, and finally, upon a number of subjective factors...”⁶⁹ In Russia the working class is the only class with the capacity and the will to carry out a bourgeois revolution against an absolutist monarchy but, that once accomplished, it must advance toward socialism, and the success of this is predicated on support from socialist revolution in the West. Therefore, third, the objective prerequisites for socialism are in place in advanced capitalist countries whereas the subjective prerequisites are to be found in Russia. The theory of the *permanent revolution* – uninterrupted revolution from absolutism toward socialism in Russia and its triggering of revolution in other countries – coordinates the two sets of prerequisites.

We see that Trotsky’s theory of permanent revolution seeks to protect the hard core of Marxism from refutation by the failure of revolution in the most advanced capitalist countries. His theory of permanent revolution focuses on the factors that Skocpol also stresses, namely international relations and the autonomy of the state. Both also recognize the critical role of peasant revolt while agreeing that peasants, in Trotsky’s words, “are absolutely incapable of taking up an *independent* political role”⁷⁰ or in Skocpol’s words “struggle for concrete goals” and “without becoming a nationally organized class-for-themselves.”⁷¹ They differ precisely over the role of the working class.

In order to realise the Soviet state, there was required together a drawing together and mutual penetration of two factors belonging to completely different historic species: a peasant war – that is a movement characteristic of the dawn of bourgeois development – and a proletarian insurrection, the movement signalizing its decline. That is the essence of 1917.⁷²

Where does this difference come from?

2. *History never repeats itself*

Skocpol removes the working class from any critical role in the causes of the revolution through *methodological* fiat, by *assuming* that all three revolutions are caused by the same factors. Where Skocpol’s method leads her to regard the French, Russian, and Chinese revolutions as species of the *same* phenomenon, having the *same* antecedent conditions, Trotsky sees *different* forces operating to produce *different*

outcomes. Where Skocpol freezes history, for Trotsky: “History does not repeat itself. However much one may compare the Russian Revolution with the Great Revolution, the former can never be transformed into the latter. The 19th century has not passed in vain.”⁷³

What lies behind his assertions? What is the positive heuristic, “the partially articulated set of suggestions or hints on how to change, develop the ‘refutable variants’ of the research-programme, how to modify, sophisticate, the ‘refutable’ protective belt”⁷⁴? For Trotsky the central principle that inspires the Marxist problem-solving machinery is the view that history is the history of class struggle. Trotsky adopts as an “exemplar” or “model” Marx’s analyses of the abortive revolution of 1848 in France in *Class Struggles in France* and *The Eighteenth Brumaire*. But he goes beyond them in trying to show how the development of capitalism on a world scale creates a different balance of class forces in different nations.

In the French Revolution the people – petty bourgeois, workers, and peasants – were united under Jacobin leadership to overthrow the feudal order. The French revolution was indeed a national revolution in which bourgeois society settled its accounts with the dominant feudal lords of the past. But capitalism was still embryonic and the proletariat weak and insignificant. The failed German revolution of 1848 reflected the development of capitalism within a distinctive social structure.

In 1848 the bourgeoisie was already unable to play a comparable role. It did not want and was not able to undertake the revolutionary liquidation of the social system that stood in its path to power. We know now *why* that was so. Its aim was – and of this it was perfectly conscious – to introduce into the old system the necessary guarantees, not for its political domination, but merely for a sharing of power with the forces of the past. It was meanly wise through the experience of the French bourgeoisie, corrupted by its treachery and frightened by its failures. It not only failed to lead the masses in storming the old order, but placed its back against this order so as to repulse the masses who were pressing forward. ... The revolution could only be carried out not by it but against it.⁷⁵

All other classes – urban petty bourgeois, peasantry, intellectuals, and workers – were too weak and divided to carry through a revolution against feudal absolutism. In particular, “The antagonism between the proletariat and the bourgeoisie, even within the national framework of Germany, had gone too far to allow the bourgeoisie fearlessly to take up the role of national hegemon, but not sufficiently to allow the working class to take up that role.”⁷⁶

If the development of capitalism in Germany produced a stalemate of class forces, in Russia it shifted the balance of power in the direction of the working class. As a late developer, Russian industry had been infused with foreign capital and nurtured by the state. The state itself, facing international political competition with technically and militarily more advanced states, squeezed the rural economy and suffocated the nascent capitalism. The result was a weak bourgeoisie dependent upon the state and foreign banks. At the same time, by skipping stages of development and transplanting the most advanced forms of industry directly onto Russian soil, capitalism concentrated workers into large factories. Recently torn from their feudal moorings and with only weak craft traditions to contain depredations from the state, the new working class could only resist successfully through revolutionary insurgency. Both the objective necessity of a revolution against absolutism as well as its subjective possibility were laid by the international development of capitalism and its grafting onto the backward Russian social structure.⁷⁷

In explaining the different outcomes of the French, Russian, and failed German revolutions, Trotsky develops his second theory, that of the *combined and uneven development of capitalism on a world scale* and how this sets parameters on the form of class struggles. Capitalism continually expands and transplants itself onto foreign soils and combines with different social structures to produce different constellations of class forces, so that revolutionary changes take on distinctive national characters. “It would be a stupid mistake simply to identify our revolution with the events of 1789–93 or of 1848. ... The Russian Revolution has a quite peculiar character, which is the result of the peculiar trend of our entire social and historical development, and which in its turn open before us quite new historical prospects.”⁷⁸ The theories of permanent revolution on the one hand and of combined and uneven development on the other support each another in protecting the theses of historical materialism – the hard core of the Marxist research program.

3. Causal processes

We saw earlier how Skocpol’s method of induction reduced causal processes to causal associations, causal forces to antecedent conditions. Her method led her to behead a second element of the positive heuristic concerning the role of objective and subjective forces in history: “Men make their own history, but they do not make it just as they

please; they do not make it under circumstances chosen by themselves, but under circumstances directly found, given and transmitted from the past.”⁷⁹ This is the leitmotif for Trotsky’s analysis of history, except that he seeks to develop further Marx’s ideas about the development of the conditions handed down from the past, the way these shape class struggles and how these in turn reshape conditions. Where in Marx the analysis of history as made by people was often separated from the analysis of history as unfolding behind the backs of people, Trotsky brings the two closer together.

In *The History of the Russian Revolution* Trotsky vividly portrays the crumbling of the Russian class structure and the rising fortune of the revolution as the interweaving of micro and macro social processes. There is no space to do justice to Trotsky’s majestic analysis here. Arthur Stinchcombe’s fascinating rendition of Trotsky’s theory stresses the following.⁸⁰ The Provisional Government loses its authority due to declining effectiveness and to the development of alternative centers of power in which peasants and workers can participate. The erosion of government authority affects the working class, the soldiers, and the peasantry differently at different times, differences that can be explained in terms of their social, political, or geographical position. As institutions lose their purposive character, they become social fields of open struggle. Finally, Stinchcombe points to Trotsky’s diagnosis of the accumulation of micro processes that change the revolution’s momentum at critical junctures as well as opening up new historical possibilities for contending forces.⁸¹

Instead of Skocpol’s artificial detachment of cause and consequence – revolution, its antecedents, and its outcomes – Trotsky focuses on the social process of revolution. “The pulse or event conception of cause, popularized by Hume and by the psychological experiment, fits very uncomfortably with Trotsky’s mode of analysis. There is no event that causes the army to be less ready to go into rebellion than the workers, but ‘molecular processes’ of contrasting speeds.”⁸² He carries forward Marx’s project of establishing the micro-foundations of a macro-sociology, of understanding how individuals make history but not necessarily in ways of their own choosing.⁸³

The molecular processes which set the revolution in motion also propel it forward into the future. As he anticipated as early as 1906, in Russia, once the proletariat comes to power with the support of the peasantry

it cannot stop at a democratic revolution but will have to go forward toward collectivism and neutralize opposition from the peasantry.⁸⁴

The very fact of the proletariat's representatives entering the government, not as powerless hostages, but as the leading force, destroys the border-line between maximum and minimum programme: that is to say it *places collectivism on the order of the day*. The point at which the proletariat is held up in its advance in this direction depends upon the relation of forces, but in no way upon the original intentions of the proletarian party.⁸⁵

The duality of revolutionary process, namely the concentration of bourgeois and proletarian revolution in a single process, would define the distinctive problems of the new socialist regime. A ruling caste, a dictatorship *over* the proletariat, would emerge because the forces of production are underdeveloped, because sections of the peasantry together with elements of the landed classes, bourgeoisie, and petty bourgeoisie would combine forces to overthrow the socialist order, and because the working class would be decimated and exhausted in the ensuing civil war, thus allowing the detachment of the communist leadership from its working-class base. This is the scenario Trotsky anticipates already in 1906 and paints more vividly thirty years later in *The Revolution Betrayed*.

Thus where Skocpol sees the rise of Stalinism as *immanent* within the peculiar historical circumstances in which the revolution was forged, Trotsky sees these as the *context* of struggles, reconstructed in each subsequent critical conjuncture. Indeed, following Deutscher, one can see the end of the New Economic Policy and the subsequent imposition of forced industrialization and collectivization in 1929 and 1930 as continuing the permanent revolution that Trotsky had anticipated in 1906.⁸⁶ Already in exile, Trotsky himself did not regard Stalin's Left course in this light. He was too strongly imbued with Lenin's vision that once the socialist revolution had taken place it would *evolve* toward communism. He saw the continuity of the permanent revolution in its international dimension. Its failure there, however, had driven the permanent revolution inward, where it took the form of Stalin's revolution from above.

History is determinate for Trotsky but he allows subjective as well as objective factors to pave the way to the future. Soviet Thermidor under the flag of socialism in one country was only one of several responses that emerged in the decade after the revolution. His own position of fomenting international revolution was one alternative and Bukharin's

advocacy of the continuation of NEP was another. Writing in 1936, Trotsky interprets the “zig-zags” in the post-revolutionary period as a social process, enabling him to anticipate the future. “The scientific task, as well as the political, is not to give a finished definition to an unfinished process, but to follow all its stages, separate its progressive from its reactionary tendencies, expose their mutual relations, foresee possible variants of development, and find in this foresight a basis for action.”⁸⁷

4. *Falsifiability*

By taking the facts as given and by assuming that only one theory can fit the facts, Skocpol justifies shunning any trial of validity between her theory and other theories and closing herself off to refutation. Trotsky, on the other hand, roots himself in Marxism and sees his task as resolving the anomalies generated by Marxism, that is, turning counterexamples into corroborations of the Marxist hard-core premises by building new theories. The positive heuristic saves the scientist from drowning in the “ocean of anomalies” that all research programs face.⁸⁸ The point is to select among the anomalies those whose solution one expects to advance most successfully the research program. The development of a research program depends, therefore, on the articulation and clarification of its apparent refutations and on a mechanism for ordering and then digesting them.

Different belts of Marxism are defined by the anomalies they seek to solve. German Marxism had to confront the expanding working-class support for a social democratic party that did not challenge the framework of capitalism. Out of this emerged three major constellations of theory – those of Kautsky, Luxemburg, and Bernstein. Russian Marxism confronted the opposite anomaly: a strong and radical working class in a nation that was economically and politically backward. “In spite of the fact that the productive forces of the United States are ten times as great as those of Russia, nevertheless the political role of the Russian proletariat, its influence on the politics of its own country and the possibility of its influencing the politics of the world in the near future are incomparably greater than in the case of the proletariat of the United States.”⁸⁹

As we have seen, Trotsky sought to reconstruct Marx’s view, explicit in the three volumes of *Capital*, that the most advanced society shows to

the more backward societies their future, “De Te Fabula Narratur,” and that therefore socialist revolution will occur first in the capitalist country whose forces of production are the most developed. For Marx’s linear view of history, he substitutes the theory of combined and uneven development of capitalism.

The laws of history have nothing in common with a pedantic schematism. Unevenness, the most general law of the historic process, reveals itself most sharply and complexly in the destiny of the backward countries. Under the whip of external necessity their backward culture is compelled to make leaps. From the universal law of unevenness thus derives another law which, for lack of a better name, we may call the law of combined development – by which we mean the drawing together of the different stages of the journey, a combining of separate steps, an amalgam of archaic with more contemporary forms. Without this law, to be taken of course in its whole material content, it is impossible to understand the history of Russia, and indeed of any country of the second, third or tenth cultural class.⁹⁰

The political counterpart to the theory of combined and uneven development of capitalism is his theory of permanent revolution.

If it can be said that Trotsky’s two theories contain “simple, new, and powerful, unifying ideas” and that they normalize certain anomalies in the Marxist research program do they do this by an arbitrary patching up or do they anticipate novel facts? And if they predict novel facts are these then corroborated? These are Popper’s second and third criteria for the advance of scientific knowledge. They also demarcate “mature” from “immature” science, progressive from degenerating research programs.⁹¹

5. Predictions

Trotsky shares none of Skocpol’s hesitation about making predictions. Writing in 1906, Trotsky not only anticipated the Russian revolution, but the processes whereby it would take place as well as its outcomes. We have already seen how Trotsky predicted the unfolding of the Russian Revolution as a permanent revolution in which “... the proletariat, on taking power, must, by the very logic of its position, inevitably be urged toward the introduction of state management of industry.”⁹² But the Russian revolution had to be a permanent revolution not only in the sense of moving from bourgeois democratic to socialist goals but also in the sense of moving from Russian soil to the advanced capitalist countries of Europe. “*Without the direct State support of the European*

proletariat the working class of Russia cannot remain in power and convert its temporary domination into a lasting socialist dictatorship. Of this there cannot for one moment be any doubt."⁹³ The fate of the Russian revolution is tied to the fate of the revolution in Europe.

Trotsky fulfills Popper's second and third criteria for the advance of knowledge and Lakatos's requirement that a progressive research program is one that goes beyond existing facts to predict new ones. If he is successful in anticipating the Russian Revolution, he is wide of the mark in his anticipation of revolution in Western Europe. Where did Trotsky slip up? He argues that the Russian revolution could spread into Europe in a number of ways. "The Russian revolution would certainly give a strong impetus to the proletariat movement in the rest of Europe, and in consequence of the struggle that would flare up, the proletariat might come to power in Germany."⁹⁴ The Russian revolution would most likely spread to Poland forcing the Germany and Austrian states to declare war against the new powers. "But a European war inevitably means a European revolution."⁹⁵ Finally, France's implication in the Russian economy would mean that a declaration of state bankruptcy in Russia could create such an economic crisis in France as to lead to revolution there.

Behind the optimism lies the assumption that the working class in Europe was prepared to grab the earliest opportunity for revolution. What evidence does Trotsky offer in 1906? He refers to the growing strength of social democracy. Here he distinguishes between the conservatism of European socialist parties and the radicalism of the workers who therefore would eventually have to take history into their own hands. Deutscher refers to this view as a "necessary illusion" without which Lenin and Trotsky would never have had the courage to lead the revolution in Russia.⁹⁶ Despite set-back after set-back, Trotsky would retain, what Krupskaya referred to as, his underestimation of the apathy of the working class.

Such revolutionary optimism can also be found in his treatises on fascism written while in exile on the Isle of Prinkipo. Between 1930 and 1933 Trotsky's writings predicted the rise of German fascism and the threat this would pose to international peace and the socialist movement. While almost everyone else was belittling changes afoot in Germany, Trotsky saw their true significance in prophetic detail. Relentlessly but without success he fought against the Comintern's identifica-

tion of fascism and social democracy, a strategy that divided the four-and-a-half million Communists against the socialists when only their unity could have saved German civilization from barbarism. To the end Trotsky had faith that the German working class would rise up against Hitler and forestall the tragedy he had anticipated.

History turned out otherwise. Trotsky's analyses were time and again shipwrecked on the rock of the Western proletariat.⁹⁷ It would be another Marxist, Antonio Gramsci, who would carry Marxism forward, incorporating Trotsky's understandings into a broader interpretation that would try to come to terms with the failure of the revolution in the West. In his *Prison Notebooks* Gramsci takes Trotsky to task for extending the theory of permanent revolution to modern European societies. The Paris Commune spells the end of a period when frontal assault on the state was possible. After 1870 in Europe generally, the extension of education, the elaboration of legal institutions, and above all the emergence of political parties and trade unions, in short the development of civil society, require the building up of ideological and organizational forces in a "trench warfare" before conquering the state. Following Gramsci's military metaphors, the war of position takes precedence over the war of movement. Trotsky's theory of permanent revolution reflects "the general-economic-cultural-social conditions in a country in which the structures of national life are embryonic and loose, and incapable of becoming 'trench or fortress.'" ⁹⁸ "In Russia, the state was everything, civil society was primordial and gelatinous: in the West there was a proper relation between State and civil society, and when the State trembled a sturdy structure of civil society was at once revealed."⁹⁹

This is obviously no place to enter into a discussion of Gramsci's theory of ideology and politics. Two points are worthy of note. First, it throws into relief Skocpol's failure to theorize the differences between modern and classical revolutions. Rather than breaking the past from the present, Gramsci uses the past to highlight what is distinctive about the present and future. Second, it demonstrates the progressive development of a research tradition. Gramsci builds a new belt of theory to protect the Marxist core against anomalies generated by classical Marxism of the Second International and Russian Marxism as well as pointing to the future. These anomalies, the biggest being the failure of revolution in the West, are not refutations of Marxism but "puzzles" requiring the elaboration of the Marxist "research program."

My introduction of Gramsci to illustrate the elaboration of a research tradition should not be misunderstood. I am not using Gramsci to load the dice in favor of Trotsky as against Skocpol. Trotsky stands by himself. His superiority cannot be reduced to a sensitivity to molecular processes but involves a self-conscious commitment to a research tradition, forcing him to wrestle with well-defined anomalies and thereby leading him to create new theories with new predictions.

6. *History of the future*

In seeking a history of the past separated from the future, Skocpol appeals to “the facts.” She is in search of those causal associations that will once and for all explain classical revolutions. Trotsky dialogues with the past in search of a future whose possibilities lie in the present. The reconstruction of history becomes a vehicle for understanding ways out of a continually changing present. Because it is relative to the future, his history has no permanence. “The absolute in history is not something in the past from which we start; it is not something in the present, since all present thinking is necessarily relative. It is something still incomplete and in the process of becoming – something in the future towards which we move, which begins to take shape only as we move towards it, and in the light of which, as we move forward, we gradually shape our interpretation of the past.”¹⁰⁰ “Good historians,” writes Carr, “whether they think about it or not, have the future in their bones.”¹⁰¹ Trotsky does think about it. He examines the French and failed German revolutions to anticipate the Russian revolution.

As Marxism tries to grab onto an always changing target, the possibility of socialism, so it too must continually transform itself.

Marxism is above all a method of analysis – not analysis of texts, but analysis of social relations. Is it true that, in Russia, the weakness of capitalist liberalism inevitably means the weakness of the labour movement? Is it true for Russia, that there cannot be an independent labour movement until the bourgeoisie has conquered power? It is sufficient merely to put these questions to see *what a hopeless formalism lies concealed beneath the attempt to convert an historically-relative remark of Marx's into a supra-historical axiom.*¹⁰²

Marxism must keep up with history while maintaining a commitment to its hard core premises.

History belied Marxism's early optimism, which anticipated socialist revolution in Europe. This led Trotsky to focus on what Marx had overlooked, namely the combined and uneven character of capitalist development, and from there it was a short move to study the economic and political relations among states, as well as the different ways of fusing class structures. He was able to anticipate the Russian Revolution but was unable to come to terms with the continuing failure of revolution in the West. Gramsci, by focusing on the different character of state and civil society in the West and the East, anticipated the trajectory of European socialist movements. He helped to lay the foundation of what is today known as Western Marxism, with its stress on ideological factors. As a result Marxists have developed a new appreciation for cultural forms in earlier history. The strangulation of socialist movements in the Third World after the Second World War called for new theories of underdevelopment. Armed with such theories, highlighting the international character of the capitalist economy, Immanuel Wallerstein reconstructed the entire history of capitalism. More recently, events in Eastern Europe generate a new set of "puzzles," namely workers' struggles for socialism in the garb of nationalism and against so-called socialist states. This calls for the elaboration of Marxist theories of state socialism, shedding a different light on earlier struggles for socialism. Challenged by feminist theory, itself in part provoked by the expansion of women's participation in the economy and public life, Marxism has been forced to incorporate gender into its understanding of political economy and class formation, not only in the present, but in the past too.

As history unfolds, so it throws up anomalies, usually crystallized in epochal events, compelling Marxism, on pain of degeneration, to reconstruct itself, but on an enduring foundation. From the reconstruction of Marxism follows the reconstruction of history as we now see the past through different eyes, from the standpoint of different possibilities in the future. If Marxism must keep up with history, so too does the interpretation of history keep up with Marxism.

7. Standing at the center of history

In seeking an "objective" history of the past, Skocpol projects herself outside history. The self-acknowledged influences of the present are confined to the selection of the problem. Participation in her social

world stops precisely where the scientific process begins. Trotsky's "objective" history is of a different sort:

When we call a historian objective, we mean, I think, two things. First of all, we mean that he has the capacity to rise above the limited vision of his own situation in society and in history – a capacity which ... is partly dependent on his capacity to recognize the extent of his involvement in that situation, to recognize, that is to say, the impossibility of total objectivity. Secondly, we mean that he has the capacity to project his vision into the future in such a way as to give him a more profound and more lasting insight into the past than can be attained by those historians whose outlook is entirely bounded by their own immediate situation.¹⁰³

Here the historian recognizes that she is standing on the fault line connecting the past to the future, that engagement with and in the world is not separate from the scientific process but its very essence. Thus, Trotsky saw his participation in Russian history as integral to the reconstruction of Marxism in order better to understand the possibilities of socialism.

But such participation proved to be a two-edged sword. We have focused on Trotsky's theory of revolution in *Results and Prospects* because of its similarities to Skocpol's work. We might equally have focused on his famous 1904 piece – *Our Political Tasks*. It was a vituperative but prophetic attack on Bolshevism as a form of Jacobinism: "Lenin's methods lead to this: the party organization [the caucus] at first substitutes itself for the party as a whole; then the Central Committee substitutes itself for the organization; and finally a single 'dictator' substitutes himself for the Central Committee."¹⁰⁴

The irony of history cast Trotsky in the role of executor and then victim of the direst predictions he made in 1904 and 1906. To the young Trotsky, Marxism and Jacobinism were diametrically opposed but as a post-revolutionary leader he would be a most ardent defender of Bolshevism as Jacobinism. He would organize the militarization of labor, advocate the destruction of trade unions, and squash the Kronstadt uprising – all in the name of the revolution. He became ensnared in the very forces that he anticipated would be unfurled if the Russian revolution were not followed by revolution in the West. His practice became a living violation of the Marxism of his youth. Not surprisingly his understanding of the world around suffered. For him this was not a period of great prophecy. Only later in exile, as the most celebrated victim of the revolutionary process he had predicted and then partici-

pated in, did Trotsky regain some of his youthful flare for Marxist reconstruction. In his struggle against Stalinism he could reconnect to his original Marxist principles. His interpretation of the historical significance of the Russian Revolution, culminating in *The Revolution Betrayed* (whose original title was, *What is the Soviet Union and Where is it Going?*), was another breakthrough in the history of Marxism. Yet even here Trotsky's analysis is haunted by his involvement in the revolutionary process – the unquestioning endorsement of the Soviet Union's original socialist credentials and a future limited to either capitalism or socialism.

Trotsky's contributions to the history of the Soviet Union suggest that no engagement with the world fosters the progressive reconstruction of Marxism but one that is congruent with its principles. His contributions to the study of Western capitalism point to the importance of engagement per se. Although he had an impressive understanding of the distinctive state structures of capitalist societies, he never came to grips with their ideological foundations, the lived experience they engendered. Where Trotsky's horizons stop, Gramsci's begin. Even though he was imprisoned, tortured by illness, with access to few books and forced to write in code to escape his censors, he was able to rebuild Marxism out of reflections on the failure of the "Italian revolution" of 1919–1920. In fact, one might say that his imprisonment protected him from the Stalinist purges that dealt such a fateful blow to human lives but also to the development of Marxism.

Trotsky and Gramsci had the advantage of being part of a living intellectual and political tradition in a world they had helped to shape. In quieter times, comfortably protected by the walls of academia, it is easy to forget that we are *simultaneously* participant in and observer of history. It is second nature for us to believe that our role as observer has a distinctive objectivity. We have seen, however, how illusory that objectivity can be. Skocpol's contribution comes not from its pronounced source – induction from the "facts" – but as passive refraction of changes in the world around her. Her contribution would have had greater scientific import had she struggled to bring her participation in that world from subsidiary to focal awareness. But such a struggle would have to be disciplined by a commitment to an explicit research program.

Conclusion

In terms of the criteria for the growth of knowledge formulated by Popper, I have tried to demonstrate the superiority of the methodology of research program over the methodology of induction. Although the argument used Skocpol's and Trotsky's theories of revolution as illustrations, I constructed general claims organized around the contexts of discovery (induction versus deduction), justification (verification versus falsification and prediction), and scientist (external to or part of the object of knowledge). So long as philosophers of science were concerned to discover *the scientific method*, they could successfully compartmentalize these contexts. However, as soon as they became concerned to explain the *development of scientific knowledge*, they quickly discovered, as we have, that these contexts are irretrievably intertwined. So we require alternative categories for comparing methodologies.

(a) *Grounds of scientific objectivity.* I have tried to demonstrate that the method of induction stands on a false objectivity. While it claims to generate explanations that map the empirical world, it actually erects barriers to the comprehension of that world. Not “the facts” but methodological premises and arbitrary explanatory hunches become the hidden anchors for theoretical conclusions. The method is at odds with its aims. Paradoxically, the methodology of the research program, precisely because it is self-consciously anchored in a complex of moral values, a conceptual system, models (analogies and metaphors) and exemplars – what Skocpol refers to as “blinders or heavily tinted lenses,” what Lakatos refers to as negative and positive heuristics – creates a more effective dialogue with those “historical patterns.” Blindness comes not from pre-existing theories but from failing to recognize their necessity and then failing to articulate and defend their content.

(b) *Problem versus puzzle oriented science.* The method of induction claims to be outside and beyond theoretical traditions. Thus Skocpol reduces the classics of Marx, Weber, and Durkheim to inspirations, sources of hypotheses, and even to variables out of which a true macro sociology can be forged. “Compelling desires to answer historically grounded questions, not classical theoretical paradigms, are the driving force [of historical sociology].”¹⁰⁵ We select a *problem* that takes our fancy and induce its solutions from the facts. Since, in the final analysis there is only one theory compatible with the facts, there is no need to go through the falsification of alternative theories or put one's own

theory through severe tests. The methodology of research programs, on the other hand, is concerned to solve *puzzles*, that is, anomalies thrown up by its expanding belt of theories, discrepancies between expectations and “facts.”¹⁰⁶ The health and vitality of a research program depends not on the concealment, obfuscation, denial of anomalies but on their clear articulation and disciplined proliferation. Continual dialogue between theory and data through falsification of the old and the development of new hypotheses with predictions of novel facts is of the essence of a progressive research program. Trotsky’s prophetic powers all originate in, even if they are not determined by his commitment to Marxism – a recognition of its anomalies and the need to solve them in an original manner.

(c) *Internal versus external history.* The method of induction regards the facts as irreducible and given, the problem is to come to an unbiased assessment of them. Science grows by the accumulation of factual propositions and inductive generalizations. This is its internal history. “But the inductivist cannot offer a rational ‘internal’ explanation for why certain facts than others were selected in the first place.”¹⁰⁷ Problem choice, as we said above, is part of the “external” history relegated to footnotes, prefaces, or to the “sociology of knowledge.” By contrast, the methodology of research programs incorporates into its internal history what is branded as metaphysical and external by inductivists, namely its hard core postulates and its choice of puzzles. What is reconstructed as scientifically rational in the one appears as scientifically irrational in the other.

Although what is constituted as rational in research programs encompasses much more than the rationality of induction, nevertheless even here external forces necessarily influence the scientific process. This is particularly so in the social sciences where the object of knowledge autonomously generates new anomalies that the positive heuristic has to absorb. External forces can be seized upon as opportunities for the rational growth of knowledge, but they can also be the source of irrationality. Thus, research programs become degenerate when they seal themselves off from the world they study or when that world wrenches the research process from its hard core. Marxism is particularly sensitive to external history. Where it seeks to change the world it is more likely to be sensitive to anomalies than where it is a dominant ideology and thus more vulnerable to the repression of anomalies.

Obviously the methodology of research programs has its own distinc-

tive problems that energize its development. Is it possible to identify a single core to a research program or are there a family of cores and how does the core change over time? What is the relation between positive and negative heuristics? How easy is it to distinguish between progressive and degenerating research programs? How do we know that an apparently degenerating program will not recover its old dynamism? How does one evaluate the relative importance of progressive and degenerating branches of the same program? Is it possible to stipulate the conditions under which it is rational to abandon one research program in favor of another? Such problems notwithstanding I hope I have made a case for the superiority of the methodology of research programs over the methodology of induction as a mode of advancing social science.

Acknowledgments

I wrote the first, crude version of this essay in the Fall of 1985 for my dissertation seminar. Soon Kyoung Cho, Linda Blum, Vedat Milor, Gay Seidman, Louise Jezierski, and Brian Powers greeted it with bewilderment, dismay, and even horror. Had their advisor gone mad? Since then I have moderated the argument many times under the influence of their comments as well as those of Vicki Bonnell, Carol Hatch, Elizabeth Nichols, Michael Liu, Charles Tilly, Ira Katznelson, Arthur Stinchcombe, Jerry Karabel, Adam Przeworski, Wally Goldfrank, Wolfgang Schluchter, Erik Wright, Alan Sica, Kathleen Schwartzman, Reinhard Bendix, Julia Adams, Ron Aminzade, Barbara Laslett, Bill Sewell, Perry Anderson, Rick Biernacki, Rebecca Scott, Bill Rosenberg, and Jeffrey Alexander. I should also like to pay tribute to the patience of Bill Form, the editor of the *American Sociological Review*, and his battalion of six referees who, over a period of two years, instigated two major revisions and more than sixty pages of written exchange. Although, in the end, our differences proved too great to bridge, I believe the essay has substantially benefited from their objections. Of the two anonymous referees for *Theory and Society*, I should particularly like to thank the one who provided a superb set of criticisms of my handling of Skocpol, forcing me to revise the argument once more. Finally, the issues I address here were central to the methodology course that tainted four consecutive cohorts of graduate students who entered the Berkeley department of sociology between 1984 and 1987. It was with those students that I explored the possible meanings of social science. I am grateful to all of the above for pointing

out major flaws in the article, forcing me to revise, clarify, and elaborate its claims.

Notes

1. It is important to emphasize that those who have criticized the use of the “scientific method” to study the social world have also accepted older “positivist” definitions of science. The critique of sociology as a science is frequently based on out-dated conceptions of science. The irony is that the alternative “interpretive” approaches to sociology, proposed by humanists with an anti-scientific bent, often turn out to be similar to the historical understandings of science as found in, for example, Michael Polanyi, *Personal Knowledge* (Chicago: University of Chicago, 1958), Thomas Kuhn, *The Structure of Scientific Revolutions* (Chicago, University of Chicago, 1970), Stephen Toulmin, *Human Understanding* (Princeton: Princeton University, 1972), Paul Feyerabend, *Against Method* (London: Verso, 1975), or Imre Lakatos, *The Methodology of Scientific Research Programmes* (Cambridge: Cambridge University, 1978). In this article I follow Lakatos’s methodology not because it best fits Trotsky’s approach but because it most satisfactorily explains the growth of scientific knowledge.
2. *States and Social Revolutions* (Cambridge: Cambridge University, 1979), 17–31.
3. It is particularly strange, therefore, to find Skocpol vilifying Marxism along with other theories because it “theorize[s] on the basis of a voluntarist image of how revolutions happen ... focus[es] primarily or exclusively upon *intranational* conflicts and processes of modernization ... analytically collapse[es] state and society or they reduce political and state actions to representations of socioeconomic forces and interests” (*States and Social Revolutions*, 14). Inexplicably, we hear nothing of Trotsky – neither his view of history as a dramatic script in which actors can only interpret their assigned parts, nor his theory of the combined and uneven development of capitalism on a world scale, nor even his obsessive interest in the autonomy of the state! Indeed, throughout the whole of her book she refers to him twice and then only in passing: first in connection with his remark that 1905 was a dress rehearsal for 1917 and second, when describing the organization of the Red Army (*States and Social Revolutions*, 94 and 217). There is no reference to his theory of the Russian Revolution or indeed to his writings on the French Revolution or his prophetic commentaries on the Chinese revolution.
4. Skocpol, “Analyzing Causal Configurations in History: A Rejoinder to Nichols,” *Comparative Social Research*, 9 (1986), 190.
5. *The Logic of Scientific Discovery* (London: Hutchinson, 1959).
6. See, for example, Polanyi, *Personal Knowledge*; Feyerabend, *Against Method*; Kuhn, *The Structure of Scientific Revolutions*; Larry Laudan, *Progress and Its Problems* (Berkeley: University of California, 1977); Lakatos, *The Methodology of Scientific Research Programmes*; Hilary Putnam, “The ‘Corroboration’ of Theories,” in Ian Hacking, editor, *Scientific Revolutions* (New York: Oxford University, 1981), 60–79.
7. *The Methodology of Scientific Research Programmes*, 8–101. Apart from Lakatos’s own work, there are three volumes that apply and discuss his ideas: Colin Howson, editor, *Method and Appraisal in the Physical Sciences* (Cambridge: Cambridge University, 1976); R. S. Cohen, P. K. Feyerabend, and M. W. Wartofsky, editors, *Essays in Memory of Imre Lakatos*, Boston Studies in the Phi-

- losophy of Science, Volume XXXIX (Dordrecht: D. Reidel, 1976); and Gerard Radnitzky and Gunnar Andersson, editors, *Progress and Rationality in Science*, Boston Studies in the Philosophy of Science, Volume LVIII (Dordrecht: D. Reidel, 1978).
8. Lakatos, *Proofs and Refutations* (Cambridge: Cambridge University, 1976).
 9. Isaac Deutscher, *The Prophet Armed Trotsky: 1879–1921* (New York: Vintage, 1954), 150.
 10. Eli Zahar, for example, addresses this problem directly by trying to show that the methodology of scientific research programs represents the best available reconstruction of the *intuitive* methodology in cases of major scientific advance. See “‘Crucial’ Experiments: A Case Study,” in *Progress and Rationality in Science*, 71–98.
 11. *Personal Knowledge*, chapters 1, 4, and 6.
 12. Just as this article is not concerned with social revolutions per se, it is also not intended as a defense of Marxism. It is a discussion of two methodologies that are not necessarily tied to any particular theoretical framework. Accordingly, I link Trotsky’s theories to the methodology of research programs and not to the methodological prescriptions of Marx. The methodology of research programs has also informed recent reconstructions of “structural functionalism.” See, for example, Jeffrey Alexander, *Positivism, Presuppositions, and Current Controversies* (Berkeley: University of California, 1982); *The Modern Reconstruction of Classical Thought* (Berkeley: University of California, 1983); “The Centrality of the Classics,” in Anthony Giddens and Jonathan Turner, editors, *Social Theory Today*, (London: Basil Blackwell, 1987), 11–57. These reconstructions do not strictly follow Lakatos as they put little emphasis on the discovery and corroboration of new facts.
 13. *Conjectures and Refutations* (London: Routledge and Kegan Paul, 1963), 240–243.
 14. Trotsky, *The History of the Russian Revolution* (London: Pluto, 1977 [1933]), 21.
 15. *Theoretical Methods in Social History* (New York: Academic, 1978).
 16. Critics have complained that I only deal with a single example of each methodology and therefore I have not “demonstrated” my claims about the consequences of adopting different methodologies. Undoubtedly this article would be more persuasive if other cases were included. Even if space were not a problem, finding suitable cases is not so easy. To isolate the effects of methodology each case should be, as far as possible, methodologically pure and postulate the same theory. Such were the reasons that led me to Skocpol and Trotsky. Although these examples are not perfect, better cases might be hard to find.
 17. *States and Social Revolutions*, 36. See also Theda Skocpol and Margaret Somers, “The Uses of Comparative History in Macrosocial Inquiry,” *Comparative Studies in Society and History* 22(2) (1980), 174–197, and Skocpol, editor, *Vision and Method in Historical Sociology* (Cambridge: Cambridge University, 1984), chapter 11.
 18. *Ibid.*, 36.
 19. *Ibid.*, 6. Charles Ragin and David Zaret claim that Weber’s method of genetic explanation seeking particular historical trajectories, is “no less evident in work by Bendix and Skocpol” (“Theory and Method in Comparative Research: Two Strategies,” *Social Forces* 61 (1983), 746). Contrary to her own conception of what she is doing, they claim that her adoption of Mill’s methods is *not* in pursuit of generic explanation characteristic of statistical analysis. In what follows I show she does

attempt to mimic statistical strategies of comparison, and with the adverse consequences Ragin and Zaret anticipate. Nevertheless, their assessment reflects a real tension in Skocpol's book. I follow Elizabeth Nichols's identification of the latent genetic or "conjunctural" analysis behind Skocpol's reduction of all revolutions to peasant revolt and international pressure on the state ("Skocpol on Revolution: Comparative Analysis vs. Historical Conjuncture," *Comparative Social Research* 9 (1986) 163–186). Skocpol explains these two factors as emergent from a constellation of forces *particular* to each revolution, a mode of explanation that is at odds with Mill's canons of induction. Her rejoinder to Nichols refuses to recognize Weber's distinction, following Rickert, between the generalizing and the particularizing cultural sciences. She misunderstands the critique as accusing her of misapplying Mill's canons, when Nichols was pointing to the coexistence of a different method. She seems so caught up in a linear causality in which every factor must make the same causal contribution to each revolution that she is blind to her own subterranean use of a different notion of causality (see "Analyzing Causal Configurations in History"). She treats Barrington Moore's *Social Origins of Dictatorship and Democracy* in a similar way, forcing it into the mold of generic (generalizing) explanation when much of his analysis seeks genetic (particular) explanations for modernization. See "A Critical Review of Barrington Moore's *Social Origins of Dictatorship and Democracy*," *Politics and Society* 4(1) (1973), 1–34.

20. *States and Social Revolutions*, 4.
21. *Ibid.*, 80–81.
22. *Ibid.*, 99.
23. *Ibid.*, 99.
24. *Ibid.*, 110.
25. *Ibid.*, 140.
26. While it is true that John Stuart Mill did advocate, with important qualifications, the method of induction, or what he calls the "experimental" or "chemical" method for the natural sciences, he explicitly repudiates its applicability to the social sciences. In the study of society where "the causes of every social phenomenon ... are infinitely numerous" you cannot assume that one effect has always the same causes, so that revolutions, for example, may be caused by different factors in different countries. The method of difference is of even less value according to Mill. One must find cases in which two societies are alike in every respect except the one that we are trying to isolate as a causal factor. "But the supposition that two such instances can be met with is manifestly absurd." See *A System of Logic* (New York: Harper, Eighth Edition, 1888), 612 and 610. Skocpol's resolute application of the two canons justifies Mill's skepticism. The point is not that Skocpol failed to execute the method of induction properly, but rather the method is, as Mill well knew, "completely out of the question" in the social sciences. Skocpol, of course, is quite aware of these flaws – the impossibility of so controlling the variables as to execute the method of difference, that the units being compared are rarely if ever independent and that induction cannot be a substitute for theory (*States and Social Revolutions*, 38–39). Yet she still clings to this as the best approach. While not "without its difficulties and limitations" nevertheless "provided it is not mechanically applied, it can prompt both theoretical extensions and reformulations, on the one hand, and new ways of looking at concrete historical cases, on the other" (*ibid.*, 40).
27. Charles Tilly argues that Skocpol pays too much attention to the method of agree-

ment and not enough attention to the method of differences. He suggests looking at variations within those societies that experienced revolutions, both regional differences at the time of its outbreak and why revolution did not occur at earlier periods. See, *Big Structures, Large Processes, Huge Comparisons* (New York: Russell Sage, 1984), 105–115. Elsewhere, however, he notes that revolution is a state of a whole society and cannot be explained by comparison of its parts. See, *The Vendee* (Cambridge: Harvard University, 1976), 159. As to comparing different moments in a society's history, it is notoriously difficult to explain a non-event. There are, as Mill warns, just too many variables to control for. The problem lies not with Skocpol's failure to use the method of differences but with the method of induction itself, which underestimates the importance of prior theory and takes the facts as given. Very different is the method of *The Vendee*, where Tilly is very sensitive to the social construction and tendentiousness of historical facts as well as to the necessity of proceeding deductively from a theory, in his case a theory of urbanization. When a researcher collects his or her own data with a view to careful comparative analysis, the need to grapple with the illusive, complex, and uncertain character of "facts" compels a much stronger dependency upon prior theorizing. Even more important, Tilly seeks to *reconstruct* theory based on an anomaly – a counter-revolutionary movement in revolutionary France – rather than *discover* theory inductively.

28. *States and Social Revolutions*, 4.
29. Skocpol also writes: "Social Revolutions are rapid, basic transformations of a society's state and class structures" (*ibid.*, 4). One has to ask whether the Chinese Revolution of 1911 fits this definition given that the transformation is only completed in 1949. Skocpol herself refers to the period 1911 to 1949 as a revolutionary interregnum (*ibid.*, 80 and 148). How rapid is "rapid"?
30. See Nichols, "Skocpol on Revolution."
31. *States and Social Revolutions*, 113.
32. Here again Mill himself warns against the method of agreement: "From the mere fact, therefore, of our having been able to eliminate some circumstance, we can by no means infer that this circumstance was not instrumental to the effect in some of the very instances from which we have eliminated it. We can conclude that the effect is sometimes produced without it; but not that, when present, it does not contribute its share" (*A System of Logic*, 612). Even in the discussion of the natural sciences Mill (*ibid.*, Book III, chapter 10) sensitizes us to the problem of plurality of causes, that the method of agreement assumes "that there was only one assemblage of conditions from which the given effect could result" (*ibid.*, 311).
33. *States and Social Revolutions*, 23–24.
34. "Ideologies and Social Revolutions: Reflections on the French Case," *The Journal of Modern History*, 57(3) (1985), 81–84.
35. *A System of Logic*, 236.
36. *States and Social Revolutions*, 39.
37. Carl Hempel's deductive-nomological model recodifies Humean causality of "constant conjunction" by insisting that the connection between antecedent conditions and outcomes has to be explained by universal "covering laws." Hempel would argue that Skocpol does not distinguish between antecedent conditions and "laws": "A related error consists in singling out one of several important groups of factors which would have to be stated in the initial conditions, and then claiming that the phenomenon in question is 'determined' by that one group of factors and

thus can be explained in terms of it." See *Aspects of Scientific Explanation* (New York: Free Press, 1965), 239. That his model is in fact rarely carried out in historical analysis Hempel attributes to the complexity of historical laws, while Popper contrarily argues it is often their triviality that leads to their omission. See *The Poverty of Historicism* (London: Routledge and Kegan Paul, 1957). Be that as it may, Skocpol seems to share Hempel's distrust of invoking causal mechanisms as a defining feature of explanation. For a general critique of the shortcomings of such empiricism, see, for example, Richard Miller, *Fact and Method* (Princeton: Princeton University, 1987), part one.

38. In her rejoinder to Sewell's review Skocpol writes: "Few aspects of *States and Social Revolutions* have been more misunderstood than its call for a 'nonvoluntarist,' 'structuralist' approach to explaining social revolutions. ... For the point is simply that no single acting group, whether a class or an ideological vanguard, deliberately shapes the complex and multiply determined conflicts that bring about revolutionary crises and outcomes." See "Cultural Idioms and Political Ideologies in the Revolutionary Reconstruction of State Power: A Rejoinder to Sewell," *The Journal of Modern History* 57(3) (1985), 86–87. But which serious scholar argues that the intentional action of a single actor is a *sufficient* cause for revolution? Here Skocpol criticizes theories no one holds and holds theories no one criticizes. The actual claim she pursues in her book is more interesting. There she denies that the intention of a collective actor to make a revolution is *necessary* for its outbreak. However, this is not empirically examined let alone justified and is linked, I argue, to the character of her causal analysis.
39. Stinchcombe makes the same criticism of Skocpol for leaving out the micro-foundations of revolutionary process but does not attribute this to her method. See *Economic Sociology* (New York: Academic Press, 1983), 12–15 and 247–250.
40. *States and Social Revolutions*, 164.
41. *Ibid.*, 163.
42. *Ibid.*, 16.
43. *Ibid.*, 34.
44. *Ibid.*, 121–123.
45. Although Mill does not regard facts as problematical, he does recognize their underdetermination of explanation: "Accordingly, most thinkers of any degree of sobriety allow that an hypothesis of this kind is not to be received as probably true because it accounts for all the known phenomena; since this is a condition sometimes fulfilled tolerably well by two conflicting hypotheses; while there are probably many others which are equally possible, but which, for want of anything analogous in our experience, our minds are unfitted to conceive. But it seems to be thought that an hypothesis of the sort in question is entitled to a more favorable reception, if, besides accounting for all the facts previously known, it has led to the anticipation and prediction of others which experience afterwards verified..." (*A System of Logic*, 356).
46. *Interpreting the French Revolution* (Cambridge: Cambridge University, 1981).
47. *Theoretical Methods in Social History*, chapter 2.
48. *An Introduction to Logic and Scientific Method* (New York: Harcourt and Brace, 1934), chapter XIII.
49. As Karl Popper has pointed out there is a latent affinity between "induction" and "dogmatism": "For the dogmatic attitude is clearly related to the tendency to *verify* our laws and schema by seeking to apply them and to confirm them, even to the point of neglecting refutations, whereas the critical attitude is one of readiness

to change them – to test them; to refute them; to *falsify* them, if possible. This suggests that we may identify the critical attitude with the scientific attitude, and the dogmatic attitude with the one which we have described as pseudo-scientific” (*Conjectures and Refutations*, 50).

50. *States and Social Revolutions*, 6.
51. *Ibid.*, 288.
52. “Rentier State and Shi’a Islam in the Iranian Revolution,” *Theory and Society* 11(3) (1982), 268.
53. *States and Social Revolutions*, 293.
54. *Ibid.*, 289.
55. Of course, subsequently Skocpol has begun to think about the capacity of states, particularly in the book she edited with Peter Evans and Dietrich Rueschemeyer, *Bringing the State Back In* (Cambridge: Cambridge University, 1985). Here her hostility to research traditions takes a new twist. On the one hand “neo-Marxist” theories of the state are severed from their Marxist roots, locating them in the academic debates in United States of the 1960s and 1970s. This is a curious move for one so committed to historical analysis. See Cammack, “Bringing the State Back In: A Polemic,” Unpublished Manuscript (n.d.). On the other hand, in the very act of rejecting research programs tout court she launches her own, calling on Weber and Hintze as potential forefathers of the “state centric” perspective! But even here she vacillates between a strong thesis in which state dynamics are the central force in history and a weak thesis that argues simply that the state cannot be left out of account. There continues to be a strong inductivist commitment to confirmation, to purging her theories of counterexamples even at the cost of their explanatory power. Thus, when confronted with anomalies, instead of specifying and reconstructing her strong thesis, she abandons it for her weak thesis, which is trivially true. See Erik Wright, “States and Classes in Recent Radical Theory,” Unpublished Manuscript, presented to the American Sociological Association, 1986.
56. Lakatos, *Proofs and Refutations*.
57. *Ibid.*, 37.
58. Edward Carr, *What is History?* (New York: Random House, 1961), 6.
59. Alfred North Whitehead, *Science and the Modern World* (New York: MacMillan, 1925), chapter 1.
60. Marc Bloch, *The Historian’s Craft* (New York: Alfred Knopf, 1953), 47.
61. *States and Social Revolutions*, 3.
62. “An ‘Uppity Generation’ and the Revitalization of Macroscopic Sociology: Reflections at Midcareer by a Woman from the 1960s,” in Matilda Riley, editor *Sociological Lives* (Newbury Park, California: Sage Publications, 1988), 145–162; also in *Theory and Society*, vol. 17, no. 5.
63. Similar arguments have recently been made against classical anthropological studies in James Clifford and George Marcus, editors, *Writing Culture* (Berkeley: University of California, 1986). Introductory remarks or reflections on fieldwork are separated from the “real” science of anthropology. On further examination those remarks and reflections prove to be constitutive of, not separate from, the main text. Thus, Renato Rosaldo shows how the results of Evans-Pritchard’s study of the Neuer were influenced by the context of colonial domination and civil war, just as Le Roy Ladurie’s account of Montaillou represses the effect of relying on data gathered in an inquisition (*ibid.*, 77–97). Both bracket the domination that makes knowledge possible. James Clifford argues that anthropological texts

- have multiple “registers” – a manifest voice of science alongside a latent voice in search of an essential, uncontaminated, natural world, what he calls the pastoral mode (ibid., 98–121). Ethnography is an allegory with ethical or political messages for advanced industrial societies. For example, Derek Freeman’s devastating critique of Margaret Mead’s controlled experiment in the field makes her account of the Samoans look less like science than a moral and practical lesson for the American people.
64. Peter Beilharz has argued that Trotsky, far from deducing the direction of history, imposes a telos on history – the inevitability of socialism and the view that in the final analysis history must be on the side of the working class. Beilharz seeks to discover in Trotsky’s early writings the seeds of his later unimaginative defense of Marxism. All that he finds there is Trotsky’s use of generative metaphors of birth and death, disease and health, seed and fruit, and the idea of history as theatre in which actors can only interpret scripts handed to them. But Trotsky’s writings cannot be reduced to metaphor or to his eschatology. How one reaches socialism, with what means and when, is not given but the subject of his investigations, his innovations, his prophecies, as well as his struggles. In projecting back into Trotsky’s early writings the most dogmatic formulations in his later writings, Beilharz is committing the same generative sin of which he accuses Trotsky. In so doing he marginalizes Trotsky’s important contributions to Marxism. See, *Trotsky, Trotskyism and the Transition to Socialism* (London: Croom Helm, 1987).
 65. Lakatos, *The Methodology of Scientific Research Programmes*, 48.
 66. *A Contribution to the Critique of Political Economy* (New York: International Publishers, 1970 [1859]), 19–23.
 67. *The Permanent Revolution and Results and Prospects* (New York: Pathfinder, 1969), 36.
 68. Ibid., 44.
 69. Ibid., 63.
 70. Ibid., 72.
 71. *States and Social Revolutions*, 114.
 72. *The History of the Russian Revolution*, 72.
 73. *The Permanent Revolution and Results and Prospects*, 52. After the revolution of 1917 and particularly after Lenin’s death in 1924, Trotsky, like the other Bolsheviks, would seek out parallels with the French Revolution. Unwillingly, Trotsky would come to the conclusion that the bureaucratization of the revolution could be seen as a Soviet Thermidor and that Stalin had become the Soviet Bonaparte. See *The Revolution Betrayed*, (New York: Pathfinder, 1972 [1936]), chapter 5; Baruch Knei-Paz, *The Social and Political Thought of Leon Trotsky*, (Oxford: Oxford University Press, 1978), 392–410; Isaac Deutscher, *The Prophet Unarmed, Trotsky: 1921–1929*, (New York: Vintage Books, 1959), 311–314, 342–347 and 457–464; Isaac Deutscher, *The Prophet Outcast, Trotsky: 1929–1940* (New York: Vintage Books, 1963), 313–318. But while he saw the process of bureaucratization as similar, he nevertheless regarded the outcomes as well as the causes of the French and Russian Revolutions as different.
 74. *The Methodology of Scientific Research Programmes*, 50.
 75. *The Permanent Revolution and Results and Prospects*, 55–56.
 76. Ibid., 57.
 77. This is a capsule summary of chapters 1 and 2 of *Results and Prospects* and of the same argument presented in more detail in chapter 1 and Appendix I of Volume

One of *The History of the Russian Revolution*.

78. *The Permanent Revolution and Results and Prospects*, 36.
79. Karl Marx, *The Eighteenth Brumaire of Louis Bonaparte* (New York: International Publishers, 1963 [1869]), 15.
80. *Theoretical Methods in Social History*, chapter 2.
81. I do not endorse Stinchcombe's claim that Trotsky's insights have nothing to do with his Marxism, that good theory comes from inspired interrogation of the facts. "Deep analogies" don't spring *tabula rasa*, under the influence of genius, from "the facts." It was Trotsky's commitment to Marxism and his need to revise it that led him to delve into the molecular processes of revolution. Fortunately, Stinchcombe's theoretical sense gets the better of his empiricist polemic when he recognizes that Trotsky's account of the Russian revolution can only be understood in the light of his prior theory of combined and uneven development. See *Theoretical Methods in Social History*, 65–66. In fact his empiricist polemic is confined to the opening and concluding chapters and does not obscure his fascinating reconstructions in between. His comparison of de Tocqueville and Trotsky does indeed illuminate the construction of causal processes out of historical events but it does not demonstrate the irrelevance of the intellectual traditions in which each is embedded. As Charles Tilly has underlined, history as immaculate conception is a myth. See *As Sociology Meets History* (New York: Academic, 1981), chapter 1.
82. *Theoretical Methods in Social History*, 68.
83. This is also how John Roemer sees the project of analytical Marxism: "What Marxist must provide are *mechanisms*, at the micro-level, for the phenomena they claim come about for teleological reasons" (*Analytical Marxism* (Cambridge: Cambridge University, 1986), 192). In a similar vein, what Jon Elster finds of lasting importance in Marx is the use of methodological individualism: "the doctrine that all social phenomena – their structure and their change – are in principle explicable in ways that only involve individuals – their properties, their goals, their beliefs and their actions" (*Making Sense of Marx* (Cambridge: Cambridge University, 1985), 5). In drawing on the rational choice models of neo-classical economics they move toward a mythological rather than a methodological individualism. If they are serious about their micro-foundations they would do better to study Trotsky's *The History of the Russian Revolution* rather than Walras.
84. *The Permanent Revolution and Results and Prospects*, chapter VI.
85. *Ibid.*, 80.
86. Deutscher, *The Prophet Outcast, Trotsky: 1929–1940*, 110.
87. *Revolution Betrayed*, 255–256.
88. *The Methodology of Scientific Research Programmes*, 50.
89. *The Permanent Revolution and Results and Prospects*, 65.
90. *The History of the Russian Revolution*, 27.
91. *The Methodology of Scientific Research Programmes*, 86–90.
92. *The Permanent Revolution and Results and Prospects*, 67.
93. *Ibid.*, 105 (Emphasis in the original).
94. *Ibid.*, 105.
95. *Ibid.*, 112.
96. *The Prophet Armed, Trotsky: 1879–1921*, 293.
97. The same can be said of "Trotskyism," itself very much divided by what it inherits from Trotsky. On the one hand C. L. R. James and Raya Dunayevskaya return to Trotsky's early hostility to Bolshevism and his spontaneist faith in the revolu-

tionary spirit of the working class, while characterizing the Soviet Union as state capitalist. On the other hand, Ernest Mandel and Isaac Deutscher embrace a more top-down view of history as well as a more optimistic assessment of the Soviet Union as a degenerate workers' state. See, Beilharz, *Trotsky, Trotskyism and the Transition to Socialism*, Part Two.

98. *Selections from the Prison Notebooks* (New York: International, 1971), 256.
99. *Ibid.*, 238.
100. Carr, *What Is History?*, 161.
101. *Ibid.*, 143.
102. *The Permanent Revolution and Results and Prospects*, 64 (emphasis added).
103. Carr, *What is History?*, 163.
104. Cited in Deutscher, *The Prophet Armed, Trotsky: 1879–1921*, 90.
105. *Vision and Method in Historical Sociology*, 4–5.
106. Although “facts” are themselves theoretical constructs of sense data, what Feyerabend calls natural interpretations, they have greater stability than the theories created to explain them. That is to say, they have an obduracy – if for no other reason than by convention as in Popper’s basic statements – that allows them to act as falsifications of explanatory theories.
107. *The Methodology of Scientific Research Programmes*, 104.