Positivist Theory of Science

There is still no consensus as regards the nature of the social sciences. Comte was self-conscious to promote a distinct view. It had a tremendous influence on all subsequent thinking. It is called "positivism."

Positivism is a term still in use—even if these days, few people would identify themselves as positivists. (Some would accept neo-positivist; most prefer "empiricist.") Positivism defines a philosophy of science with clear roots in early modern epistemology beginning with at least with David Hume (d. 1776). It came to maturity with so-called "logical positivism" in the 1930s and until only recently dominated talk about the character of science, both natural science and social science.

The word 'positivism' (like 'sociology') owes to Comte. For him, positivism referred to the last "scientific stage" in the development of "mind." But more important, Comte also set out fairly clearly the main ideas of positivist philosophy of science. In all that follows in this course, I take Comte's characterization to define positivism. (All the key terms in this section, including "epistemology," "empiricism" are in your glossary. Check it out!)

Comte was influenced by David Hume (d. 1776) and by Emanuel Kant *Critique of Pure Reason: 1780). While Hume and Kant offer different epistemologies, they are both empiricists—and positivists on Comte's very acute definition. There are several alternatives to positivism in the theory of science. As we shall see both Marx and Weber offer alternatives. Marx, in particular, offers a strong from of scientific realism, what for me, is the preferred alternative.

For Comte, there are three defining characteristics of positivism (all set out clearly in the Comte text):

First, he insisted that 'metaphysical' and 'fictitious') ideas were no part of science. This was a main thesis of Kant's highly influential *Critique of Pure Reason*.

Consider (from Freud) repression. If we understand repression (as Freud did) to refer to a process in the unconscious in which the ego is not allowing conscious expression of libidinal energies, a positivist wants to know how to test this. Indeed, why is this not a par with (say) Pele's power? Neither the process nor Pele's power can be observed. No test can be constructed to determine if someone is repressed or if Pele is angry. In Comte's terms, both are 'absolute notions,' purely speculative and pre-scientific. For the positivist, then, science is empirical in the sense that it deals with ideas that can be verified (or falsified) by appeal to experience. To be sure, there are problems in seeing exactly what counts as verifiability (falsifiability)--problems that have haunted all recent empiricist theories of science.

Second, Comte argued that we should give up the search for causes in exactly the sense that repression is the putative cause of behavior. For him, we should seek causes in Hume's sense: that is, as 'invariable relations of succession and resemblance.' On this
view, if repression is scientifically meaningful, it must mean something like, 'If someone is repressed, then if they are situation S, then they R (behave so and so). Once we establish the 'lawful? relation between ‘S’ and ‘R,’ repression becomes a redundant idea.

Third, following on the foregoing, 'the explanation of facts is simply the establishment of a connection between single phenomena and some general facts' or in other words, a deduction of an instance from general laws. Thus, to continue the example, we explain John's behavior R, by showing that he was in situation S and that whenever S, then R.

These positivist ideas dominate methodological discussions in sociology. For example, Frankfort-Nachmias and Nachmias, *Research Methods in the Social Sciences*, 4th Edition write:

> Often the empirical attributes or events that are represented by concepts cannot be observed directly...In such cases, the empirical existence of a concept (sic) has to be inferred. Inferences of this kind are made with operational definitions' (p. 31).

The structure of operational definitions is straight-forward.

> If a given stimulus (S) is applied to an object, consistently producing a certain reaction (R), the object has the property (P)' (p. 32).

Similarly:

Ever since David Hume (1711-1776), ...an application of the term explanation has been considered a matter of relating the phenomenon to be explained with other phenomena by means of general laws' (p. 10).

While it gets ahead of our story, an alternative theory of science (called 'realist') rejects all three of these positivist ideas. On this view, repression is a theoretical idea and while we may not be able to give it empirical meaning (by establishing an operational definition ) there may still be good scientific reasons not to dispense with it. Even if it is not witnessable by known means, it may still refer to something that exists. (Photons, in principle, are not observable.) Second, causes are understood as productive powers: A cause produces effects. (Hume held that one can only observe the succession of events, never that something produced something.) But because outcomes are always the product of many causes working conjunctively, there will generally not be ?invariant relations? between ?causes? and their ?effects.? Finally, one explains by appealing to causal mechanisms, not to 'invariable relations.' Compare here the theoretical mechanisms which explain solubility. Thus, ordinary table salt (which is mostly NaCl) usually dissolves in water (which is mostly H20) because of the particular structure of these molecules and what, according to molecular chemistry, we know about the behavior of ions, etc. Particular molecules (and atoms) have a range of specific causal powers--things that they can do. E.g., If oxygen (O2)is present, NaCl will also rust iron (Fe), and etc., etc. Why they can do what they do is explained by theory. We can say more about how this applies to social science when we get to Marx and Weber.