

# SIR KARL POPPER - DOCTRINAIRE ANTI-MARXIST.

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Sir Karl Popper's name is well known for his contributions to the philosophy of science. And with him this philosophy, supposedly a very dispassionate topic, has been linked with a violent and even rabid anti-sovietism and anti-communism which he has sought to justify in terms of his theories about science.

Popper's theories about science and scientific method have acquired almost the status of a "cult" among many younger scientists and intellectuals. And many have been deceived as a result into believing his claims that he has achieved at last the final and decisive refutation of Marxism and everything it stands for.

## Popper's Arguments against Marxism

Popper has argued against Marxism from two levels. He has argued at the level of his sociological and political theories and from the level of his philosophy of science.

At the level of sociological theory, he has argued against what he calls "historicism". By this he means the idea that from knowledge of a process of historical development one may confidently make "unconditional" predictions as to its future. For the whole historical process is thought to move into its predestined future with the inexorability of fate. Popper alleges that, as "historicists", Marxists conceive of the Communist Party as the chosen instrument of Fate, and of the general secretary of the Party as the chosen Man of Destiny.

Historicism, he says, leads to "utopianism"—the idea that the future order of society will be brought into being corresponding to a kind of preconceived blue print of what it has to be like. And in this connection he contrasts what he calls "utopian" with "piecemeal social engineering". By "social engineering" he means action to bring about changes in the institutions of society. The "utopian" social engineer is a violent fellow who proposes to destroy existing institutions, root and branch, in order to build in their place the promised utopia. The "piecemeal" social engineer, on the other hand, sets about making little reforms one by one in the existing institutions.

Popper's sociological theories are, in effect, theories of how to carry on "piecemeal social engineering"—or, in other words, of how *not* to upset the existing capitalist Establishment.

At the level of the philosophy of science, Popper then argues for the rigorous procedures of scientific method in all theorising, as against what he calls "essentialism" and "dogmatism". Essentialism is the belief that by some grandiose effort of theoretical generalisation one may grasp the "essence" of whatever one is interested in—and then everything one can wish to know about it is deducible from the knowledge of its "essence".

He is, of course, quite right in opposing scientific method to "essentialism", so defined—just as he is quite right to oppose "historicism", as he defines it. The point is, however, that he accuses Marxism of violating scientific method in favour of "essentialism" and "historicism".

## Popper and Traditional Positivism

I shall begin criticism of Popper's views at the second level, that of his theories about scientific method, his philosophy of science.

Popper's philosophy of science starts by criticising and opposing the traditional theory about scientific method, according to which science proceeds by first gathering in a lot of reports of "observations" and then making "inductions" from them. This theory may be succinctly labelled "positivist".

Put very briefly and crudely, the traditional positivist idea about science may be expressed as follows. In a whole set of observations things exhibiting an observed character "A" are observed to exhibit also the character "B": the scientist then arrives by induction at the scientific theory that "All A is B". Or again, in a more complex and typical case, only those A's which are also C's exhibit the character "B": the inductive conclusion is then that "If A is C it is also B".

Popper has the merit of opposing the traditional positivist theory of induction. He has pointed out that, on the contrary, science begins not with sets of observations but with *problems*. The scientist always tackles a *problem*—and such observations as he

makes are devised as having a bearing on the solution of the problem. The whole idea that science is based simply on reports of "given" observations is, says Popper, false. Science is always *active*. It does not start with anything "given", but by propounding a problem which it then actively seeks the means to solve.

Popper has then pointed out, secondly, the role of active imagination in science—as opposed to the merely passive acceptance of "data" from observation and mere "induction" from the given data.

Thirdly, he has then pointed out that what is characteristic of science is that in actively thinking up theories by the aid of which to solve problems, it always devises ways and means of subjecting such theories to the most rigorous empirical or observational tests.

Hence, putting it very simply, the traditional positivist view of science says that science goes like this: Observations — Inductive Theories — More Observations — More Inductive Theories. . . . Popper, on the other hand, says it goes rather like this: Problem — Imaginative Theory — Tests of the Theory — More Problems — More Imaginative Theory — More Tests. . . .

### The "Criterion" of Scientific Theory

Having thus, in opposition to traditional positivism, rendered what he considers to be (and undoubtedly is) a truer account of scientific method, Popper proceeds to propound what he considers to be the key question for the whole philosophy of science.

Just as science proceeds by tackling problems so, according to him, must the philosophy of science be developed by tackling problems. The first thing is to formulate the problems. And this he does by proceeding from the one key question—What is the *criterion* to distinguish scientific from unscientific theory?

This, it may be said, is a good question.

But yet in the way he formulates it, it conceals the most misleading implications. If, as Popper says, one should start from questions, then it is surely important to formulate the questions correctly. But he has hardly done that in making the whole philosophy of science an answer to this one question he has chosen to ask. For the question contains the implication that there is one "criterion" the application of which to any theory at once supplies a clear "yes" or "no" answer as to whether that theory is or is not "scientific".

But as actually propounded by real living people who are trying to solve their problems, theories are pretty complex things.

God on the Day of Judgment will, as theologians assure us, have his "criterion" cut and dried to

separate the sheep from the goats, the elect from the damned. But even God may be presumed to meet with some puzzles due to the admixture of good and bad in the candidates for his judgment.

Popper wants to be like God separating scientific from unscientific theories. He has got his work cut out in view of the admixture of scientific and unscientific elements in so many theories.

### Scientific Theory and Scientific Activity

A second, and more fundamental, objection to Popper's question is that in making this the key question for the philosophy of science he has tacitly agreed to treat science simply as "scientific theory".

But *is* science the same thing as "scientific theory"?

This is a question Popper would have been well advised to ask. And the answer, as any competent Marxist could tell him, is that it is *not*.

For *science* is not just a collection of theories but a social activity. The development of science is not just a development of theories but a social-historical development.

This has been amply demonstrated, for example, in the work of J. D. Bernal, contemporary with Popper, in his great books *The Social Function of Science* and *Science in History*. Calling science "an institution" rather than "a theory", and concentrating attention on its social function, Bernal showed that science is a theory-making and theory-using social activity, elaborately institutionalised in its development, and serving not simply to provide theories but to get things done.

The social nature of science was, indeed, already understood and expounded by Marx himself, in the third volume of *Capital*. Marx there called attention to the distinction in industrial production between what he termed "co-operative labour"—which is the labour of the production-workers themselves working together in workshops—and "universal labour", which is the work of providing essential theory and know-how for that co-operative labour. Science, he explained, develops as "universal labour". He therefore categorised science as "a productive force" in society—and added the pregnant statement that in capitalist society it becomes a productive force separated from the workers and "pressed into the service of capital".

This implies that the workers should proceed to take this productive force of science under their own control and press it into service for the general welfare of society. This is, indeed, what is now being done in the socialist countries. But any such proposal is abhorrent to Popper, who thinks that scientific theories are the sole concern of a scientific elite who, with disinterested judgment, apply their "criterion" to distinguish scientific theories from unscientific ones.

### No Break with Positivism

While, then, Popper *begins* by opposing traditional positivist theory about science, his break with positivism turns out to be no real break with its fundamental attitudes. It is still a positivist view of science. For fundamental in the positivist view is the treatment of science as simply "scientific theory", and the problems of the philosophy of science as problems simply about "scientific theory".

Popper gives what may be called an improved version of positivist theory by his insistence that scientific theory is not arrived at simply by inductions from observations. So far, so good. But it is only an improvement—a sort of piecemeal theoretical engineering applied in the context of the same old philosophy of science.

Marxism breaks with positivist philosophy of science in a radical way—by understanding science as social activity, and scientific theory as arising from, integral to and tested in that social activity. Marxists of course agree with Popper that science is concerned with "problems". But *what* problems? Not just "theoretical" ones. And whence do they arise? Not just from theorising, but from social practice for the success of which theorising becomes necessary.

### Falsifiability

To return now to Popper's allegedly infallible "criterion" to distinguish scientific from unscientific theory—it has become pretty famous, and is simply the criterion of "falsifiability".

If a theory is to be *tested*, as science must always test theories, says Popper, then it must be "falsifiable". That is, one must be able to specify exactly what observations would falsify it. It is not enough that observations should all *confirm* a theory. For theories can ingeniously be made up in such a way that whatever happens always confirms them. Such theories are unscientific because not "testable" at all. A scientific theory is one which can be falsified—and scientists demonstrate their scientific integrity by spending their time devising all manner of ways and means to try to falsify their theories.

It is of course quite true that, as Popper says, all scientific theories are *tested*, and that theories not subjected to scientific tests are not scientific. It is also true that scientific tests include procedures which if they yield negative results, amount to falsifications. But that is not at all the same thing as saying that there is one and only one "criterion" which by itself decides whether a theory is scientific, and that that is the criterion of its falsifiability.

In propounding his single "criterion" of falsifiability Popper is, in fact, guilty of *gross oversimplification* of the methods used by science to test theories.

He ignores the fact that science is a social activity

and that scientific theories are tested in social practice and not simply by special observations made by scientists. And then he grossly oversimplifies when it comes to the complexities of the logical structure of scientific theories themselves.

He appears to assume that science consists of a collection of theories each of which is of the simple logical form of a *hypothesis*, "If A, then B", which has the force of a *prediction* that the next "A" to be encountered will be "B". If, then, an "A" turns up which is not "B", the hypothesis with its prediction is falsified, and another hypothesis must be thought up to replace it.

According to this account of science, each scientific hypothesis is tested on its own, quite independently of testing other connected hypotheses. But this is not at all how science in practice proceeds. And one has only to consider examples of important scientific theories to see that Popper's account does not fit them. For example, the general theory of relativity, the laws of thermodynamics, the theory of evolution by natural selection—to cite only three.

Popper's account of science does not fit Marx's theory of social and economic development in human society either. From this, Popper concludes that Marxist theory is unscientific. But if he followed up this line of argument he would find that no scientific theory is scientific.

### Conjectures and Refutations

From his gross over-simplification about scientific theories and their "falsifications" Popper deduces a formula in terms of which he sums up the whole nature of science. This is the formula of "Conjectures and Refutations". Science, he says, consists in making "conjectures" and then seeking to "refute" them. Every scientific theory, he says, is a "conjecture". And the scientist is the man who *tests* his conjectures by continually trying to refute them.

According to this description of science as "conjecture", science is treated by Popper like some sort of game. It is of course quite true that there *is* a conjectural element in science. And certainly science proceeds by continually questioning and testing. But to say that all scientific theories are nothing but "conjectures" is simply to ignore the role of science in social practice.

Science is no game of making conjectures and then trying to see if one can refute them and make new ones instead. It is, on the contrary, a very serious social undertaking. And indeed, so far from recognising that scientific theories are only conjectures made by scientists we continually stake our very lives on them, in a way we certainly would not be well advised to do on conjectures.

For example, when engineers build a new bridge they use scientific theories to do so. Were those theories only conjectures, then the public would be

ill advised to trust themselves on a bridge. An engineer who said "Well, my conjecture is that the bridge will stand the weight, but if it collapses I shall try out another conjecture" would not find employment in bridge-building.

Conjectures are made at what one may call the experimental and growing-points of science. But in science, theory is not *all* conjecture but becomes very well *established*.

For example, it is established that the earth is a planet of the sun, and that species of living organism on the earth have evolved by natural selection. One does not consider a man who spends his time trying to refute the theory that the earth is a planet to be a scientific man—on the contrary, he is considered to be a crank. But according to Popper, true scientists should be always trying to refute this conjecture about the earth.

The implications of his theory of "conjectures and refutations" are thus quite absurd. A serious philosophy of science does not propound such simple formulas which have absurd implications, but looks at science as it actually develops in social practice. And this is how Marxism approaches the problems of the philosophy of science.

### The Fallibility of Observation

The over-simplifications in Popper's famous "criterion" of "falsifiability" are further exposed if one considers the actual conditions under which a theory *is* falsified.

According to Popper, this is a very simple matter. A theory predicts that if something is "A" then it will be "B". A report is made that a particular "A" is not "B" but "C", contrary to the prediction of the theory. The theory is then falsified or refuted—and must be replaced or revised. A single negative instance always suffices to "refute" a theory.

But this is not how scientists proceed.

On the contrary, when a negative instance is reported they do not simply accept that single report as the refutation of a theory but proceed to test the report itself. It is not simply that scientific theories are tested by observations—the observations are tested too.

Indeed, if someone reports an observation which refutes a very well-established theory, that does not at once dis-establish the established theory. On the contrary, the inference will be that there was something wrong with the way the observation was made. In that case, it is not the theory but the observation which will be tested and "refuted".

It was always a characteristic of the positivist philosophy that it regarded "observation" as somehow *infallible*—providing the basic "data" for science. But observation is not infallible, and no scientist ever in practice thinks it is. Once again, Popper, while apparently criticising and opposing

traditional positivist philosophy, has in fact uncritically accepted its fundamental but false pre-suppositions.

### Fundamental Theory

When it comes to the establishment in science of those very general theories which fulfil the role of the *fundamental* theories of science, then still less does the criterion of "falsifiability" have the simple application which Popper claims.

Popper's formula of "conjectures and refutations" simply does not apply in the case of fundamental scientific theory. And indeed, his account rendered of scientific theory—simply taken as an account of scientific theory in itself, even without consideration of the social contexts in which scientific theory is thought up, tested and applied—totally fails to take account of the actual structure and growth-process of theory. For Popper chooses to ignore the role of fundamental theory in science. Science does not become science by making a lot of conjectures and seeking to refute them, but by establishing fundamental theory for a whole field or range of inquiry, like, for example, the theory of evolution by natural selection in the sciences of life.

Marx's achievement was to have established fundamental theory for the science of society—in exactly the same way as fundamental theory has been established in other departments of science, and in full accordance with all other fundamental scientific theory.

### Positivist or "Vulgar" Sociology

Coming now to Popper's contributions at the levels of sociology, one finds that just as his philosophy of science is merely a more sophisticated continuation of the traditional positivist philosophy of science, so are his contributions (if such they may be called) to sociological theory only glosses on the traditional theories of "vulgar" bourgeois sociology and political economy which have always gone hand in hand with the positivist philosophy.

The fundamental criticism which Marx himself pronounced on "vulgar" bourgeois political economy remains fully applicable to all the more sophisticated bourgeois sociology and political economy today.

Marx did not suggest that the bourgeois theorists had given false descriptions of social phenomena—ignoring facts, or inventing facts with intent to deceive (though some of them are on occasion not above doing so). On the contrary, the more able and honest among them have collated facts with great care. For example, they have conscientiously collected data about, say, costs, wages and prices, in order to state with some exactitude the interdependence of these economic variables in capitalist society.



In this they have proceeded exactly as the positivist philosophy of science says science should always proceed—getting data from observation and then formulating theories to fit the observed facts.

And what they have achieved thereby has been, exactly as Marx in his *Theories of Surplus Value* said it was, theory enough to satisfy “the man preoccupied and interested from a practical point of view in the process of bourgeois production”. Indeed, in terms of Popper’s formulation about “problems”, the problems vulgar bourgeois sociology and political economy are interested in are precisely the problems of such a man.

What Marx then criticised was the *superficiality* of the entire analysis thus presented. The theorists, he pointed out, had been content with “only describing the external phenomena”. They had made no attempt to trace the “hidden structure”, the real processes and relationships determining the “appearances”.

#### Appearance and Reality

Science, however, is—as Marx pointed out—always concerned to discover the reality hidden behind the appearances.

The sociologists remain, indeed, in a pre-Copernican stage of science. All they do is to observe the appearances and describe (quite accurately) their apparent connections. But science is concerned to find out what determines the appearances. And then, as Marx wrote in a letter to Engels, “the thing is seen differently, the apparent movement is explained”. Thus what we *observe* is the sun moving round the earth. But science shows that this is only the *appearance* of the earth moving round the sun.

In this connection, Marx wrote (employing the terminology used by Hegel) of discovering “the essence” determining the appearances. Such phraseology scandalises Popper, who immediately shouts “essentialism!”. However, when science uncovers the “hidden reality” or “essence” behind the “appearance”, it does so, not by seeking and obtaining some mystical revelation of “essence”, but by strictly empirical inquiry, thoroughly tested in the scientific testing and practical establishment of theory.

Anyone, then, who sets out the observed timetable of the sun’s movement round the earth provides thereby a perfectly accurate account of appearances. But he provides a false account of the solar system. Similarly, the bourgeois sociologists and political economists, painstakingly careful as they may be in recording facts, provide a false account of society in general and capitalist society in particular.

As for Popper’s sociological analysis—in terms of which he undertakes to show that communism

can only mean a “closed society” of tyranny and violence, whereas with capitalism we enjoy the “open society” of democracy and peaceful progress through piecemeal social engineering—it is not very hard to see that throughout he has confined his attention to appearances. Of course he is quite correct in saying that in society there are both “rulers” and “ruled”, with various efforts by the “ruled” to “control” the “rulers”. What he does not do—and condemns Marxism for doing—is to look behind all this. As for the exploitation of man by man, classes and class interests—these are hidden from his sight. And the revolution made in society by socialism is hidden from his sight as well. All he can see is the appearance of the thing—a great upset in which a lot of people get hurt.

And so for Popper all remains well in his adopted country of England. The English democratic bed would be comfortable to sleep in, he finds, if it were not for the “reds” making disturbances underneath. Throw them out! is his conclusion.

#### Partisanship in Philosophy and Science

The account rendered of scientific method by the positivist philosophy, a version of which Popper expounds, and in terms of which he pretends to refute Marxism, has little correspondence with what is actually done in the practice of science and the establishment of scientific theory. What it *does* correspond to is the practice of vulgar bourgeois sociology and political economy. It was born and has since been nurtured and grown up as the philosophical apologia for the pseudo-scientific apologetics of bourgeois society. Positivism is the bourgeois ideology *par excellence*.

In bourgeois society science has developed and flourished, and scientific method been pursued, in the investigations of natural processes. But only pseudo-science, with a pseudo-scientific philosophy to justify it, has been considered respectable in the fields of social studies.

This fact is readily understandable. The directors of Imperial Chemical Industries, for example, are interested to have found out for them as much as science can find out about the real processes of chemistry. They do not want merely to know about the appearances of chemical change, but about all that goes on beneath them. Yet when they present their balance sheet they do not want the real source of their profit to be revealed. On the contrary, they are interested in effectively concealing it. And when Marxist analysis reveals it, they hire professors to abuse the Marxists for them and to cover the reality up again.

Popper has proved himself to be one of the most abusive of abusers. And what he abuses Marxism for is its having undertaken an analysis in depth of bourgeois society.

What Marx, after Hegel, termed "dialectic" consists precisely in such scientific analysis in depth. In applying dialectic in the understanding of human society and social affairs Marx was by no means (as Popper tries to make out) applying some miraculous intuition of "the essence" vouchsafed first to Hegel and then to himself, but was bringing to the understanding of social processes the same type of analysis in depth, of uncovering the reality behind and determining the appearances, that has long been practised in the sciences of nature.

And as Marx wrote in *Capital*, when exhibited in the science of society "dialectic is a scandal and

abomination to bourgeoisdom and its doctrinaire professors . . . because it lets nothing impose on it and is in its essence critical and revolutionary".

Professor Sir Karl Popper is certainly a prize example of the "doctrinaire professors". The very methods of science which he pretends to have made clear, but has only misrepresented, justify the scientific philosophy, sociology and politics of Marxism. And he himself, in his pronouncements, bears out Marx's conclusion that in bourgeois society the pretended reasonableness and objectivity of professors is only a mask for apologetics for capitalism and partisanship for the ruling class against the working class and against socialism.

### Discussion Contributions on:

# The Communist Party and Developments in British Culture

Jon Chadwick

What I try to do in this short piece is to outline the basis on which a discussion of ideology and those sectors of ideological production (culture) can be made, to make some indication of what is the historical character of bourgeois ideology and, lastly, to raise some of the very general problems which the party faces in this area in relation to Jeremy Hawthorne's opener on the subject in *Marxism Today* of November 1973. The actual problems of the specific relation between the theory and practice of the Party and the modes of representation, processes of production and formulation of a materialist (marxist-leninist) position within the different social activities which are given the unfortunate umbrella name of culture, I have not touched on.

It is clear to all marxists that the pursuit of politics, science, art and religion follows from and must be explained in terms of the mode of producing the means of subsistence of a given society. The production of surplus product is a pre-requisite for the development of these social activities just as their forms are determined by the specific social relations entered into in the course of this production. The increasing productiveness of human labour brought about by the capitalist mode of

production, of which the relations of production are formed by class antagonisms, fundamentally increases the division of manual labour from mental labour which division itself reflects and is reflected by, permeates and is permeated by these class antagonisms. Furthermore this specific division of labour plays a special part in the formation of these social activities.

### **The State and the Ideological Apparatus**

Under state monopoly capitalism, defined by a greater intervention of the state in the relations of production, the state (and through it the direct political interests of the ruling capitalist class) determines more directly the formation of the ideological apparatus in that society. The growing intervention of the state in ideological production has a tendency to make all areas of ideological struggle political or have a bearing on the maintenance of capitalist ruling class political power. So it becomes clear that the exploitation of the leisure time of the working class performs a dual function, first the consumption of the surplus labour time of the workers in those sectors of production and secondly to reproduce that necessary element in the means of capitalist production, a docile and con-