
Correspondence

Politics and Class in Science

Dear Editor:

I am writing to express my disagreement and dismay at Tim Clemmens' review of Dominique Lecourt's book on Lysenko (*Theoretical Review*, Nov.-Dec. 1980). The reviewer accepts the line of the book which uses the history of Lysenkoism as a warning of what happens when ideology is allowed to mix with science and therefore to ridicule the notions of class science. It is this question rather than the interpretation of Lysenko that I would like to pursue here.

The question of the class nature of science (and therefore of the revolutionary struggle within science) is a politically important one in several contexts:

(1) For newly liberated countries, the urgent needs for development can be posed in two ways: the developmentalist view is that progress, including scientific progress, is linear; that some countries are more advanced, appropriating and applying the science of the "advanced" countries but not transforming it. The revolutionary line insists that the science in the new society must not emulate and defer to that science but rather build a new way of doing science, of posing problems, of deciding what is a satisfactory solution. The developmentalist line leads to intellectual domination by imperialism, the creation of a scientific hierarchy along bourgeois lines, the failure to tap the creativity of the people, the inevitable provocation of an anti-intellectual populist current response.

(2) Political battles around the application of science in the areas of environmental protection, public health, agricultural technology, resource management, and planning have tended to move from the periphery (good use vs. bad use of science) to more central issues of conceptualization. Generally, the "right" insists on a narrowly posed problem (e.g. is it cheaper to chop weeds with a hoe or spray herbicide) and to accept as boundary conditions the existing social relations (given that peasants have 13¢/day for food; what mixture of nutrients would feed them best on 13¢/day) while the Left has insisted on examining the broader problem: will herbicides displace women from weeding and undermine their economic and social position, will producing more grain really alleviate hunger.

The radical science movement in this area has been developing a critique which insists on the inseparability of the social and biological in issues of health and development, the broadening of criteria for solution to problems, the recognition that the givens, the boundary conditions of a problem, are themselves contingent and can be treated as variables (e.g. the land tenure system is co-variable with cropping patterns), and that the major issues confronting us should not be conceived as isolated defects for which magic bullets may be sought, but as whole systems. Thus, the radical critique of bourgeois science moves toward a more dialectical approach. We recognize the contradiction within bourgeois commoditized science, between growing sophistication in the small (inside the laboratory) and growing irrationality at the level of the whole existence.

(3) The role of the revolutionary as scientist or science student is quite different depending on whether one takes a

class or neutralist view of science. The neutralist view urges that the existing hierarchical structure of science is a hierarchy of wisdom, knowledge and intelligence, the academies are the actual and legitimate vanguard of science, that one should aspire to master science on its own terms, be accepted into the academies, use positions of respectability to organize among scientists, and serve as popularizers of science for the people (or in practice, at least for the Left).

The revolutionary line insists that the scientific hierarchy of rank, prestige and salary is merely that; that the academies are conservative bodies which never reach conclusions that challenge the existing system and that recognition is the reward for excellence only as defined by particular social rules. Therefore, our relation to the scientific community must be one of both conflict and cooperation.

(4) The division of labor in society as a whole and in the workplace is widely recognized as a source and mechanism of alienation and subordination. If we accept the existing design of the productive process and of specialization as inevitable consequences of technical "progress," we are pushed into displacing human wholeness to leisure time and deferring the rehumanization of labor to some distant future. But if we see industrial design not as dictated by nature but as the result of a struggle for maximum profit and social control and of the kind of engineering that arose to meet those needs, then we can pose the problem, how should the physical transformations of matter in production be designed to meet the needs of full human development. This would lead to a very different kind of engineering.

(5) Where racist and sexist doctrines are presented in the robes of science (Jensenism, sociobiology), the revolutionaries have to examine the whole ideology within which such nonsense seems to be plausible. It leads us inevitably into a critical examination of contemporary genetics and evolutionary theory and the uses of statistics.

(6) The reformist trends within Marxism often attempt to reduce the scope of the Marxist challenge from a critique of the whole of bourgeois society to some of its economic inequities. They seek to win respectability by showing their own respect for bourgeois science, by repudiating the outrageous and embarrassing positions of a more complete anti-capitalism. Therefore, the struggle for a class line in science is struggle to affirm that we really want to build a new way of life, not just share this one out more justly.

Therefore, we should not use the Lysenko experience of dogmatism and coercion as an excuse for a retreat into liberalism. Rather, what is needed is a deeper analysis of class science and a commitment to revolutionary politics within science.

Sincerely,

Richard Levins

Tim Clemmens Responds

I. Introduction

Comrade Levins and I agree on the major thesis at issue here, namely, that there exists an integral relationship between science and ideology. And I believe we agree on the necessity of communist militants taking up the struggle within science to fight against the interventions and influences of bourgeois ideology. Comrade Levins is correct

in pointing out that science is not immune to economic, political, ideological and philosophical influences of society. This matrix of influences acts upon science by determining the limits, relationships, and practices of science, as well as determining the conditions of existence of science within a specific conjuncture and social formation. The primary moving force within our society is class struggle which is dominated by the bourgeoisie through their control of state apparatuses, their dominance in popular ideology, and their hegemony in political practice. Thus science exists within the whole ensemble of social struggles, relationships, and practices and is permeated with bourgeois practices, ideas, and institutions.

The crucial comment made by comrade Levins, however, is the statement: "when ideology is *allowed* to mix with science and therefore to ridicule the *notions of class science*." (My emphasis.) Two points are brought into the open here. First, it is not a question of *allowing* ideology and science to mix. That mixture is a concrete fact. And second, the "notions of class science" is a false description of science in modern society. Both of these points will be examined more fully below.

However, before we examine these two questions we need to establish a common conceptual framework to lay the foundation for our discussion. Therefore we begin with a short detour by examining science and its relationship with society. Then we will return to relate the question to politics and class struggle.

II. Science

The examination of science deserves a comprehensive study in its own right,¹ and the following is only a preliminary, tentative, and provisional outline. It is presented in a very schematic form where features, characteristics, relationships, and methods will be simply listed without elaboration.

I shall refrain from attempting to provide a full definition of science. Rather I would like to lay out some features common to all science. First, science can only have a *specific* object of investigation (physics, geology, biology, astronomy, etc.) which focuses on specific phenomena, involving the categorization, measurement, and analysis of that phenomena for the purpose of expanding existing knowledge. Second, science is an historical process based upon previous work brought forward in the material form of theories, notions and pre-conceptions, etc. Third, science involves specific methods particular to each science, the variety of the methods is matched by the variety of phenomena under investigation. Fourth, science uses particular tools, again, specific to its object of study, which may involve something as simple as a notebook necessary for observing behavior, or something as complex and massive as the six-mile radius atom smasher necessary for exploring nuclear physics. Fifth, science is more than a simple listing of raw data, as in empiricism; there is a real labor to analyze, abstract, and theorize existing knowledge to produce new knowledge. For now, we shall refer to this labor as theoretical labor. Sixth, science, especially in modern capitalism, is a social endeavor involving dozens, if not more, supportive personnel for every scientist. This means that for every scientist there are assistants, technicians, maintenance, housekeeping and administrative personnel who provide material support in the expansion of science. Seventh, science depends upon the support of society as a whole to provide the necessary resources for its existence.

Science is a specific process, unique to each object of investigation and each particular science where theories are formed, bringing together previously separate knowledges into a unified theory which provides a *relatively* more complete understanding of the phenomena under investigation. "In the theory of knowledge, as in every other sphere of science, we must think dialectically, that is, we must not regard our knowledge as ready-made and unalterable, but must determine how *knowledge* emerges from *ignorance*, how incomplete, inexact knowledge becomes more complete and more exact."²

III. Method of Science

Here we shall list some features of the method of science. The listing here is not ordered preferentially or hierarchically, and, further, we must keep in mind that the method of science is a *process* involving a number of steps. First, existing knowledges need to be accumulated, measured, categorized, and systemized into tentative and preliminary relationships. Second, knowledges and preliminary notions of knowledges must be abstracted and analyzed within a dialectical process, whereby, third, new knowledges are produced by theoretical labor. Fourth, a process of observing, experimenting and testing of theories and hypotheses is conducted. Fifth, the results of this testing, whether confirming or denying the hypotheses, must be referred back to the existing hypotheses and theories by amending, accepting or repudiating them. Sixth, the knowledge of this observation, experimentation and testing is then re-incorporated into the existing body of knowledge as new knowledge and new theories that can then be used upon the object under investigation for further analysis. This process, constantly going back and forth, is the dialectical thesis "governing the contradictory movement of the appropriation of being by thought on the basis of their respective movements"³ [Lecourt, *Proletarian Science?* p. 107]. This process is of course interrupted by the notions, pre-conceptions, beliefs, and historical "common sense" generated and reproduced within society. And as we shall also see, science is tied to the dominant (and ruling) ideology of society.

IV. Science and Ideology

"The phenomena of science as a socio-historical fact takes on the form of a mixture between knowledge and 'systems of hypotheses that go beyond the simple objective fact'. In order to separate these two aspects, an operation of abstraction and an ideological struggle are required, so that the one can be accepted (objective knowledge), the other rejected (ideologies). 'In this way, one class can appropriate the science of another class without accepting its ideology'.⁴

Therefore, the presentation of any science must be viewed as linking and encompassing both objective knowledges and ideologies. In fact, this combination is all the more important in understanding because the ideological aspect can overdetermine the objective knowledge that it supposedly is representing. Let us list several of those combinations: (1) taking a new scientific fact and building speculation upon speculation using one objective fact; (2) the creation of knowledge from common sense and posing and promoting this notion as objective and scientific truth; (3) the manipulation of a scientific fact whereby one truth (evolution) must be balanced with an untruth (creationism) in the interests of "balance," "fairplay," and "objectivity";

(4) taking objective truth and attributing to it characteristics that are unproven, tentative, and provisional; (5) taking scientific experimentation, analysis, or fact and focusing on one element and using this one-sided approach to justify and rationalize any ideological position (socio-biology); (6) the tendency to promote the exceptional, the sensational, the peculiar, and the spectacular as the rule and, thereby presenting an imbalanced and incorrect view of science; (7) when science does not rise above the empirical and superficial comparison of facts (sociology). Science encompasses both elements—knowledges and ideologies—which exist in tension and contradiction whereby science is the site of class struggle. But science is not reducible to either bourgeois science or proletarian science.

V. Science and Society

The whole ensemble of elements within science (the tools, methods, practices, labor, and institutions) are further molded by influences and interventions by other instances that move to independent rhythms and cadences. Again, we can only schematically lay out some of the elements. (1) There are the relations of production forcing an expansion in constant capital (science and technology). (2) Within a given social formation the level of productive forces define the scope and limits of the resources to be expended for science. And given the cyclical nature of capitalist economy, science rises and falls with the waves of the economy. (3) The maintenance and reproduction of the state is accompanied by defense spending which is strong and aggressive and, therefore, distorts and deforms the direction and emphasis of science. (4) The ideological practices, ideologies, and institutions of bourgeois society (educational system, racism, sexism, individualism, etc.) are reproduced in science. (5) The political interventions via means of support (or non-support) for specific sectors or strata of society (nuclear energy versus solar energy, national versus multinational, manufacture versus agriculture, etc.) are determined politically and thereby further define the extent and limits of scientific investigation. (6) Because of the imperialist nature of capitalist America, science is further geared toward the maintenance and reproduction of imperialism setting forth technological solutions to social problems and further concentrating science within the world imperialist system in a hierarchical fashion. Here, again, we can see that science is directly tied to society, where science is the site of class struggle, but cannot be reduced to this or that class.

It has been outlined above how science, by its very nature, is integrally bound to the previous conceptions within science. (New knowledges brought into existence by science bear the birthmarks of the previous knowledges.) And we also outlined how science is integrally bound to the philosophies, ideas, notions, and ideologies of society. Therefore, it is not a question of "allowing" science and ideology to mix, but rather a question of *recognizing their fundamental relationship*. The mixture of science and ideology exists independently of any "allowance" of any particular social force.

VI. Notions of Class Science

While comrade Levins and myself agree on class struggles within science, we disagree on what that means. First, science cannot be reduced to representing one class, either the bourgeoisie or the proletariat, as this idea denies the

social character of science. Can we say that a microscope is a bourgeois instrument? Can we say that Planck's constant is a bourgeois notation? Can we say that evolution is a bourgeois theory? Can we say that biology, chemistry, physics, astronomy, or geology are bourgeois sciences? Must science conform to every twist and turn of the bourgeoisie? Or does science exist within society where it not only acts upon society, but at the same time is acted upon by society?⁵ The class reductionist theory that there exists a bourgeois science and a proletarian science cannot be supported.

Second, science cannot be made a simple instrument of the bourgeoisie, where it can be wielded at will. There are a number of elements that work against this instrumentalist view. One element is the encouragement of capital to help rationalize production where it moves to its own tempo. Another element is the competitive character of capital which divides capitalists because of their different interests. Still another element is the multi-class character of scientific production which includes the whole range of social forces within society.

A third aspect is the contradictory character of science wherein there exists a number of competing elements. One contradictory element in science is the struggle between materialism and idealism, another is the struggle between mechanical and dialectical methods. And as we have pointed out earlier, there exists a struggle between science and ideology, as well as the struggle between knowledges and pre-conceptions. But none of this supports the claim that science is purely the possession of one class.

VII. Conclusion

There are several points for summary. First is the recognition of the role of ideology in science, in scientific production, and in scientific practices. Second, science is a social practice involving the whole range of society, embodying numerous social classes, the economic structure, the interventions of the capitalist state, the influences of political interventions, and the influences of bourgeois ideology. However, science is not reducible to one class, nor is it the instrument of any one class. Science is a site of class struggle—it is not bound to this or that class, but neither is it neutral and above the social conflicts of classes.

From this we can draw two conclusions. First, science is permeated by politics—science is one of the battlegrounds of political struggle. And second, because of the political character of science, and because of its connection with society, science cannot be radicalized without a concomitant radicalization of society as a whole.

Here is where comrade Levins' references to "bourgeois science" fails, because he seems to give the illusion that somehow "radical" science is free from ideology ("it is pure"), and has the ability to exist outside or above society. The political strategy flowing from this can be an isolationist and ultra-leftist approach where science is somehow independent of society.

Where comrade Levins and I agree is the characteristic that the struggle within science is based upon that of "line," which confirms the political character of the struggle. And I agree with comrade Levins' assessment and evaluation based upon criteria broader than a critique of economism. But comrade Levins has no justification for criticizing Lecourt's struggle against the theory of the two sciences as being "overreactive" and retreating into "liberalism." In

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formulated first and foremost by myself . . . It is clear that Stalin was right in smashing every manifestation of fractional activity based on the theories of the Right opposition, and right in destroying it root and branch.

In that same speech, Bukharin mentioned how some of his former pupils had been punished "as they deserved."

The Trial of Bukharin unfolds a story of complete betrayal, in the 1930s of the socialist vision held by the Bolshevik leaders at the time of the October Revolution. The most elementary notions of socialist legality were not only ignored, but trampled upon, and with them the political practice necessary to construct a genuine socialist society.

Paul Sanford

Paul Sanford is a trade union activist and a member of the Theoretical Review editorial board.

The Incredible Shrinking American Dream: An Illustrated People's History of the United States States

by Estelle Carol, Rhoda Grossman, and
Bob Simpson, Alyson Publications,
1981, 171 pages, \$6.95.

This publication is an ambitious attempt to present a Marxist interpretation of American history in comic book form. It begins with a portrayal of the transition from feudalism to capitalism in England and covers the plunder of Africa and the Americas by the European maritime powers. Succeeding chapters provide a surprisingly sophisticated presentation of slavery, mercantilism, the American Revolution, Westward expansion ("Step Aside Buddy, I'm an American"), the Civil War and Reconstruction. The book continues through an analysis of industrialization, "Adventures in Imperialism," the Depression and both World Wars. Perhaps the most comprehensive chapters are the concluding ones on the "Nifty Fifties" and the mass movements of recent times. A valuable bibliography is included.

The book uses hundreds of jokes, caricatures, and cartoons to present its message in a humorous and popular style. The very density of this material at times hinders the overall readability of the book. However, each page contains separate narrative paragraphs which succinctly summarize chronologies, concepts, and biographies.

Throughout the book a militantly anti-capitalist, class-conscious viewpoint is projected, without much recourse to left-wing rhetorical verbiage. There is a strong sensitivity to the issues of national and radical oppression, as well as a critique of male supremacy. American history is placed within a solidly anti-imperialist, internationalist perspective, as exemplified by treatment of immigration, the Spanish-American War, Vietnam, etc. The final chapter critiques bourgeois ideological hegemony in the US by satirizing 23 "myths" which perpetuate belief in the system.

The book concludes with an appeal for a working class party and a proposal for socialism in America. The authors

are careful to make general criticisms of the existing socialist countries while presenting the transition to socialism as a long and complex historical epoch. *The Incredible Shrinking American Dream* helps to meet our movement's pressing need for popularly written works on American history and culture.

Ben Rose.

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fact, there is no significant contradiction between comrade Levins' six points and the arguments and analyses of Lecourt in his book *Proletarian Science? The Case of Lysenko*. What is in contradiction is comrade Levins' defense of the notion of the existence of the two sciences (proletarian science and bourgeois science) and the theses presented above.

¹ Some introductory readings: J. D. Bernal, *Science in History* (four volumes, MIT Press, 1971); Rita Arditti, Pat Brennan, Steve Conrak, eds. *Science and Liberation* (South End, 1980); Harry Braverman, *Labor and Monopoly Capital* (Monthly Review, 1974); Dominique Lecourt, *Proletarian Science? The Case of Lysenko* (NLB and Humanities Press, 1976); "Science for the People," monthly journal produced by Science for the People, 897 Main Street, Cambridge, Ma., 02139.

² Lenin, CW, Vol. 14, p. 103.

³ Lecourt, p. 107.

⁴ Christine Buci-Glucksmann, *Gramsci and the State*, p. 378.

⁵ Bernal, Vol. 1, prefaces, pp. 1-18.

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³²Ibid., p. 2.

³³Dobb (1928), p. 168.

³⁴Dobb (1948), pp. 2-11.

³⁵Ibid., pp. 177-80.

³⁶Ibid., p. 179.

³⁷Ibid., p. 181.

³⁸Ibid., p. 186.

³⁹Ibid., p. 196.

⁴⁰Ibid., p. 198.

⁴¹Yakovlev, in *Pravda*, Nov. 5, 1927; in Dobb (1948), pp. 198-99.

⁴²Dobb (1948), p. 192.

⁴³*Ekonomicheskaya Zhizn*, cited in Dobb (1948), p. 220.

⁴⁴R. W. Davies, *The Socialist Offensive: The Collectivization of Soviet Agriculture, 1929-30*, (Cambridge: Harvard University Press, 1980), pp. 61-4.

⁴⁵Dobb (1948), p. 203.

⁴⁶Ibid., pp. 216-17.

⁴⁷Ibid., p. 203.

⁴⁸Ibid., pp. 204-5.

⁴⁹Bettelheim, op. cit., pp. 382-5.

⁵⁰Cohen, op. cit., p. 289.

⁵¹E. Strauss, *Soviet Russia*, pp. 156-57, 160-1; in Dobb (1948), p. 206.

⁵²Dobb (1948), p. 206.

⁵³Ibid., p. 207.

⁵⁴Eugene Zaleski, *Planning for Economic Growth in the Soviet Union, 1918-1932*, trans. by Marie-Christine Andrew and G. Warren Nutter, (Chapel Hill: University of North Carolina Press, 1971), p. 164.