

RADICAL SCIENCE AND ITS ENEMIES

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In the 1972 *Socialist Register* we analysed the development of the radical science movement from its birth in the struggle against the genocidal science rained upon the peoples of Indochina to its often halting and uneven attempts to develop theory¹. Although we called that paper 'The Radicalization of Science', it actually spoke of the double process by which science which had been seen as socially and technically progressive was increasingly recognized as incorporated within the state, and the radicalization of *scientists* in opposition to this process. As part of that movement, we saw its task as the winning and transformation of the scientific knowledge itself, the making of a science for the people. Whilst it was easy to see the immediate tasks of opposition to the development and uses of particular science and technologies, the theoretical task the movement set itself was more fundamental. Was science a timeless, autonomous intellectual system which stood apart from and above social conflict, or was it part of that conflict, and, if so, how? Whilst the movement had few clear theoretical formulations, it had, in common with the rest of the New Left, certain sharp insights, primarily that the understanding of the social functions of science would be forged out of the contradictions of experience; theory could not be developed from within an ivory tower, even if Marxism was inscribed in gold over the entrance. The May 1968 events, the cultural revolution and the Tet offensive were part of a revolutionary optimism, shared by the radical science movement, of the realizable prospect of human liberation.

Today, in the context of the deepening crisis of capital, economic struggles are central, and the clarity and optimism of the earlier period has retreated. Whilst at the height of the extra-parliamentary movement it was a matter of indifference just what was the flavour of the state machinery managing British capitalism, the mere nuances of Wilson or Heath, Callaghan or Thatcher, today these differences are seen as matters impinging on survival. There has been a corresponding ideological struggle waged over the

challenge to bourgeois hegemony made in the wake of '68. Symbolized by the *Berufsverbot* in West Germany, with its refractions in Britain through the pusillanimous Gould Report, the ideological issues are also fundamental to an understanding of the strengths (and weaknesses) of British fascism and the rise to power of the most reactionary conservative administration for many decades.

It is not our purpose here to document the history of specific organizations within the radical science movement. Instead, grasping the old nettle of red and expert, we want to talk about those struggles in which the movement has had a particular part to play, those which have been located primarily within the ideological domain and have at their core the question of the nature of scientific knowledge itself.

The themes which, we argued in 1972, informed the developing movement were these: of the use and abuse of science, the neutrality of science and the self-management of science. As the decade advanced, questions originally posed as those of the use and abuse of science were gradually recognized as a feature of the incorporation of science into the machinery of the capitalist state, making it possible to begin the development of a political economy of science.² The radical science movement of the seventies thus only slowly recaptured and moved beyond the level of theoretical analysis achieved much earlier by a previous generation. More than forty years ago, in a book written by an anonymous collective of a dozen communist economists, scientists and technicians, *Britain Without Capitalist?* there is a key chapter, (actually written by Desmond Bernal) 'Science and Education', which begins bluntly, 'It is not usual to think of science as an industry', and goes on to show that it is, but 'unlike other industries that are concerned in keeping a certain state of production going, science is concerned with changing that state'. This analysis was lost in the exigencies of war, the inheritance of **Stalinism**, the cold war and the subsequent dissipation of the 1930s science movement into either techno-economism or an increasingly vacuous internationalism. A Marxist interpretation of the radical science movement of the 1930s which also recognizes its subsequent fate, remains to be made. The only account to date of some of its key activists is by **Werskey**⁴ who interprets history in terms of the psychological and social origins of the individuals themselves. His failure to understand the political forces which led workers and intellectuals to join the Communist Party in the 1930s gives his work an unfortunate cold war flavour, of intellectuals manipulated by **Comintern** intrigue.

To return to the theoretical developments of the 1970s, the analysis of the neutrality of science led to the exploration of the possibilities of making a new socialist 'science and to the re-examination of the consequences of Stalinism in science, the Lysenko question in the USSR, now illuminated by the work of Lecourt⁵ and of Lewontin and Levins.⁶ Self management led to the hard practical realization of the near impossibility of creating socialism in one laboratory⁷ and to the theoretical clarification of Levy-Leblond with his distinction between the ideology of and in science.⁸

We cannot consider further the present dimension of these theoretical issues, though, without first referring to the practical struggles in which scientific and technical workers have been engaged. In part, these have inevitably reflected a tightening job situation, resulting in the unionization of scientists and technologists, especially through ASTMS and TASS. Within these unions, scientists have fought on issues which have not only defended their economic position but also fused science and politics. A vital area has been that of health and safety at work, a struggle in which ASTMS in particular has been deeply involved and which was symbolized by the ASTMS-led campaign in the aftermath of the death from smallpox of the Birmingham University technician, Janet Parker, infected from a laboratory on a floor below her own work. The inquiry following her death revealed the gross mismanagement of the laboratory, and the resulting hazards to technicians and scientists working in its vicinity—an issue on which ASTMS had been campaigning since the mid 1960s. A decade of technology-based accidents, from Flixborough and Séveso to Harrisburg has also been one of increasing involvement of left scientists and engineers with shop stewards' movements in the campaigns towards the implementation of the health and safety legislation and the demands of workers to understand and to secure protection from the hazards of their work. It is this area where health groups, scientists, militants, and left groups have been able most effectively to join forces to combat the human destructiveness of the labour process under capital. These actions have ranged from the exposure of the use of toxic chemicals in the leather processing industry in Naples and the carcinogenic nature of vinylchloride used in British factories, and bringing to **womens'** attention the danger of cancer from hair dyes, to opposition to the use of 2, 4, 5-T, once a defoliant in Vietnam, now a dangerous herbicide rejected by American rural communities resisting the health hazards imposed upon them by agribusiness.

The second symbol within Britain of the fusion of science and politics in a shopfloor campaign is that of the Lucas Aerospace Combine Committee. At Lucas, the workers were faced with structural changes in engineering, electronics and aerospace, generated by cut-backs in defence spending and the transformation of a British company into a multinational switching investments across national boundaries. Going beyond the forms of struggle developed in the late sixties of occupations and factory work-ins and transforming the rhetoric of the popular calls of the mid 1970s for worker participation in management, the Stewards' Combine Committee developed an entire alternative 'corporate plan' for Lucas. The political and industrial strengths of a combine committee which ranged through the big engineering sections to the highly technically qualified draughtsmen of TASS were brought to bear on showing how the skills of the Lucas workforce and fixed capital of the plants could be used in the generation, not of military or aerospace hardware or alienating and de-skilling robotics, but of socially usefully technologies. The strategy of the development of alternative plans as part of the struggle against factory closures in the technology-based industries in the late 1970s has now been generalized far beyond Lucas, although the particular combination of political skills, technological vision and industrial muscle have not always been so abundantly available. How far this strategy will survive the changed political climate of the 1980s, however, cannot be taken for granted. If the re-inflation of the defence budget by the new Conservative administration results in a surge of new orders for British aerospace companies, for instance, the Combine's demands for socially useful work may weaken where the work force is relieved to have any jobs at all. Further, as the Combine is very well aware, there is a continuous danger either of co-option, by being **outmanoeuvred** by management, or anaesthetized by being taken out of the factories and into the only too eager hands of the universities and polytechnics.

The systematic agitation and education conducted through the collectively produced magazines and pamphlets of the radical science movement contributed to the placing of science and **technology** on to the agenda of the labour movement, not only as a material force of production but as one indifferent to its human toll. The critique of Taylorism and the work of Braverman drew theoretical attention to the deskilling nature of the new labour processes. *Impascience* in France, *Sapere* in Italy, the long standing *Science for the People* in the United States and *Science for People* in the

U.K. spoke on these issues from the socialist wing of the movement. The anarchist wing, reflected in such publications as *Undercurrents*, while often naive about alternative solutions (so that for the energy crisis they tended to look to windmills and the domestic production of methane) nonetheless were able to respond to ecological issues such as those posed by Concorde, with which the left, trapped by its concern to maintain employment, failed to grapple. Something of the same difficulty has been reflected in the anti-nuclear movement in France: while the *gauchiste* scientists joined the movement, the Communist Party slowly and with difficulty came down on the side of the nuclear power station programme. Not only have such issues been raised by the magazines produced specifically by the radical science movement: they have been taken up and further disseminated by the new abundance of left and alternative publications—for instance, the bringing together of both the technical and economic implications of micro-processor technology by Counter Information Services in its pamphlet *The New Technology*.

By the end of the decade, consciousness of the implications of the new technologies, and actions against them by community groups and the labour movement were widespread, from the local groups opposing the siting of the third London Airport and the rapid growth of the anti-nuclear movement, especially in Europe and the U.S., to the work in the unions on the consequences of the introduction of micro-processors. While there is some danger that these struggles may be presented merely as opposition to an autonomous technological determinism, rather than to the invention, development and application of big technology in the interests of capitalist rationality and the movement of finance capital, these questions are now a significant arena for political struggle.

We can return to our main themes, those within the ideological domain, by way of the reception accorded to the publication in 1977 of a pamphlet by Gould and his fellow committee members entitled 'The Attack on Higher Education: Marxist and Radical Penetration'⁹ to a well-orchestrated trumpeting of media publicity. The Left was not slow to see its significance and to counter-attack¹⁰. The sponsorship of Gould's committee by an organization committed to counter-insurgency propaganda, the Institute for the Study of Conflict, and the stridently Macarthyite tone of its claim that Marxists and radicals constituted a 'clear and present danger' and its 'naming of names' made the purpose of the pamphlet clear.

Gould exhibited the anxiety of the right as the students of '68 took their places within the cultural apparatus. No longer psychologized

away as anti-authoritarians raised on demand feeding, or the products of overcrowding in the institutions of higher education, the new Marxists and radicals were seen as constituting a latter-day Comintern plot, a tightly knit group held together by a common theory of the long march through the institutions. The counter-insurgency theorists argued that the radical intellectuals sought to occupy the institutions of higher education so as to subvert the hearts and minds of the young, who in their turn would enter the professions, spreading the deadly poison of creeping socialism. The right-wing belief that when the students entered professional work they would abandon their radical and revolutionary commitment seemed sadly shaken. The Report focused on school-teaching and social work as the professions where the radical mode of scholarship had penetrated furthest, though it promised further instalments on subversion in the media and in publishing.

In Gould and his co-authors' eyes, the threat of the radicals is the attack on the norms of that liberal scholarship which takes as its premise the existence and accessibility of the 'objective standards' of knowledge and of truth. Hence radical philosophy, and above all radical science, which question the bases of these objective standards are seen as the main enemies. Philosophy and science are claimed to have fallen victim to either the critique of ideology or the new sociology of knowledge, Marxists and philosophical relativists jumbled in one paragraph. Any sort of social criticism, inside or outside the dominant ideology—even the writings of Kuhn and Levi-Strauss—is exposed by the Institute's pamphleteers as a threat to the social order. That it singled out in its 'naming of names' only a few of those whose writings have contributed to the movement, and is indeed singularly unscholarly in its discussion of these, does not diminish this point. For despite their uneasy awareness of differences within this heterogenous group, Gould and his co-pamphleteers wanted to insist on a central unity of purpose. Indeed, in their conspiracy theory, it is almost more interesting whom they omit than whom they include; thus the feminist critique is as invisible to them as it is to many of the old left. Like Canute's advisers, Gould and his fellow pamphleteers seek to order back the waves of the new left critique, judiciously hinting at the scope of the traditional administrative mechanisms of restrictions on promotions and appointments, a discreet British version of the Berufsverbot.

How could anyone come to jumble so completely the different strands of thought within the ranks of the social critics? The origins must be sought in the continuous process of the renewal of bourgeois

culture through the incorporation of ideas arising from the social and intellectual upheavals of the decade: (Take, for example, the way that self management was to appear on the bourgeois agenda as 'participation' blessed by the most advanced sections of capital, or how the critique of *deskilling* was to be taken on board by car manufacturers such as Volvo in the reorganization of the labour process.)

This incorporation can be seen in the context of the relationship between the left critique of science and the development of the new sociology of knowledge. Academic interest in the interrelations of science and society developed during the 1960s period of techno-economism, when state and industry were persuaded of the validity of the thirties Marxist understanding of science as a material force of production.

By the end of the sixties the gathering economic crisis demonstrated that techno-economism could not guarantee economic growth. Scientists began to be seen as yet another pressure group demanding more funding for their own interests. With this new critical perspective, and in the face of mounting evidence of public concern over pollution and the less desirable consequences of unrestricted technological growth, the glamour of science began to look distinctly tatty, and both the interest and the money began to wane. It only remained for state and industry to make it plain that, apart from some money allocated for basic science, the science budget as a whole would be conditional on delivering the goods to the paymasters.

Pioneering the new language which was to permeate British political life in the seventies, the Rothschild report of 1971¹¹ enshrined the principle of the scientific contract. The state and industry were to be the customers, research workers the contractors. The old argument in favour of the autonomy of scientific research was abandoned, scientists working on governmental or industrial research were no longer to receive grants; instead the customer offered them a contract. The new language reflected the now incorporated status of science and the age of judicious autonomy was over.

The academic science studies units concerned with the impact of technology, science and society, science of science and science policy could not be immune to this shift, but were required to choose whether to move almost entirely towards the world of contract research or towards basic science. Contract research would investigate links between scientific and technological innovation and

economic growth. Basic research took them into the sociology and philosophy of science and explored the relationship of natural science to other forms of knowledge. This new sociology of science returned to the externalist theory of the growth of scientific knowledge. While the socialists returned to **Hessen**¹², **Bernal**¹³ and their contemporaries, the new sociology armed itself with **Kuhn**¹⁴ whose work seemed to offer a social interpretation of the growth of science. Almost simultaneously the radical science movement concluded that science was not neutral whilst the new sociology of science discovered that internalist explanations of the growth of science were inadequate and that a structural functionalist account of the social organization of science was a mystification. The consequence was the rapid march toward alternative formulations which were to lead, not merely to the sociological relativism inherent in either a Marxist or sociological theory of knowledge, but beyond, to the adoption of a full philosophical relativism which has characterized the writings of much of the new sociology and philosophy of knowledge and certain influential theoreticians within the radical science movement.

It is this philosophical relativism which has moved from being a critique of other knowledges to an auto-critique of one's own knowledge and on towards an escalating reflexivity. It is a **hyper-reflexivity**¹⁵ ¹⁶ spoken of as the 'disembodied **dialectic**'¹⁷ which, both within the sociology of scientific knowledge and within the radical movement, threatens to consume not only 'ideology' but science itself. The certainties of the Althusserian distinction between scientific knowledge and **ideology**¹⁸ are to be obliterated, dissolved into their social determinations and a belief in the equality of discourses. The socially constructed nature of 'reality' becomes merely a defence against the 'irreality of chaos and nothingness' which allegedly lies behind all human creations of **order**¹⁹. In this irreality there is nothing to distinguish true from false theories; a new equality prevails between knowledges. 'Authenticity', far from offering to humanity the possibility that, through struggle, thought can be de-fetishized and reality known, offers instead 'consciously understanding and admitting the essentially arbitrary nature of the behaviour and identity we **choose**'²⁰. To be cool, to be aware that we are playing in nothing more than a series of more or less elaborate games, constitutes the new authenticity. The politics of subjectivism replace the pursuit of the rational society.

One of the-games players par excellence of this new authenticity is **Feyerabend**.²¹ It is perhaps significant that his *Against Method* and

Science in a Free Society have been published in Britain by New Left Books. It seems that it is not merely within bourgeois thought in Britain that the divisions represented by C.P. Snow's *Two Cultures* continue to operate. Both the New Left Review and New Left Books, for example, have slowly acknowledged the existence of science, but when they do enter this territory they choose to publish the writings of philosophers or historians such as Lecourt or Bachelard, literary critics such as Timpanaro. Thus the new Marxism, in dealing at last with Lysenko, or grappling with the inheritance of the Dialectics of Nature, does so purely through philosophical analysis; and the questions thrown up by the actual study of the physical and biological worlds are neglected.

But there is also a contrast between the writings of Feyerabend and the body of work of the Frankfurt School, where Habermas in particular has both laid bare the domination exercised through instrumental rationality, and also set forth the contradiction between this instrumental rationality and the pursuit of the rational society. An uninitiated reading of *Against Method* and *Science in a Free Society* would suggest that Feyerabend is out to destroy not only the claims of expertise and instrumental rationality but reason and rationality themselves. In his envisaged 'free society' science, and indeed any intellectual activity, simply become one tradition amongst many, one ideology against competing ideologies. 'All traditions', he writes, 'have equal rights and equal access to education and other positions of power'.

But an initiated reader will recognize that Feyerabend is the self-appointed jester of the court of science. His critique of the formalism of Popperian philosophy is launched from an examination of the practice of science: thus he criticizes the philosopher's conception of scientific method rather than science itself. The practice of science, which Feyerabend usually speaks of as 'research', remains relatively unscathed. Despite his manifest sociological relativism he separates himself very firmly from that 'philosophical relativism' which takes the view that 'ideas are equally true or equally false' or, in an even more radical formulation 'that any distribution of truth values is acceptable'.

But those who do fall into the philosophical relativist trap which Feyerabend himself avoids springing, go well beyond his ingenious attack on the scientists who have witch-hunted astrology. One influential journal which has at present adopted this line—and indeed brooks no alternative within its pages—is *Radical Science Journal* (RSJ). Thus the mathematician Hodgkin writes, 'I would be

happy to accept Althusser's definition of scientific practice (working on knowledges to produce new ones) *without* his implication that there is a line that can be drawn separating scientific practices from ideological ones ... [hence].. astrology done seriously [is a science]²³.

Hodgkin travels precisely down the path Feyerabend refuses, with only the moralistic criterion of 'seriously' (which is not spelt out) to ensure the conditions under which astrology is to take its place in the new egalitarianism of knowledges. Yet it is precisely this position which disarms radical scientists, amongst whom Hodgkin must be numbered, when faced with the ideological counter-attack, which Gould symbolized. For instance, when the ideologues of scientific racism, such as Jensen and Eysenck 'work on knowledge', is what they produce new knowledge, and if not, what is it? If it is fetishized consciousness, as RSJ argues, there are no rational grounds for opposing it and the opposition to scientific racism must be seen exclusively in personal and moral terms. If we adopt the position of what is called 'the strong programme' in the sociology of knowledge, then we must presumably regard all these cultural products as new knowledges. Certainly the sociologist of knowledge Barnes²⁴ as an advocate of the strong programme, is logically consistent when he calls these exponents of the new scientific racism 'new Galileos', for within his framework of philosophical relativism, anything does indeed go. If the criterion of truth has been relativized away, the possibility of determining what is science and what ideology has been abandoned. The criterion of 'seriousness' Hodgkin would have us adopt seems a very weak substitute.

It is this thesis which is spelt out in greater detail in the article by Young, 'Science is Social Relations'²⁵, which has been taken as the major statement of RSJ's theoretical position. Although we have dealt critically with this article elsewhere²⁶ it is important to look at its main claims and implications here. Young's article constitutes a repeated assertion that science is, or may be reduced to, social relations, that is, despite the claims of science to be concerned with an understanding of the natural world, it can only represent a series of social constructs reflective of the social order. Despite its claims, this position is the antithesis of Marxism and in developing it, Young draws heavily on the writings of Feyerabend and a particular reading of *Sohn-Rethel*.²⁷

Sohn-Rethel's thesis is that the emergence of physical science can be linked to the development of abstract thought, itself a product of the formation of commodity exchange relationships and the separation

of mental and manual labour in, above all, ancient Greece. Sohn-Rethel thus points to the social origins of science. But as a materialist he eschews the claim that the existence of social determinants of a phenomenon dissolves the phenomenon itself, and nothing less than this constitutes the enterprise which Young sets himself. The core of Young's case is the claim that 'the economy and the factory are known by socialists to be social relations'. Hence by extension, commodities are social relations, and as scientific facts 'are' commodities, they too are social relations. His approach transforms a mediation into an identity. But a factory is at the same moment part of the reality of social relations and is itself objectively real. Its own material reality does not cease because it is part of social reality. Similarly its products and the skills of the workers embodied in those products are both materially real and objectively part of social relations; they are not reducible to social relations. Young's argument replaces materialism by idealism—only take thought, and the factory will become transformed, the state wither and the millenium arrive. This triumph of the idea is to reverse the achievement of Marx in setting Hegel on his feet—philosophical relativism upends Marx and rediscovers a new Hegelianism. The theoretical criticism is further compounded by Young's understanding of the term 'social relations'. For him, a victim of hyper-reflexivity, the concept is synonymous with interpersonal relations, and he transforms the slogan of 1968 'the personal is the political' into its converse 'the political is the personal'. But although an apple is a fruit, not all fruits are apples. Lastly he confuses the social determinants of a phenomenon for the phenomenon itself—it is not the social relations of the Hebden Bridge asbestos factory which penetrated the lungs of the workers, but the asbestos fibres. The asbestosis and painful death of the workers are not *merely* social relations either. The failure to make the distinction between the field of study and the organization by which it is used, means that nothing in nature can ever be transformed and any act of understanding is impossible. The authenticity of critical reason, which for Marx affirms humanity's capacity through struggle to de-fetishize thought and 'know the thing itself'²⁸, has been ceded to the new hip authenticity.

The mistake of bourgeois science is to ignore that objects within nature itself have relationships and histories and are capable of transformation. For reductionist science, nature is locked in a universal present whose multifarious phenomena are nothing but an expression of the unchanging and static properties of individual

atoms engaged in a timeless dance.

It is this mechanical, materialistic reductionism which constitutes the dominant ideology of today's reductionist science. By contrast the new idealist ideology pretends that objects do not exist at all but are merely manifestations of 'social' (i.e., interpersonal) relations, a sort of twentieth century ectoplasm. Within this miasma of philosophical reductionism which reduces the phenomenon to its social determinants, how can we say that one brick wall is better built than another, let alone one theory or experiment. What is done is to deny the achievements of human labour, whether these are in bricklaying, cooking or scientific experimentation. It also denies the autonomy of separate knowledges and the problems of discriminating between them and within them. Thus conflicts within fields of knowledge reduce solely to 'social relations', a stance of such monolithic reductionism that paradoxically it enters into complicity with the crudest of economic or biological reductionisms. The political dangers of this philosophical relativism, to say nothing of its theoretical inadequacy are manifest.

Once Marx, invoking the metaphor of a walnut, wrote of revealing the rational kernel within **Hegel**. For the new philosophical relativism, the metaphor must be that of the onion. First reflexivity usefully peels the skin away, then hyper-reflexivity takes over and strips away the remaining layers until nothing—for an onion has no kernel—remains. In keeping with the present pre-occupation with personal feelings, this onion-peeling practice is a painful business. This new subjectivist radicalism, stemming from the agonies of intellectuals trapped within an incorporated science, tests its theories by their moral fervour rather than by their efficacy.

Mao wrote of a **revolutionist's** theory of knowledge, 'The Marxist philosophy of dialectical materialism has two outstanding characteristics. One is its class nature; it openly avows that dialectical materialism is in the service of the proletariat. The other is its practicality, it emphasizes the dependence' of theory on practice, emphasizes that theory is based on practice and serves practice. The truth of any knowledge or theory is not determined by subjective feelings but by objective results in social practice.'²⁹ In contrast to this, the new relativists of **RSJ** speak of a theory and practice based 'in the end' on 'personal commitment'.³⁰

Such a stance, which goes beyond critique and auto-critique, despite all its radical affirmation, reaches out with unseen hands towards an old enemy. It cannot then come as any surprise to note

the speed with which in the last few years the fashionable trend amongst intellectuals has been to turn away from Marx and indeed any revolutionary commitment at all and into the new enchantments presented by the kaleidoscopic gyrations of the latest gurus. Althusserianism was replaced with structuralism, and now an enthusiasm for Foucault, Lacan and the Nouveaux Philosophes. In a search for a theory which would help overturn the world and which the practice of the early 1970s alone was insufficient to achieve, revolutionaries moved out of the streets and into the library. Some remained in its safety, locked into their own private practices of the living out of the personal as the political, ensconced in small groups with their separate gurus. There is a danger that such intellectuals may not even notice that the storm clouds are rising. Indeed for some of them having dropped the term Marxism from the mast-heads of their journals because 'We aren't really sure we know what it means or whether we are Marxists at all now', the storm may seem to signify as little as did the rise of fascism to the thirties logical positivists or surrealists. But the storm is threatening and could blow them, willy nilly, away along with the rest. And it is to the storm itself that we turn.

Earlier in this essay we discussed the Gould pamphlet because its attack on the radical science movement symbolized many of the preoccupations of the ideological counter-attack which has begun to gather momentum in the late 1970s, and it is now necessary to consider the more serious forms that this has taken over the last decade. The essence of an ideological counter-attack is that it must defend the structures and ideas under siege, not merely by isolating their enemies and pursuing them intellectually, politically and administratively, but by asserting the naturalness and inevitability of those ideas themselves, for the importance of ideology is that it is most powerful when invisible, when the natural order of things is not the *subject* for debate but the premise upon which that debate is built. The strength of the left during the late sixties and the first half of the seventies, based on the burgeoning economic and social crisis, was to shake the ideological foundations of patriarchal capitalism; as the revolutionary culture flourished, proliferating innumerable small magazines, and boosting the sales of the decidedly non-revolutionary publishers who eagerly sought to print the new critics, the cultural centre of gravity of Britain, like that of the rest of the Western world lurched decidedly to the left. The urgent task of the right was to re-establish the naturalness and inevitability of the *status quo*, and the impossibility of the changes demanded by the

revolutionaries. The source of authority for the rejection of revolutionary values was to be just that unchallengeable science which the radical movement was criticizing. Hence the anger shown, for instance by Gould, at the blasphemy of the attacks on science (no one, he remarks with incomprehension and indeed ignorance, would expect to seek for ideology in physics!).³¹

The ideology of a racist and patriarchal capitalism maintains that class, race and sex divisions within the social order are the innate consequences of human biology. The radical science movement has intervened to contest this persistent attempt to reduce the social to the biological.

The ideological counter-attack took shape with the revival, first in the US and almost immediately afterwards in Britain, of the eugenicism surrounding the use of psychometric measures as the IQ test; the IQ testing movement resurrected by Jensen in the US and Eysenck in Britain claimed that intelligence was largely inherited and that differences in school performance and subsequent job expectations between classes, sexes and races were due not to the class nature of the educational system or a racist and sexist society but to the workings out of biological predestination. The appeal of this claim to capital is obvious; its persistent refraction through the media despite the fact that its scientific untenability has been frequently demonstrated at all levels from the experimental to the theoretical testifies to its importance. It has even survived the total destruction of the scientific reputation of one of its key figures, Cyril Burt. His claims for the hereditary bases of differences in intelligence have been shown to be fraudulent. The attack by the left on IQ testing and its ramifications was one of the earliest, and has been one of the most long standing of the campaigns taken up by radical science movement in Britain and the US. At its best the critical intellectual attack was part and parcel of a more general struggle shared with black parents and teachers.³²

But by the mid 1970s it had become clear that the campaign to re-establish the theory of the heritability of intelligence was but one shot in a much wider battle. The arguments about the naturalness and biological inevitability of the social order were widened into the grandiloquent claims of a new discipline, sociobiology, argued by its leading exponent, Wilson, to be about to engulf and transform the study of economics, sociology, history and psychology.³³ Sociobiology at its strongest claims that the complex forms of human society are the products of a genetic inheritance; today's Western capitalist societies are the inevitable consequences of genes specified as a result

of generations of evolution (or rather that they should **be**); running through sociobiological thinking is a distinct echo of nineteenth-century social Darwinism; *laissez faire* is felt to be more biologically sound than monopoly or welfare capitalism; as Dawkins puts it in his popular book *The Selfish Gene*¹⁴ where he criticizes the 'unnatural' welfare state in which

... we (sic) have abolished the family as a unit of economic self-sufficiency and substituted the state. But the privilege of guaranteed support for children should not be abused ... Individual humans who have more children than they are capable of raising are probably too ignorant in most cases to be accused of conscious malevolent exploitation. Powerful institutions and leaders who deliberately encourage them to do so seem to me less free from suspicion.

Without wishing to read off the new superstructural forms from the economic base, the correspondence between the economic theory underlying the policy of the Thatcher government and the new individualistic and familial biologism should not pass unnoticed. It leaves behind the biological determination of a Lorenz or a Morris, whose theories, fashionable in the 1950s and early 1960s had argued that co-operative behaviour evolved amongst animals because it was in the interest of the group as a whole that it should do so (group selection). Now, in the hands of Wilson and Trivers in the US, Hamilton, Maynard Smith and Dawkins in Britain, the argument was transformed from group to kin selection in which the individual was the agent of evolution. Animals and, by extrapolation, humans only *appeared* to act co-operatively ('altruistically'); infact they acted selfishly in their own genetic *interest* to propagate their own genes and those of their close relatives; genetic (kin) not class (or group) loyalties are the key to success. 'Genetic man' in this model comes close to the autonomous figment of bourgeois economics, 'economic man' who calculates the appropriate investment to be made in rearing offspring or rescuing a sibling from a predator's attack*. Evolution centres around the development of adaptive strategies towards stable states. Historians of social thought might be excused

* This is not a metaphor: sociobiologists indeed constantly use the term investment and base their mathematical models upon it. Neither the summary of sociobiological thinking here nor the quotation from Dawkins would be regarded as out of context or extreme within sociobiological writing.

for concluding that structural functionalism, having been more-or-less driven from sociology, seeks to reoccupy biology.

By the late 1970s sociobiological reductionism had widened its boundaries indefinitely to claim that aggressiveness, acquisitiveness, territoriality, racism and male supremacy were programmed into the genes along with genes for altruism and spite, homosexuality, male sexual philandering, female sexual constancy, childhood dislike of spinach, political attitudes and the tendency to answer questionnaires inconsistently. The facts of biology, according to Wilson, lie athwart our desires for a transformation of the capitalist order;³⁵ the 'inevitability of patriarchy' according to Goldberg is an inexorable obstacle to the demands of the feminists.³⁶

The critique of sociobiology has been strongly developed by the American radical science movement.³⁷ To a considerable extent this debate, perhaps as a consequence of the vigour of the response, has been contained within the arena of the campus. In Britain sociobiology has been more quickly taken up by both conservative and the new fascist thought.

It is not for nothing that the monetary economists are now claiming that the 'facts' of sociobiology lend justification to their social theorizing. Biologism, as Billig³⁸ and Barker³⁹ have recently documented, is also central to the ramshackle collection of doctrines that provide intellectual sustenance for the National Front. The claims that innate biological differences determine racial characteristics and legitimize white supremacy are fundamental to fascism and the NF was quick to seize on Eysenck and Jensen as 'proving' their point. The NF national organizer, Webster, claims that Jensen's publication was a crucial factor in the collapse of morale amongst multi-racialists and the growth of racism in the 1970s.⁴⁰ Scientific racism is a mainstay of NF publications like *Spearhead*, and late in 1977, the NF published a leaflet, distributed in large numbers to school children, together with a longer pamphlet on 'How to Combat Red Teachers'. A central point of both leaflet and pamphlet were the claims that Eysenck and Jensen had 'proved' that there were innate differences in intelligence between blacks and whites, and that 'red' teachers (their cartoon teacher is an unequivocally anti-semitic stereotype) spread multi-racial lies and denigrate 'sound scientists'—the same claim appeared in an election address by the NF in 1979. In the same year, the NF's 'theoretician', Verrall, embraced the entire sociobiological thesis in another *Spearhead* article,⁴¹ now using it to justify arguments not merely for racial inequalities but sexual inequalities as well. The NF stereo-

type of passive *Kinder-Küchen-Kirche* female and dominant Aryan male is neatly in accord with the sociobiological theses of the inevitability of patriarchy and Verrall was not slow to see the connections.

The widespread struggle against racism and fascism, and the success of the Anti-Nazi League in mobilizing the youth and combating the rise of the NF, was reflected in the derisory electoral performance of fascism in the May 1979 elections, and has held the extreme right in its most virulent form in check. However the sweeping electoral victory of the most reactionary Conservative administration for many years shows the extent to which the ideological counter-attack has successfully penetrated. Biological reductionism has been as integral a part of the Conservative ideological baggage as monetarism. The themes of the conservative election campaign and around which they have ordered their initial policy pronouncements are not ad hoc legislative changes but are based upon a concept of the naturalness of a particular competitive capitalist order. Note how often the concept of naturalness appears, for example, in the speeches of Thatcher or her lieutenants. 'One of the most important driving forces in human nature, people passing things on to their children and grandchildren', said Thatcher to the Scottish Conservative Party conference in May 1979. And a few weeks later the thought was echoed in his budget speech by Geoffrey Howe, the Chancellor. 'It is perfectly natural that people should wish to build up capital of their own and pass it on to their children.' The naturalness of capitalism, of the xenophobia of a British 'race' swamped by aliens, of the class order ('we are all unequal. We believe that everyone has the right to be unequal') are all expressions of a particular ideology. This is more than merely a reassertion of the Conservative belief that they are the natural party of government; it is a claim that 'science' is firmly on their side. The terrain won by the left and by critical scholarship in the aftermath of 1968 is now once more to be fought over. Within the framework of a world capitalism wracked by economic, political and energy crises, and the specific situation of a de-industrializing British economy, the battles of the immediate future are likely to be fierce. In this context there is a need not only to respond to specific ideological challenges but to stay on the offensive and produce more and better socialist scholarship which will serve the struggle for human liberation. Radical science will have its part to play within this.

NOTES

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