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WINTER 1952-53

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THE CRITICAL REALISM OF THE LAST
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THE ABDICATION OF SCIENCE

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Biological Warfare

BY R. HUGHES AND PETER JEWELL

I

The Preparations for Biological Warfare

THE world was shocked to learn of the allegations that bacteriological warfare had been used, since January 28th, 1952, by the American forces against the Koreans and Chinese. *The Times* wrote (March 20, 1952): "The deliberate spreading of disease is so abhorrent to the western mind that no one in the west believes for a moment that the Americans, or any other people of the United Nations, have ever considered using so vile a method of warfare." Thus having set the stage, our national press, including *The Times*, *Manchester Guardian* and *News Chronicle*, has proceeded to refute the charges, to ridicule the evidence (which they have never presented), and, in some cases, to impute all manner of disgusting motives to the Koreans and Chinese.

The U.S. Attitude

Their task is eased by the fact that few people are aware of the extensive investigations that have been made in the U.S.A., Canada and Great Britain into the potentialities of biological weapons. People in this country are even less aware of what has recently become the official U.S. attitude to these new weapons, which epitomise all that is implied by total warfare. It has always been claimed that such research as has been conducted in this country is for purposes of defence only.¹ The official American view was, until a few years ago, at least a similar one. This does not mean that methods of attack have not been studied, for it is essential to know what the possibilities are in order to work out effective measures of defence. But when, in 1943, following British representations, research in America was intensified and placed under the control of the Special Projects Division of the Chemical Warfare Service of the Army, President Roosevelt made it clear that utilisation of these weapons would only be considered in

¹ In the words of a War Cabinet Statement of 1942: "Our principal aim in these studies and experiments was defensive and protective, and that we should under no circumstances initiate these forms of frightfulness."

retaliation. However, two years ago, it was possible for an American magazine to write:

"Hardheaded military men view the problem strategically, not morally. The object in war is to defeat the enemy, they reason: so why is it less humane to kill the foe by gas or germs than by such torture instruments as the flame thrower with which we broiled alive thousands of Japanese in World War II?"

"For public consumption, military spokesmen continually stress our defence measures against gas and germs. The fact remains that we stand prepared to use such weapons ourselves" (*Look*, November 21, 1950).

In the Merck Report (1946) it was made quite clear that the wartime investigations into biological warfare had revealed weapons of great potency which should be investigated for their offensive possibilities. In December 1950, Rear-Admiral Ellis M. Zacharias, wartime chief of Navy intelligence stated his views as to how far matters had proceeded in this respect, in testimony before a Congressional committee. He said that the U.S. had three weapons "far more devastating than the atom bomb . . . biological, bacteriological and climatological" which could "devastate whole populaces." He added: "Germ warfare, combined with devastations of crops and cattle, could soon reduce the Russians and their satellites to impotence."

More recently, the matter has been even further clarified, for the New York *Journal American* wrote on October 31, 1951, that while up to this time scientists had confirmed that the Truman administration still based itself on President Roosevelt's pledge not to use germ weapons first in any war, "specialists in the field of chemical warfare now confirm that in 1951 this position can no longer be regarded as realistic".

In January, 1952, General Omar Bradley, Chairman of the U.S. Joint Chief of Staff, told the Senate Armed Services Committee: "We have a definite military plan under which we will endeavour to bring the fighting to an end. . . . If we use this plan, it will be as spectacular as anything that has happened in the Korean war so far". On January 22, Brigadier-General Charles E. Loucks, Deputy Chief of the Army Chemical Corps (of which the BW unit is the Special Projects Division) talked in Baltimore of extended plans for the large-scale use of chemical and bacteriological methods of warfare. Three days later, Brigadier-General William E. Creasey, Chief of the Army Chemical Corps Research Command, delivered

a speech in Washington praising the use of "germs, gas and radioactive materials" as the cheapest weapons to subdue an enemy. The U.S. Army newspaper, *Stars and Stripes*, quoted him as saying: "According to my most profound convictions, chemical and bacteriological weapons will lessen military expenses and the resistance of the enemy and will thus ensure us victory without economic devastation. . . . Consequently we will accomplish and realise more quickly special experiments with all possible kinds of weapons relative to bacteriological warfare. . . ." He was addressing the American Women's Patriotic Conference.

The *Congressional Digest* of March 5, 1952 contained an acknowledgement by Major-General E. T. Bullene, Chief of the Army Chemical Corps, that "chemical units were in Korea by July 4, 1950, and have been growing in strength ever since", and that "much of the work" at the front is being carried out by these units. Hence it was obviously not without reason that *Science News Letter* wrote: "Perhaps bacteriological warfare will have an opportunity of being tested if the fighting in Korea goes on a little longer" (July 8, 1950).¹

Active Preparations

When Professor Theodore Rosebury presented his report to the U.S. Government in 1942, he did so solely because he and others were concerned that the Germans might be prepared to use biological warfare. The U.S., he felt, should prepare to defend itself. As a result of his report, and the encouragement of the British Government, the first laboratories and pilot-plants were set up at Camp Detrick, Frederick, Maryland, and were soon employing a total personnel of 3,900. The facilities were later extended to include a plant for large-scale production at Vigo, near Terre Haute, Indiana, and two field-testing stations at Horn Island, near Pascagoula, Mississippi, and at Granite Peak, Dugway, Utah. A separate U.S. Navy team was established at California University under the innocuous name of "Medical Research Unit No. 1", and used influenza research as a cover for its activities. University and industrial laboratories engaged in the same kind of work were included in the research plan which G. W. Merck referred to in his

¹ We are seeing once again, as in the case of the atom-bomb, that, no matter what the original reason for developing particular weapons of war, once they have been prepared, they present an overwhelming temptation to military leaders who are not deeply moved by moral considerations.

post-war Report (1946) (where all these facts were disclosed) as "a truly combined operation". In all, about 50,000,000 dollars were spent, and Merck was enabled to conclude: "It is important to note that the development of agents for biological warfare is possible . . . without vast expenditure of money or the construction of huge production facilities."

The Merck Report, which gave many details of the actual research programme, was soon withdrawn, and it is interesting to note that it was not much later in the same year when President Truman withdrew the Geneva Protocol of 1925 which was to have come up for consideration of ratification by the U.S. Senate. Since then, several appropriations have been obtained from Congress for extension of facilities at Camp Detrick.

On March 12, 1949, Mr. Forrestal, then Secretary of Defence, made a statement in which he said that the U.S. was operating "an active programme" for biological warfare. The next day, General Alden H. Waite, then Chief of the U.S. Chemical Warfare Service, said in an interview with the *New York Times*: "I think we have the best scientists in the world working on this problem. At the end of World War II we were far ahead of any of our enemies." Chapman Pincher, science correspondent of the *Daily Express*, writes: "Biological warfare work has been continued in America at fair pressure. . . . The latest information available to me shows that a practicable long-range bacterial weapon which could be put into operational use if required has been devised in the U.S." (*Discovery*, December, 1950).

It only remains to say that, on April 3, 1952, the *Washington Post* reported that in Congress the previous day, at a closed session enquiry, the Pentagon put forward a Bill for provision of 17,000,000 dollars to enlarge the BW centre at Camp Detrick, adding 532 acres and nearly doubling its size. The report says: "The Army is shifting from the research to the manufacturing stage in bacteriological weapons." It continues: "Testimony given behind closed doors by Major-General E. T. Bullene, Chief of the Army Chemical Corps, and just made public, tells of the importance placed on bacteriological warfare in current Army plans. 'We think it is very urgent,' Bullene told the House Appropriations Committee, ' . . . We think it is time to catch up with some hardware.' 'Hardware' is the Pentagon term for mass-produced service-use weapons."

When the U.S. Special Projects Division was started, the results of the earlier British research were handed over and very little

further work was done in Britain during the war.¹ Shortly after, however, a Microbiological Research Department was set up at Porton on Salisbury Plain, as part of the Chemical Defence Research Department. The new Department was originally housed in a group of huts, but, since then, one of the finest laboratories for biological research at present existing in the country has been built and fully equipped on the site. Chapman Pincher remarks that the British scientists employed there are working closely with their American counterparts at Camp Detrick. Advertisements to attract medical and scientific research officers to Porton have appeared, and still appear in the technical press. But doctors apparently do not relish the prospect of doing this sort of work. Undergraduates studying microbiology at Cambridge are taken on an extensive tour of these laboratories, presumably in an attempt to interest them in employment there. Quite a lot of the work is published, but much remains secret, and this secrecy probably represents the greatest menace at the present time.

These facts must surely be well-known to the British Government, but have received so little publicity that, when questioned on the matter in the House of Commons on March 24, 1952, Mr. Eden felt safe to reply disarmingly, and even to impute unpatriotic motives to his questioner.

Mr. Emrys Hughes: . . . Can the right hon. Gentleman categorically deny that such preparations for bacteriological warfare are not being made in Great Britain?

Mr. Eden: That is the first I have ever heard of anything of the kind, but if investigations are required into that perhaps a Question can be put down. . . . If the hon. Member has other charges to make against his country, or any other, we might investigate them too.

Production of Biological Weapons

The object of biological warfare is to produce disease in men, domestic animals and plant crops. In most cases, epidemic disease is the desired outcome; and, for this purpose, all the known agents of such infection must be considered as possibilities. Bacteria, viruses, fungi and protozoa are all potential weapons of war, according to the protagonist of BW. Moreover, it is not only the naturally-occurring varieties of these agents that may be used, but new ones

¹ Note the parallel with atomic energy research.

specially bred for their virulence and spreading-power in BW laboratories. In addition, the poisons (or toxins) produced by some of these agents could be used, though here, the problems, both of attack and defence, are the simpler ones already familiar in chemical warfare.

The mass-production of these new weapons does not present new technical problems. In the ordinary way, breweries produce pounds of yeast a day, and moulds are now cultured on a vast scale for the preparation of penicillin, streptomycin, etc. Similar techniques can be used for bacteria, most of which require for their growth simple nutrient fluids obtained from such materials as potatoes, milk and blood. Even in an ordinary public health laboratory, it would be easy to produce in one day 50 pints of culture medium laden with germs.

In the report of the Khabarovsk trials of Japanese war criminals (1950) details are given of the extensive preparations made in Japan for waging bacteriological warfare. Work was started in 1935, but later, in 1941, two special detachments of the Kwantung army were established employing a personnel of about 3,000. Enormous boilers were constructed for the preparation of culture medium, and, when the plant was working to full capacity, 20lb. weight of bacteria could be manufactured each day.

Viruses are more difficult to grow than bacteria, for they can only develop and multiply inside another living organism. It may be possible to find suitable laboratory animals or insects, in which to culture viruses causing disease in animals and men, but this would be a cumbersome method, and not at all easy to handle. Many viruses, however, can be cultivated in the developing embryo of the chicken's egg, so that with a large enough incubation plant a considerable quantity of virus could be obtained.

The cultivation of fungi presents similar problems. One, *Coccidioides immitis*, which causes a severe and often fatal illness in man, has been cultured in the laboratory at Camp Detrick, and its mass production would present no difficulties. Those causing plant diseases would probably have to be grown on experimental plots.

It is plain that the main obstacle for those conducting biological warfare to overcome is not the production of the agents of BW, but the dissemination of them. In order to infect men and domestic animals, some germs have to be inhaled: these, like the influenza virus, usually give rise to respiratory disease. Those that cause

intestinal disease, such as cholera or typhoid, must be taken in with food or drink. A few can penetrate intact skin to give rise to localised or generalised infection, while some, such as the *Rickettsia* causing typhus or the *Protozoan* that produces malaria, must be introduced through the bites of infected insects. In a natural epidemic, respiratory infection is spread by coughing or breathing out the germs, and intestinal infection through lack of due attention to the disposal of excreta. Some germs are carried on the skin, while those injected by insect vectors are normally only spread by these same carriers.

The infective agents must enter the new host in adequate concentration. They must do so shortly after dispersal, for their independent survival-time is often counted in hours. Some germs, such as the spirochaete causing syphilis, are exceptionally fragile: on the other hand, there are some, like the anthrax bacillus, that form spores that can live for years in dust or in the soil. The U.S. BW laboratories have for years been developing techniques for the "stabilisation" of dispersed germs. One way of doing this is to find suitable animals or insects in which the germs can live. It is not necessary to use a "normal" vector; all that is required is for a sufficient number of germs to be kept alive and in high enough concentration until an epidemic is under way.

In bacteriological warfare it is not necessary to use the natural mode of spread of the germs. Sometimes a short cut can be found. Yellow fever, for example, is spread in nature by a mosquito, but, if the virus responsible is distributed as an aerosol, it will be inhaled and can infect via the lungs. It is plain that several factors will determine the actual means of dissemination in any particular case. The geography and climate of the area to be attacked and the known habits and customs of the people will all be relevant factors, so that no vector or other means of spread can be considered as too bizarre. It is all a matter of convenience.

The Japanese research was largely devoted to developing means of mass-production of germs, insects and animals for the spread of well-known epidemic diseases, such as plague, typhoid, paratyphoid and cholera. The public health measures ordinarily operated by a well-organised community are designed as defences against these very diseases.

American research on the other hand has been largely directed towards the exploitation of diseases that do not ordinarily appear in epidemic form, or which occur as small localised outbreaks

restricted in their geographic distribution. Effective vaccines are not known to have been developed for them. The infective agents can all be spread by air in order to start outbreaks and epidemics. Rosebury (1949) refers to "cloud chamber" experiments with *glanders bacilli*, *psittacosis virus*, and the germs of *melioidosis*, *tularaemia* and *brucellosis*. So potent is the *tularaemia* germ, that, though only 2% survived the atomisation process, it was easy to start with enough to infect and kill every animal exposed in the chamber. In Rosebury's words, these five groups of germs were "the hottest batch of bugs ever handled at one time by a single group of men".

The official report on BW by the U.S. State Department to U.N.O. shows that the possibilities are not confined to the known varieties of disease-producing agents. "It is quite probable that research directed toward enhancing the virulence of pathogenic microorganisms would result in the production of varieties much more virulent than those now known. The use of varieties of pathogenic microorganisms of such unusually high virulence might well overcome the means of protection now believed to be adequate." *Science News Letter* reported (July 8th, 1950) that, in the course of a lecture on BW and military medicine, Dr. Joseph E. Smadel, of the Army Medical School, mentioned that one of the numerous viruses discovered in Africa and S. America in recent years by members of the Rockefeller Foundation, during their studies on yellow fever, might be the cause of a "new" disease of military significance.

Any new variety of pathogenic agent would be tested in the laboratory on suitable animals. The results obtained would not necessarily be immediately applicable to deliberate infection of man, for animals vary greatly in their susceptibility to germs. Though rats or guinea-pigs, for example, may be easily infected and killed, man may be immune. Experiments on monkeys would give the most valuable information, but even the results of these experiments could not be confidently expected to demonstrate the potentialities of human infection. Likewise, experimental infection of animals in a cloud chamber is quite a different matter from infection of human beings "in the field". "Only trial and success in battle can justify it (biological warfare) completely. . . . No other method of selection can give more than provisional information. . . . Until it has been used, we will have no way of knowing exactly what it can do, how effective it can be, to what degree it can con-

tribute toward victory or defeat in a World War III" (Rosebury, 1949).

Uses of Biological Weapons

Attempts to wage BW were made at least as early as the 18th century, and the Germans used agents and saboteurs for the purpose during the First World War. But the first large-scale effort was made by the Japanese in China and on the borders of the Soviet Union during the last war. In 1940, plague-infected fleas were dropped by plane in special receptacles and a severe outbreak was started in the Nimpo area. In 1941, outbreaks were started in the Changteh and other areas of central China. Water-supplies were contaminated with typhoid and paratyphoid. As the Japanese troops retreated, they left infected sweets and biscuits in houses, and liberated infected cattle. They even infected prisoners of war with typhoid and cholera and then set them free. Special porcelain bombs were made, and named after Ishii, the General in charge of the BW laboratories. Suitable artillery shells were also devised. In spite of the enormous effort, very little is known of the actual results obtained, for this requires first that a thorough investigation should be made of the diseases endemic in the population to be attacked, and second, that a careful follow-up should be made of the results of the attacks.¹

The detection of a biological attack will initially be a difficult matter. It must somehow be suspected that bacteria have been disseminated, and this suspicion may not be aroused until cases of infection have actually occurred—even then the identification of the germs may take some time. Major-General Anthony K. McAuliffe, Chief of the Chemical Corps, said, in a speech in Louisville (1950): "Methods of biological warfare afford ideal sabotage weapons, because they can be applied unobserved. Thanks . . . to the difficulties of observing them, it is not easy to prove. . . . In other words, one can create the impression that the deaths and disease have resulted from natural causes."

Of course, in time, the hall-marks of BW raids would be recognised, so that the defences could be put into action early. But though a civilised country, well prepared, would be able to limit

¹ On May 10, 1951, the Associated Press reported that U.S. "medical teams" had been operating in Korea "gathering vital information on disease and the medical problems of the Communists". Later in the year, General Ishii, and two of his former colleagues arrived in Korea on a freighter carrying all the necessary equipment for bacteriological warfare (*Telepress*, December 5, 1951).

considerably the effectiveness of a biological attack, it must be remembered that such comparative security depends on the extent to which the public services and living conditions remain unaffected by the other ravages of war. It is, however, most unlikely that BW will bring sudden annihilation, death and destruction to large sections of any community. Nevertheless, its demoralising effect, particularly on a crowded city, could be considerable, while productivity would be seriously impaired and the public services severely strained.

In fact, biological weapons are not strictly weapons of mass-destruction: they do not compare in this respect with atom-bombs, or even napalm; but they do possess the potential effect of mass-terrorisation. This effect makes these weapons qualitatively different from others, so that it must be regarded as a primary object of biological warfare. Even in peace-time the fear of disease is such that a single case of smallpox can dislocate the activities of a civilised community. In time of war, if so much damage had already been done that many people were being temporarily housed wherever accommodation could be found and others were crowding into improvised shelters, it might well be considered that here were ideal conditions for using bacteriological weapons.

These are also the conditions under which false rumours could create the greatest havoc. Yet it has been possible for the suggestion to be made that, under conditions such as these, the Korean authorities would falsely alert their whole population and run the risk of producing the very psychological effects that a biological attack itself is designed to bring about.

Naturally, no country will use BW under conditions which entail the risk that the diseases produced may spread back to its own troops or civilians. This danger of "retro-activity" (as it is called by American workers in the field) limits the possible strategic uses of biological agents. If the country using these agents has developed vaccines and other specific prophylactic measures against them, while the country to be attacked can be assumed not to have them available, then it may be possible to use such agents in the field of battle. But, in Rosebury's words, "Bacteriological warfare would probably not be used in battles in which the opposing forces were in close contact or in rapid or alternating movement." A few of the agents, such as yellow fever virus or the bacteria causing undulant fever, would give rise to outbreaks of limited extent, since very few secondary cases would arise. Thus,

once the infective cloud had dispersed the area could be safely occupied. But obviously, an attacker would feel much safer if it were separated by oceans from the area attacked, or if the area attacked were some distance behind the enemy lines.

Altogether, the tactical value of biological weapons would be extremely limited. Their use could be an important factor in the neutralisation of an island fortress or a besieged city, but these are isolated examples. It is plain that biological weapons are for use primarily against the civilian population and not against the armies in the field. This is why BW epitomises total war, in which the civilian population becomes the main object of attack.

Total War and the Degradation of Science

Shortly after the Merck Report was published in Washington, General Alden H. Waitt, then Chief of the U.S. Chemical Warfare Service said of bacteriological warfare: "I believe it to be a practical form of warfare which has great potentialities. . . . It is neither consistent nor intelligent to talk about the horrors of gas and biological warfare, and then to condone atomic warfare. I am entirely out of sympathy with the talk about the humanity or the inhumanity of a weapon" (*Colliers*, June 15, 1946).

Since then, many others in the U.S., scientists included, have expressed like views. Even Rosebury, who makes it quite clear that he is on the side of peace and progress, says in his book (1949) that "moral distinctions among weapons are meaningless", while Professor L. N. Ridenour says, "We can dispose of the 'immorality' argument at once. Once it has been decided that people are to be killed, the moral question has been fully settled; the instruments of killing are not at all affected by humane or moral questions" (*Scientific American*, March, 1950).

It is clear that the statements of these American spokesmen completely repudiate international law, even if their words may not be taken as incitement to break that law. But the attitude they engender has a more serious effect still. For the sciences of bacteriology and epidemiology are the culmination of thousands of years of human endeavour to combat infectious disease, both to ameliorate human suffering, and to safeguard man's supply of food. The protagonists of biological warfare, on the other hand, would turn the whole thing upside down, by attempting to create disease and suffering where none existed before; and, in perverting science,

they pervert themselves and all those who do not stand up against them. The scientist in a country preparing for modern war has a deep and special responsibility to the people, which he cannot evade.

In his closing speech at the Khabarovsk trial (1950), the State Prosecutor, L. N. Smirnov, said: "It is common knowledge that, like chemical and atomic weapons, bacteriological weapons are means of aggressive war, and moreover, exceptionally cruel and inhuman means, principally because the victims of these types of weapons are civilians—women, children and the aged.

"This is exactly why in condemning aggressive war in general, the whole of progressive mankind particularly condemns bacteriological, chemical and atomic warfare, and demands the prohibition of these means of warfare as being contrary to the elementary principles of humanity.

"This is exactly why the Soviet Union and the majority of other civilised states have pledged themselves not to employ chemical and bacteriological weapons in war. . . ."

There are others, however, who are already committed to total war. Hanson Baldwin, New York Times military expert, wrote in the *Atlantic Monthly* (February, 1950): "On August 6, 1945, that blinding flash above Hiroshima wrote a climax to an era of American expediency. On that date we joined the list of those who had introduced new and horrible weapons for the extermination of man; we joined the Germans who had first utilised gas, the Japanese with their biological agents. . . . We have embarked upon total war with a vengeance, we have done our best to make it far more total. . . ." And the origin and consequence of this conception are clearly stated in the words of the Nuremberg Tribunal: "There can be no doubt that the majority of them (war crimes) arose from the Nazi conception of 'total war' with which the aggressive wars were waged, for in this conception of 'total war', the moral ideas underlying the conventions which seek to make war more humane are no longer regarded as having force or validity."

The moral degradation that this attitude produced in the Nazi leaders and their armies is found among American leaders to-day. In 1949, General Eisenhower, then head of Columbia University, issued a statement with 19 other prominent U.S. educationalists that "the continued threat of war requires a basic re-orientation of the American people as a whole". They must be prepared, the statement said, for a "conflict between ethical idealism and harsh realities".

Dr. Nance, President of Tampa University, Florida says, one year later, "I believe that we should have total preparedness based on the laws of the jungle, that everyone should learn every art and science of killing. I personally do not think that war should be restricted to armies, navies or air forces or that there should be any restrictions as to methods or weapons of destruction. I would approve bacteriological warfare, gas, atom and/or hydrogen bombs, intercontinental rockets, and so forth, I would not ask mercy for hospitals, churches, educational institutions or any special groups."

Professor Ridenour complains that "the area that can be poisoned with fission products available to us to-day is disappointingly small; it amounts to no more than two or three major cities per month" (*Bulletin of the Atomic Scientists*, Vol. VI, 1950). But O. McK. Solandt, the Chairman of the Canadian Defence Research Board, reassures us that "the future of death on a mass scale is very bright . . . we can expect to do first class work which will be accepted and used by our major partners" (*Montreal Standard*, October 15, 1949).

When testifying before the House of Representatives Armed Services Committee in October, 1949, Admiral E. J. King, a former naval adviser to President Roosevelt, issued a warning which we in this country should carefully heed to-day. He said: "If we consciously adopt a ruthless and barbaric policy toward other peoples how can we prevent the breakdown of those standards of morality which have been a guiding principle in this democracy since its inception?" Through the application of science to the development of ever more devilishly effective weapons of war, the scientist is frustrated and demoralised, while his work is transformed into the very negation of creative endeavour. In this respect, the scientist and his science display the symptoms of a social disease which shows signs of spreading at an alarming rate.

Everyone of us is involved, and ultimately it is the people who must decide how science is to be used. This is not to deny the duty of the scientist to accept the challenge of the moral problem with which he is faced, and to seek a solution. Theodore Rosebury, who worked for so long in a BW laboratory, has faced this issue. He solved it for himself by withdrawing entirely from work on biological warfare, but he did not fail to see that there are wider implications.

"We can be reasonably sure of one thing. If World War III is allowed to come, biologists and men of all related fields, including

physicians, will be called upon as never before to serve alongside physicists and other scientists as instruments of human destruction. I don't know how they will manage to do so and still retain their integrity. Indeed I can't answer the question I have raised and I suspect that it has no answer. It is a fragment of the larger question toward which this whole book is directed. Perhaps there are no fragmentary answers but only one: let us have peace."

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II

The Report of the International Scientific Commission

The case against the U.S. armed forces, that they have used bacteriological warfare in Korea and China, does not rest on the scientific evidence alone. One of the reasons for the preparation of this article was to provide some background material essential to a proper and full assessment of the case. Meantime, the international Scientific Commission has issued its Report. It is well-known that Dr. J. Needham was the British member of the Commission. Publicity has not been given, however, to the fact that Dr. Needham had previous knowledge of the scientific criteria necessary for the establishment of the charges made, since he was present in China during the period (1941-44) that the Japanese were employing bacteriological warfare against the Chinese, and he had assisted in the investigation of the material collected by the Chinese Surgeon-General's office at that time. Dr. Needham also speaks and reads the Chinese language.

The Commission produced its Report (with 46 Appendices) after over two months work in China and Korea. A mass of documentary

evidence was sifted, the work of the Chinese and Korean scientists was discussed in detail with them, numerous eye-witnesses were interrogated, and relevant materials such as bomb-fragments, animals, insects, bacteriological specimens, etc., were also examined. Altogether, some 200 scientists and 400 other persons were interviewed by members of the Commission: biographical details of the Chinese and Korean scientists and medical men are given in one of the Appendices.

"Besides those things which the members of the Commission themselves saw and heard, and for which therefore they take the responsibility of witnesses, the Commission necessarily depended on Korean and Chinese documentation. Although there was no reason to doubt the competence and probity of the medical men and other scientists in China and Korea, the Commission left no precaution untaken. It never wearied in analysing the cases, and took the greatest pains to enter into direct contact with the original facts whenever this was at all possible. Its members held themselves continually on guard against political, ethical or emotional influences, and its work was done in an atmosphere of calm and scientific objectivity. Its final convictions naturally rested to some extent upon the reliability of the hundreds of witnesses interviewed and interrogated. Their testimonies were too simple, too concordant, and too independent, to be subject to doubt" (*Report*, p. 10).

In addition, four officers of the U.S. air-force, who had participated in bacteriological warfare, were interviewed: "the Commission, as the result of exhaustive conversations and direct personal contact, saw every reason to accept the veracity and to uphold the integrity" of these men. "The Commission therefore accepted as true and faithful the evidence of the airmen, which complemented indeed in many ways the strictly scientific and observational evidence already accumulated from the field" (*Report*, p. 52).

Sufficient data were obtained to enable the Commission to satisfy itself that American planes had dropped containers of various types which gave rise to insect-congested zones. Nine types of container are described, though the full details of construction are not known in every case.

The entomological evidence, which is discussed in some detail in one section of the Report, is very telling. It is quite abnormal for full-grown and mature insects to appear in large numbers in Korea and N.E. China in the early months of the year, when the temperature is regularly below zero and the ground covered with

snow; it would be quite impossible for most of the insects to appear naturally under these conditions. The insects appeared in abnormal places; they were in close clusters, often with many different kinds mixed together—again quite abnormal; and the geographical distribution was also abnormal. It was suggested in this country that napalm bombing might have brought out some insects early, but it is pointed out that the evidence applies not only to Korea but also to China, where napalm has not been used. Further, by comparing the order of appearance of all the insects found with their normal order, it is clearly shown that no uniformly-acting natural factor could account for this particular abnormality. "The order of abnormal appearances is so haphazard as to indicate the intervention of an artificial factor" (*Report*, p. 18).

Appendices are also provided on the measures already taken in China and Korea to control insect populations, and on the occurrence of pathogenic organisms on random samples of normal insects.

The Report alludes to the fact that, before the allegations of bacteriological warfare had been made, "newspaper items had reported two successive visits of Ishii Shiro to South Korea, and he was there again in March, 1952. Whether the occupation authorities in Japan had fostered his activities, and whether the American Far Eastern Command was engaged in making use of methods essentially Japanese, were questions which could hardly have been absent from the minds of members of the Commission" (*Report*, p. 14). Moreover, the Commission noted, in connection with incidents of plague in Korea, "the fact that in January, 1952, there was described in a Japanese journal (*Mainichi*) a container and parachute made of strong paper in such a manner that it would burn away leaving no trace, after depositing its cargo of infected rats. . . . Other Japanese reports (*Kowa Shimbun*, August, 1952) revealed the existence of a breeding Institute directed by Ojawa, a former assistant of Ishii Shiro, which produces a large number of rodents" (*Report*, p. 30).

With regard to the examination of individual incidents, the Commission observes: "On account of its very nature, the use of biological weapons is an act exceptionally difficult to prove. Perfect proof might require, for example, that an airplane be forced down with its biological cargo intact and its crew prepared to admit their proceedings forthwith. Obviously this would be a very unlikely occurrence for many reasons. It is therefore necessary to envisage a manner of grouping events into a coherent pattern so that they

can throw light upon each other and perhaps build up a circumstantial case." Accordingly, a scheme of incident analysis was developed, "in which, under ideal conditions, every component would be present and positive. . . . Naturally this complete pattern will rarely or never be encountered. There are cases, nevertheless, which come near enough to it to be decisive. . . . The Commission paid particular attention to those assemblies of facts which attained most nearly the demonstrative character of the ideal pattern. When the general complex of facts resulting from the confrontation of numerous patterns is examined, the whole situation becomes clear" (*Report*, p. 15).

Several of the most complete cases are considered in detail, though only a few can be alluded to here. With regard to incidents of plague in Korea, the following special points were noted. According to the best information obtained, "for the past five centuries there has been no plague in Korea. The nearest endemic centres are three hundred miles away in N.E. China and a thousand miles to the south in Fukien. . . . Above all the fleas appearing were not the rat fleas which more usually carry plague bacteria in a state of nature, but human fleas. It was these which were used by the Japanese during the Second World War. . . . According to what is known of the ecology of this insect, it would be impossible to find large numbers away from the houses of man. What, then, is to be said of the occurrence of a number of these insects estimated at many tens of thousands, at one time, on bare waste land remote from any human habitation?" (*Report*, pp. 26, 27).

Plant material (leaves; stalks and pods of soya beans) which had actually dropped from planes on to various observers had been found to be infected with pathogenic fungi.

Cases of respiratory anthrax (a rare form of the disease hitherto unknown in N.E. China) occurred under conditions which virtually precluded the possibility of natural infection. These outbreaks appeared to have been caused by infected beetles, flies and feathers.

"Anthrax infection by the respiratory route is significant in connection with the work on bacteriological warfare carried out in the U.S. Researches from Camp Detrick, published in 1946 and 1947 showed that it had been possible to obtain new strains of anthrax bacilli cultured on synthetic media which not only possessed unusually high virulence, but which were specially adapted to the respiratory route of infection" (*Report*, pp. 35, 36).

There is much more. The examples and other facts cited above

give some indication of the wide range of the study undertaken by the Commission, but it is impossible to give, in such a short space, an accurate impression of the care with which all details were considered. In fact, there is no substitute for actually reading the Report itself. Nevertheless, it should be widely known that the conclusions of the Commission are quite definite, being succinctly stated at the end of the Report.

"The peoples of Korea and China have indeed been the objective of bacteriological weapons. These have been employed by units of the U.S.A. armed forces, using a great variety of different methods for the purpose, some of which seem to be developments of those applied by the Japanese army during the second world war.

"The Commission reached these conclusions, passing from one logical step to another. It did so reluctantly because its members had not been disposed to believe that such an inhuman technique could have been put into execution in the face of its universal condemnation by the peoples of the nations.

"It is now for all peoples to redouble their efforts to preserve the world from war and prevent the discoveries of science being used for the destruction of humanity."

REPORT of the International Scientific Committee for the Investigation of the Facts Concerning Bacteriological Warfare in Korea and China. (Distributed by Central Books Ltd., 2 Parton Street, W.C.1, for the British-China Friendship Association. Price 4d.)

Chartism in the Year of Revolution (1848)

BY JOHN SAVILLE

I

"ALTHOUGH there were still to be a number of Chartist meetings and disturbances in various parts of the country throughout the summer, the débâcle of 10th April effectively spelt the end of Chartism as a social and political force of any consequence."¹

Thus the latest variation upon a theme which has become a commonplace in historical writing in this country, where the story of Chartism in 1848 is almost always the same account of fiasco and inglorious decline.

II

The Chartist movement had been declining in numbers and influence from the last months of 1842. The general upswing of the economy associated with the boom in railway construction, together with the price fall in some important items of living costs meant that in the middle years of the 1840's the edge of militancy was blunted, and the energies of a now smaller movement were diverted into the Utopian scheme of the Land Plan. What contemporaries did not know was that the English economy stood at the beginning of an expansion of her productive resources and foreign trade that was to level out only with the onset of the Great Depression in the late 1870's. In the short run, with the downturn of the cycle in the autumn of 1846 and the bad cereal and potato harvests of 1846-7, political activity revived with growing unemployment and higher living costs. On January 1st, 1848, the *Northern Star* could write editorially, "Throughout England, lectures, public meetings and assemblages of local delegates attest that the 'dry bones' are once more quickening into life and action." It was, however, the revolutionary events in France at the end of the third week in February that touched off the movement in England. As the *Star* had presciently written on the same first day of January: "these Reform banquets are 'the beginning of the end' and that end will be the destruction of Louis Philippe's throne and something more."

The English press reported the happenings in France at considerable length, and until the June days, France and the revolutions

¹ J. P. T. Bury, "Great Britain and the Revolution of 1848" in *The Opening of an Era*, ed. Fetjo, 1948, p. 186.

elsewhere on the Continent occupied more space in print than any other subject. The fear of Jacobinism, never far below the surface of the first half of the nineteenth century, one again became alive and real, and in the minds of the ruling classes the connection between the revolution in France, Chartism, heretical ideas on property, rioting and looting was at once obvious and alarming. Whilst a majority of the English press were unsympathetic to the régime of Louis Philippe, all newspapers were united in their horror of the 'rule of the rabble' in Paris, and unanimous in ridiculing, for the benefit of the English worker, the ideas of the Socialists and Communists. 1848 was the first example on any extended scale of that extraordinary unanimity which comes over the English press in face of social revolutions abroad which threaten to export their dangerous ideas. To that threat the press in 1848 responded vigorously.

The revolutionary events in France were by contrast enthusiastically welcomed by the English Chartists. Although O'Connor was at first lukewarm (as he later admitted) the *Northern Star's* editorials from the beginning drew the moral for England—"If Englishmen are not the most despicable of slaves they will at once set about the work—peacefully and legally—of struggling for their Charter" (February 26th) and in the next issue (March 4th) O'Connor announced that the Chartist executive had decided to bring forward the date of the Convention and the presentation of the National Petition. An Address to the People of Paris was adopted and Harney, Ernest Jones and McGrath were elected to present the Address and greetings to the Provisional Government in Paris.

At this time, in early March, there occurred two incidents which were broadly to determine the pattern of events leading up to April 10th. They both began on the same day, Monday, March 6th. In London, a middle class Radical M.P., Charles Cochrane, had called a meeting for 1 p.m. in Trafalgar Square to demand the repeal of the Income Tax. The Home Secretary banned the meeting on the morning of March 6th, and Cochrane, accepting the ban, sent men with placards round the Square announcing the cancellation of the meeting. By this time however a large crowd had collected (estimated by *The Times* at 8,000 to 10,000), and a Chartist meeting was held with G. W. M. Reynolds in the chair. After the speeches had ended and those attending were leaving the Square, a clash occurred with the police which developed into a large scale riot,

lasting well into the night and renewing itself on the following two evenings. On the same March 6th in Glasgow, a large scale unemployed riot began after several days of meetings and demonstrations. Gunshops and foodshops were broken into, and as in London, sporadic rioting and looting continued on the following two days.

For a public opinion that was already, from the French example, highly conscious of the inflammable nature of the masses in action, the London and Glasgow riots were storm signals that could not be ignored. As the Glasgow correspondent of the *Times* wrote on March 6th, "The alarm flew over the city like wildfire and coupled with the late events in Paris gave rise to a general dread of some political disturbance." The nation-wide fear of Jacobinism was heightened and the occurrence of similar happenings in England, while estimated by the most sober as improbable, was regarded as not impossible, and from these early days in March until the victory of April 10th, the attention of the ruling circles in home affairs was directed towards the establishment of those conditions which would make that victory certain.

It was necessary, in the first place, to emphasise the alien nature of the events in Paris, to underline their destructiveness of the traditional English liberties (including the right to private property) and to demonstrate the impracticability of their Utopian schemes for the supposed betterment of the working man.

Allied with this emphasis upon the alien nature of revolution to the English way of life, went the identification of foreign revolutionary with rioter and egalitarian, and Chartist with revolutionary and rioter. Such an identification was not difficult to establish. There was a large *lumpen-proletariat* in the London as in the Paris of 1848, and petty criminals and pickpockets always attached themselves in their dozens to mass meetings of any kind. In the public mind therefore the distinction between political agitator and radical, and petty criminal and rioter, was, against the background of a revolutionary Continent, rarely, if ever made. For the shopkeeper in Glasgow and London contemplating the broken glass of his windows, this identification between Chartist, rioter and foreign revolutionary was complete.

This connection in many minds between Chartism and rioting was to have important consequences for the internal political development of the movement. All in the leadership saw the dangers in the

isolation of the movement from large numbers of workers, and the left wing, the so-called party of physical force, were forced upon the defensive. O'Connor, who had so often occupied a centrist position, this time threw the whole weight of this influence upon the side of the right wing moral force advocates. It is no exaggeration to speak of the Government and Press campaign on rioting and Chartism as half paralysing the political will to victory of the majority of the Chartist leadership. The second result of this campaign was that many workmen, especially the skilled artisans and independent craftsmen in London, accepted this identification between Chartist and rioter, and enrolled as special constables, anxious, as the *Times* wrote "to receive the privilege of what they considered to be adequate protection in the event of an outbreak of thieves and vagabonds of all sorts. . . ." (April 6th.)

Parallel with these developments went the consolidation and deployment of the coercive power of the State. Unlike the Continent, and here was the secret of its stability, the Government in England was able to count upon the wholehearted support not only of all the propertied classes but from groups much further down in the social scale. The whole of the middle and lower middle classes were solid for the men of order, but more remarkable was the adherence of certain sections of the working classes to the Government's cause. Furthermore, and no doubt in large part because of their appreciation of the strength of their position, the Government, and in particular Russell and Grey, acted with that "good sense" and political cautiousness which Engels noted in the Duke of Wellington.¹ Their object was at all costs to avoid a precipitate clash which might have inflamed or outraged working class opinion² at the same time as their plans for the forceful suppression of the movement, if that proved necessary, were being energetically furthered. The Home Office papers for this period illustrate very clearly the policy the Ministers were acting upon. The Home Secretary was writing to local authorities insisting upon two things: first, that London was to be informed immediately of proposed meetings and demonstrations and second, that the machinery of coercion should be extended and made ready, that special constables should be sworn in, and that the pensioners and the military should be warned to stand by on all occasions when a disturbance was likely. Secondly, in the early days of uncertainty

¹ Letter to Marx, April 11th, 1851.

² O'Connor well understood this: see *Northern Star*, April 1, 1848.

and even after April 10th, the Government was refusing local authorities the right to make arrests except in the most extreme cases of provocation or riot. To an enquiry from the Mayor of Birmingham who had asked whether arrests could be made for violent language, Sir George Grey replied through his permanent Under-Secretary that actions could only be taken if accurate transcripts of speeches were provided and he emphasised "that no steps may be taken against the speakers without first communication with him".¹ He was more explicit in a letter two days later to the Magistrates at Wycombe, warning them against interference with meetings unless they had good grounds for expecting a breach of the peace "as great inconvenience might result from such interference". The Government continued this policy of cautiousness throughout April and into May, and then there was a change, for reasons that are discussed below.

As April approached and the day for the presentation of the Petition drew nearer, so the hysteria of the Press and of public opinion mounted. It was in vain that the National Convention (which opened on April 4th) issued a statement, signed by all the delegates, that "our procession will be an unarmed moral demonstration". For a majority of the middle and upper classes something like the revolution was at hand. The *Times*, after the victory had been won, summed up the prevailing mood before the 10th:

"It cannot be denied that the public mind, stunned and confounded by the events on the Continent, had become, as the ancients would have expressed it, *meteoric*, unsteady, open to strange impressions and diffident of its own most habitual belief" (April 12th).

When the day of April 10th dawned the issue was already decided. The Government had made its extraordinary preparations, so often described, and conscious of its strength used its forces tactfully and shrewdly. As Lord John Russell explained to the Prince Consort on April 9th the military were to be used only in the last resort. "I have no doubt of their easy triumph over a London mob. But any loss of life will cause a deep and rankling resentment. I trust, for this and every reason, that all may pass off quietly."² The Chartist leadership, by contrast, were incapable of positive action. The left wing, represented by Jones had agreed beforehand

¹ H.O. Disturbance Book, 1843-48. Letter dated April 11, 1848. I am indebted to Mrs. Dorothy Thompson for this reference.

² Letters of Queen Victoria, First series, Vol. 2, 1844-53, p. 198.

to accept the decision to cancel the demonstration¹ and Jones spoke in support of O'Connor on the Common. The Government therefore had the initiative from the beginning and were able to dictate the order of the day.

Of considerable importance was the enrolment of hundreds of working-men as special constables. The Glasgow correspondent of the *Times* on March 9th, had emphasised "the spirit of respectable operatives who have either houses or wages to protect"; the propaganda which confused Chartist with rioter was most effective, and it was helped by the further identification of the Chartists with the French, for the French, traditionally unpopular, had just expelled several hundred British workmen from France, an act of unfraternity that was widely commented upon.

This division within the working classes was not a passing phenomenon which disappeared when the immediate excitement of the April days was over. It arose out of the way the social structure had developed in the first half of the 19th century, and from this social cleavage a political division existed which continued, in different forms, for the remainder of the century. The propaganda against the Chartists was unquestionably important, but at bottom the attitude of the skilled workers was a product of these deeper economic and social forces. London, as O'Connor appreciated from the beginning of the Chartist movement, most clearly exhibited the differences in economic status and political thinking between the various groupings within the proletariat, and in the April days of 1848, certain sections among the skilled workers there responded positively to the appeal from "the men of order".

III

April 10th was without question a defeat for the working class movement, but it does not follow that Chartism collapsed into insignificance after the defeat of April 10th, and such a conclusion, accepted by almost every writer on this period, has no basis in fact. Throughout the country as a whole, in those areas where Chartism had traditionally received support, the strength of the movement, measured by the size and number of its meetings grew steadily, at the same time as the quality of its leadership was also changing. In the months which followed the Kennington Common

¹ Spencer Walpole: *The Life of Lord John Russell*, Vol. 2, p. 69, for a letter from Russell to Grey on the evening before April 10th which suggests that this is a correct deduction from Jones' behaviour.

meeting, more efficient and effective organisation became the slogan around which the militants endeavoured to rally the movement for victory. There is also a hint, in the speeches of the left wing, of that marriage of political demands with social issues—The Charter and Something More—which in the next few years became the recognised programme of the whole movement.

A marked feature of the political activity in the months following April 10th was the close and friendly unity between the English Chartists and the Irish Confederates, and this, from the point of view of the Government, was one of the most serious aspects of the general unrest. The storm centres of the movement were now in Lancashire, the West Riding and London, and throughout April and May there were almost nightly meetings and demonstrations in the northern industrial areas and in the metropolis. Towards the end of May the Home Secretary was receiving an increasing number of reports concerning the disturbed state of the towns in the West Riding at the same time as the situation in London was becoming more serious, and at the beginning of June the Government took the decision to break the movement. Brougham had raised the question in the Lords on June 2nd and the Duke of Wellington was among those who urged the Government to take preventive action. Greville, a sober commentator, has a most illuminating comment in his *Memoirs* under the date of June 3rd:

"The Government are now getting seriously uneasy about the Chartist manifestations in various parts of the country, especially in London, and at the repeated assemblies and marchings of great bodies of men . . . lately, accounts have been received from well-informed persons, whose occupations lead them to mix with the people, Clergymen—particularly R.C.—and medical men, who report that they find a great change for the worse amongst them, an increasing spirit of discontent and disaffection, and that many who on the 10th April went out as special constables declare they would not do so again if another manifestation required it. The speeches which are made at the different meetings are remarkable for the coarse language and savage spirit they display. It is quite new to hear any Englishman coolly recommend assassination and the other day a Police Superintendent was wounded in the leg by some sharp instrument. These are new and very bad symptoms, and it is impossible not to feel alarm when we consider the vast amount of the population as compared with any repressive power we possess. . . ."

On June 5th, Brougham again raised the question in the Lords, and on this occasion the Marquess of Lansdowne (Lord President of the Council) replied for the Government that measures had been put in hand to curb the movement. The warrants for the arrest of Ernest Jones and five other leaders of the London Chartists were issued on the morning of the next day, and with these arrests began the third and last phase of Chartism in 1848.

IV

The Government showed sound judgment by its arrest of Jones, for there was no one else of national stature capable of giving leadership and education to the growing movement. O'Connor had almost completely withdrawn from active politics. He was opposed to the convening of the National Assembly early in May and he was certainly opposed to the growing physical force ideas in the movement as a whole. During the crucial months of June, July and August, when the militant leadership was gradually being put behind bars, O'Connor in his weekly front page article in the *Northern Star* was concerned, to the exclusion of nearly every other political issue, with his Land Scheme and the investigation of its affairs by a Select Committee of the Commons.

It is difficult in these months of turbulence and riot and mass drillings to disentangle the genuine movement from the attempts by police spies and *agents provocateurs* to incite groups of the Chartists to premature and abortive action. Many of the plans for uprisings quoted as evidence in the various trials were clearly the work only of these *agents provocateurs*, but when all allowance is made for exaggeration and downright lying, the growth in militancy, the increase in political activity and the improvement in organisation is unmistakable. In this period the situation in Ireland was exercising a very considerable influence upon the politics and activities of Chartism both in England and Scotland. In all the large cities where there was an appreciable Irish population, a united movement of the Chartists and the Irish Confederates appears to have existed by the end of June.

The detailed history of these last months of violence and unrest has not yet been written, but the general outline is known. In Scotland, where Ernest Jones had been on tour at the end of April, the movement had grown rapidly, associated with the formation of a National Guard. The first arrests there were made at the end of

July. From the middle of June arrests on an appreciable scale began in the West Riding and by the end of August Bradford reported 50 prisoners and Bingley 18. The climax to two months of drilling, demonstrations and secret preparations came in the middle of August, when, on the information of police spies of a supposed large scale rising, large scale arrests were made, chiefly in Manchester and London. In Manchester 300 police, two troops of the Royal Irish Dragoons and two companies of the 30th Foot were employed to arrest 15 Chartist and Confederate leaders. In London Dowling, Cuffey and 24 others were arrested between August 16th and 19th and charged under the Treason Felony Act (11 & 12 Vict., c. 12) which had passed into law only a few days before the arrests were made.

The Government, faced with growing unrest and disaffection relied upon three things. In the first place, it began to concentrate an overwhelming show of strength against the Chartists and to operate a much more vigorous policy against them. In the second place, the Government began to infiltrate the Chartist movement with spies and *agents provocateurs*. As a deliberate policy on a large scale, this would appear to have been operated from the time of the Kennington Common meeting. Thirdly, the Government relied upon the judiciary and the good sense of the jury class, and in this they were not disappointed; the English judges in particular were guilty of extraordinary bias and prejudice, and the juries, including the "London merchants and tradesmen" noted by the *Times*, brought in their verdicts of guilty faithfully, on most occasions with indecent haste.

By the time the majority of the later arrests were made, the Treason Felony Act had become law. The Act made felonies of certain offences, hitherto chargeable as treason, and in practice it deprived the accused of certain valuable rights.¹ In these later trials the police spy becomes the principal witness. The bulk of the evidence in the trials of the London Chartists arrested in mid-August came from two *agents provocateurs*, Powell and Davis, and the sentences, for activities for which there was no corroborative evidence except the discovery of small quantities of ammunition and arms, were especially heavy. Six were sentenced to transportation for life, twelve to two years' imprisonment and three to eighteen months. The same procedure was repeated at the trials of

¹ See the comments by the defence counsel in the Dowling trial, *Reports of State Trials*, New Series, Vol. VII, 1848-50, p. 432.

the forty-six Lancashire Chartists at the Liverpool Assizes in December 1848, except that the main prosecution witness proved to be such a scoundrel that even the Attorney General had to disown him. The sentences in this trial, which was for sedition and unlawful assembly only, ranged from two years downwards.

This widespread system of espionage inevitably had its effect upon the morale of the Chartist body and together with the arrests produced an atmosphere of fear and suspicion. As Samuel Kydd, on behalf of the Executive, wrote in the *Northern Star* on August 5th:

“Fellow Countrymen—The reign of terror progresses, and grows more searching and dreadful. . . . So close has our political atmosphere become, that we are almost suffocated. So crowded are rumours following in quick uncertainty; so fearful the thrilling doubts and stifled fears of every man we meet, that it requires courage even to think steadily, and boldness and nerve to direct order from this motley chaos. . . .”

By the end of September the Chartist left had been beaten. Their leaders were in prison or awaiting trial and the movement in the country was disorganised and dispirited. The effect in general of the defeats of 1848 upon the further development of Chartism and the working class movement was a two-fold one. Unquestionably the most lasting effect was that which underlined the hopelessness of any agitation which was not peaceful, legal and constitutional, or, to put it more correctly, of any agitation which did not take into account the strength and stability of the bourgeois order. It was of course, the continuation of the upward surge of the economy in the next three decades which more than any other factor completed the “lesson” of 1848. Already at the end of November a meeting of prominent Chartists and Land Reformers showed the violent swing to the right. The *Northern Star* of November 11th reported that same McGrath who had earlier in the year gone to Paris with Jones and Harney as saying:

“Since then (April 1st, J.S.) all had been one waste blank, one huge monument of misfortune. . . . Violent measures were not suited to the general constitution of the British mind. . . . Their object should be by lectures, public meetings, and a proper direction of their moral power and by falling back on a legal system of organisation, to recover that position which they had lost by want of prudence and common sense.”

Contrary to a widely held opinion the left were not obliterated by the defeats of 1848, although a mass movement never again existed. For a few years there took place a most interesting development of left wing ideas whose detailed analysis and history, like so much of the story of 1848, has been almost completely ignored. Briefly, from 1848 until 1852, after which date Ernest Jones was practically alone, the Chartist Left moved from the traditional position of radicalism to the new standpoint of socialism. Marx had come to live in London during the autumn of 1849, and both Marx and Engels influenced greatly the political thinking of Jones and Harney, the most prominent representatives of the Chartist Left. The first English translation of *The Communist Manifesto* was published in Harney's *Red Republican* in November, 1850. The basic ideas of the Chartist Left in this period were expressed in the new slogan—The Charter and Something More—and their practical programme received its fullest elaboration in the March 1851 Chartist Convention, in a statement of socialist policy that was not bettered until the twentieth century. After 1852, despite the efforts of Ernest Jones, the movement fell away, although the National Charter Association was not finally dissolved until 1860.

V

April 10th, 1848, is an example of the development of the myth in history. That the conventional account has no basis in fact is clear from the sketch that has been given above. The growth in militancy after the Kennington Common meeting has been omitted from writings on this period, but just as important is the analysis of ruling class behaviour. The demonstration of April 10th, which was never intended to be anything more than a demonstration, was blown up by the Press and Government to the dimensions of a large scale uprising, and the Chartist leadership were incapable of breaking through the barriers of prejudice and distortion. Not for the last time, the working class movement was opposed by a political strategy which combined apparent reasonableness and tact with a ruthlessness whose vigour was matched by an insistence upon victory to be achieved by any and all means possible. There are many political lessons for the modern labour movement to be learnt from a study of 1848.

The Critical Realism of the Last Play of Aristophanes

BY R. F. WILLETTS

A BLIND old man, dressed in rags, gropes his way across the stage, followed by Chremylos, an elderly farmer, with his slave Carion. Carion cannot understand why they are following this man. Chremylos explains that he, an honest, poor man, seeing that wealth and prosperity come the way of thieves and rogues, had decided to ask Apollo at Delphi whether it would not be advisable to bring up his only son as a scoundrel rather than an honest man.

Apollo's answer was that he should follow the first man he met after leaving the temple. The first man was this blind fellow. He turns out to be Ploutos, the god of Wealth, who explains that Zeus had blinded him out of jealousy of mankind. Chremylos promises to restore his sight if he will stay with him. But Ploutos is afraid. When men get him they become abandoned in their wickedness. He has no wish to see again. What will Zeus do to him? Chremylos persists, calls him a coward.

Wealth is eventually convinced that they will cure him of his blindness and that his powers will be under his control to do good in consequence. The moral so far is clear. The social and the heavenly order are dependent on Wealth, but evil arises through his blindness. With his sight restored he will direct this all powerful instrument to good ends.

Carion brings the neighbours, honest and impoverished farmers like Chremylos, to come and share in the good fortune and serve as allies in the undertaking. They form the chorus of the play. Chremylos is rushing off the stage with his friend Blepsidemos excitedly scurrying behind him, when they are halted by a ghastly looking female spectre, who begins to abuse them.

She claims that she can prove that she, the goddess Penia, (Poverty), is the single cause of every sort of good, that their very lives depend on her. They accept the challenge and a debate ensues.

Critics have accused Aristophanes of lack of subtlety and inconsistency because the object at the outset appears to be that Wealth shall consort with the virtuous and thus the ranks of the poor will be filled by the rogues in the new order, whereas in fact in the last part

Critical Realism: The Last Play of Aristophanes

of the play everyone appears to be wealthy. But the accusation is unjust, as we can see from the opening statement of Chremylos. He starts by wanting honest men to meet with success, and rogues the reverse, but in the space of a few lines sees that the purpose of controlled Wealth, a Wealth with eyes, will be to ensure that the whole of mankind will be honest and wealthy and virtuous.

Poverty asks what is to be the incentive to labour in a state where she can no longer crack her whip. This argument is not answered, Poverty is triumphant, and the other two can only retort that no matter how convincing her arguments, they will refuse to be convinced. They drive her from the stage. She is vanquished by force and not by logic. This point has worried critics. On whose side is Aristophanes? He goes on to build a new social order on premises he has allowed to be demolished. Why did he allow them to be demolished? Because, as I think, he had no alternative in the circumstances. He would have liked to refute Poverty in terms of logic, but in fact could only do so symbolically.

Wealth's sight is restored and the new order is established. The fantasy is built in spite of economic logic. There follow a series of scenes in which various characters are amusingly introduced. What Chremylos said in the beginning has come true, Wealth is mightier even than Zeus. The gods have come down to earth, now that the reign of Wealth with eyes has been established. People now have no need of gods. The whole company leaves in procession to install Wealth in his old home in the Acropolis of Athens.

II

The last extant play (388 B.C.) of Aristophanes, whose plot we have been following, has been given a relatively low place by conventional criticism in the modern period, more particularly in this country.

But the French Budé edition of 1930 in its introduction¹ to the play helps us somewhat on the road to a fairer assessment. The usual criticisms are noticed but condemned as exaggerated. First of all the puzzling contradictions in the development of the plot; the play is cold, falls below the author's usual standards of imagination, expression and plot. These criticisms are exaggerated, it is claimed, because not sufficient account is taken of the fact that this comedy is *different* from the others, and therefore we should attempt to rid

¹ By Hilaire Van Daele.

ourselves of the preconceptions induced by them. The play should be judged by the purpose of the author and the taste of his contemporaries.

This goes some way towards solving the puzzle that while the *Ploutos* has not been over-popular recently, it was much praised and widely read in later antiquity and exists in no less than 146 manuscripts. But the opinion errs, as I see it, or rather does not go far enough in two directions; first, in not seeing that there is great significance in the contradictions of the plot, and in particular in that scene with Poverty which has so much concerned critics; and secondly, in resting content with the explanation that the play is a fantasy, a dream.

III

Why is it that Aristophanes could not refute the arguments of Poverty, but had to be content with banishing her? And what is the material substance of what has been called fantasy or dream which follows?

These queries cannot be solved in terms of internal evidence merely. Otherwise perhaps they would still not be so markedly in need of explanation. The history of Aristophanic comedy is part of the history of Athenian democracy.

The development of the state—and in particular of the tyranny and the democracy, from the middle of the sixth to the middle of the fifth century B.C.—had allowed Athenian society to sunder its connections with gentile society and to enter upon a career of private property. Money and trade formed the keys with which the door of the future was unlocked. Those who held the keys were those who lived by money and trade. But they could not turn the keys themselves. This could only be done with the aid of numerous hands, by the release of the whole energy of the citizen masses of society; of the urban and manufacturing artisans; of the peasants in the countryside. Landed wealth had been restrictive, aristocratic. Moneyed wealth, to achieve its hegemony, had, in the first instance, to be unrestrictive, democratic; had, in the first instance, to rally the decisive majority of the population under the banner of private property; had to allow the citizen labourer to become the private owner of his own means of labour set in action by himself, the peasant of the land which he cultivated, the citizen of his tools. The soil had been parcelled out under the tyranny, and the scattering of

the other means of production gathered increasing momentum, resulting in ever fresh divisions of labour, the development of new and ever more varied social types.

Tragedy and comedy had a common origin in primitive ritual.¹ Both of these typical art-forms of Athenian democracy developed with a speed and intensity only surpassed by the speed and intensity of the development of the society in which they were nourished. But it is significant that comedy began its officially sponsored career at the state festivals so much later than tragedy. Tragedy was rooted in the period of the tyranny, comedy in the period of radical democracy.² Both, in their different ways, remained essentially collective, for as long as they were inspired by a spirit of critical realism.

Comedy delights in portraying the differentiation of types produced by increased division of labour. Its heroes are ordinary folk, from town and country, home and work. Actors and chorus are not so clearly distinguished; often the action depends on the chorus. Comedy does not generalize one type of character, but particularizes many significant types. Comedy draws all these differentiated types into its *komos*, its collective revel of celebration for as long as it remains classical comedy.

IV

I am concerned here with only one type, but that among the most persistent and important of all social types represented in the surviving plays of Aristophanes—the Athenian peasant proprietor. The contemporary situation of this class informs the content of the *Ploutos*. There is also a question of form. The *Ploutos* is commonly regarded as an example of a transitional form between the Old and the New Comedy.³ It would be incorrect to separate these questions of form and content.

Although he worked in an intensely political artistic medium, Aristophanes' own concrete political views cannot, with certainty,

¹ See Thomson on Cornford and Harrison in *Aeschylus and Athens*², pp. 238–42. On tragedy as a product of democracy, *Oresteia*, I, 10; *Aeschylus and Athens*², Ch. XI; *Marxism and Poetry*, p. 38.

² "In 487–6 B.C. competitions in comedy were officially instituted at the City Dionysia. . . . It is noteworthy that this date falls at a time when Themistokles, the leader of the radical democrats was at the height of his power." *Aeschylus and Athens*², pp. 240–1; cf. generally, Caudwell *Illusion and Reality*, pp. 40, 75 ff.

³ Chiefly represented by Menander, 342–292 B.C.

be salvaged from the internal evidence of his plays, in spite of the several attempts that have been made. If we did know these views for certain, we should be in a position to pose and solve the important aesthetic problem of how his political views guided his artistic action; to ask in what ways they helped or hindered the artistic apprehension of his world. It is always possible that his personal views may have been in contradiction with his artistic practice, that his realism was achieved despite his subjective intentions.¹ But we don't know and we shall probably never know the true facts of the matter.

It is not difficult, however, to appreciate the force of his poetic realism, of his power to recreate a whole world in motion. The dress and behaviour of his characters may be grotesque and extraordinarily ludicrous; his plots brilliantly extravagant; his poetry often lyrically abandoned to the impulse of its own suggestion. But we can never forget that all this comic invention is designed to make us more profoundly aware of the life of the city-state. Old Comedy is as public-spirited as the rest of classical art, just as concerned to depict man as a whole in the whole of society, in objective typicality.

What are the actual social foundations on which the objective typicality of the *Ploutos* rests? What real spiritual and intellectual content does it represent? The Athenian peasantry played an indispensable part in the development of democracy. The tyranny had already called into being a peasant class of small-holders politically united against the landed aristocracy. Yielding to the fiction of the restoration of their ancient tribal rights, the peasantry as a class in the countryside became the bulwark of a new economic order based on the appropriation of moneyed wealth in the city. The democratic reorganization of Kleisthenes gave political expression to the economic domination of the country by the city.

"The ruling commercial system attacked the land", writes Glotz.² The greater proportion of corn was imported,³ so that the peasantry formed a consuming class dependent on the import market. The cultivation of vines, olives and figs predominated, so that the owners of the smaller holdings were able to produce the

¹ Cf. Lukacs on Balzac. "It is precisely this discrepancy between intention and performance, between Balzac the political thinker and Balzac the author of *La Comédie Humaine* that constitutes Balzac's historical greatness" (*Studies in European Realism*, p. 21).

² *Ancient Greece at Work*, p. 250.

³ "Attica produced at the very most a quarter of its requirements", *ibid.*, p. 258.

most marketable products. The requirements of building, mining and ship-building had led to what Glotz describes as "ruthless deforestation", a further obstacle to working fields and pastures on a large scale,¹ and a further incentive, if any were needed, to the intensive cultivation of small and medium holdings. But the growth of the city provided stimulus enough for the development of market-gardening and the cultivation of fruits and vegetables.² Such intensive methods of cultivation might yield high profits, might also greatly increase the value of landed property, but "a revolution in methods of cultivation does not take place without crises",³ without an outlay of capital and its attendant risks.

The land was subject to division and re-division among the heirs, and as Marx pointed out, "the fruitfulness of land diminishes in the same measure as land is divided".⁴ It is instructive to compare what Marx has to say⁵ about the mid-nineteenth century French peasant with what Glotz and others say of the ancient Athenian.

The whole process was hastened and made critical by the devastation of the Peloponnesian War (431-403 B.C.).⁶ The mortgage stones which Solon had banished at the beginning of the sixth century reappeared in the fourth as mute testimony to the prevalence of rural debt.⁷

V

The *Ploutos* presents a peasantry which is experiencing this historical process; a peasantry become mistrustful and opposed to the workings of moneyed wealth as its ancestors had become mistrustful and opposed to landed wealth; and forced by reality to abandon the fiction that democracy founded on private

¹ *Ibid.*, p. 257; cf. Plato, *Crit.*, 3c.

² *Ibid.*, p. 259; Ehrenberg *People of Aristophanes*², p. 77; Michell, *The Economics of Ancient Greece*, p. 51.

³ Glotz, *op. cit.*, p. 262; cf. Aristotle, *Pol.*, I, 11, 1258a, 1259b.

⁴ *Class Struggles in France* in *Marx-Engels Selected Works*, Vol. 1, p. 197 (Eng. ed., 1950); cf. Michell, *op. cit.*, p. 44: "Not only was the insatiable land-hunger responsible for the smallness of the holdings, but the legal system of division of land among the children at the death of the owner also contributed thereto, as it does in France to-day."

⁵ *Class Struggles in France*, *ibid.*, pp. 197-8. *The Eighteenth Brumaire of Louis Bonaparte*, *ibid.*, pp. 304-6.

⁶ Thucydides, VII, 27; Michell, *op. cit.*, p. 85; Ehrenberg, *op. cit.*, pp. 81, 91, 93; Glotz, *op. cit.*, p. 254.

⁷ *I.G. II*², 2684 ff.; Ehrenberg, *op. cit.*, p. 93; Michell, *op. cit.*, p. 86; Glotz, *op. cit.*, p. 254.

property had restored its ancient tribal rights. "Revolutionary ferment had begun amongst the lower classes, and religion no longer had the power to arrest it." So Ehrenberg in his discussion of the play.¹ But revolutionary ferment could not make a revolution. No class existed capable of making a revolution. The future lay with the Hellenistic man of property and the Roman imperialist. Slavery had seized on production in earnest.²

This real, objective situation is clearly reflected in the play. The poverty, disillusion and suffering of the peasants; their dissatisfaction with the established order; their moral conviction that poverty is the reward of the just, and that wealth is involved with injustice; all this is clearly portrayed. But they can find no logic with which to answer the arguments of Poverty, because her arguments are drawn from the economic realities of the historical situation as it was. The cracking of Poverty's lash for centuries to come was to be the incentive for production. Aristophanes shows his peasants as unable to face the ultimate truth that private property based on slave labour implied the doom of the smallholder. Yet the establishment of Utopia in spite of economic logic is not merely a sentimental dream. It also has its realistic content. The faith on which it is based draws its strength from the still living traditions of the tribal collective, of kinship, common ownership and equality; from the communal peasant festival; and also from the knowledge that democracy had banished poverty from the countryside once before and *somehow* can do so again. It is this faith, based on historical experience, which gives the *Ploutos* a happy, prophetic quality.

When we first meet him, the god of Wealth is blind and dressed in rags. Poetic tradition had already made Wealth blind and the cause of human misery.³ "Do not speak of Wealth. I do not honour him as a god, for even the worst man easily takes possession of him," says a fragment of Euripides.⁴ "Wealth raises the worst men among the highest."⁵ This popular recognition of the reality of social relations independent of human individual wills is as profoundly effective as the pragmatic solution to the problem which the play proposes is Utopian. The recognition of the nature of Wealth

¹ *Op. cit.*, p. 7.

² Very much reflected in New Comedy. *Vide* Murray, *Aristophanes: A Study*, pp. 229, 237-8.

³ Timokreon, frag. 5.

⁴ Frag. 20.

⁵ Euripides, frag. 95. These and other passages are quoted by Ehrenberg, *op. cit.*, pp. 240 ff.

in the form in which he operated in contemporary society is correct.

To dress Wealth in rags is also to symbolize society as it was, to exhibit its contradictions. Wealth in rags is a dialectical symbol, and it is a true symbol because it is Wealth as seen by the peasantry, by an exploited class; and because it is a view which has been justified historically. It is only when he is adopted by the peasantry that Wealth is cured of his blindness, dissociated from poverty; that he becomes truly human and conscious; and begins to operate as a moral force in society.

In the same dialectical spirit, Aristophanes makes Poverty the spokesman of the ruling class, of the guardians of the status quo, using arguments that are still, in essence, the arguments by which the ruling class to this day, under capitalism, continues to justify the economic status quo.

The opposition between Wealth and Poverty, however, as they are personified and represented in the play, carries with it more profound philosophic implications which would repay a separate and thorough analysis. The matter can only be briefly touched upon here. The conception of opposites, of their strife and reconciliation, is deeply rooted in early Greek thought.¹ In the days of its triumph Greek democracy could engender a conception of the world order in terms of "a cessation of the agelong strife of opposites, which by blending and merging into one another had ceased to be opposites; and these ideas were then applied to the historical process which had engendered them".²

In the debate between Poverty and Wealth's protagonists, Poverty is pictured as intermediate between Wealth and Ptocheia (Beggary), a kind of Mean.³ Her general description, and in particular the reference to the compulsion by which she claims to hold society together, remind us of the figure of Ananke, lash in hand, standing over Sisyphos as he rolls his stone uphill.⁴ Poverty, appearing as Necessity, argues within the traditional categories of Greek class society.⁵

Plato, in the *Symposium*, opposes Plenty (*Poros*), as Aristophanes

¹ *Vide* e.g. Burnet, *Early Greek Philosophy* (4th ed., London, 1945), pp. 8 ff., 53 ff., 57, 112, 143, 165, 185, 196, 201, 228, 231, 263, 356; Thomson ed., *Oresteia*, Vol. II, pp. 348 ff., *Aeschylus and Athens*². Ch. IX.

² *Aeschylus and Athens*², p. 219.

³ *Plout.*, l. 552; cf. Bury ed., *Symposium*, p. xli, note 2.

⁴ W. K. C. Guthrie, *Orpheus and Greek Religion*, p. 190, discussed by Thomson, *Aeschylus and Athens*², p. 158.

⁵ Cf. article and refs., *s.v. Penia* in Pauly-Wissowa *Realencyclopädie der klassischen Altertums-wissenschaft*.

opposes Wealth (*Ploutos*), to Poverty (*Penia*).¹ Just as Aristophanes makes Poverty a Mean between Wealth and Beggary so Plato makes Love a Mean between Plenty and Poverty.²

The conception of Wealth as one member of an antithesis, whose other member is Poverty, had become, we may infer, associated with those other pairs of opposites common in earlier speculation. The strife between the two in the debate in the play now assumes a fresh significance. Poverty wins the argument in terms of logic but not in terms of fact, because her logic is not accepted. The revolutionary spirit of the peasantry is symbolized by this refusal to accept the traditional categories of Greek thought, personified by Poverty and represented in her argument. But slave society was to continue, and the traditional categories of Greek thought were to continue.³ Neither could, as yet, be abandoned. Historical necessity is paralleled by philosophic necessity. Aristophanes' Poverty speaks the grim realism of historical necessity, Plato's Love is an idealist unifier. Each is a Mean, a traditional category by which Greek class democracy had been held together. It is class society as they have experienced it which the peasants drive off the stage in the person of Poverty, though her logic remains to contradict the mirage of primitive communism which sustains their Utopia.

The types represented in the play, both real and symbolic, are founded on social relations as they existed. The *Ploutos* in its content marks the end of a classical community at its best. In terms of comic realism, it is a vigorous end; as we might expect of a community with such traditions.

VI

Why is it that in the representation of this content a different aesthetic form begins to be manifest?

Comedy, which had started its urban career later than tragedy, underwent a more protracted development in the form of New Comedy. But the collective elements which had imbued both Old Comedy and classical tragedy with their intensely serious purpose were excluded from the new form in an age of resigned individualism and national oppression. In terms of some of its most typical

¹ Pointed out by Bury, *op. cit.*, p. xli; cf. Thomson, *Oresteia*, Vol. II, p. 349.

² Love is their child. Cf. Spenser, *Hymn in Honour of Love*: "When thy great mother Venus first thee bare, Begot of Plentie and of Penurie."

³ The comparison of Poverty with a beautiful girl by St. Chrysostom at a much later date is significant. (Quoted by Rogers, p. 48, note on l. 423 of his edition.)

situations and its interest in individual character and motivation, New Comedy developed basic tendencies already apparent in the work of Euripides.¹ So that it became an art form structurally comprehending the non-collective features of Old Comedy and classical tragedy, subtle in the delineation of a narrow range of stock characters against a restricted and enfeebled environment.

Formally, the *Ploutos* both exhibits and resists the beginnings of these tendencies. Characterization is in some ways more detailed and individualized,² though as yet without emphasis on the autonomous existence of the individual independent of social environment. But if characterization still preserves healthy roots of realism in objective dynamic social relations, the decline of the role of the chorus emphasizes the decline of communal dramatic typicality. Actions, thoughts and emotions are still inherently involved with the life of the community, with political life, but already more on the plane of individualism.

The contraction of form also serves to emphasize that the *Ploutos* stands at the end of the best comic tradition. But it shows a reluctance to yield in keeping with the enduring significance of the content. Neither the old nor the new, its form is curiously fitting to its content, managing to combine something of the serious realism of both classical tragedy and comedy before they canalized into a qualitatively new, narrow naturalism.

The setting sun may throw long shadows but it also throws out the promise that it will rise again. In a time when theories of the equitable distribution of wealth for the benefit of all have a firm basis in economic logic, we may see new meaning in the apparently illogical determination of Aristophanes to anticipate events, and draw some interesting general conclusions from an analysis of the content, form and historical terms of reference of his last play.

¹ Cf. T. B. L. Webster, *Studies in Menander*, p. 153 ff.; Murray, *op. cit.*, p. 238 ff.

² Cf. Murray, *op. cit.*, p. 203. "The wife, I think, is the first comic female character in Greek literature. I mean, the first woman who is made funny not because of her sex, but because of her character." The slave is also a fine individual comic creation.

Reviews

THE ABDICATION OF SCIENCE

By J. D. BERNAL

FOUR short years ago the British Association had as its theme the turning of swords into ploughshares. At that time there was some evidence of at least the beginning of an attempt to examine what the forces of science could do if released from the service of war. That release was not to be; the years of rearmament have followed, the pace of militarisation of science has been speeded, and the hopes of its beneficent use postponed indefinitely in the "free" world. The situation has now reached a point when even the most loyal and orthodox of scientists are confused and alarmed. Typical of the varied forms of reaction are the pathetic unresolved "Ethical dilemma of Science" chosen by A. V. Hill as the title of his presidential address to the British Association,¹ Bertrand Russell's tragi-comic book, *The Impact of Science on Society*, and for a confession of ultimate gloom and impotence, Sir Charles Darwin's *The Next Million Years*.

One common thread unites these diverse expressions of the modern theme, the dismal doctrine of parson Malthus. Population increases faster than food supply; war, famine and pestilence are the inevitable consequences and are thus the permanent lot of the majority of mankind. Only the elect, by abstinence—and now by birth control—can escape this fate, but only for a time because their diminished ranks will sooner or later be swamped by the hordes of the impoverished breeding like rabbits.

What alarms Hill is that science has been too forward in arresting the scourge of pestilence. He begins with the enunciation of the common platitudes of the conforming scientists only to find that they give him no sure support. The following quotations epitomise his argument:

"The improvement of man's estate by the application of scientific knowledge is one of the loftiest of adventures; but a belief that it can be achieved by scientific methods alone, without a moral basis to society, is a perilous illusion. If the methods of human experiment and racial improvement adopted by the Nazis could be regarded purely as applied biology there might be much to say for them. But most of us believe that by abandoning a faith (which has nothing directly to do with science) in the sanctity of the human individual and of moral law they were heading straight for disaster. Yet we shall see later the dilemma in which such scruples put us, in respect of the gravest of all world problems. . . ."

¹ Annual Meeting, British Association for the Advancement of Science, Belfast, September, 1952.

"The dilemma is this. All the impulses of decent humanity, all the dictates of religion and all the traditions of medicine insist that suffering should be relieved, curable disease cured, preventable disease prevented. . . ."

"All that may be so; but to accept it as a guide to action would lead to a degradation of standards of humanity by which civilization would be permanently and indefinitely poorer. . . ."

"Nobody would dare to say that steps to combat these diseases, and other such as cholera, to improve rural and industrial health, to increase the supply of drugs and medical equipment and services, should not be taken on the highest priority: but the consequence must be faced that a further increase of a million people a year would result. Thus science, biological, medical, chemical and engineering, applied for motives of decent humanity entirely beyond reproach, with no objectionable secrecy, has led to a problem of the utmost public gravity which will require all the resources of science, humanity and statesmanship for its solution."

One might think at this point Hill as a biologist might have proposed some practical methods, social and scientific, for raising the food supply. But this is more than he can face. He prefers despair and the implied irresponsibility of the scientist faced by an insoluble problem.

"Had it been possible to foresee the enormous success of this application, would humane people have agreed that it could better have been held back, to keep in step with other parallel progress, so that development could be planned and orderly? Some might say yes, taking the purely biological view that if men will breed like rabbits they must be allowed to die like rabbits, until gradually improving education and the demand for a higher standard of life teach them better. Most people would still say no. But suppose it were certain now that the pressure of increasing population, uncontrolled by disease, would lead not only to widespread exhaustion of the soil and of other capital resources but also to continuing and increasing international tension and disorder, making it hard for civilization itself to survive: Would the majority of humane and reasonable people then change their minds? If ethical principles deny our right to do evil in order that good may come, are we justified in doing good when the foreseeable consequence is evil? . . ."

How is it that a man of such intelligence can let himself be led in such tragic and impotent absurdity? It is because with his eyes cast in one direction the alternatives never appear to him at all, or if they appear are instantly and indignantly rejected. The application of science—in the present capitalist system—leads to an insoluble ethical dilemma. Therefore

we must abandon science or ethics or both. The minor premise, the economic system, is never taken into account. Might it not be worth while looking for a better system before abandoning the fruit of thousands of years of civilisation. Until the vast resources, material and scientific, now wasted on military preparation are spent on constructive agriculture and industry, until the rapacious land and commodity production systems of the "free" world have been swept away, it is true we cannot expect to find the solution to Hill's dilemma. But that is the last place where he would look for it. The dilemma is the dilemma of capitalism not the dilemma of science.

* * *

At first sight Bertrand Russell¹ appears to modify the desperate picture presented by the neo-Malthusians. He is able to foresee a gleam of hope for the world given three conditions which he thinks are within measure of achievement. These are the abolition of war, the even distribution of ultimate power, and the limitation of the growth of population. All these depend, in his opinion on the domination of the world by the United States. War he thinks may well disappear.

"Now there are only two sovereign States: Russia (with satellites) and the United States (with satellites). If either becomes preponderant, either by victory in war or by an obvious military superiority, the preponderant Power can establish a single Authority over the whole world, and thus make future wars impossible. At first this Authority will, in certain regions, be based on force, but if the Western nations are in control, force will as soon as possible give way to consent. When that has been achieved, the most difficult of world problems will have been solved, and science can become wholly beneficent."

It is clear from the rest of the book that he can only conceive of an American victory for only in that case would population limitation be automatic as would be the even distribution of power. Short of such victory he cannot manage to be happy because he is always haunted by a nightmare view of the Soviet Union which enables him to tolerate all the evils of capitalism including the atomic and hydrogen bombs, provided Communism and everything he thinks it stands for can be destroyed. For that reason he cannot see that the good life that he imagines for mankind, in which every man "*Qua* hero, should have an opportunity of initiative, *qua* common man, should have security, *qua* cog, he should be useful" can be reached and can only be reached in a Communist society. He cannot see that the achievements of the Soviet Union, whether they are to his taste or not, can only have been made through the initiative and intelligent devotion of millions and that only such a society can give the basis for a real security.

¹ Bertrand Russell, *Impact of Science on Society*, Geo. Allen & Unwin, 1952.

On the other side, he is equally blind to the limited and insecure character of the prosperity of America. He does not see that the liberal paradise in which he has enjoyed his long life has been maintained at the cost of the violent suffering of two world wars and the permanent degradation of two thirds of the world's population in depressed classes and colonial countries. This blindness explains, but does not excuse in one so intelligent, the insufferable hypocrisy of his preaching of love and deploring of cruelty whether in Nazi Germany, which he did little to oppose, or in the Soviet Union, which he is willing to blow to blazes with atom bombs. In the last analysis, the philosophy of Bertrand Russell is as much one of despair as that of Hill. His only solution of the world's troubles is the use of force to keep things as they are in the hope, now so contrary to all experience, that the Capitalist system, left to itself, will reproduce a happiness and culture for all equal to that enjoyed in the United States to-day.

As might be expected he comes to grips nowhere with the ostensible subject of the book, the *Impact of Science on Society*. The history is trivial and inaccurate, the benefits of science he cites are the common platitudes of the day. He does not see that the greater range and coherence of science implies, for a world that can fully use it, a correspondingly organic and active social system.

A more serious attempt to grapple with the problem from essentially the same liberal basis has been made by Sir Charles Darwin in his ambitious history *The Next Million Years*.

* * *

This book¹ is a petition of bankruptcy of an age and a class. Sir Charles Darwin proves to us more politely than that brutal American prophet of doom, William Vogt, that the human race has nothing to look forward to in the next million years but want and frustration. He uses the whole prestige and apparatus of modern science to show that we are helpless in the face of inexorable natural laws and that by the time a new species has been evolved (that is the reason for the million years) mankind will have achieved—practically nothing.

By and large, Sir Charles can see nothing in the future but a repetition in a dreary round of the mistakes of the past, enlightened by vague gleams of possible glories of the arts and of a necessarily useless science. His picture of the world for the greater part of the million years is one of a population never more than three to five times the present one, living precariously and violently, fighting for natural resources that are steadily being exhausted. Coal and oil will be used up, overcultivated land will be worn out. Most of the people will exist for most of the time on the edge of starvation, competing with each other for the little that is left.

¹ Charles Galton Darwin, *The Next Million Years*, Rupert Hart-Davis, 1952.

"As to the less successful members, the standard of living of any community living on its real earnings, as the communities of the future will have to do, is inevitably lower than that of one rapidly spending the savings of hundreds of millions of years as we are doing now. There will also be the frequent threat of starvation, which will operate against the least efficient members of every community with special force, so that it may be expected that the conditions of their work will be much more severe than at present . . ." (p. 189). "There are, of course, many exceptions, for real skill will get its reward, but in the long run it is inevitable that the lower types of labour will have an exceedingly precarious life. One of the triumphs of our own golden age has been that slavery has been abolished over a great part of the earth. It is difficult to see how this condition can be maintained in the hard world of the future with its starving margins, and it is to be feared that all too often a fraction of humanity will have to live in a state which, whatever it may be called, will be indistinguishable from slavery" (p. 190).

Sir Charles can think like this because, despite his science, his eyes are turned firmly on the past. For him "we are living in or perhaps at the end of a golden age, which may well prove to have been the greatest golden age of all time, and we too are apt to be warped by the feeling that it is a normal time." He has lost entirely the unbounded optimism of his great-great-grandfather, Erasmus Darwin, who proclaimed Universal Progress with his friends Watt and Priestley, the makers of the Industrial Revolution. He has even lost the faith of his grandfather in evolution. He turns, rather, to that great oracle of reaction of the bleak days of Pitt and Castlereagh, parson Malthus, and his law of population. Indeed, *The Next Million Years* is little more than a revised *Essay in Population* with the coffin nails hammered in by the aid of an infallible theory of genetics.

Sir Charles, as indeed did Malthus before him, admits the existence of science, but is concerned to show that it can bring no salvation. By an identical arithmetic, he shows that a population, increasing as it is now geometrically, doubling every century, will outrun any possible scientific increase in food supply in a mere two thousand years and nothing would be left but the old checks of war, plague and famine. He is even more pessimistic than Malthus in imagining any way of escape—

"The straightforward way of striking the balance is nature's way of creating an excess and then killing it off by plague or starvation. Malthus himself, and other more recent writers also, have attempted to propose solutions which should allow us to escape from this threat, but nobody has found one which is at all convincing. It follows that in the very long run of a million years the general course of human

history is most of the time likely to be what it has been for most of the past time, a continual pressure of population on its means of subsistence, with a margin of the population unable to survive" (p. 86).

The logic of Malthus still remains as simpleminded and false as when it was first uttered. The answer to it was given over a hundred years ago by Engels, and that answer is science; for—

"science multiplies itself at least as much as population: population increases in relation to the number of the last generation; science advances in relation to the total amount of knowledge bequeathed to it by the last generation, and therefore under the most ordinary conditions in geometrical progression too—and what is impossible for science?" (Quoted in *Marx and Engels—Selected Correspondence*, p. 33.)

How is it that Sir Charles, fully aware of the great achievements of the last hundred years, cannot see as far as this? Simply because he cannot conceive or does not want to contemplate a world in which science is no longer the preserve of an intellectual élite—the Brahmins and the Mandarins for whom he shows such admiration—but becomes the way used by the whole people to achieve their desires and to sweep away apparently unremovable obstacles.

The movements that are making history to-day do not come into the scope of his imagination for the next million years. He cannot see that it is not shortage of land but its abuse, first by feudal landlordism and then by capitalist cash crop exploitation, that keeps the present world on the edge of starvation. He has not seen that when these are swept away, the immediate effect, as in the Soviet Union and China, is a simultaneous extension of cultivation and a more scientific use of cultivated land. The present Soviet schemes that will be finished in 1957 will provide food for a hundred million people: those already being planned, for some hundreds of millions more—and this is only a beginning. Sir Charles does not see that the wasteful using up of coal, oil and steel is not a necessity of the advance of science, but the stupid and pathological product of a capitalism that is devoting material resources, energy and, worst of all, human intelligence mainly to profits and war. If the resources now so wickedly wasted in the United States and the other capitalist industrial countries, particularly Britain, were turned to constructive use in a socialist way, the thousand million half starved, illiterate and oppressed people of the world could, within ten years, have a full and healthy life. They could, within thirty, be building a mighty new popular civilisation.

But Sir Charles and those that think like him would be horrified with all this. What would become of the pre-eminence of the well-educated, intelligent and well-bred minorities who have ruled this country so unobtrusively for the last two hundred years? The brutal answer is that if the Western world of to-day is the fruit of that intelligence, we want

some of a different kind. We need a breed of intellectuals not so concerned with keeping things as they are and showing that nothing can be done, as with understanding the whole system and finding a hopeful alternative that will work for the benefit of all.

But what about the next million years about which Sir Charles shows such concern? The answer is, broadly, that if we look after the next hundred, the next million will look after itself. Many of the problems which he finds so difficult, such as those of energy and food supplies, have already been solved. "It might, for example, be found possible to turn grass or wood into a satisfactory human diet" (p. 54). It is possible to do so already, though probably not yet worth doing as there are still far easier ways of getting the food. Four fifths of the food value of cultivated crops are at present unused for food or fodder. It is the same story with energy. At present the energy resources of the world are being plundered and wasted. It has been estimated that only two per cent of the energy used up in engineering shops goes to any useful purpose, and even that, mostly to make parts that are not strictly necessary. A more rational use of energy would enable a human race a million times more numerous than at present, to live comfortably on the annual intake from the sun. Indeed, a one per cent utilisation of solar energy, would keep ten people for every square metre of the earth's surface.

Indeed there are no limits. Within a few hundred, let alone a million years, mankind will be clear of the earth and have taken the first steps in colonising space—tapping new and bountiful sources of energy. Nor will the human race have to wait a million years to change themselves far more radically than by the blind evolution. How they will do so will be for the science of the future to determine. That they will do so; in the light of the past and the present, is certain. No one knows enough to put a limit to human capacity. That is why the carefully built up and conservative possibilities of Sir Charles Darwin's book are actually the wildest phantasy. They are, together with all the gloomy prophecies of his fellow Malthusians, a nightmare which only sleepwalkers can still entertain. Now that humanity is awake and beginning to be conscious of its collective power, nothing is less likely to happen.

AMERICAN ORIGINS

The Hidden Heritage. By JOHN HOWARD LAWSON. The Citadel Press. \$3.50.

"THE struggle of the people, in opposition to the privileged class that controls the state, is the dynamic factor in our national development, the theme and meaning of our history." So writes John Howard Lawson in the epilogue of his study of the historical origins of the

United States and its culture, an exciting and stimulating picture, which catches the vast sweep and movement of the cultural, economic, political, and social forces which relate Europe, Africa, and Asia to the Western Hemisphere and which links the ancient Mediterranean world with the world of to-day and to-morrow. It begins with the mediaeval cathedral, and the social and economic, as well as the religious forces concerned with their erection, especially the vital part played by the migrant populations resulting from the social disintegration of the Crusades; it ends with the Pilgrim Fathers; but already in the American colonies of 1629 the determining factors of subsequent American developments have appeared. Of greater value perhaps is its investigation into the economic and political forces which first drove Spain to colonise America, then sent the British and French after them, and finally made Negro slavery an inevitable step. One of the most exciting sections of the book is the re-interpretation of the Spanish conquest of the Aztecs and the Incas and horrifying accounts of European brutality towards the Indians, and of Indian and later Negro resistance. Not the least of its merits is the flood of light it throws on those long concealed events and much maligned movements which expressed the age-long spirit of popular revolt, the Albigenses, the Taborites of Bohemia, the peasants' revolt of 1381, the rebellions of Ciompi in Florence and the Anabaptists and communists of the Reformation period.

Lawson's theme throughout is the heritage of ideas and forces that have shaped Trans-Atlantic culture and the perennial clash between the forces of reaction and progress. He understands and his book will help others to understand that "the people are the creators of history. They have toiled through the long nights of the past to create the promise that is dawning upon the earth".

A word about the author. John Howard Lawson was first known to British people as one of the Hollywood Ten who completed his year's prison sentence in 1951. The attack on progressive script-writers and film workers in Hollywood was one of the first, and one of the most shameless attacks on freedom for which the Un-American Activities Committee has become notorious. Lawson has written many plays and films, and his *Theory and Technique of Play-writing and Screen-writing* is an admirable handbook, not only on the technique, but also on the history and social function of drama and film. Lawson is not therefore a professional historian, and it might be thought that an historical study like this would contain more signs of the amateur than it does. In fact it gives ample evidence of scholarly research, genuine insight and a sound grasp of the laws of historical development. And it is far more than a book on American origins, for it digresses admirably to give us a considerable study of Shakespeare, an account of the evolution of music from the time of Palestrina and a study of the origins of the novel.

Almost any reviewer would I think be bound to feel from time to time that in surveying so vast a field passing from the Albigensian heresy to the Mona Lisa, from Cervantes to Shakespeare, from the Anabaptists to Thomas More's Utopia, from the mediaeval corporation to a social history of the cod fisheries, the author enters fields where his theories cannot be adequately criticised by one reader. It would need a team of experts to survey the ground covered, as Lawson seems to function as a team of experts in writing the book. But taking one important question: Is it correct to call early Christianity a "revolutionary affirmation of human rights"? It was certainly as Marx says "the sigh of the oppressed creature", the spiritual protest of "the poor and heavy laden", but it struck a profoundly mystical and otherworldly note, especially as it was adapted by those within the crumbling society of the second and third centuries. By the time of Augustus it had already come to mean despair of any hope of making the world a better place, and its mysticism was showing people how to endure rather than how to revolt.

The chapters on Shakespeare are excellent and bring out admirably the social significance of his plays. Shakespeare wrote at a moment of transition when the monarchical feudalism that had achieved temporary stability on the ruins of the mediaeval social system was disintegrating under the pressure of new forces. Shakespeare expressed the dominant traits of the society that was emerging from the wreck of feudalism. The whole body of his work is a statement of the conflicts that were to develop with peculiar weight and intensity in the New World.

Thus Shakespeare begins by drawing a fairly conventional picture of the permanent prosperity supposedly guaranteed by monarchical absolutism, which is however not only uniting the nation, but giving adequate protection to the classes that were essential to the nation's economic welfare. But Shakespeare saw in emerging capitalism not only the potentialities of economic development, but also the degradation of the human personality in the fever of the quest for riches. There are ever new developments in Shakespeare. In *The Merchant*, and later in *Hamlet* he poses the great dilemma of humanism, the conflict between the real and the ideal. In *Julius Cæsar* he presents a people's rebellion as a major factor in an historical situation. *Coriolanus* brings out the contradiction between patriotism and class interests and demonstrates that misuse of power is treason to the people. Lawson has much that is illuminating to say on the subject of patriotism, and then, surprisingly, digresses to link his Coriolanus theme with Napoleon, Beethoven's *Eroica* and *Leonore*, and of course the *Coriolanus* overture of 1808. Beethoven saw the political cataclysm of his time in a new perspective, "The idea is vitally important in the United States to-day, when our culture is torn by two concepts of loyalty—one imposed by military and financial 'heroes' whose

ambitions outrun Napoleon's dreams, the other concept being rooted in the life of the people, who hold that the city and the land are theirs and that there can be no loyalty which denies their will or subverts their welfare. Since government is an instrument of class power, the moral problem of patriotism cannot be divorced from the realities of class conflict."

Lawson throws light on the contradiction between Bacon's scientific thinking and his politics, a question which Farrington in his excellent book on Bacon failed to deal with. He shows how James I relied on Bacon to work out a compromise with the bourgeoisie that would not sacrifice the essential prerogative of the crown.

The Tempest poses the greatest of all problems of colonialism in the enslavement of Caliban. The theme of the play is man's mastery over nature, but with all his power Prospero still needs the services of the degraded, rebellious Caliban, the original owner of the island. "The Caliban complex is strong in our culture. Writers and scholars endorse the legend that Negroes and foreign-born workers are brutal Calibans. Underlying the prejudice against these groups, is the contempt for all those who toil. Man the master of the earth has been deprived of his heritage. As Caliban said of Prospero:

*I say, by sorcery, he got this isle;
From me he got it.*

But Prospero's magic is not eternal. Shakespeare's vision of bounteous crops and merry harvesters will become reality, and the cloud-capped towers and solemn temples of privilege will melt away like an 'insubstantial pageant' to 'leave not a wrack behind.' This theme of Caliban points to the basic thesis of the book which is to demonstrate how the birth and "development of the United States has been shaped by social conflicts and mass migrations, originating in other parts of the Western hemisphere, and in Africa and Asia, as well as in Europe. The intermingling of peoples in the New World involved a clash and adjustment of culture on a scale that has never before been known in history."

Out of many strands he weaves the pattern which appears as the colonisation of the Americas. He has a particularly interesting section on the corporate form of colonial power, the powerful commercial organisation which as a matter of business took in hand the development of Massachusetts and Virginia. The political structures which emerged had exploitation as their aim, and this was reflected in the constitutions drafted in the late eighteenth century and is still reflected in American constitutional law. "The cartel stands supreme, as the Church stood in the middle ages, the symbol of the soul." Lawson is dissatisfied with the usual analysis of the American heritage which is content to derive it

mainly from England and devotes considerable attention to the influence of the native culture of the Indian, that of Spanish America and of the Negro. He throws light on the great myths of American origins: the hoax of Vespucci, whose romances about the potentialities of the new continent had much to do with its first conquest, the myth of Captain John Smith and Pocahontas which veiled the exploitation by the English corporation, and the myth of the Mayflower which entirely distorted the early structure of American class society. All these and much other romanticising effectively obscured the economic and social pressures which led to the colonisation of America.

The oppression of the peasants in Europe is carried over to America. The story of the Spanish conquest is brilliantly related. Of particular interest is his account of Bartolomé de Las Casas, deeply concerned at the inhumanities of colonisation but utopian in his projects, the tool of political forces, and utterly unable to bridge the gulf between theory and practice. "He stands at the dawn of the great day of imperialism boldly demanding an accounting of its social cost".

He has an excellent chapter on Cervantes "the elderly public official, stung by petty grievances, who rose to deliver a funeral oration over the grave of feudalism—a cautiously allegorical discourse upon a social order that refused to die decently."

The accounts of the origin of Negro slavery in the Mohammedan invasion of Abyssinia and the Nile Valley which caused a vast migration of people into Central Africa, pressing westwards toward the fertile lands of the Atlantic coast is new to me. Lawson has also much that is fresh on the endless resistance of the Negroes, a theme much played down or ignored or reduced to the artistic protest of the spiritual. Yet the tragedy of American slavery seems to have been historically necessary since it provided the base upon which the structure of capitalism was built.

Lawson gives the number of Negroes in the New World at the end of the sixteenth century as nearly 900,000—one of the greatest migrations in the course of history. The effect of slavery on the master race has often been overlooked. The whole culture was infected by the fear of the slaves. "The historiography of the United States, committed to a theory of material development that is largely an apologia for the slave system, excludes any objective analysis of the moral and psychological deterioration that accompanies the ownership of human chattels. . . . The fear of slaves was so great that brutality became a dominant trait of the ruling class culture. . . . The planter, the colonial *Faustian man*, paid a high price for his devil's contract. In return for the right to whip and chain his fellow man, he gave up the most precious human possession, the love of man, the recognition of human worth and dignity. He received the treasure of the earth, the fruit of the Negro's labour; he had to accept

the psychological disabilities and unnatural prejudices that accompanied the gift."

The Haitian uprising led by Toussaint L'Overture was perhaps the finest as it was the most successful of the slave revolts, but the story has not ended. And perhaps the importance and value of John Howard Lawson's book is that it constitutes a basic Marxist analysis of the origins and the nature of colonialism. Colonial exploitation is essential to capitalism and is to-day its Achilles heel. We, quite as much as the Americans and the Spaniards of past and present, are guilty of just the same kind of bestiality and inhumanity that is objectively set forth in this book in chapters which move one profoundly by their sensitiveness to human values, and impress one by their power to lay bare the fundamental social and economic causes of man's inhumanity to man.

J. LEWIS.

Liberalism, Nationalism, and the German Intellectuals, (1822-47): An Analysis of the Academic and Scientific Conferences of the Period.
By R. HINTON THOMAS. Cambridge, 1951. 12s. 6d.

DURING the seventeenth and eighteenth centuries it was in England and France that the most important social and cultural developments took place. Italy and Germany in that period advanced little beyond the level of development they had achieved by the end of the sixteenth century, during which the men of those lands had made notable contributions to the economic and ideological movements that marked the first major advance of the bourgeois class in Europe. Politically Germany and Italy remained divided up into a number of petty principalities, in contrast to the united nations of Britain and France. Ideologically there was some development, particularly in Germany, for, as Hegel put it, the German mind took refuge from the poverty of the real world by creating an ideal world rich with abstractions. In contrast to French and English thought which was mechanical, largely materialist, and internationalist in orientation, German thought at the turn of the eighteenth century was dialectical, idealist, and ever more nationalist in its scope and application.

In the book here reviewed, Mr. Hinton Thomas shows how the German intellectuals of the first half of the nineteenth century set up organisations to unite the scattered intellectual endeavours of the scholars in the separate German principalities, and how, by so doing, they created the first organised nationalist movement in Germany. The first of such organisations was the national congress of German-speaking scientists and doctors which held the first of its annual meetings at Leipzig in 1822. This organisation was founded by Lorenz Oken, 1779-1851, professor of

physiology at Jena, who was the first to apply dialectical idealism to the biological sciences, upon the development of which he had a considerable influence. From the start the national science congresses, in Oken's view, were "the spiritual symbol of the unity of the German people". The meetings were also liberal in tone, expressing the opposition of the German middle class to the still largely feudal political structure of the German principalities and the desire of that class for a unified, bourgeois democratic German state. However the middle class German intellectuals saw beneath them a rapidly developing proletariat, which promised to become the body of the spectre of communism that was already haunting Europe. Thus the German bourgeoisie vacillated between their revolutionary liberal aspirations and what became the ideal of national unity under the firm authority of the feudal Junkers. Such a division became more and more apparent in the science congresses and also in the annual conferences of classical philologists, secondary schoolmasters, and orientalisists which began in 1838, and the conferences of university teachers of German history, German law, and German language which started in 1846. The All-Italy science congresses, which began in 1839, were also a vehicle of nationalist sentiment, but they were more consistently liberal and revolutionary in tone, for they were suppressed at the instigation of imperial Austria in 1848 whilst the German congresses continued on throughout the nineteenth century. By 1848, when a revolutionary situation arose, the liberalism of the German bourgeoisie had already become somewhat attenuated, whilst their nationalism was assuming an imperialist guise. Thus they chose to compromise with the Junkers rather than face a proletarian revolution, which would have been a possible outcome of a bourgeois revolution, as Marx had pointed out in the *Communist Manifesto*.

S. MASON.

British Working Class Movements. Select Documents, 1789-1875. By G. D. H. COLE and A. W. FILSON. MacMillan. 45s.

PROFESSOR COLE and Mr. Filson have made a collection of documents on British working class history which will be an invaluable aid to the student. The ground covered includes almost every aspect of the working class movement; the trade unions, the co-operatives, the struggle for political reform, for freedom of the Press and for the shorter working day. A great deal of the material gathered has not hitherto been available in any convenient form and much of it will be fresh to all except the specialist.

The most useful sections of the book deal with trade union history, especially in its earlier phases, and with the development of the theory

and practice of co-operation. The student of the organisation of the Labour Movement will find them indispensable. In the same way the basic documents of the Chartist movement are republished as well as a number of papers illustrative (though by no means comprehensively) of the economic theories of the radical economists of the first half of the nineteenth century.

If I were asked to point to what I consider to be the weakness in the volume I should say that the editors have overstressed organisation and understressed action. As a result one misses much of the excitement that belongs to the story of the British working class, much of the atmosphere of struggle. Constitutions have played their part in the movement but, after all, it is the movement that counts. And what a story there is to tell about it! This weakness of the book is illustrated by the treatment of the explosive events of 1842, the zenith of Chartist activity: the same space is given to this as to the constitution of an obscure and abortive organisation founded by Francis Place to try to unite workers and middle classes. Similarly one can criticise the scant attention paid to working class internationalism, and the almost total absence of Ireland from the picture. And one would have liked to read more of the theoretical contributions to the experience of British Labour by the earlier Bronterre, and to have found a fuller exposition of the social objectives of Chartism.

One particular criticism must be added. In the brief space devoted to the Newport Rising one would have expected a document illuminating the workers' side of the movement instead of the "official" view; and similarly in treating the Cato St. Conspiracy it is surely extraordinary in such a volume to give only illustrations from the angle of the ruling class.

There are obviously many omissions, even in a book of 650 pages, which are inevitable and for these the editors cannot be blamed. Taking this into account, and in spite of the weakness mentioned above, this collection is a major contribution to our understanding of the British Labour Movement.

MAX MORRIS.

J. S. D. BACON'S review of A. G. Morton's book, *Soviet Genetics* cannot pass unchallenged. The book, as Morton states in his foreword, is an introduction to the subject, and therefore one should not expect it to be as detailed in every part as a less popular treatise would be. Nevertheless it presents Michurinism as a general theory, instead of the hotch-potch of separate hypotheses Hudson and Richens made it in 1946. This, probably the most important aspect of the book, Bacon misses altogether.

Bacon accuses Morton of dismissing chromosomes as "simply internal organs of the cell"? Yet read in its context (p. 54) this description merely emphasises the contrast with the description "organs of heredity" wrongly used by the Mendelists. On p. 133 Morton points out: "it is clear that the complex and highly regulated mitotic mechanism of division . . . fulfils some very essential function".

Bacon also claims that there is confusion between Morton and Lysenko on the question of the hereditary role of the chromosomes. Morton considers many cases where environmental changes act on the undividing cell in which the chromosomes are most probably not formed, and alter some metabolic processes. It is obvious that if in this process elements of the future chromosomes are involved some chromosomal change may be expected. He nowhere denies that chromosomal material carried over in the germ cells plays a role in the metabolism of the zygote, and hence affects its heredity. Lysenko, on the other hand, is considering environment acting on dividing cells when the chromosomes are organised, and thus may be affected directly. He rightly agrees that such changes as may occur affect heredity. There is no confusion here. Each is looking at different aspects of the same fundamental process. Both would agree that all the material, chromosomal and non-chromosomal, carried over from parent to offspring, determines the various metabolic processes of making up its heredity.

To say after all this that Morton has "failed to clarify the situation" is a sad reflection on our critic's faculties and can only mean that he regrets Morton could not supply more detailed analyses of the process of metabolism. Yet to say our knowledge is incomplete is surely to repeat a truism hardly worth restating. Michurinism clearly gives guidance for the further elucidation of these problems without the question-begging assumptions which cloy the dogmatic Mendelist of the present day.

The importance of Morton's book in providing a clear account of Michurinist theory can hardly be over-estimated. For it is not only an introduction; it is a very useful reference book which repays careful study.

R. F. PRICE.

POLAND

Myśl Filozoficzna, issue 2(4) for 1952, which is dedicated to President Bierut on the occasion of his 60th birthday, contains several articles devoted to the natural sciences. Ignacy Zlotowski reviews the work of Marie Skłodowska-Curie and relates it to the philosophical attitudes she held as she developed her pioneering investigations in collaboration with her husband. Her philosophy was materialist, but it remained within the framework of a positivist objectivism which regarded science as something above classes. Zlotowski points out instructively how the establishment of a statistical character in the relations of certain phenomena (e.g., the probability principle in radio-activity) has been seized upon eagerly by non-materialists as a denial of causality, and how erroneous were such deductions, to which the distinguished physicist herself never gave assent.—Józef Hurwic treats of the theory of resonance in chemistry, as formulated by Pauling, in the light of many recent discussions in the Soviet Union. What is involved here is an attempt to apply quantum theory to the problem of molecular structure. Hurwic summarises both the physical and philosophical reasons why this theory must be regarded as inadequate.

"The Development of the Concept of Matter in Physics" by Leopold Infeld and Leonard Sosnowski is both historical and exploratory in its approach. It first traces the rise and triumph of the mechanistic trend in physics, through the work of Galileo, Newton and Laplace, and then shows the challenge offered in the trend towards field concepts in the work of scientists like Faraday and Maxwell. The confusion in early 20th-century physics which engaged Lenin's attention, developed out of the encounter between these two trends. The mechanists' particles were such by definition that no two could occupy the same space at the same time; but two fields were found to be able to do precisely that. At present the conflict between the two views is being reduced, as modern physics makes use of both concepts. The authors indicate how matter is to be viewed if the field concept is the only one employed. The general direction of

thought in physics today may be said to be monistic, but the authors conclude that "this development is still far from its conclusion, and to the extent that we become better and more profoundly acquainted with material reality, the image of it formed in our science will be connected more and more closely with the concept of the field."

Two important articles are devoted to progressive Polish thinkers in the period just before 1848. Anna Śladkowska analyses the political views of Edward Dembowski (died 1846 at the age of 24), and Zygmunt Poniatowski discusses the social and philosophical views of Henryk Kamiński, Dembowski's cousin. Both studies emphasise the class situation in Poland as a determinant, and they throw into relief the limitations as well as the scope and vitality of the patriotic-revolutionary movement of the time, based chiefly as it was on the peasant masses struggling against feudalism with a certain measure of support from the lower nobility, the city "plebeians," and the relatively few industrial workers. Reading these authors today, we are struck less by the limitations due to their period than by the insight they manifested on such matters as class struggle, expropriation, social revolution, and the nature of both patriotism and true internationalism (as opposed to chauvinism and cosmopolitanism, already recognised and condemned then for what they truly are). Kamiński foresaw the need for a People's Army such as Poland has today. An index of his foresight is the fact that "during the last war, Kamiński's work entitled *A People's War* became the vademecum of the heroes of the French Resistance movement. After a hundred years!"

Several shorter essays are devoted to special problems. Jan Szczepański analyses the methodology used by Marx and Engels in their sociological research: books read, evidence collected, questionnaires sent out in order to obtain a detailed and vivid picture of proletarian living conditions. Jakub Litwin's "Remarks on the Class Consciousness of the Proletariat" shows the necessity for both practical awareness and for guiding theory in this sphere. A contrast is drawn

between the class consciousness developed by the bourgeoisie, with its limitations and self-deceptions, accompanied also by a certain amount of brutal realism, and that of the proletariat which, in its historical mission of advancing the welfare of mankind as a whole, can alone face reality without fear or hypocrisy.

The lively debate on the philosophic views of Tadeusz Kotarbiński is terminated in this number of the magazine. Józef Chałasiński replies to Kotarbiński's recent article on "Humanism without Hypostases" by pointing to the kinship between the latter's reism (or somatism, as it is also called) and behaviourist psychology. He argues that Kotarbiński falls into a personalism which fails to deal adequately with intersubjective relations, hence also with social and historical phenomena. In his witty but fundamentally repetitious reply, Kotarbiński simply denies the charge. He claims that somatism is not only a form of materialism, but even the only true and consistent materialism; all other philosophies smuggle in Platonic ideas and universals in one form or another. He regards his doctrine as a supplement to dialectical materialism (which he says he accepts), not a competitor of it. He goes so far as to say (p. 318) that "a word is not a totality composed of a physical body [*soma*] plus sense. . . . Such a body-sense . . . is nonsense, no more; nonsense arising from a mixture of semantic categories." He admits that he has not sufficiently clarified wherein he differs from behaviourism and mechanism, but he holds to his denial that the psychological aspect of matter (consciousness) appeared late in its evolutionary development. He concludes with an avowal that he adheres to an intellectualist liberalism which is not to be confused with bourgeois political liberalism. On the basis of such statements as these the editors of the journal reach a concluding judgment that Kotarbiński's ultra-materialism is tantamount to a disguised idealism, and that, for all his philosophical learning, he is quite mistaken in claiming that his self-styled intellectual liberalism can in any sense be classified as a form of dialectical materialism.

M. S.

ITALY

Rinascita and *Società* continue to publish detailed studies of Gramsci in each number; *Società*, Mar., '52 has an

unpublished letter, written to his brother from prison, asking for a list of books. G. Procacci contributes another study of the class struggle in France under the ancien régime, 1485-1559, which anticipates his forthcoming book on Normandy in this period. He underlines the non-neutral, class character of the French State (*Società*, Sept., '51). The papers of most actual interest to English readers will be those which analyse and protest against the ever-increasing Americanisation of Italy. V. Crisafulli in "The liquidation of national sovereignty" points out that the privileged position of the U.S.A. in Italy affects the internal law of the country and is in fact against the republican constitution; this privileged régime in Europe generally "has picturesque analogies with the system of 'concessions' at one time imposed by Christian states on the countries of the Moslem world." B. Manzocchi analyses the disastrous economic consequences to Italian foreign trade and internal economy of her dependence on the U.S.A. (*Rinascita*, Dec., '51). F. Platone compares the development of fascism and neo-fascism with an interesting comment on the incorrect estimate of fascism by the Italian Communist Party before Mussolini's coup d'état. He concludes that present conditions in Italy are favourable to the development of neo-fascism, but that the strengthened alliance between peasants and workers gives more scope to resistance (Jan., '52). V. Gerratana in "American philosophy and European philosophy" compares and contrasts the reactionary trends in the philosophies of Dewey and Croce respectively. Though pragmatism and idealism have a basic resemblance, the philosophy of Croce has a more progressive element. It has an astringent effect and it can be used by Marxists as part of their inheritance of bourgeois learning. Unfortunately the tendency of Croce in recent years has been to reconcile and minimise the difference between his own and American philosophy (*Società*, Sept., '51). G. Manacorda in "History and Peace" reports on the international congress of history teachers organised by U.N.E.S.C.O. at Brussels in 1949 and on the steps which have been taken to carry out its recommendations. It was decided to promote peace among the nations by writing textbooks of "history without wars" which could be used in the schools of any country in the western bloc.

There is a movement, in France particularly, to teach history along these lines. Manacorda explains the weakness and confusion behind the excellent intentions of the promoters of the movement. Wars are not caused by misunderstandings among peoples; the opposite would be more true. Though these histories may do good in combatting crude nationalism, they will do harm in weakening the feeling for national independence, already threatened by American domination (Dec., '51).

B. S.

JAPAN

The July 1951 issue (No. 325) of a Tokyo periodical called *Shisō* (Thought) is of interest in being devoted to "Problems of the Transition Period between Feudalism and Capitalism", in the course of which the recent work of English economic historians comes in for frequent mention. It would appear from

the contents of this number and the coverage of its articles that questions of Feudalism are a live political as well as an academic issue in present-day Japan. The main articles are as follows: "Theories of Dobb, Sweezy and Takahashi", by K. Hayashi (Imperial Univ. of Tokyo); "Decline of Feudalism, theories and historical fact", by Shiro Masuda (Tokyo Univ. of Commerce); "Marxian Methods on the Genesis of Capitalism", by Takuya Hadori (Fukushima Univ. of Commerce); "Marxism in the Study of the Development of Capitalism", by E. Horie (Imperial Univ. of Kyoto); "On the Positive Results of English Economic History", by Hiroshi Fujiwara; "Marxian Method on the Transitional Period", by Kozolino; and "Feudalism and Commerce", by Kenji Kawano. Unfortunately there are no English summaries, as there are in some Japanese academic periodicals.

M. D.

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Cambridge University Press are the agents in Britain for Professor R. A. Brady's *Crisis in Britain* which was reviewed in our Autumn issue. (Price 37s. 6d.).

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