SOVIET BIOLOGY AND BRITISH COMMENTATORS

BY

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Russia Puts the Clock Back. By J. Langdon-Davies. (Pp. 160. 7s. 6d.) London: Victor Gollancz.

Soviet Genetics. By J. S. Huxley. (Pp. 245. 8s. 6d.) London: Chatto and Windus.

It has been uncharitably said of journalists that they feed, like vultures, on misfortune. In particular, the turbulent history of Soviet Russia has been a gold mine for scores of newspaper men. Each crisis in Moscow breeds a few books from western authors: the crisis in Soviet biology is no exception. Commentaries on Soviet biology are appearing already (half a dozen were published in English alone during 1949), and the reader may make a choice among sources of opinion ranging from genuine Communist to ultra-bourgeois.

The facts in the matter are these. All the reliable information about the recent crisis in Soviet biology has been before the British public for a year. The serious student of Russian affairs knows by now exactly where to find this information. Therefore the merit of any fresh writing on Soviet biology rests on one or other of two grounds: either fresh facts must be divulged or the familiar facts must be re-interpreted in the light of the writer's special knowledge of Russia or of biology. It is for these merits that the two books under review have to be examined.

Russia Puts the Clock Back offers a gloss on broadcasts about Lysenko by Harland, Darlington, Fisher, and Haldane, with a popular exposition of Mendelism. Mr. Langdon-Davies (unlike most geneticists) seems to regard Mendelism as sacrosanct, so that he feels obliged to defend it with the zeal of a mediaeval churchman defending orthodoxy. So far as the crisis in Soviet biology is concerned, Mr. Langdon-Davies is content to quote what British commentators have to say about second-hand reports of the crisis, and to comment himself upon the commentators.

Soviet Genetics is a serious study of the situation, and it can be recommended with confidence to readers who are not expert biologists. In the first place it summarizes very fairly the available published information, and it adds a few minor details from Dr. Huxley's own recent experience in the Soviet Union. In the second place it offers the reader an assessment of the facts by an expert, for Dr. Huxley has himself made major contributions to genetics. The book contains a lucid and objective account of the scientific issue and the ideological issue (wisely separated by Dr. Huxley) in the light of the available information. When he discusses biology Dr. Huxley is authoritative and scrupulously accurate, and when he discusses Russia he is much more modest and tentative than Mr. Langdon-Davies. The present persecution of Mendelian geneticists in Russia raises the controversy far above the level of a scientific dispute, and Dr. Huxley's indictment of the Soviet policy is amply justified.

Lysenko and Soviet Motives

When he lays down Dr. Huxley's book the reader feels he is familiar with the facts about the crisis in Soviet biology; but the motive behind it all is still elusive. No obvious interpretation arises from the facts as Dr. Huxley presents them. The Russians are intelligent and shrewd. Among them are scientists as gifted as any in the western

world. And science enjoys a prestige in Russia far higher than in this country (for instance, some medical research workers receive from five to ten times the salary of general practitioners). Why, then, has the Russian Government attacked the very intellectual liberties which make scientific research possible? Why has it agreed to give public support to a fanatic whose scientific attainments would not qualify him for a junior post in a British university?

There is no unambiguous answer to these questions, but it is possible to suggest a tentative answer which is at any rate consistent with Russian behaviour in other matters. The first relevant fact is that Lysenko's diatribes against Mendelism are not original and they are not new. Thirty years ago articles indistinguishable from Lysenko's were appearing in the Tsarist press under the name of Michurin. Therefore hostility to Mendelism is not a monopoly of the Soviet Government: it lies deeper than that. Secondly, when one examines the content of both Michurin's and Lysenko's writing one finds (in the same flatulent style) the same appeal to practical results as the sole criterion of success in plant breeding, and the same indignation that theoreticians are interfering in affairs beyond their jurisdiction, and by doing so endangering the national food supply. Thirdly, there are still bread queues in Soviet Russia, and the efficiency of agricultural production is pitifully low. The Achilles heel of Soviet Russia is her food supply, and her food supply is in the hands of a very simple, ignorant, and lazy peasantry. When Lysenko comes among this peasantry with the zeal of a prophet, and with such maxims as "Keep down the weeds," "Space your millet more widely on dry soils," "Do not sow till soil temperatures are higher," he does accomplish what in Russia are miracles—he brings production up to something like the level of that in western countries.

Nowadays the whole atmosphere of agricultural extension work in Russia is as eager as that of a religious revival, and for this Lysenko is largely responsible. His importance to Russia at this stage cannot be overestimated. It is for this reason that one distinguished Soviet scientist, Zhukovsky, is reported to have said, in extenuation of the decision to suppress Mendelism, that it is important "at this juncture to cherish the prestige" of Lysenko. Of course it is: the alternative is longer bread queues.

Intellectual Climate in Russia

Among Western people the importance of a man like Lysenko to the national economy would not give weight to his views on topics outside his competence. But Russian people (as any student of Dostoevsky knows) are different. They plunge head and shoulders into hero-worship to a degree quite incomprehensible to the Englishman. We can admire Mr. Bernard Shaw and still say his opinions on evolution are piffling. We can load the honours of science on Sir Oliver Lodge and remain discreetly silent about his views on paranormal phenomena. But the intellectual climate in Russia is quite different. The mass of the people is so unsophisticated that the minute core of intelligentsia must still be careful to avoid puzzling inconsistencies. It would be disastrously puzzling to the Russian peasant if Lysenko were hailed as a great leader among collective farmers (which he is) and at the same time ridiculed as an impertinent upstart among geneticists (which he undoubtedly is). So "at this juncture" (and these are important words) the intelligentsia have to keep quiet about their views. Russia is not yet ready for her scientists.

There is no opportunity in a review such as this to cite the evidence for these assertions. But a good deal can be gathered from two books, both easily available to the British

reader. The first of these is *The Russian Peasant*, by Maynard—quite the best book ever written on Soviet agriculture (and it is no accident that Maynard took the Indian peasant, not the British farmer, as his standard of reference). The second is *A People's Academy*, by G. Fish, a blatant piece of Soviet propaganda, published in Russia for circulation among bourgeois countries. Presumably it tells us what the Russians would like us to know, but it is very easy to read between the lines how precarious the food situation is in Russia and what drastic steps have to be taken to increase production.

In this context the crisis in biology loses some of its gravity. Of course it is serious when one nation breaks away from one of the few remaining international liberties (for that is what science is). It is serious when a man can be persecuted for what he thinks. It is serious when dogma takes the place of fact. Most of us would deliberately prefer death to Soviet rule. But then we are not Russians.

TOXAEMIAS OF PREGNANCY

SYMPOSIUM AT CIBA FOUNDATION

A symposium on the toxæmias of pregnancy was held at the House of the Ciba Foundation on January 12, 13, and 14. Professors A. St. G. Huggett, W. C. W. Nixon, and E. C. Amoroso, in co-operation with Dr. G. E. W. Wolstenholme, secretary of the executive council of the Ciba Foundation, were responsible for organizing this symposium. In the invited audience there were physiologists, veterinarians, obstetricians, physicians, pathologists, endocrinologists, and biochemists.

Pathology of Pregnancy

At the first session, under the chairmanship of Dr. A. S. PARKES, F.R.S., Professor HUGGETT read a paper on the physiological changes in pregnancy. Like the chairman in his opening remarks, he paid tribute to the work of the late Professor W. H. Newton.

Professor H. L. SHEEHAN then described the pathological changes found in pre-eclampsia and eclampsia, excluding from consideration such related conditions as vomiting of late pregnancy, jaundice at delivery, hypertensive shock, accidental haemorrhage, massive liver necrosis, etc. He referred to the unsolved problem of oedema in these cases, and said that the remaining pathological lesions gave evidence of the vascular disturbances peculiar to hypertensive toxæmias in late pregnancy, and could be linked up with such signs and symptoms as albuminuria, oliguria, convulsions, and coma. In his view there was no real histological basis for the descriptions of "pregnancy kidney" found in the older literature. Chronic nephritis was a very rare pathological finding in cases of toxæmia. In eclampsia there were specific periportal lesions in the liver, but most focal lesions in fatal eclampsia occurred in the terminal stages. The extent of these lesions was not obviously related to the severity of the toxæmia or to the occurrence of fits.

Mr. G. W. THEOBALD in his paper stressed the changing incidence of pregnancy toxæmias in Siam and Hong Kong with alterations in the diet. Increased protein in the diet led to an increased incidence of toxæmia. There had also been an increase in the incidence of toxæmia with an increase in the cases of beriberi, but where beriberi was commonest the incidence of toxæmia was slight. In the same way there had been fewer cases of toxæmia in occupied Europe during the war, but there was a rapid return to pre-war figures with the return to a fuller diet.

Professor WILLIAM J. DIECKMANN discussed the aetiology of pre-eclampsia and eclampsia with particular reference to the sodium, potassium, and chloride balance. On January 11 he had lectured on this same theme at the Royal College of Obstetricians and Gynaecologists. He described how at the Chicago Lying-in Hospital they had devised a relatively safe

method for the carefully controlled intravenous injection of sodium chloride solution. They had studied in cases of toxæmia changes in weight, oedema, alterations in blood pressure, proteinuria, and the onset of symptoms and signs associated with eclampsia, all of which were increased by inducing an abnormal balance of water and electrolytes.

Toxæmias in Animals

At the second session, with Dr. H. H. GREEN in the chair, Dr. H. B. PARRY described the toxæmias affecting sheep. He said there were two groups of disorders: First, in many species there was the group of conditions associated with mineral imbalance and causing neuromuscular disturbances, seen mainly at parturition and in the puerperium; included in this group were milk fever, lactation tetany, and lambing sickness. The second group of disorders was confined to ewes in the latter half of pregnancy and was manifested by stupor, blindness, ketosis, and—post mortem—a fatty liver. In large-scale field trials in Australia, with restriction of exercise in ewes with twins or a heavy single lamb, and with sudden changes of food intake, this second type of toxæmia had been induced experimentally.

Dr. A. T. PHILLIPSON said that in ewes a form of pregnancy toxæmia, with weakness, anorexia, deranged nervous co-ordination, ketonaemia and hypoglycaemia, acetone in the breath and ketonuria, and—post mortem—a grossly fatty liver, could be produced experimentally by certain feeding and fasting measures. This appeared to suggest that ewes in which the foetus made big demands developed toxæmia when they failed to accommodate sufficiently rapidly to sudden changes in diet.

Dr. J. DUCKWORTH emphasized the speed with which low calcium states could be induced. Very low calcium diets did not affect the health or reproductive capacity of rats, and had no effect upon the size or viability of the litter. But the withdrawal of minerals from the skeleton over three gestation-lactation cycles amounted to as much as 60%.

Dr. RUTH ALLCROFT described the neonatal ataxia of lambs. This was a type of spastic paralysis, due to hypocupraemia in the mothers, which were unaffected. A similar disorder in bovines also affected the calves only, but not as severely as the lambs. In affected lambs gross demyelination of whole hemispheres occurred.

Dr. A. MESSERVY discussed the practical problems of milk fever, which was due, in his opinion, to over-lactation. There was a satisfactory response to injections of glucose solution or to inflation of the udder, but it was also essential that the animals should be put out to grass.

Professor A. ROBERTSON, in a paper on the biochemical aspects of bovine parturient hypocalcaemia, mentioned some studies which were being made of blood calcium, phosphorus, and magnesium levels in normal bovine pregnancies and in cases of milk fever. Marked changes had been noted, but they were not regarded as primarily responsible for the condition, and an investigation of the hormonal factors that might be concerned had begun. He described some interesting changes in mineral balance after the treatment of milk fever by inflation of the udder.

Placental and Circulatory Changes

Professor F. J. BROWNE presided over the third session when Dr. N. FALKNER recounted how in human toxæmia the focus of interest had shifted from the kidney to the liver and later to the placenta. He believed all the changes in toxæmia were secondary to vascular disturbances consequent on arteriolar spasm. The placental changes could not be a matter of chance, and those who thought so were not familiar with the anatomy and the pathology of the placenta. He described in detail the anatomical features of the placenta, and the changes which he had found in cases of eclampsia. Acute yellow atrophy and cortical necrosis he regarded as the acme of toxæmia and worthy of close investigation in connexion with eclampsia.

Professor R. J. KELLAR reported some studies of cardiac output and skin and muscle blood flow in normal and in toxæmic pregnancy. He gave some further details of the methods and findings of his co-workers, Dr. Hamilton and Dr. Burt. This Edinburgh work called forth high praise from Professor J. McMichael and Professor G. W. Pickering. Professor