DISCUSSION

SOVIET BIOLOGY

SCIENCE has published recently two articles on Soviet biology. The article by Professor L. C. Dunn (1944, 99: 65–67) gave, in the main, a correct impression of the position held by Soviet biology in world science and of the innovations in the development of science brought about by the new social structure of the U.S.S.R. The general tone of Professor Dunn's article shows his profound understanding of the real nature of the new Russia and his desire to further friendly relations between the scientists and the governments of our two countries.

Professor Sax in his reply to Professor Dunn (1944, 99: 298–299) gives an incorrect estimate of the general position of biology in the U.S.S.R. He raises a number of political questions and maintains that Soviet political philosophy suppresses science in the U.S.S.R. and that biology is not free to develop. His statements are based entirely on what he believes to be the present position of his own branch of science, genetics, in the U.S.S.R.

He and other American geneticists may be pleased to know that his beliefs reflect a misunderstanding of the true facts, and that actually the science of genetics is making progress in the Soviet Union. A number of important genetics laboratories are doing good work: the laboratory of the former Institute of Experimental Biology, now the Academy of Sciences Institute of Cytology (directed by Professor Dubinin); the laboratory of plant genetics at the Timiriazev Agricultural Academy (directed by the present writer); the laboratory of genetics at Moscow University (directed by Professor Serebrovsky); the laboratory of fish genetics (directed by Professor Romashev); the laboratory of genetics at the Gorky University (directed by Professor Chetverikov[1]); the laboratory of plant selection at the Timiriazev Agricultural Academy (directed by Academician Lisitsin); the laboratory of genetics of the Ukrainian Academy (directed by Professor Gershenson); the laboratory of genetics at Voronezh University (directed by Professor Petrov), and a number of others.

At the Genetics conference held in Moscow University (December 12–19, 1944) the achievements and future tasks of Soviet and world genetics were discussed by a large gathering of scientists. A few of the papers read were those of Professor Dubinin on "Basic Problems in Genetics," Academician Serebrovsky on "Modern Trends in Genetics" and the present writer on "Problems of Polyploidy."

[1] Tschetverikoff.

Important results have been achieved in the field of polyploidy, and many new plant forms have been developed. This research is little known abroad, although some of my work on the development of new varieties of wheat has been mentioned in SCIENCE and *Nature*. Sakharov and Lutkov have developed new varieties of buckwheat; Navashin—kok-sagyz (the Russian dandelion, as it is called in America); Lutkov—flax; Rybin—hemp, etc. The work of these scholars offers splendid prospects for the future selection of the crops concerned. Those familiar with the earlier literature of Russian genetics will recognize most of the names listed above as those of scientists who were making outstanding contributions long before the beginning of the controversy about which Sax speaks so strongly. Their present position is in itself evidence that the careers of many Soviet geneticists have not been adversely affected by the above-mentioned controversy. There have also been some noteworthy achievements in the investigation of the delicate structures and the changeability of chromosomes, the intracellular factors in heredity. Professor M. Navashin, whom Dr. Sax specifically mentions among those from whom he hears nothing scientifically, has published four articles since 1939, and in 1944 handed in two more for publication. These papers represent a continuation of the excellent work in cytogenetics for which he has for some time been highly esteemed in both the United States and the U.S.S.R. They in no way indicate that he has been forced to curtail or modify adversely his scientific work because of political pressure.

Unfortunately Professor Sax seems to be ignorant of this work, since he regards present-day Soviet biology and particularly genetics as synonymous with the name of Academician Lysenko. He criticizes Lysenko's mistaken views and appears to be of the opinion that he is not only criticizing Academician Lysenko but also the very foundation of Soviet biology, and the Soviet Government's attitude toward science.

This grave misunderstanding may have arisen partly through the impaired communications between the United States and the Soviet Union in recent years, so that he has not been able to see the papers resulting from the work mentioned above. The actual situation is as follows.

As an agronomist, Academician Lysenko has put forward a number of practical suggestions which have been of great value to the Soviet Government. Many Soviet geneticists are, however, sharply critical of his theories about genetics, and in no way support his at-

tempt to re-examine and discard a number of the fundamental postulates of our science.

The Soviet Government has never interfered in the discussions of genetic questions which have now been raging for some ten years. Academician Lysenko was rewarded for his work in the field of practical scientific farming and not for his views or experiments on genetics. Furthermore a number of our geneticists and plant breeders—some of whom have developed new varieties of the chief grain crops (Konstantinov, Lisitsin, Shekhurdin, Yuriev, the present writer and several others) and who have sharply criticized Academician Lysenko's views on genetics and selection—have also been decorated by the Soviet Government.

These facts should serve to show that Academician Lysenko's criticism of genetics, based as it is on naive and purely speculative conclusions, despite the vigor of its assault is incapable of impeding the onward march of genetics in the U.S.S.R.

The fact that Academician Lysenko is director of the Institute of Genetics of the Academy of Sciences does not mean that other schools of Soviet geneticists are in any way hampered in their work. It would be wrong to deny that Academician Lysenko has influenced the development of genetics in the U.S.S.R., but this influence has been exerted in open debate between proponents of different scientific views and principles and not by political pressure, as described by Professor Sax.

The way in which science has developed in the U.S.S.R. combines centralized planning with the creative endeavor of individual, decentralized laboratories. The present war has witnessed a tremendous development of science in our country, especially pure science. In the course of just over a year (up to December, 1944) four new academies were established—the Academy of Medical Sciences, the Academy of Pedagogical Sciences, the Uzbek Academy of Sciences and the Armenian Academy of Sciences. Science is also well developed in our universities and other schools of learning.

From this outline, it can be seen that science can be free in a centralized socialist state, which Dr. Sax wrongly calls totalitarian. Professor Sax does not understand the essence of the Soviet conception of the bonds between pure science, its application and philosophy, according to which the materialist philosophy of nature can only develop on the basis of the development of the various sciences; he therefore incorrectly states that in our country "science must conform to political philosophy." Because of this lack of understanding he failed to realize that the statements of Lysenko concerning the supposed refutation of Mendel's laws on the basis of dialectic materialism have little in common with the serious development of philosophy in the Soviet Union. Dialectic materialism is based on real facts and never denies them. Therefore the philosophy of dialectic materialism, when truly understood, can not possibly hinder the development of genetics. This philosophy, on the contrary, is a powerful weapon in the hands of the scientist who has thoroughly mastered it, and one which helps him to solve the most complicated theoretical problems.

The quotation of Professor Sax from "Science and Society" reflects a mistaken view on the part of the editors of this journal. In his speech made in 1939, Academician Mitin expressed entirely his own views, and not in any way the viewpoint of the Soviet Government.

The undoubted strength and vitality of the Soviet Government is due to that of its founder, Lenin, who himself had a long training in science and the philosophy of dialectic materialism, and of its present leader, Stalin, who has continued and strengthened the scientific and philosophical basis of our State. The well-known achievements of the Soviet Union in all branches of knowledge are due entirely to the attention which the Soviet Government has paid to the development of all forms of scholarship. The progress of science and culture was a deciding factor in the victories of our armies over fascist Germany and her satellites, who had the industrial might of all Europe behind them.

Russian scientists have a high opinion of the scientists of America and the great contribution they have made to world science. They respect the democratic principles of American society which Hitlerite reaction menaced in the same way as it menaced our own Soviet State principles—a higher form of democracy in so far as all State bodies are elected by the whole people in accordance with our democratic constitution. Together with American scientists we who are working in this field in Russia are building up a common, world-wide biology. We hope that this unfortunate misunderstanding of the basic ideas of our country, and of the path of development taken by Soviet science will be speedily dispelled, and that in the future the scientists of the two countries will progress together in an atmosphere of mutual understanding and comradeship.

ANTON R. ZHEBRAK

TIMIRIAZEV AGRICULTURAL ACADEMY,
MOSCOW, U.S.S.R.

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