

GENETICS

Soviets Reject Mendel

Russian biological leader bans Western viewpoint on heredity. His theory is that environmental forces can alter inheritable characteristics of organisms.

► BASIC AGREEMENT between Soviet and Western viewpoints on genetics is possible on one point—and probably on one point only: that the two schools simply do not use the same language. They may use the same words, but they mean quite different things.

Russia's new official leader in biology, Academician Trofim Lysenko, gives his identification of heredity: "The property of a living body to require definite conditions for its life, its development and to react definitely to various conditions." This translation was made by Russian-born Prof. Theodosius Dobzhansky, now at the University of California, recognized as one of the world's leading geneticists.

But those words, to Western ears, mean physiology and not heredity or genetics, as any high-school biology student will tell you. By heredity or genetics the Western student of the life sciences understands the mode of transmission from one generation to the next of inherited characters or properties, essentially as first described by Gregor Mendel and later amplified by Thomas Hunt Morgan and his followers.

Soviet Biological Teaching

The latter point of view is dogmatically rejected by the now dominant Soviet school of biological teaching. PRAVDA, commenting on Lysenko's report, praises his approach as "essentially materialist and dialectical," and in the next sentence condemns the Mendel-Morgan trend as "in essence a metaphysical and idealist trend." But this is argument by epithet, and gets you nowhere save to an impasse.

Academician Lysenko avowedly looks to the late I. V. Michurin, Russia's "Burbank," as his teacher in the idea that external forces can impress new inheritable characters on plants and animals. Back of Michurin he appeals to Charles Darwin.

One passage in his HEREDITY AND ITS VARIABILITY is interesting in this connection: "Sex cells and other cells serving for reproduction are, as a rule, created, have their origin as a result of the development of the organism as a whole, through transformation, through metabolism of various organs. As a result, the past development is, as it were, accumulated in the cells giving rise to the new generation."

This might well be taken as a paraphrase of Darwin's own theory of "pangenesis," which postulated the carriage of all the qualities of a plant or animal to its germ cells by hypothetical "gemmules"; except that Lysenko is rather less definite about

the mechanism of transfer than Darwin was.

Pangenesis was dropped, even as a theory, after better microscopic methods demonstrated the existence of chromosomes, and mathematical calculations based on their behavior in cell division made possible close prediction of the results of still-untested hybrid matings. However, this whole basis of modern plant and animal breeding in the West (and in the USSR, too, until very recently) is now flatly rejected by Soviet biologists under their new leadership, with the official approval of the Bolshevik Party.

Some recent work in genetics in this country has tended to modify the idea that nuclear genes are the only heredity-determining entities in the cell. Such are the researches of Prof. T. M. Sonneborn of Indiana University and Dr. C. Leonard Huskins of the University of Wisconsin. However, closer examination of these new modes of heredity shows them to be as deterministic as the action of the nuclear genes themselves, so that believers in the inheritance of acquired characters will find no comfort here.

To a detached observer of the human scene there should be something ironically amusing in the present debate. On one side is the school of thought avowedly materialist and hence, it might be supposed, solidly deterministic. Yet its advocates

vehemently assail the idea of determinism in heredity among animals and plants. On the other side is a mixed array of scientists whose personal philosophies run the whole gamut from mechanistic determinism to complete free-will, stoutly defending a highly deterministic biological system first proposed by a Catholic priest!

The present revolution in Soviet biology is of course only the latest act in a long drama, running back more than a dozen years. Late in 1936 word was received in this country that Prof. N. I. Vavilov, then the foremost exponent of Mendelian genetics in Russia and one of the world leaders in his field, had been placed under arrest. Comment was immediate, widespread and unfavorable.

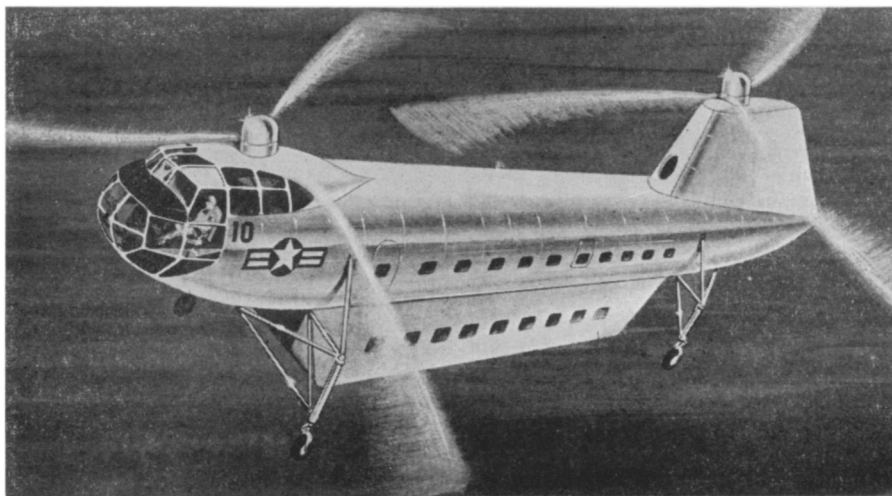
Emphatic Denial

Official Soviet denial of the arrest was prompt and emphatic. It was accompanied by a denunciation in IZVESTIA of alleged editorial comments in this country, in which the New York TIMES and Science Service came in for special mention. In the same article, IZVESTIA announced a forthcoming debate between Vavilov and Lysenko on their points of difference.

In 1939, an international genetics congress was held in Edinburgh, at which Vavilov was chosen to preside. However, neither he nor any of the other Russian delegates attended the meeting.

During the war, reports reached this country that Vavilov had fallen completely from favor, and had died in a Soviet concentration camp, about 1943. Confirmation of this report was lacking, but nothing has been heard directly from Vavilov since then. All other "orthodox" geneticists in the USSR are now in varying degrees of eclipse, and Lysenko and his group are triumphant.

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LARGEST TRANSPORT HELICOPTER—This is an artist's conception of the all-metal tandem-rotored Piasecki XH-16, which is as big as a C-54 airliner and the detachable capsule compares with a Greyhound bus in size. The detachable capsule for speeding loading and unloading is estimated to nearly double the payload to be carried by the plane.