

Comments and Communications

In Support of Michurin's Biological Theory in Higher Institutions of Learning

[The following editorial, by S. Kaftanov, Minister of Higher Education in the USSR, is published in its entirety from *Izvestia*, September 8, 1948, in the belief that it has high informational value for scientists in America.]

There are two opposite trends in biological science. One of them is progressive, and materialistic, called Michurin's theory in honor of its founder, the great reformer of nature, Ivan Vladimirovich Michurin; the other is the reactionary, idealistic Weismann's or Mendel-Morgan theory. The founders of this theory were, as it is well known, reactionaries in science: Weismann, Mendel, and Morgan.

In opposition to the Mendel-Morgan trend, Russia developed and, encouraged by the Soviet regime, brought to its full bloom, the great theory of the great modifier of nature I. V. Michurin.

Michurin's materialistic theory has been continually enriched by the works of his followers, with the academician T. D. Lysenko at their head. This trend in biology has developed into a mightily current which has taken hold of the masses. It inspires millions of collective farmers with faith in the creative power of their efforts and gives them a firm assurance in the realization of new successes in the field of abundance of farming products.

The Michurinists have proved, not by word, but by demonstration, that it is possible to direct the inborn qualities of animals and plants and to influence the development of animals and plants in a desired manner. Michurin's theory has adopted and developed the best sides of Darwinism. Darwin had explained the evolution of animals and plants from the materialistic point of view. Michurin has developed this knowledge and taught methods of directing the process of producing new species of plants and new species of domestic animals, thus transforming Darwinism into a really practical, creative doctrine.

Michurin's theory is closely bound to another progressive trend in our science—that of Williams' methods of fertilizing the soil, methods that have adopted and developed the best ideas of the Russian classics in the science of agriculture, those of Dokuchaev, Kostichev, and others.

Thanks to the care of the Bolshevik Party and of the Soviet Government, as well as to the personal care of our great leaders, Lenin and Stalin, Michurin's theory has been preserved from oblivion and has become the property of the people. The efforts of Michurin's followers, led by the academician T. D. Lysenko, have brought it to a new height of achievement. During the last session of the USSR Lenin Academy of Agricultural Sciences,

the report of academician T. D. Lysenko concerning the status of biological science, duly supported by the Central Committee of the All-Russian Communist Party, has been made subject of consideration. This session has become an important factor in the strengthening and further expansion of the progressive biological theory of Michurin. This session has brought to light the opponents of Michurin's doctrine in biology and has dealt a stunning blow to the reactionary Weismann-Morgan theories. This session has proved to be the greatest triumph of the victorious Michurin theory.

The task of the future is now to develop and to spread with the utmost persistence the world's most advanced and most progressive biological theory, that of Michurin. The success of this task will depend upon the system of teaching and of research that will be carried on in higher institutions of learning.

Unfortunately, the theories of Weismann, Mendel, and Morgan, born in foreign countries, have found their supporters in the midst of our biologists.

The first and the most outstanding representative of this pseudoscientific trend in our country was the Leningrad professor Filipchenko and the Moscow professors Koltsov and Serebrovsky. They actively professed racist pseudo science—the so-called eugenics.

The first supporters of the Mendel-Morgan theories—Filipchenko, Koltsov, and others—openly disavowed the materialistic basis of Darwinism; their modern followers and supporters have done their utmost to mask and hide their anti-Darwinistic idealistic opinions and have always carried the banner of Darwinism. Amidst these, the academician I. I. Schmalhausen has to be named first.

Academician Schmalhausen denies the inheritance of acquired characters. He finds that evolution depends upon mutations which originate directly in the germ cells of the organism and have a quite accidental and indeterminate character, not regulated by the conditions of its life. This idealistic, reactionary theory is fundamentally antagonistic to Darwin's teaching. Nevertheless, Schmalhausen always hid under the banner of Darwinism.

Weismann's reactionary theory has found many adherents and supporters in numerous biological research institutions, as well as in the Universities of Leningrad and Moscow and, especially, in the Timiriaseff Academy of Agriculture.

Our homemade Weismannists, such as Academician Schmalhausen, Professors Serebrovsky, Zavadovsky, Zhebrak, Dubinin, and others, have fought for years the progressive and revolutionary teaching of Michurin's biology.

The laxity of certain ministers and institutions, of the Minister of Higher Education in particular, has encouraged these people and has given them the opportunity of occupying many responsible positions in universities, institutes, etc. Using these opportunities they strongly opposed the Michurinists, hampered their work, sometimes treated them with contempt, and thus did the greatest harm to Soviet science and national agriculture.

It is in the Moscow and Leningrad Universities that the

bearers of this reactionary-idealistic Weismann's "science" had built their mightiest strongholds.

Thanks to the laxity of the president of Moscow University, as well as of that of the Central Administration of the Universities of the Ministry of Higher Education, efforts have been made in the Biological Faculty to organize the anti-Michurinists by means of conferences of anti-Darwinistic character with specially selected participants; the Michurin theory was there and then treated with the highest contempt.

Several chairs of the Biological Faculty of the Lenin-grad University were also occupied by representatives of formal genetics. Professor Poliansky, vice-president of the University, spoke openly against the Michurin doctrine and its followers. The former vice-president of the Biological Faculty, Docent Lobasheff, actively opposed the appointment of Michurinist biologists.

Many biological chairs at other universities were also occupied by anti-Michurinists—for instance, Professor Poliakov in Kharkov, Professor Gershenson in Kiev, Professor Chetverikov in Gorky. This proves that the Ministry of Higher Education, as well as its Central Administration of Universities, was inefficient in its supervision of biological studies in the universities.

The same is the case in agricultural colleges and even in the most important one, the Timiriaseff Academy of Agriculture—several leading biological chairs have been occupied, up to the present, by anti-Michurinists, for example, the anti-Michurinist Professor Zhebrak held the chair of genetics at the Academy. Many other chairs were also held by formal geneticists, as Professor Borisenko and others. Even the director of the Academy, Professor Nemchinoff, shared the convictions of Weismannists and opposed the appointments of Michurinists.

Nevertheless, it is noteworthy that many biological chairs in agricultural colleges are occupied by worthy representatives of the progressive Michurin theory, who worthily carry on the great work of the famous scientist Ivan V. Michurin. Such are: Professor Yakoleff of the Michurin Fruit and Vegetable Institute, Professor Paguibin of the Tashkent Agricultural Institute, Professor Tikhonoff of the Kazan Agricultural Institute.

In other branches of agrobiological science (agriculture, pedology, cultivation of fruits and vegetables) the majority of the chairs in agricultural colleges are occupied by representatives of the progressive Michurin theory.

Strong defects in the teaching of biology can be traced also in medical colleges. The teaching of biology is based in many of these colleges on textbooks permeated with Mendel-Morgan ideas. Many of the chairs of medical institutes are also occupied by supporters of Mendel and Morgan in biology or by persons who, although not actively opposing the Michurin doctrine, are, nevertheless, basing their convictions and pedagogical activities on the spirit of the Weismann-Mendel-Morgan ideas.

Considerable defects in the teaching of biology exist also in teachers' colleges. The Departments of Teachers' Colleges of the Ministry of Higher Education, and the Ministry of Public Education of the Federation of Re-

publics, have not sufficiently opposed the anti-Michurin trend that tended to keep out the Michurinists.

The Ministries of Higher Education, of Agriculture, of Public Health, and of Public Education have not become aware soon enough of the reactionary character of the anti-Michurinist trend in biology, did not put a stop to the spreading of such reactionary ideas, and did not create a free field for the new generation of Michurin's followers. And there is no doubt that these followers are very numerous.

This has been proved by the session of the Academy of Agriculture when many of the members of the Colleges spoke fervently in favor of Michurin's theory.

We must admit that the principal responsibility for the defects of the teaching of biology lies on the Ministry of Higher Education.

We are first of all responsible for not having used enough propaganda for the development of Michurin's doctrine in biology, for having been blind to the dangerous activities of anti-Michurinists in our higher institutions of learning, and for having admitted them to leading roles in many of them. This is the principal cause of the great defects in our teaching of biology, which was in evidence up to the last session of the Lenin Academy of Agriculture.

The first task of the Ministry of Higher Education must now consist in the elimination of defects in the field of biology teaching and in the clearing of the field for Michurin's doctrine. Curricula and programs, textbooks, and methods of teaching and of research must be re-examined and reorganized as must the entire system of education and training of cadres of scientists and the activities of publishers and of journals. All biological chairs and faculties must be held and supported by qualified Michurinists, capable of developing the progressive Michurin's doctrine.

The success of this reform in the teaching of biology in our colleges will depend most of all upon the right choice of the teaching personnel.

Action along these lines has already been started. The anti-Michurinist Nemchinov, former director of the Timiriaseff Academy of Agriculture, has been replaced by Comrade Stoletov, and Academician Lysenko has taken charge of the chair of genetics and selection; Academician Present has replaced the anti-Michurinist Yudintseff as dean of the biological faculty of the State University of Moscow, etc. Our present aim is to fill the ranks of the teaching personnel by biologists-Michurinists.

Programs of basic courses must be urgently re-examined and modified. Many of these programs in the biological sciences are either entirely based on the Mendel-Morgan theories or considerably affected by the revelations of the reactionary biological "science." The reform of those programs should not be delayed even for a single day. This is one of the most urgent aims.

The textbooks of basic courses in biology are quite unsatisfactory. What has been published up to the present in biology for colleges does not guarantee an education based on the progressive Michurin doctrine.

Publishers specializing in biological literature (such as Selkhozgiz, Medgiz, "Soviet Science," the Academy of Science, Uchpedgiz, etc.) have not been aware of their responsibility when publishing theoretical or popular scientific books and other works on biology for colleges.

An illustration of this state of things is given by the publication of a book written by a member of the Academy of Medical Sciences, S. N. Davidenkov, entitled "Evolutionary-Genetic Problems in Neuropathology." It was published in 1947 with an enthusiastic preface by Academician L. Orbeli. Fully accepting the Mendel-Morgan "theories," the author made an attempt to revise the theory of Engels concerning the humanization of apes under the influence of their working activities.

We must have textbooks based on the progressive Michurin theory.

Schools for higher education will not be able to carry through this reform of teaching in biological sciences if they do not at the same time reconstruct their scientific research work.

Much of this research work, led by partisans of Mendelism-Morganism, had but slight relation to real life dealing with the practice of medicine, agriculture, veterinary science, and animal husbandry. Professor Schmalhausen, for example, holding the chair of Darwinism in the University of Moscow, published volumes of "works" dealing with problems that have nothing to do with the practice of Socialist Construction.

At the University of Kharkov, methods were applied to problems of Darwinism and genetics that had nothing to do with practical needs of life. Docentin Mikhailova occupied herself with "Interspecific Divergence and Crossability in the Genus *Dianthus*." Docent Dubovsky had for his objective the elucidation of "The Cytological Basis of the Early Stages of Divergence in Mosquitoes of Different Species and Subspecies." Countless other problems, without any theoretical or practical significance, were likewise pursued, serving sometimes only as evidence for pseudoscientific conceptions in biology.

Detachment from life, limitations of academic outlooks, practical sterility, such are the qualifications of the scientific work produced by all research carried on by supporters of Mendelism-Morganism. It is necessary to make a sharp change in all scientific research done by our colleges and direct it toward the most active collaboration with requirements of practical life, as well as with the interests of our national economy.

The party of Lenin-Stalin protects the progressive Soviet science against infiltration of foreign, reactionary influences. The history of our Bolshevik Party serves as an example of a continuous and strenuous fight for a flourishing, progressive science, a science "that has the courage to tear down old traditions, rules, forms, when they prove to be outlived, when they become breaks stopping the onward movement, a science that creates new traditions, new forms, new rules" (Stalin).

The struggle in the field of biology has ended in a complete triumph of Michurin's doctrine, presenting a new stage in the development of materialistic biology.

Thanks to the Bolshevik Party and, personally, to Comrade Stalin, ways for the further triumphant march of the most progressive Michurin biological science are now clear. The scientists of our colleges will apply, from now on, all their energy to the propaganda of Michurin's biology and to the support of undivided rule of Michurin's biological doctrine in our higher institutions of learning.

Instruments for Recording Blood Pressure

In a recent issue of *Science* (October 8, p. 393), David F. Marsh points out that a photoelectric recording microammeter may be used in connection with a strain-gage manometer to record the mean blood pressure of small animals. The models mentioned are entirely satisfactory for the purpose described but are by no means the only instruments of the SCE type which may be used with the manometers.

In addition to the photoelectric microammeters, a number of other recording instruments may be used with good results. Recording potentiometers and resistance thermometer recorders made for industrial use are quite suitable. These types have the proper speed of response to indicate mean pressures and to be insensitive to individual pulses.

Standard models of strain-gage manometers that have a linear frequency range up to 70 cycles/sec are available. Such manometers are adequate for the accurate recording of arterial pulse contours in humans and in larger experimental animals. When used with the Brush amplifier and pen motor it is possible to realize all the advantages of ease in operation of the manometer as well as the advantages of a direct-writing recorder. In addition, accurate measurements of the systolic and diastolic pressures are possible. It is also possible to use these manometers with the string-type electrocardiograph galvanometer.

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Requesting Reprints from Abroad

D. J. Bell, of the University of Cambridge, reports that he has received over 200 requests from U. S. scientists for reprints of one of his articles, of which he was allowed only 50 copies. Believing that many British scientists have been faced with a similar problem, he has asked *Science* to publish the brief reminder that paper is scarce in the United Kingdom and that, for economic reasons, many British scientists do not feel that they can afford to reply to such requests, much as they would like to do so.