

LENIN ACADEMY OF AGRICULTURAL SCIENCES OF THE U.S.S.R.

THE SITUATION IN BIOLOGICAL SCIENCE

PROCEEDINGS
OF THE LENIN ACADEMY
OF AGRICULTURAL SCIENCES
OF THE U.S.S.R.

Session:
July 31-August 7, 1948

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From July 31 to August 7, 1948, the regular Session was held of the Lenin Academy of Agricultural Sciences of the U.S.S.R. The participants in the proceedings of the Session were 47 members of the Academy, scientific workers from agricultural scientific research institutes and experimental stations, professors from agricultural colleges, the biological institutes of the Academy of Sciences of the U.S.S.R. and of the Biological Departments of the Lomonosov Moscow State University, agronomists, zootechnicians, mechanizers and economists. The total number of persons participating in the proceedings of the Session was about 700.

T. D. Lysenko, President of the Lenin Academy of Agricultural Sciences, delivered an address on the situation in biological science.

The participants in the debate on this address were: Academician M. A. Olshansky; Academician J. H. Eichfeld; Academician I. V. Yakushkin; S. I. Isayev, Head of the Fruit and Vegetable Breeding Department of the Saratov Agricultural Institute; Academician N. G. Belenky; Academician P. N. Yakovlev; P. F. Plesetsky, Director of the Ukrainian Scientific Research Institute of Fruit Growing; I. A. Minkevich, Doctor of Agricultural Sciences, Director of the Oil-Bearing Crops Scientific Research Institute of the U.S.S.R.; Professor N. I. Noujdin; N. M. Sisakian, Corresponding Member of the Academy of Sciences of the Armenian S.S.R.; Professor S. G. Petrov; Academician S. S. Perov; Academician V. P. Bushinsky; J. A. Rapoport, Doctor of Biological Sciences; G. A. Babajanyan, Director of the Institute of Plant Genetics of the Academy of Sciences of the Armenian S.S.R.; Academician A. A. Avakian; A. P. Vodkov, Director of the Moscow Plant-Breeding Station; Professor Z. Y. Beletsky; Academician E. I. Ushakova; G. P. Vysokos, Director of the Siberian Scientific Research Institute of Grain Husbandry; I. E. Glushchenko,

Doctor of Biological Sciences; I. I. Khoroshilov, Senior Agronomist of the Rostov Regional Agricultural Administration; Academician D. A. Dolgushin; V. A. Shaumyan, Director of the State Kostroma Cattle Breeding Station; Academician M. B. Mitin; E. M. Chekmenev, Vice Minister of State Farms of the U.S.S.R.; A. V. Pukhalsky, Deputy Chief of the Central Grain and Oil-Bearing Crops Administration of the Ministry of Agriculture of the U.S.S.R.; F. M. Zorin, Head of the Plant-Breeding Department of the Sochi Subtropical Crops Experimental Station; Academician L. K. Greben; V. S. Dmitriyev, Chief of the Agricultural Planning Administration of the State Planning Commission of the U.S.S.R.; Professor K. Y. Kostryukova; Academician S. N. Muromtsev; Academician B. M. Zavadovsky; F. A. Dvoryankin; N. I. Feiginson of the Mordovian State Plant-Breeding Station; A. V. Krylov, Director of the Dokuchayev Institute of Agriculture of the Central Black-Earth Belt; Professor B. A. Rubin; F. K. Teterev of the All-Union Institute of Plant Industry; Academician V. M. Yudin; Academician P. P. Lukyanenko; A. V. Mikhalevich, Assistant Editor of *Pravda Ukraini*; Docent S. I. Alikhanian; Professor I. M. Polyakov; Academician P. M. Zhukovsky; Professor A. R. Zhebrak; Professor N. V. Turbin; Academician I. I. Schmalhausen; I. N. Simonov, Master of Agricultural Sciences; Academician S. F. Demidov; Professor D. A. Kislovsky; Academician I. F. Vasilenko; Academician A. N. Kostyakov; Academician P. P. Lobanov; Academician V. S. Nemchinov; V. N. Stoletov, Vice Director of the Institute of Genetics of the Academy of Sciences of the U.S.S.R.; Academician I. I. Prezent.

When the debate ended Academician T. D. Lysenko delivered a speech in reply. A comprehensive resolution was adopted on his address.

The participants in the proceedings of the Session addressed a letter of greetings to Comrade J. V. Stalin.

FIRST SITTING

Evening, July 31, 1948

Academician T. D. Lysenko. Comrades, the general meeting of Members of the Lenin Academy of Agricultural Sciences of the U.S.S.R. is hereby declared open.

On behalf of the Ministry of Agriculture of the U.S.S.R. and the Minister, and on behalf of the Lenin Academy of Agricultural Sciences and of myself personally, I welcome the newly confirmed Academicians and wish them success in their work. (*Applause.*)

Our Academy, which bears the great name of V. I. Lenin, must by its work for the benefit of our collective farms and state farms, for the benefit of our Country, justify the deep confidence and the solicitude and attention accorded to us by our Party, our Government and by Comrade Stalin personally. (*Applause.*)

Comrades Academicians, since my address is on the agenda, I would request you to relieve me of the duty of presiding at this session and to elect another chairman to conduct its proceedings. I myself would like to nominate as chairman of this session of the Academy, Academician P. P. Lobanov. (*Applause.*)

If there are any other nominations, please let us have them; if not, we shall consider that P. P. Lobanov is entrusted with the chairmanship of this session. (*Applause.*)

Academician P. P. Lobanov. Comrades, I propose that this session consider one question: The Situation in Biological Science.

Are there any proposals regarding the agenda? There is a motion to endorse the agenda. Are there any other motions?

Voices. No.

Academician P. P. Lobanov. The motion is adopted.

Academician Trofim Denisovich Lysenko, President of the Lenin Academy of Agricultural Sciences of the U.S.S.R., will now deliver his address on the situation in biological science.
(*Loud applause.*)

ADDRESS DELIVERED BY ACADEMICIAN T. D. LYSENKO ON THE SITUATION IN BIOLOGICAL SCIENCE

1. BIOLOGY, THE BASIS OF AGRONOMY

Agronomy deals with living bodies—plants, animals, microorganisms. A theoretical grounding in agronomy must, therefore, include knowledge of biological laws. And the more profoundly the science of biology reveals the laws of the life and development of living bodies, the more effective is the science of agronomy.

In essence, the science of agronomy is inseparable from biology. When we speak of the theory of agronomy we mean the discovered and comprehended laws of the life and development of plants, animals, and microorganisms.

The methodological level of biological knowledge, the state of the biological science treating of the laws of the life and development of vegetable and animal forms, i.e., primarily of the science known for half a century now as genetics, is of essential importance for our agricultural science.

2. THE HISTORY OF BIOLOGY: A HISTORY OF IDEOLOGICAL BATTLE

The appearance of Darwin's teaching, expounded in his book, *The Origin of Species*, marked the beginning of scientific biology.

The leading idea of Darwin's theory is the teaching on natural and artificial selection. Selection of variations favourable to the organism has produced, and continues to produce, the fitness which we observe in living nature; in the structure of organisms and their adaptation to their conditions of life. Darwin's theory of selection provided a rational explanation of the fitness observable in living nature. His idea of selection is scientific and true. In substance, his teaching on selection is a sum-

mation of the age-old practical experience of plant and animal breeders who, long before Darwin, produced varieties of plants and breeds of animals by the empirical method.

Darwin investigated the numerous facts obtained by naturalists in living nature and analyzed them through the prism of practical experience. Agricultural practice served Darwin as the material basis for the elaboration of his theory of evolution, which explained the natural causes of the purposiveness we see in the structure of the organic world. That was a great advance in the knowledge of living nature.

In Engels' opinion, three great discoveries enabled man's knowledge of the interconnection of natural processes to advance by leaps and bounds: first, the discovery of the cell; second, the discovery of the transformation of energy; third, "the proof which Darwin first developed in connected form that the stock of organic products of nature environing us to-day, including mankind, is the result of a long process of evolution from a few originally unicellular germs, and that these again have arisen from protoplasm or albumen, which came into existence by chemical means."¹

The classics of Marxism, while fully appreciating the significance of the Darwinian theory, pointed out the errors of which Darwin was guilty. Darwin's theory, though unquestionably materialist in its main features, is not free from some serious errors. A major fault, for example, is the fact that, along with the materialist principle, Darwin introduced into his theory of evolution reactionary Malthusian ideas. In our days this major fault is being aggravated by reactionary biologists.

Darwin himself recorded the fact that he accepted the Malthusian idea. In his autobiography we read:

"In October 1838, that is, fifteen months after I had begun my systematic enquiry, I happened to read for amusement *Malthus on Population*, and, being well prepared to appreciate the struggle for existence which everywhere goes on from long-continued observation of the habits of animals and plants, it at once struck me that under these circumstances favourable variations would tend to be preserved, and unfavourable ones

¹ F. Engels, *Ludwig Feuerbach und der Ausgang der klassischen deutschen Philosophie*, Moskau 1946, S. 44.

to be destroyed. . . . Here then *I had at last got a theory by which to work.*"¹ [My emphasis—*T.L.*]

Many are still not clear about Darwin's error in transferring into his teaching Malthus' preposterous reactionary ideas on population. The true scientist cannot and must not overlook the erroneous aspects of Darwin's teaching.

Biologists should always ponder these words of Engels: "The entire Darwinian teaching on the struggle for existence merely transfers from society to the realm of living nature Hobbes' teaching on *bellum omnium contra omnes* and the bourgeois economic teaching on competition, along with Malthus' population theory. After this trick (the absolute justification for which, as indicated in point 1, I deny, particularly in regard to Malthus' theory) has been performed, the same theories are transferred back from organic nature to history and the claim is then made that it has been proved that they have the force of eternal laws of human society. The childishness of this procedure is *obvious*, and it is not worth while wasting words on it. But if I were to dwell on this at greater length, I should have started out by showing that they are poor *economists* first, and only then that they are poor naturalists and philosophers."²

For the propaganda of his reactionary ideas Malthus invented an allegedly natural law. "The cause to which I allude," he wrote, "is the constant tendency in all animated life to increase beyond the nourishment prepared for it."³

It must be clear to any progressively thinking Darwinist that, even though Darwin accepted Malthus' reactionary theory, it basically contradicts the materialist foundation of his own teaching. Darwin himself, as may be easily noted, being as he was a great naturalist, the founder of scientific biology, whose activity marks an epoch in science, could not be satisfied with the Malthusian theory, since it is, in fact and fundamentally, at variance with the phenomena of living nature.

Under the weight of the vast amount of biological facts accumulated by him, Darwin felt constrained in a number of

¹ *The Life and Letters of Charles Darwin*, London 1887, Vol. I, p. 83.

² F. Engels, letter to P. L. Lavrov, 12-17 November 1875.

³ T. R. Malthus, *An Essay on the Principle of Population*, London. New York and Melbourne, 1890, Book 1. p. 2.

cases radically to alter the concept of the "struggle for existence," to stretch it to the point of declaring that it was just a figure of speech.

Darwin himself, in his day, was unable to fight free of the theoretical errors of which he was guilty. It was the classics of Marxism that revealed those errors and pointed them out. Today there is absolutely no justification for accepting the erroneous aspects of the Darwinian theory, those based on Malthus' theory of overpopulation with the inference of a struggle presumably going on within species. And it is all the more inadmissible to represent these erroneous aspects as the cornerstone of Darwinism (as I. I. Schmalhausen, B. M. Zavadovsky, and P. M. Zhukovsky do). Such an approach to Darwin's theory prejudices the creative development of its scientific core.

Even when Darwin's teaching first made its appearance, it became clear at once that its scientific, materialist core, the theory of the evolution of living nature, was antagonistic to the idealism that reigned in biology.

Progressively thinking biologists, both in our country and abroad, saw in Darwinism the only right road to the further development of scientific biology. They took it upon themselves to defend Darwinism against the attacks of the reactionaries, with the Church at their head, and of obscurantists in science, such as Bateson.

Such eminent biologists as V. O. Kovalevsky, I. I. Mechnikov, I. M. Sechenov, and particularly K. A. Timiryazev, defended and developed Darwinism with all the passion of true scientists.

K. A. Timiryazev, that great investigator, saw distinctly that only on the basis of Darwinism could the science of the life of plants and animals develop successfully, that only by further developing Darwinism and raising it to new heights would biological science become capable of helping the tiller of the soil to obtain two ears of corn where there was formerly only one.

Darwinism as presented by Darwin contradicted idealistic philosophy, and this contradiction grew deeper with the development of the materialist teaching. Reactionary biologists have therefore done everything in their power to empty Darwinism of its materialist elements. The individual voices of progressive biologists like K. A. Timiryazev were drowned by

the chorus of the anti-Darwinists, the reactionary biologists the world over.

In the post-Darwinian period the overwhelming majority of biologists—far from further developing Darwin's teaching—did all they could to debase Darwinism, to smother its scientific foundation. The most glaring manifestation of such debasement of Darwinism is to be found in the teachings of Weismann, Mendel, and Morgan, the founders of modern reactionary genetics.

3. TWO WORLDS—TWO IDEOLOGIES IN BIOLOGY

Weismannism, which made its appearance at the turn of the century, followed by Mendelism-Morganism, was primarily directed against the materialist foundations of Darwin's theory of evolution.

Weismann named his conception Neo-Darwinism, but, in fact, it was a complete denial of the materialist aspects of Darwinism. It insinuated idealism and metaphysics into biology.

The materialist theory of the evolution of living nature necessarily presupposes the recognition of hereditary transmission of individual characteristics acquired by the organism under definite conditions of its life; it is unthinkable without recognition of the inheritance of acquired characters. Weismann, however, set out to refute this materialist proposition. In his *Lectures on Evolutionary Theory*, he asserts that "not only is there no proof of such a form of heredity, but it is inconceivable theoretically."¹ Referring to earlier statements of his in a similar vein, he declares that "thus war was declared against Lamarck's principle of the direct transforming effect of use and disuse, and, indeed, that marked the beginning of the struggle which is going on to this day, the struggle between the Neo-Lamarckians and the Neo-Darwinians, as the contending parties are called."²

Weismann, as we see, speaks of having declared war against Lamarck's principle; but it is easy enough to see that he declared war against that without which there is no

¹ A. Weismann, *Vorträge über Deszendenztheorie*, Bd. 1, Jena 1904, S. 198.

² *Ibid.*

materialist theory of evolution, that under the guise of "Neo-Darwinism" he declared war against the materialist foundations of Darwinism.

Weismann denied the inheritability of acquired characters and conceived the idea of a special hereditary substance "to be sought for in the nucleus."¹ "*The sought-for bearer of heredity,*" he stated, "*is contained in the chromosome material.*"² The chromosomes, he said, contain units, each of which "determines a definite part of the organism in its appearance and final form."³

Weismann asserts that there are "two great categories of living material: the *hereditary substance*, or *idioplasm*, and the '*nutrient substance*,' or *trophoplasm*..."⁴ He declares that the bearers of the hereditary substance, "the *chromosomes*, represent a separate world, as it were,"⁵ a world independent of the body of the organism and its conditions of life.

Having thus disposed of the living body as being merely a nutritive soil for the hereditary substance, Weismann proclaims that the hereditary substance is immortal and is never generated *de novo*.

Thus, he asserts, "the germ-plasm of a species is never generated *de novo*; it only grows and multiplies continually, handed down from generation to generation.... Looked at only from the point of view of propagation, the germ cells are the most important element in the individual specimen, for they alone preserve the species, whereas the body is reduced practically to the status of a mere breeding ground for the germ cells, the place in which they form and, under favourable conditions, feed, multiply, and ripen."⁶ The living body and its cells, according to Weismann, are but the *container and nutritive medium* of the hereditary substance; they themselves can never produce the latter, they "can never bring forth germ cells."⁷

¹ A. Weismann, *Vorträge über Deszendenztheorie*, Bd. 1, S. 277.

² *Ibid.*

³ *Ibid.*, S. 305.

⁴ *Ibid.*, S. 279.

⁵ *Ibid.*, S. 239.

⁶ *Ibid.*, S. 339-40.

⁷ *Ibid.*, S. 339.

Weismann thus endows the mythical hereditary substance with the property of continued existence; it is a substance which does not itself develop and at the same time determines the development of the mortal body.

Further: "...the hereditary substance of the germ cell, *prior* to the reduction division, potentially contains all the elements of the body."¹ And although Weismann does state that "in the germ-plasm there is no determinant of a 'hooked nose' just as there is no determinant of the wing of a butterfly with all its parts and particles," he goes on to emphasize that, nevertheless, the germ-plasm "...contains a certain number of determinants which successively determine the development of an entire group of cells in all its stages, leading to the formation of the nose in such a mode as to result in a hooked nose, exactly in the same way as the wing of a butterfly, with all its little veins, cells, nerves, trachea, glandular cells, form of scales, and pigment deposits, comes into being by the successive action of multitudinous determinants upon the course of the proliferation of the cells."²

Hence, according to Weismann, there can be no new formations of the hereditary substance, it does *not* develop with the development of the individual, and is *not* subject to any dependent changes.

An immortal hereditary substance, independent of the qualitative features attending the development of the living body, directing the mortal body, but not produced by the latter—that is Weismann's frankly idealistic, essentially mystical conception, which he disguised as "Neo-Darwinism."

Weismann's conception has been fully accepted and, we might say, carried further by Mendelism-Morganism.

Morgan, Johannsen, and other pillars of Mendelism-Morganism, declared from the outset that they intended to investigate the phenomena of heredity independently of the Darwinian theory of evolution. Johannsen, for example, wrote in his principal work: "...one of the major aims of our research was to put an end to the harmful dependence of the

¹ A. Weismann, *Vorträge über Deszendenztheorie*, Bd. 1, Jena 1904, S. 282.

² *Ibid.*, S. 314.