2. THE SITUATION IN BIOLOGICAL SCIENCE. Verbatim report of the session of the Lenin Academy of Agricultural Sciences of the U.S.S.R., held on 31st July to 7th August 1948. Moscow : Foreign Languages Publishing House. Pp. 631. British price, 9s. 6d.

This book of 631 pages contains reports by fifty-six scientific workers, forty-seven being members of the Academy. Forty-eight belonged to the Michurin-Lysenko School, whilst eight expressed varying degrees of dissent but without much success and finally three of the eight recanted paying high tribute to Michurian-Lysenkoism and promising to try and emancipate themselves from the reactionary Weismann-Morganian views.

Lysenko's Address previously published as *Soviet Biology*, and reviewed above, occupies forty pages at the beginning and thirteen at the end of the book. Most of the additional information put forward in this book, with a view to supporting Michurian-Lysenkoism, follows the same mystical lines and shows the same lamentable lack of biological and horticultural knowledge. Comrade Plesetsky, pages 105-111 tells us that :—

> " . . . In the course of the production of new peach varieties one more extremely important fact has been established : the influence of the stock on the scion, which led to pronounced changes in the scion. One peach form was grafted on an apricot. When the peach plant began fruiting the fruits were gathered and the stones planted. The seedlings, 42 in number began to fruit this year. On six of them the fruits have been found to be entirely destitute of pubescence which is characteristic of all peach forms. This fact is important not only as bearing on the extent of the influence exerted by the stock on the scion and the possibility of making use of this influence to obtain entirely new forms, but, in our opinion, it helps to explain the appearance of the nectarine. . . ."

This conclusion is of course ridiculous, the fact that the peach was grafted on to an apricot has nothing to do with the occurrence of nectarines among its seedlings or of the origin of the nectarine ; nor has it anything to do with vegetative hybridisation as Plesetsky suggests. The hairy character of the peach is a simple dominant and, as shown by Connors (1919-22) and others, numerous varieties of peaches are heterozygous and segregate nectarines.

As long ago as 1808 R. A. Salisbury wrote :—

> " . . . it has long been known that nectarines and peaches are sometimes naturally produced, not only upon the same tree, but upon one and the same branch."

Darwin (1868) quotes many examples of peaches giving rise to nectarines, both from seeds and from somatic mutation, and mentions that " Peter Collinson in 1741 recorded the first case of a peach tree producing a nectarine."

Isayev, page 83, and others elsewhere make much of the alleged apple-pear hybrid, Reinette-Bergamote. This variety of apple appears to have been known for over fifty years and it is claimed to be a classic example of mentor-vegetative hybridisation obtained by grafting an apple on to a pear. Isayev says, " When propagated vegetatively it firmly retains the character it acquired from vegetative hybridisation—the pear-shaped form of the fruit near the stalk." It has been crossed with various varieties of apples and some of the offspring bear fruits resembling a pear in shape.

Now, pear-shaped apples, although not common, have long been known, for example, see Carrière (1881). Presumably they are uncommon because there has been no desire to select and establish a race of pear-shaped apples. Apple-shaped pears are also known and this parallelism in variation brings to mind Vavilov's (1922) publication " The Law of Homologous Series in Variation." Indeed, apples with pyriform fruits are mentioned in this publication by Vavilov.

Academician Yakovlev, pages 100-105, although he pays high tribute to Michurian-Lysenkoism is commendably more cautious about the origin of Reinette-Bergamote than others. He says :—

> " . . . to explain the transmission of the shape of the fruits from the mentor to the hybrid is exceedingly difficult. Surely, the genes, or any other ' hereditary substance ' cannot transmit through space, as it were, the character of shape borrowed from the stock or scion taken for the vegetative hybridisation. At any rate, much work has still to be done on this question. Evidently, special experiments will have to be undertaken, enlisting experts in other branches of botany in this work, in order to shed light on this interesting but at present highly inexplicable, feature of the observed phenomena. . . ."

My conclusion is that Reinette-Bergamote is simply an apple with pyriform fruits and that neither mentors nor vegetative hybridisation have had anything to do with its origin.

Ushakova, page 199, writes as follows of the tomato produced by A. V. Alpatyev, presumably the variety Stambovoi Alpatyev, " a new type of tomato, an erect, early-maturing, high-yielding variety with good fruit. Were there such forms before ? No, there were no such forms." Actually such forms have long been known. They were introduced by Vilmorin's of Paris in 1860 under the name of Tree ; a name suggested by their sturdy growth and erect habit. It is characteristic of many of the contributors to this book, that they are either completely ignorant of biological and horticultural literature and knowledge, or else they completely ignore it and thereby claim old things to be new.

Teterev, page 402, deals with the cultivated plum and says, " I had occasion to work with Dr Rybin at the Maikop Station in 1929, when Darlington and Lawrence (sic) announced with the usual Mendelist-Morganist style of approach that if we cross the blackthorn with the cherry plum (*Prunus cerasifera*) we shall get the cultivated plum." Rybin (1936) made crosses and also found natural hybrids between the two species. Teterev, however, in a typical Michurinist-Lysenkoist style of approach misconstrues and disparages this work as of no economic importance and says, " I think we plant breeders will cope with this task more effectively."

In the days when it was possible to do so I frequently corresponded with Dr Rybin and other Russian biologists, and I told him that my work with plums strongly suggested that the cultivated plum *P. domestica* was derived from the blackthorn *P. spinosa* and the cherry plum *P. cerasifera*. Rybin later wrote me that he found many hybrids between these species in the forests of the Maikop district of the Caucasus, and that he had raised seedlings from crosses between them. Most, as expected, were triploids but one was a hexaploid, and he wrote that the natural hybrids he had found, and the seedlings he had raised gave strong support to my idea of the origin of the cultivated plum (Crane and Lawrence, 1947, page 237).

Rybin was a knowledgeable man and at this time was interested in obtaining evidence for the origin of the cultivated plum ; he certainly did not expect (as Teterev implies) to get seedlings from these crosses which would surpass the best cultivated varieties. Rybin had, however, done work of much immediate practical value for he was the first to show (1926) that some of our cultivated varieties of apples were triploids.

Academician Prezent in one of the most wordy papers in the book, pages 574-603, violently attacks all who do not whole-heartedly accept the Michurin-Lysenko creed. Violence, I feel, to cover extreme weakness as he provides no critical proof for the inheritance of acquired characters, vegetative hybridisation and the like which he recites. Hence anything but full acceptance without criticism is abhorred.

Prezent devotes much space to *Pyrus Niedzwetzkiana*, an apple with coloured leaves and fruits, and to seedlings raised from alleged crosses between this and apples with non-coloured leaves. No essential details are given, but nevertheless Prezent tells us that the hybrid progeny behave anything but à la Mendel, and that the

Mendelian scheme is utterly refuted by the results obtained. In collaboration with my colleague Dr D. Lewis I have been interested in *Pyrus Niedzwetzkiana* and as shown (Lewis and Crane, 1938) the results we obtained from inter-crossing and back-crossing closely approximated to the normal 3 : 1 and 1 : 1 Mendelian ratios. Prezent further states that among the hybrids there was one tinted red on one side and green on the other and that this alone refutes the Mendelian scheme. Evidently Prezent has very little knowledge of the origin and genetics of bud-sports and chimæras otherwise he would not make such an idle statement.

Like earlier contributors Prezent labours the alleged, or rather Lysenkoist-accepted, vegetative hybridity origin of, Reinette-Bergamote, and says, " The only way to contest this incontestible fact is to declare the fruits produced by the apple do look like pears, nevertheless it cannot be." He could more logically have said, " this is an apple which bears pear-shaped fruits."

Finally Prezent returns to attack all dissentients and says :—

> " . . . we shall not discuss with the Morganists (*applause*) ; we shall continue to expose them as adherents of an essentially false scientific trend, a pernicious and ideologically alien trend, brought to our country from Foreign Shores (*applause*)."
>
> " The future in biology belongs to Michurin and only Michurin. And with this, permit me to conclude (*applause*)."

I am disappointed with this book. I had hoped to find an account of controlled experiments and results ; especially of those concerned with the alleged inheritance of acquired characters and vegetative hybridisation. But as usual, essential details are not given and statements are presented in a vague and elusive way. Consequently they fail to carry conviction.

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