

may arise from a single apical cell or from a group of several subepidermal cells; in older plants there are two layers of initials within the dermatogen in which the outer one consists of a group of cells and the inner one a single cell. These differentiate the regions of the axis and the floral region. The leaf originates entirely from the dermatogen.

The chimera under discussion shows clearly that the spikelet was differentiated from two or several unlike cells and that a spikelet, considered the taxonomic unit of inflorescence in grasses, has a complex origin. The unlike sectors in this case appeared to run parallel throughout the length of the spike, dividing a series of several spikelets as evidenced by a change in awn type and breeding behavior of the seeds.

Summary

A spike of wheat was found to be a

sectorial chimera. Plants from seeds from different parts of the head and the spikelet exhibited unlike awn development which showed that the germinal tissue had been affected. This leads to the conclusion that a spikelet is differentiated from several cells rather than from a single one.

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BOOK REVIEW SECTION

MARXIST BIOLOGY, FRENCH STYLE

OWING to the notoriety gained by Lysenko and other Russian exponents, the so-called marxist or dialectical biology has acquired the reputation of being a compound of ignorance and charlatanism backed by political chicanery. But it is only fair to note that biologists who contend that principles of Marxian dialectics are useful or even indispensable for correct evaluation of scientific theories exist also outside of Russia. Far from all of them are Lysenkoites. M. Prenant is the most prominent representative of this persuasion in France. His *Biology and Marxism* is an interesting exposition of fundamentals of biology, especially of genetics and evolution theory. The book is liberally peppered with quotations from Engels. These show that Engels was familiar with biological theories of his day, and that Marx, Lenin, Stalin

and other Marxist pundits, do not show even that. Except for the quotations, the book could have been written by a biologist unfamiliar with Marxist scriptures and Marxist dialectics. This book surely belongs, in terminology now current in Moscow, to the "reactionary, antipopular, Weismannian - Mendelian - Morganian biology."

The book opens with a sketch of the history of biological exploration of the world and a summary of paleontological evidence for evolution. There follows a discussion of organic adaptation as a product of natural selection, which is interestingly connected with an essay on the origins of life. Here the phenomenon of self-reproduction is stressed as constituting the fundamental property of living matter. Embryonic development is next described as a succession of dialectical crises. The chapter on he-

*PRENANT, MARCEL. *Biologie et Marxisme*. 335 pp. Fr. 225. Hier et Aujourd'hui. Paris. 1948.

redity gives a readable account of the chromosome theory (the description of meiosis is unfortunately inaccurate, however), of Mendel's laws, and of the concepts of genotype and phenotype—all topics proscribed by Lysenko as "metaphysical" and "reactionary." This forces the author to face the Lysenko problem.

One may well understand the acute discomfort of a scientist whose loyalty to a political party requires that he defend and glorify what he knows full well to be negation of truth. But one can hardly excuse the lack of courage and of intellectual honesty in partisans of Marxist biology who, even being out of reach of Lysenko's wrath, nevertheless see fit to condone scientific fraud. Professor Prenant passes the test relatively well. For he accepts Ashby's verdict, that Lysenko's "opinions on genetics may be dismissed as the product of a medieval mind using what is almost a medieval technique." And yet the author insists that the activities of this medieval mind are in some mysterious way useful to Russian and to world science, and refuses to admit that Lysenko is at least morally responsible for the martyrdom of Russian genetics and geneticists. We are told, for example, that "Vavilov died of natural death, in 1943." It is unfortunate that Mr. Prenant, if he possesses reliable information about these matters, failed to tell us just where and under what circumstances Vavilov's "natural" death occurred, and what has

happened to Karpechenko, Levizky, Kerkis, and other geneticists who disappeared without trace. And does M. Prenant still believe, as he says in his book, that research in "classical genetics is pursued on a very grand scale and without obstacles in USSR"?

The discussion of the Lysenko issue occupies six pages and Lysenko is very carefully not mentioned in the remainder of the book. The author proceeds with an exposition of theories of mechanics of evolution. Here he rejects Lamarckism and inheritance of acquired characters, which Lysenko now finally admits to be the basis of his Marxist biology. The modern theory based on findings of genetics is accepted by Professor Prenant. Then follows an interesting discussion of the evolutionary origins of human societies and of consciousness. The book concludes with a chapter on "Biological sciences and the conception of the Universe," which is interesting reading despite the avalanche of quotations from Marxist oracles. Now, Professor Prenant is quite aware that most of the makers of biology did not hold the Marxist creed, and that the Marxist family closet contains some skeletons like Lysenko. Of course, Marxists have an answer ready: good scientists, whether they know it or not, are spontaneously dialectic. This, one may suggest, sounds more ingenious than convincing.

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A Prophecy

The problem of population is going to be not merely an economist's problem, but in the near future the greatest of all political questions. It will be a question which will arouse some of the deepest instincts and emotions of men, and feeling may run as passionately as in the earlier struggles between religions. The issue is not yet joined. But when the instability of modern society forces it, a great transition in human history will have begun, with the endeavor by civilized man to assume conscious control in his own hands away from the blind instinct of mere predominant survival.—LORD KEYNES.