

THE SEVENTH INTERNATIONAL CONGRESS OF GENETICS

THE SEVENTH INTERNATIONAL CONGRESS OF GENETICS held at Edinburgh during August-September last year was one of the most unique in the history of scientific conferences. Meeting under the threat of a great political upheaval, it achieved probably more than any previous session. And that it was held at all was due to the untiring efforts of Prof. F. A. E. Crew and his colleagues on the Committee. Originally Prof. N. I. Vavilov was to have presided over the deliberations but only about a fortnight before the session, information having been received of his inability to attend, Prof. Crew was elected to the chair. The Russian contingent of delegates failed to arrive at the last moment and the German geneticists had to withdraw, and in the face of these set-backs the determination to carry on and to continue the deliberations is itself an example of the undying spirit of Science.

Important contributions were made to our knowledge of the gene and the chromosome theory. The variations in the behaviour of the chromosomes at meiosis were shown by Darlington to be due to the changes occurring during the process of pairing of the chromosomes, while the structural changes in the chromosomes were shown by Muller to be due to a breakage of the chromonema at two or more points followed by a two-by-two junction between the adhesive broken ends, giving a new linear order. Another important new point brought to light was that the variations in the staining of the chromosomes were correlated with variations in gene activity. The cause for gene mutation was determined by Timoféeff-Ressovsky that it was due to atomic activations, brought about by kinetic energy of thermal origin and to individual ionizations resulting from radiation. The effect of ultra-violet light on chromosomes was discussed by Stadler and others and the experiments of Muller and Mackenzie showed that it was probable that ultra-violet light did not act by breaking the chromosomes, thereby concluding that gene mutations did not consist merely in linear rearrangements. Stadler also showed that gene mutations often affect only one of the chromatids.

Probably never before was the close association between gene change and chromosome change so clearly demonstrated and

this was done in regard to *Drosophila* by the American geneticists. This has brought genetics and cytology into such an intimate unity that the two are being used as a "joint tool of evolutionary research".

The effect of genes on physiological and embryological processes was dealt with in a number of papers. The development of abnormalities was discussed by Landauer who showed that teratological phenomena could be explained by a general deleterious effect on growth rate at certain critical periods in development. Another important contribution to the section of physiological genetics was that by Sewall-Wright on guinea-pig coat colours where he suggested a scheme for the relations of the known genes in this animal.

The Congress made definite advances in our knowledge of the breeding and improvement of live-stock. Discussions on the adaptability of cattle to varied environments revealed certain significant differences, as observed by Manresa and others, in the hæmoglobin content of the blood in relation to atmospheric conditions.

The importance of statistical methods of inquiry in regard both to animal and plant genetical experiments was discussed at one of the joint meetings and it was seen that while at present the full benefits of statistics were not available to the plant and animal breeder on account of the inherent difficulties involved in the collection and evaluation of records, detailed analyses of statistical data were necessary for the correct interpretation of genetical phenomena. In fact, one of the general resolutions of the Congress lays stress on statistical studies and recommends the study of statistics in secondary institutions. In the field of plant breeding, the experiments on the breeding of maize has advanced farther than in any other cereal but it is probably in the field of horticultural breeding that the collaboration of genetics and cytology is seen at its best and most successful. The Edinburgh meeting has definitely paved the way for a successful tackling of the problem of devising the most effective and fruitful methods of collaboration between genetics, cytology and statistics.

A number of aspects of human inheritance were discussed, of which feeble-mindedness

was dealt with by Fraser Roberts who believes that it is a case of multifactor inheritance, there being a number of genes, any pair of which are able to determine idiocy or imbecility. The genetics of many other diseases like epilepsy and Pick's disease were also discussed. Interesting cases of linkage were brought to light, like that between tooth deficiency and hair colour, reported by Barbara Burks. Reports on a number of disorders and abnormalities were also made.

The phenomenon of growth, normal or abnormal, as examined by the genetical viewpoint offers interesting study and as observed by E. B. Ford, growth may be determined by a single pair of factors or by numerous ones which might affect growth by co-operation. It is also necessary to make a distinction between cell-growth and division on the one hand and body growth on the other and it is probable that the genetic

influence may affect the former directly and the latter only indirectly. The effect of the endocrine organs on general body growth is well known and any genetical influences on the former will produce consequent results on the latter. A study of cancers and tumours has shown that the growth of these comes under the influence, not only of genetical but also of environmental factors.

Wider aspects of genetical research and their bearing on general problems of evolutionary biology were discussed in a special session. The observation that evolutionary change taking place not only under laboratory conditions but also in Nature must be investigated, was made by Dobzhansky. The bearing of taxonomy on evolutionary phenomena was stressed by J. S. Huxley who observed that the study of taxonomy was the study of evolution in action in the field.

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THE ANATOLIAN EARTHQUAKE OF DECEMBER 27, 1939

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A DISASTROUS earthquake occurred in Anatolia at 5^h 27^m I.S.T. (1ⁿ 57^m Turkish Standard Time) on December 27, 1939. The shock was recorded as one of great intensity by the seismographs at the Indian Observatories and the tentative epicentre as determined on the basis of the data reported from Agra, Calcutta, Kodaikanal and Colaba is found to lie in the region of Lat. 40° North and Long. 36° East, that is about 40 miles to the southwest of Tokat in Asia Minor. From a long time Asia Minor has been known to lie in one of the two major seismic belts in the world and has been visited by destructive earthquakes. According to Davison,¹ there were 48 destructive earthquakes in this region during the nineteenth century alone. From 1900 to 1928 nine large shocks were recorded in the same area. After a lull of about ten years this region appears to have once again become active. On April 19, 1938, a disastrous earthquake occurred in this region and the epicentre as located on the basis of the Indian seismograms was at Lat. 40° N. and Long. 33° E. This shock

resulted in the complete destruction of ten villages; the number of victims exceeded 800. A slightly less destructive earthquake was also reported to have occurred on September 22, 1939, in the neighbourhood of Smyrna and the epicentre was found to be near Lat. 37° N. and Long. 26° E., about 100 miles away from Smyrna in the Aegian Sea. In this case, according to Reuter's news report, several villages around Smyrna were destroyed and more than 200 people killed. Another destructive shock, but less severe in its havoc, occurred in Anatolia, on November 23, 1939, but the Colaba records did not show clear phases. Sixteen villages were destroyed and 43 people were killed. These earthquakes were followed by the present catastrophic shock of December 27, 1939. According to the press reports so far received, fifteen provincial towns and ninety villages and hamlets were reduced to ruins and more than 39,000 people killed as a result of this earthquake. The shock was particularly severe in the agricultural regions between Tokat and Sivas, and in the districts of