The Ninth International Congress of Genetics

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THE Ninth International Congress of Genetics was held in Bellagio on the Lake of Como August 23–31, 1953. It was the second post-war Congress in a series beginning with the 1899 London meeting, which anticipated by a year the rediscovery of the laws of Mendel. Much has happened in science in the half-century separating the first and the latest of the Congresses, particularly in genetics, which in the course of this period has come to occupy the key position in the community of biological disciplines. This fact was amply illustrated by the program of the Ninth Congress, which was characterized by a widened emphasis on the application of genetic methods and genetical thought to an ever increasing variety of biological subjects.

Statistical comparisons provide but a poor reflection of the growth of an institution such as a scientific congress. Nonetheless, it should be recorded that the number of participants at Bellagio was the highest in twenty-five years, with 873 registered, as against 562 at the 1932 meeting in Ithaca, New York, about 600 in Edinburgh (1939), and 610 in Stockholm (1948). The number of countries represented was 36, lower than the 52 nations at Edinburgh, at least in part because of the lack of representation at Bellagio of the Soviet-dominated countries. The number of communications presented (347) was, however, higher than the respective figures of 219 (Ithaca), 331 (Edinburgh), and 179 (Stockholm), at the Congresses immediately preceding the Ninth.

The organization was vested in a group of Italian biologists, with the Executive Committee consisting of Alessandro Ghigi (Bologna), Chairman; Claudio Barigozzi (Milan), Secretary; Guiseppe Montalenti (Naples), Editor of the *Proceedings*; and Adriano Buzzati-Traverso (Pavia); Luigi Cavalli-Sforza (Milan); Silvio Ranzi (Milan), and Sergio Tonzig (Milan). The Secretariat included R. Ceppellini (Milan), G. E. Magni (Pavia), and L. Semenza (Milan). International congresses do not run themselves. The smooth functioning of a congregation of representatives of six continents was evidence of the months of careful planning and hard work by the Secretary, his staff, and many others.

Richard B. Goldschmidt, Professor Emeritus of Zoology at the University of California, Berkeley, was officially chosen as the President of the Congress, following other illustrious names which on previous occasions have filled this office (T. H. Morgan at Ithaca; N. I. Vavilov, for whom F. A. E. Crew served in Edinburgh; H. J. Muller at Stockholm). His Presidential Address on "Different Philosophies of Genetics," which opened the proceedings, was a review and comparison of what he designated as the statistical and physiological approaches to genetics, the interplay between which is responsible for the important advances in the subject.

The Vice-Presidents of the Congress were Sir Ronald Fisher (Britain), A. Ghigi (Italy), H. Kihara (Japan), and Ö. Winge (Denmark).

The scientific program was arranged in three parts: plenary sessions, special sessions, and demonstrations. The first of these were devoted to seven symposia on general topics of greatest current interest in the field, each consisting of several invited papers:

1. The bases of heredity (E. Lewis, Mather, Lerner).
2. Genetic mechanisms and mutations (Dulbecco, Pontecorvo, Demerec, Stubbe).
3. Cytological mechanisms (Camara, Oksala, Müntzing, Matthey).
4. Developmental mechanisms (Sonneborn, Hadorn, Stern, Barigozzi).
5. Evolutionary mechanisms (Dobzhansky, Buzzati-Traverso, Ford, J. Clausen).
6. Human genetics (Penrose, Sjögren, Glass, Montalenti).
7. Applied genetics (Lush, Brieger, Frankel).

The special sessions included 39 meetings, at which contributed papers were delivered, together with some invited papers not included in the symposia. The number of sessions devoted to each subject was as follows (the names being those of the invited speakers):

Blood groups	2	
Evolution	5	(Fisher, Jucci, Darlington, Haldane)
Human genetics	5	(Nachtsheim, Gianferrari)
Mutations	4	(Gustafsson)
Animal genetics	3	(Dunn, Waddington, Grüneberg)
Applied genetics	2	
Cytology	5	(Chiarugi)
Genetics of microorganisms	2	
Plant genetics	2	
Quantitative genetics	2	
Biochemical genetics	1	
Cellular physiology	1	(Caspari)
Cytoplasmic heredity	1	

Disease resistance	1	
Human population genetics	1	(Gini)
Phenogenetics	1	
Sex	1	

The demonstrations were 41 in number, and an exhibition of scientific instruments and books was held in conjunction with them.

It is impossible, of course, to single out among the several hundred papers presented those of greatest significance. The importance of much of the material presented can become apparent only with time. No one person could have attended all the sessions, with as many as eight meetings simultaneously. Genetics has enlarged its domain to such a degree that there exists probably only a handful of "compleat" geneticists who would feel sufficiently at home in the various subject-matter sections to be able to form a competent judgment on the comparative merits of the contributions in all of them.

Nevertheless, it can be said that the most significant trend at the Bellagio Congress was the virtual abandonment of the gene in the classical sense as the object of study. Both the statistical and physiological approaches, to follow the line of distinction laid down by President Goldschmidt, have instead turned their attention to the properties and functions of more complex systems. Continuous variation on both the genotypic and the phenotypic levels, gene and character interaction, integrating developmental and evolutionary mechanisms, biochemical pleiotropy, mutations of polygenic systems, population structure, epigenetic evolutionary processes—these were the topics which aroused the widest interest.

This is not to say that the foundations of classical genetics constructed in the course of the last 50 years have been undermined or destroyed. It is only that some of the more naive and simplistic concepts, essential in their own time, have now outlived their usefulness and are being replaced by more mature viewpoints. Hence, the significant studies of the day are aimed less at increasing precision of formulation of the principles of hereditary transmission, but rather are directed towards the building, on the basis of the facts observed from the advance positions of Mendelian and Neo-Darwinian theory, of a more comprehensive one.

Extension of knowledge carries in its wake specialization, the development of separate vocabularies, of esoteric techniques, and a bewildering range of special problems and concepts. The result is that, whereas genetics as a whole has an integrating influence over the various aspects of biology, the gaps between the different branches of genetics are becoming wider. The International Congresses are designed to bring together the practitioners of the science, who between meetings dwell in isolated compartments, and to provide them with an occasion to learn what goes on in the other cells. The arrangement of the plenary sessions was a successful attempt to fulfill this function. Similarly the wide participation of evolutionists, of microbiologists, of clinicians, to mention some of the groups displaying their wares at Bellagio, contributed to the same end. On the other hand, the rather limited attendance of certain categories of workers (e.g., those in the applied animal field) was a regrettable symptom of overdiversification of interests.

On the business side of the Congress, the Permanent International Committee was reconstituted as a section of the International Union of Biological Societies. Of the 17 seats on the Committee, representing different geographical areas, 14 were filled, and 3 left vacant (China, Eastern Europe, including Czechoslovakia, Hungary, Poland, Rumania, and the U.S.S.R.), in the absence of representation at the Congress. Professor Claudio Barigozzi of Milan assumed the chairmanship of the Committee.

McGill University, Montreal, Canada, was chosen as the site of the next Congress, to be held probably in 1958. A resolution passed without dissent at the closing plenary session has an obvious bearing on this choice, and should be quoted here in full: "The Congress asks the International Committee not to recommend that the next Congress be held in any country to which it may be expected that scientists would be refused permission to enter on grounds of race, nationality, religion, place of birth or political associations, past or present."

To turn to the less serious aspects of the Congress, it may be noted that the location selected was indeed a fortunate one. The facilities of four resorts (Bellagio, Menaggio, Tremezzo, Cadenabbia), scattered on opposite shores of Lake Como around the promontory dividing it, were utilized. The weather was perfect, the entertainment lavish. A full day's trip to Lake Lugano, a banquet, a reception, a ball, a fête, visits to the notable gardens and villas of the area, tours of the countryside, trips to the city of Como and some of the surrounding mountains, provided but too many temptations to enjoy oneself, both for the geneticists participating in the meetings and for their families. It is hardly to be expected that organizers of future Congresses can match the standard of hospitality set by our Italian colleagues. To all of them, the guests owe a debt of gratitude for a memorable ten days.