/COMMENTARY

Mendel's Heirs and the Summer of '39

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In two months time, some 4,500 geneticists, classical and molecular, will gather in Birmingham, bang in the middle of England, for the 40 symposia, 45 workshops, and other delights that constitute the 17th International Congress of Genetics. The agenda and cast list are appropriately fetching, with names ranging from French Anderson on gene therapy and Luigi Luca Cavalli-Sforza on human diversity, to Gabriel Dover on genomic flux and Walter Gehring on the homeobox.

The arrival of the geneticists' megameeting in Birmingham's spanking new convention center inevitably provokes recollections of a much earlier occasion, when the heirs of Mendel last settled in Britain for their five-yearly cabal. That was the 7th International Genetical Congress, which took place in Edinburgh, Scotland in August 1939, and it turned out to be one of the most remarkable scientific meetings of all time.

At least three points justify that claim. First, and with the understandable absence of Gregor Mendel himself, the program was replete with the very people who had created and were creating the science of genetics. Sewall Wright and J.B.S. Haldane were there, as were George Beadle and Edward Tatum, Millislav Demerec and Theodosius Dobzhansky, H.J. Muller and Albert Blakeslee, Otto Frankel and Boris Ephrussi, Guido Pontecorvo and C.D. Darlington, William Astbury and Carl Lindegren, and many more. One of the initially less familiar names was that of Dorothy Crowfoot, who had only recently married the historian Thomas Hodgkin.

Second, this was an event that should not have taken place at all, with a president who should not have presided. During the previous congress at Ithaca in 1932, the organizing committee had accepted an invitation from Russian geneticists to hold the next congress in Moscow in 1937. But then came the disgraceful chapter in Soviet affairs in which the pioneer plant breeder Nikolai Vavilov was publicly vilified and the party endorsed instead the Lamarckian T.D. Lysenko. The 1937 congress was at first postponed. Then, when it became clear that it could not take place in Moscow in 1938 either, Britain undertook to stage the meeting in 1939. Even then, as a gesture of support for orthodox genetics within the USSR, the organizers invited Vavilov to serve as president. But at the last minute he and the entire contingent of 40 Soviet geneticists who had submitted papers were refused permission to attend. An already overburdened Congress Secretary F.A.E. Crew took the chair instead.

The third point for staking the 1939 congress's claim to a unique place in history is of course that the Edinburgh gathering, which included an official delegation of 40 German geneticists, took place on the very brink of war. It began on August 23, the day that von Ribbentrop signed the German-Soviet pact, and finished just two days before Germany invaded Poland. Parts of the program were hastily rearranged as overseas participants tried to leave for home sooner than planned. The German group was recalled as a body and left before the meeting ended. Poles who had not left early found their passage blocked and had to stay in Britain. And some members of the American party lost their lives when their ship, the *Athenia*, was torpedoed in mid-Atlantic—the first liner sunk in the war. Rarely has a scientific conference been affected so deeply and sharply by world events.

It is no surprise, perusing the abstracts of papers given at the 1939 congress, to read about "genic protein structures," nucleic acids as "accessory molecules," and the "continuous protein framework" of chromosomes, which was considered independent of the presence or absence of nucleic acids. This was a full decade before Watson and Crick and the rise of molecular biology. What *is* surprising is the modernity of some of the contributions, highlighting the Edinburgh event as a watershed between classical and modern genetics.

Beadle, whose "one gene-one enzyme" paper with Tatum was two years away, spoke of gene substitutions causing specific defects in enzyme systems. Ojvind Winge reported major advances in the breeding of novel strains of *Saccharomyces* for industrial uses. And a less famed figure, J. P. Lockhart Mummery from London's fashionable Harley Street, reviewed all of the evidence known at the time about the etiology of tumors and concluded that it was consistent with the theory that "as a result of some cause, or causes, a gene mutation occurs in a somatic or autosomal cell, resulting in an increased rate of division."

Most remarkably of all, at least one other speaker clearly believed in predisposing genes for a far wider range of conditions than classical Mendelian inherited diseases. R.C. Robb, from the College of Medicine in Syracuse, had no hesitation in listing as inheritable disorders atherosclerosis, hemorrhoids, goiter, cataract, glaucoma, and epilepsy. He also included allergies, which another speaker, David Finney (today an emeritus professor in Edinburgh) linked through pedigree analysis with ABO blood groups—presaging our present-day picture of HL antigens.

Not bad for 1939. Let us hope that, from a scientific standpoint, 1993 is just as momentous.