

From X-rays to aging

The XX International Congress of Genetics is July 12–17 in Berlin, Germany.

The last time the International Genetics Federation (IGF) held its quintennial conference in Berlin, it was 1927 and the year the meeting became the Congress for the first time under the presidency of Erwin Baur. The story broke that genetic material could be transmuted by physical means. H.J. Muller had experimentally induced mutations with X-rays, thereby turning the occasional “unexpected mutational wind-fall” into something of a harvest (*Science* **66**, 84–87; 1927).

Genomics and bioinformatics have since revolutionized genetic research in ways that make it difficult to remember how hard it was to move from one experimental system to another even one decade ago, let alone eight. Annotated genome sequences now link us to our closest primate relatives and, more distantly, to many other organisms, from plasmodium to platypus to papaya. Maps of polymorphic nucleotides and genomic rearrangements interweave with the tapestries of our population. Even the evolutionary history of our genomes is being unpicked to explain genetic interactions with our environment and risks of disease. Unit sequencing and genotyping costs are falling faster than those for microprocessor chips, leading some to speculate that data production will eventually challenge our ability to store and process the results *in silico*.

With a stellar lineup of distinguished speakers and a large proportion of the world’s geneticists represented, the ICG2008

meeting (<http://www.geneticsberlin2008.com/>) will be an excellent opportunity to celebrate the successful applications of genetic methods to understanding living systems. It is the place to take stock of the limits (if any) to genetic investigation and to identify those cases where other scientific approaches may be even more productive. The high press profile of the meeting makes it an important platform from which to explain to the public why we are undertaking the work we do and to seek wholehearted public understanding to ensure that genetic research and its applications to medicine, agriculture and society justify the public’s trust in scientific progress.

Genetics is digging back to its agricultural roots and branching out into new areas such as parasitology in response to the challenges of global development and climate change. It is spinning off upstart disciplines, including stem cells and synthetic biology, and is stimulating new thinking on eternal issues such as aging and longevity, human evolution and the crucial social, ethical and legal aspects of the discipline (SELIG). Public lectures are planned, and on the 14th, there will be a science fair associated with the Congress at the Urania that will offer hands-on experience of research techniques for the public, specially for the next generation of scientists.

This will be the XX Congress, but XY (and many other karyotypes besides) are also *herzlich willkommen* to participate. ■