Pest Control Symposium

131st AAAS Annual Meeting

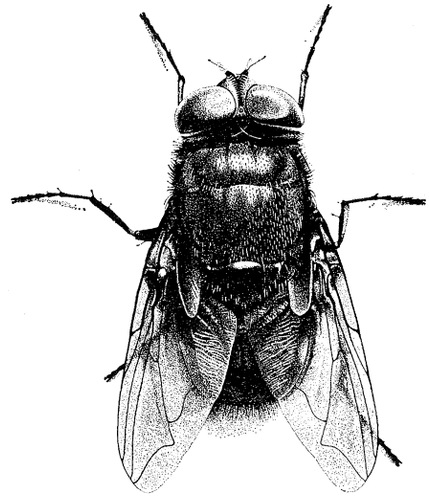
Montreal, 26–31 December

"Thousands of pests affect man, plants, and animals. Each one of them has different habits and behavior. Such pests are found in almost every conceivable environment. They are more adaptable in resisting man's efforts to control them than we tend to think they are." This recent statement by E. F. Knipling (Entomology Research Service, U.S. Department of Agriculture, Beltsville, Maryland) sums up the enormity of the pest control problem confronting scientists today. One method which has been effectively employed to combat insect populations is the use of insecticides or pesticides, such as chlorinated hydrocarbons (lindane, aldrin, dieldrin, endrin, and toxaphene) and organic phosphorous compounds. However, with this remedy side effects have developed—the insecticides have been harmful to useful animals and have contaminated water and food supplies. Some pests have even developed an immunity to the pesticides designed to destroy them.

Hazards to man and animals with the use of such compounds were pointed up by Rachel Carson in her controversial book, *Silent Spring*, in 1962. This publication gave new urgency to a pesticide study by a special panel of the President's Science Advisory Committee. After subsequent federal hearings and studies, it was decided that tighter control of and wiser use of pesticides would have to be instituted and that emphasis should be directed toward research on other ways of combating pests—resistant crop varieties, parasites, sterilization of male insects by radiation, sex lures, and physical attractants.

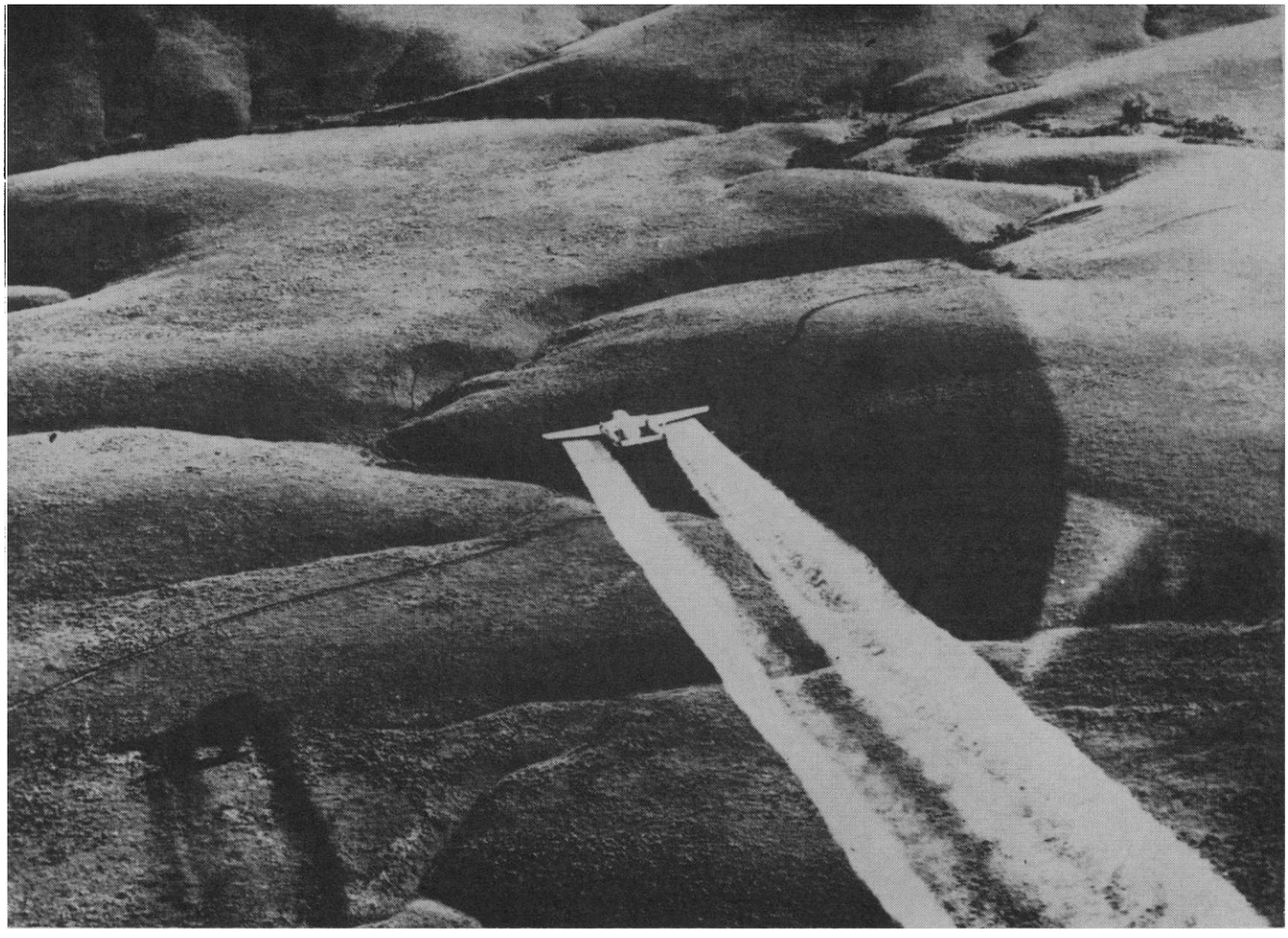
Because the pest control problem has been a "hot" topic for the past few years and because so many research advances have been accomplished, a special interdisciplinary symposium, "Pest Control by Chemical, Biological, Genetic, and Physical Means," is planned for the 131st AAAS Annual Meeting, 26–31 December. This is really the first time a meeting will cover the broad range of all types of pests and the various ways to combat them. The purpose of the symposium, which is open to the public, is to explain the exact status of research and development in the field of pest control. All participants were invited to speak because of contributions which they have made in their respective fields. The six-session symposium will take place on three days (27, 29, and 30 December).

While the use of chemical pesticides may cause detrimental side effects, there is no doubt that they are a vital and necessary part of our modern life. Research, therefore, must continue on developing safer types of chemicals and safer methods of using them. Pesticides and chemicals (used as attractants and sterility agents) will be discussed during the first two sessions of this symposium. Robert Glen (Assistant Deputy Minister, Research, Department of Agriculture, Ottawa, Canada) will open the sessions with a talk on "The need for interdisciplinary research on pest control problems." Other speakers and their topics will be R. L. Metcalf (University of California, Riverside), "Requirements for insecticides of the future"; W. C. Shaw (U.S. Department of Agriculture), "Requirements for herbicides of the future"; W. W. Dykstra (U.S. Department of Interior), "The role of chemicals for the control of vertebrate pests"; Morton Beroza (U.S. Department of Agriculture), "The future role of natural and synthetic attractants for pest control"; G. L. McNew (Boyce Thompson Institute for Plant Research), "The role of chemicals for controlling plant diseases"; J. M. Good (U.S. Department of Agriculture), "The role of chemicals of the future for controlling plant nematodes"; and D. E. Howell (Oklahoma State University), "Control of animal parasites by chemical means."



The screwworm fly (*Callitroga homoinivorax*), a destructive parasite of livestock in the southern areas of the United States, has been eradicated by releasing large numbers of male flies sterilized by ionizing radiation. [Drawing courtesy of *Scientific American*]

Recognition of the dangers associated with the use of pesticides led to more intensive research on other means of controlling pests. One of the most promising approaches has been the use of natural control agents. Biological control through the use of parasites, predators, and insect diseases will be reported on during the third and fourth sessions on 29 December. A special address, "Problems associated with the development and use of pest control measures," will be presented by



Spraying of insecticides is one of the most effective means of pest control; however, it entails several side effects detrimental to man and animals.

N. C. Brady (U.S. Department of Agriculture). Other speakers will be B. M. Bierne (Canada Department of Agriculture, Belleville, Canada), "Present and future role of parasites and predators for insect control"; A. M. Heimpel (U.S. Department of Agriculture), "Present and future role of microbial agents for control of plant and animal pests"; L. A. Andres (U.S. Department of Agriculture, Rome, Italy), "The role of biological agents for the control of weeds"; G. C. Papavisas (U.S. Department of Agriculture), "Biological methods for the control of plant diseases and nematodes"; L. D. Christenson (U.S. Department of Agriculture), "Application of the sterility principle for the control of insects"; D. K. Wetherbee (University of Massachusetts) and D. S. Balser (U.S. Department of Interior, Denver), "Vertebrate pest control by biological means"; and J. T. Lucker (U.S. Department of Agriculture), "Biological control of animal parasites."

Genetic and physical means have also been employed in combating pests. Geneticists continue to develop and use crop varieties that are resistant to attack by insects, plant diseases, and other pests. One example is the development of a variety of corn which possesses resistance to the European corn borer. One of the physical methods employed to fight insects is the light trap; at the present time large-scale experiments are being carried on to determine the effect on tobacco hornworms of the use of such light traps. These various types of control measures will be reported on at the final sessions (30 December) of this symposium. Speakers will be R. M. Caldwell (Purdue University), "Advances in the control of plant diseases through plant breeding"; A. E. Kehr (U.S. Department of Agriculture), "Current status and opportunities for the control of nematodes by plant breeding"; R. H. Painter (Kansas State University), "Plant resistance as a means of controlling insects and reducing their damage"; N. D. Bayley (U.S. Department of Agriculture), "The future of animal breeding for resistance to diseases and pests"; P. C. Callahan (U.S. Department of Agriculture, Tifton, Georgia), "Electromagnetic communications in insects; T. E. Hienton (U.S. Department of Agriculture) and J. S. Seubert (U.S. Department of Interior, Laurel, Maryland), "Electromagnetic energy and sound for use in control of certain pests"; F. R. Lawson (U.S. Department of Agriculture, Oxford, North Carolina) and J. M. Stanley (U.S. Department of Agriculture, Blacksburg, Virginia), "Experiments on the control of insect populations with light traps"; and W. M. Corleton (U.S. Department of Agriculture), "Role of agricultural engineers in agricultural pest control."

This program was arranged by E. F. Knipling, chairman of Section O (Agriculture). In addition to Section O, other sponsors of this symposium include Sections E (Geology and Geography), F (Zoological Sciences), and G (Botanical Sciences), and more than 20 societies affiliated with the AAAS.