

During the rest of the conference, there was a strong tendency to concentrate on the reproductive processes in the male mammal. Several aspects of function in the testis and epididymis were discussed, and there was a welcome tendency to try to correlate structure with function. Dr B. L. Gledhill (Pennsylvania) discussed changes in the sperm nucleus from a biochemical standpoint, and showed that there is a progressive decrease in the binding of actinomycin to DNA. This may be due to competition between actinomycin D and nuclear proteins. One interesting finding was that sperm with abnormal morphology have a greater binding capacity than normal sperm. Drs H. I. Calvin and J. M. Bedford (New York) have followed nuclear chromatin condensation at the electron microscope level, and described experiments suggesting that disulphide linkages could stabilize the chromatin. There was general agreement that stability of genetic material is an important factor during sperm maturation.

Drs L. E. A. Rowson, R. A. S. Lawson and R. M. Moor (Cambridge) demonstrated the technical possibility of producing twinning in cattle by the transfer of fertilized eggs to the uterus. This could lead to an important advance in beef farming. The concept of a fixed gestation period for all mammals was challenged by Mr P. A. Racey (Zoological Society, London) from his studies on the pipistrelle bat. In this species, as a result of lack of food, torpor is induced in the pregnant female; foetal development is arrested, and gestation is significantly prolonged.

ACRIDOLOGY

Locusts in Retreat

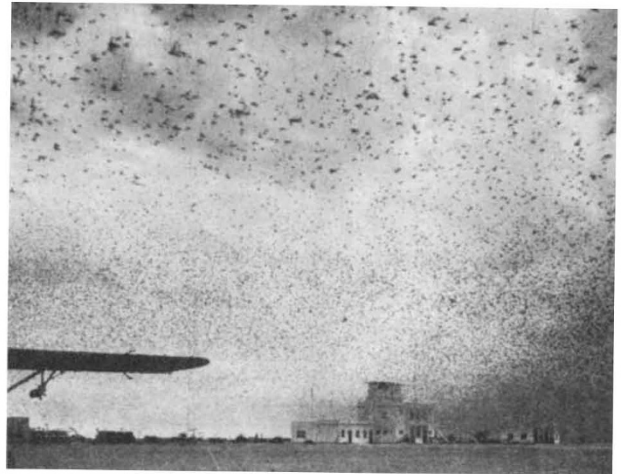
from a Correspondent

ARE the dense locust swarms, for so long a scourge of agriculture, a thing of the past? A qualified yes seemed the consensus among the 200 participants from more than forty countries who attended the international study conference on the current and future problems of acridology, held in London from July 6 to 16, to celebrate the twenty-fifth anniversary of the founding of the Anti-Locust Research Centre, one of the scientific units of Britain's Ministry of Overseas Development.

Several species, including the red and migratory locust in Africa, the oriental migratory locust in China and the Philippines, and the South American locust in Argentina, have declined dramatically in economic importance during the past thirty years, and chemical control prevented the 1967-68 desert locust upsurge from reaching plague proportions. But many contributors pointed out that there had been little systematic work on the factors which regulate acridoid numbers in the field, and that several formerly unimportant species had become pests. Developing this theme, Dr P. T. Haskell (Anti-Locust Research Centre) suggested that the chief trend in locust and grasshopper studies for the next decade would be towards long-term quantitative ecological studies. The emphasis would move from locusts to grasshoppers, he said, which were likely to become more important as pests with the increasing development of mechanized agriculture in the developing countries.

Several contributors directed attention towards

the necessity for detailed studies of the effects of locusts and grasshoppers on crops and pastures. While the catastrophic damage caused by locust swarms was accepted, the economic importance of grasshoppers was difficult to assess. Professor N. L. Anderson (Montana State University) pointed out that comparatively low populations of highly selective grass-feeding species may inflict serious economic loss, while high numbers of mixed-feeding or forb-feeding species may not produce economically significant damage.



A thing of the past? Part of a dense desert locust swarm covering an area of approximately 130 square kilometres, seen at Hargeisa Airport in the Somali Republic in August 1960. One of the Desert Locust Survey De Havilland Beaver aircraft which applied thirty-eight tons of concentrated insecticide to the swarm, killing 20,000 tons of locusts, can be seen in the foreground.

Several methods for improving the collection of data were described. Dr G. W. Schaefer (University of Technology, Loughborough), using a marine radar in the Sahara, demonstrated that single night flying desert locusts could be detected and tracked at distances of up to two kilometres and their sexes distinguished by analysing their echo "signatures". He showed that such night flying locusts were oriented down wind and that they were often concentrated in a low-level jet stream and could be displaced up to 500 kilometres per night.

Parallel with quantitative field studies there was an urgent need to develop non-insecticidal methods of regulating acridoid numbers. Mr R. D. MacCuaig (Anti-Locust Research Centre) divided these into methods affecting the inherent quality of a species, including induced sterility and introduction of deleterious genes; methods affecting conditions in the pest environment by inducing a shortage of limiting requisites and introducing harmful organisms; and methods affecting behaviour by misleading stimuli, including attractants and repellents, and agents affecting diapause and gregarization.

Thus while the devastation formerly caused by large dense swarms may be a thing of the past, the acridologists at the conference recognized that there was much to be done before the threat posed by locusts and grasshoppers could be discounted. They unanimously urged the necessity of the continuation of a wide variety of research as the only method of realizing this end.