

experimental dish-pan type flow actually carry over to the atmosphere, in which the heat sources are to some extent different? (One serious drawback of theoretical attempts up to the present is that the vertical temperature gradient is prescribed initially and is not a product of the solution of the equations.) The processes of momentum transfer in the experimental work and in the atmosphere are now fairly fully understood; energy transfer processes are also understood and Dr. Sutcliffe's results may be summed up by saying that the presence of water vapour in the energy-transfer problems alters the tempo rather than changes the pattern.

So far as the planets are concerned, Prof. Urey's work demonstrates that chemical composition has to be brought in in building up the complete picture of the general circulation. Dr. Goody has made it quite clear that the large-scale dynamical problems for the atmosphere of Mars may be much simpler for meteorologists than our own atmosphere, due to the fact that its water vapour content is so much less. In the case of Jupiter, where there is a variation of the mixing ratio with height, it is possible for there to be one atmosphere overlying another with little or no interaction, and this raises quite difficult problems of interpretation.

T. V. DAVIES

THE EUGENICS SOCIETY

ON December 4 the Eugenics Society held a dinner under the presidency of Sir Charles Galton Darwin, in celebration of its first fifty years of active life. The jubilee dinner was the occasion of two special events. The first was the presentation of the Galton Medal to Dr. C. P. Blacker. This Medal, a mark of high distinction and esteem, is the highest honour in the gift of the Society. It has been awarded on a single previous occasion, a dozen years ago, to Sir Alexander Carr-Saunders, later to be president of the Society, who was present and spoke at the dinner.

Dr. Blacker, now honorary secretary of the Society, was its general secretary for the twenty-one years during 1931-52, so spanning the presidencies of Sir Bernard Mallet, Sir Humphry Rolleston, Lord Horder and Sir Alexander Carr-Saunders.

The presentation of this rare award is testimony to Dr. Blacker's great knowledge, zeal and vigour on behalf of the Society. It is very largely through his writings and influence that the Society has been able to lead public opinion in a controversial field and age.

The second special feature of the jubilee was the issue of the Society's revised Statement of Aims. This document, as well as treating of eugenic science, studies and policies, provides an impressive list of the past activities of the Society. They afford a convincing indication of the way in which the Society has often been able to lead—albeit quietly and by stimulation in the right quarters at the right time. Possessing freedom, by the good fortune of endowment, the Society has been able to initiate and catalyse chosen efforts and researches, frequently doing so by help to cognate societies, such as the International Planned Parenthood Federation, the Family Planning Association, the British Social Biology Council, and others.

Prominent among the Society's activities pursued by such means have been Lidbetter's classic researches on the social problem group, and later

work on problem families; Baker's work in the 'thirties on the elaboration and testing of chemical spermicides as a stage in the improvement of contraceptives without which appropriate differential fertility cannot be brought about; Lewis's work on morbid inheritance; and the Population Investigation Committee (of which Carr-Saunders and Blacker were joint founders), which was the forerunner of the Royal Commission on the Population of Great Britain. Further, there have been two especially close collaborations with Political and Economic Planning on population policy for Great Britain a decade and more ago, and much more recently on world population and resources. An inquiry into promising families will soon be published.

The Society's journal, the *Eugenics Review*, has been published as a quarterly since 1909, and following the Second World War there has been issued additionally a series of important occasional papers by Blacker, Burt, Thomson, Terman and others.

The Society's jubilee also coincides with a change in the general secretaryship. Dr. C. O. Carter, who succeeded Dr. Blacker in 1952, has now joined the Medical Research Council Clinical Genetics Research Unit at the Hospital for Sick Children, Great Ormond Street. His place has been taken by Dr. G. C. L. Bertram who, after seven years as director of the Scott Polar Research Institute in Cambridge, has recently spent a period in New Zealand as William Evans visiting professor in the University of Otago.

The aims of the Society may be summarized as being: to study the influences which may modify inborn human qualities; to formulate and support policies for developing these qualities to the utmost advantage; to promote research on eugenic problems; to foster a responsible attitude to parenthood; and to guide public opinion in these matters.

The Society's address is 69 Eccleston Square, S.W.1.

WORK STUDY

IN the four years of its existence the European Productivity Agency has done much to stimulate increased productivity in industry through conferences, courses, visits of consultants, publications and other means. Some of its activities have been of little value to progressive organizations and have been unnoticed and unheeded by others. In the main, however, the Agency has provided a most valuable service in acting both as a stimulant and as a medium for promoting exchange of useful ideas and methods between firms in the participating countries. The majority of its reports have been welcomed by those looking for new ideas and techniques to increase productivity.

Of all the reports the Agency has produced, "Labour Management on the Farm"* will almost certainly be regarded as one of the most valuable. It contains information which has been culled from innumerable sources and which has never appeared before in one volume. It is of direct and practical value to the thinking farmer who is prepared to revise his methods to improve his efficiency; it has been carefully planned and well written.

The report owes its genesis to a seminar organized on behalf of the European Productivity Agency by

* "Labour Management on the Farm". Pp. 171. (Paris: European Productivity Agency of the Organization for European Co-operation, 1957.)

the Ministry of Agriculture, Fisheries and Food of the Netherlands at Wageningen during July 9-18, 1956. The seminar was attended by approximately 45 participants from 12 member countries of the Organization for European Economic Co-operation—Austria, Belgium, Denmark, France, Germany, Italy, Luxembourg, the Netherlands, Norway, Sweden, Switzerland and the United Kingdom. Participants included specialists, teachers and advisors working on farm work simplification and labour management.

The programme of the seminar provided for discussions and exchange of information on the technical and economic importance of labour management in agriculture; on methods for work study and their application; on development and use of standard data and allowances in labour planning and control in relation to farm wages; on advisory and teaching activities in farm work simplification and labour management; and on the principles for maintaining good labour relations on the farm. Practical demonstrations of work study methods were arranged at the Institute for Agricultural Engineering and Rationalization at Wageningen.

Although it is fully realized that many questions concerning labour relations on the farm are arranged under agreements between associations of employees and employers respectively or by means of official regulations, the present report is primarily concerned with the relations between the individual farmer and his workers.

After defining the objectives of farm-work simplification and labour management on the individual farm, the report presents an illuminating account of work-study technique applied to farming practice as well as current research in work simplification. There is, for example, an impressive flow process chart, analysing the handling of straw on a farm; it was found that the straw was lifted fifteen times before reaching its final destination. There is also a man-machine process chart of machine milking which shows that the machine was idle for half the time the milking task was being performed. In another example, a string diagram was prepared to show the paths travelled by two pigmen when feeding and watering pigs; the ensuing changes led to a reduction of 100 walking miles each year.

To show that work study leads to genuine and practical improvements on the farm, and to give the farmer guidance in developing the principles of work simplification on his own farm, the report includes five studies where work study has been applied to agriculture. These are: the farm work diary—as a means of research and extension in the field of labour management; work study as a guide for setting piece-work rates; planning farm buildings to save time and energy; the role of work study in the development of machines and hand tools; and the role of work physiology in dealing with problems of labour management.

The section on farm buildings gives useful information about the conversion of old buildings; the section on work physiology not only includes well-substantiated advice about the prevention of fatigue but also recommendations about the kinds of tools and barrows which are most suitable for farm workers. Even the notoriously conservative farmer might be tempted to try buckets with a flattened side after reading how their use has led to a considerable reduction in fatigue.

The authors of the report are aware that the introduction of method study and work measurement is unlikely to be accepted on farms where labour relations are bad. They recommend means whereby good labour relations may be built up and maintained on the farm and give detailed information about the principles which must govern the introduction of a wage incentive plan. This is supported by illustrations of cases where wage incentive schemes have been introduced.

Since the report is more likely to be seen and used by organizations like county agricultural advisory committees than by individual farmers, it includes sections describing the ways in which an advisory programme and labour management and adequate training facilities could be developed; they are as useful and practical as the rest of the report.

The detailed bibliography contains accounts of fundamental researches and of immediately applicable investigations like those concerned with the organization of raspberry picking with chips and punnets and of the use of motion and time study in planting cabbage and celery by hand.

THE PROBLEM OF THE 'AMPHIOXIDES' LARVA

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THE remarkable 'amphioxides' larvæ that were described in detail by Goldschmidt¹ and Gibson² appear to be the larvæ of three different species of Acanthocephala. When these larvæ were first described, it was supposed that they were adult animals, and they were placed in a separate genus, *Amphioxides* (Gill³).

The three forms which were later distinguished, *Amphioxides pelagicus* (Günther); *A. valdiviae*, Goldschmidt; and *A. stenurus*, Goldschmidt, were all rather similar, differing from each other in size, myotome number, and in various other characters such as the form of the tail fin and rostrum.

These animals are unlike the well-known amphioxus larva (that is, the larvæ of *Branchiostoma lanceolatum*),

for although they are superficially similar in appearance, they are evidently animals that spend much longer in the plankton, growing to a larger size before metamorphosis; from this longer growth-phase arises their differences from the amphioxus larva. When fully grown, but before they have begun metamorphosis, they may be 9 mm. or more long (twice the size of the amphioxus larva at metamorphosis), and yet possess no trace of the atrium except at the extreme hinder end of the body. The fully grown specimens of all the species known possess a single row of 27 median gill slits, which correspond to the primary series of gill slits of the amphioxus larva.

In some of the larger specimens that have been found, there are large gonad rudiments in a row upon