

PROGRESS OF AGRICULTURAL RESEARCH IN INDIA

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THIS is the eleventh annual report of the Imperial Agricultural Research Council since its inception and summarises the main features of the work of the year. Nearly all the research schemes of the previous year have been in progress and many other schemes were sanctioned during the year and others have been under consideration. The schemes under agriculture proper have related to nearly every aspect of the main classes of crops and number as many as fifteen with a budget allotment of about Rs. 56 lakhs. Work on rice has mainly related to the trial of varieties suited to different conditions, distribution of seed of improved varieties, the publication of a summary of the results of manurial experiments on rice and so on. Of scientific interest are the conclusions that any rice variety can be made to flower within 60 days of sowing by 'light' treatment, that ordinary rice varieties can be made suitable for growing on salt lands by treating the seeds with a dilute solution of salt, and that scent in rice behaves as a simple recessive character. Work on the striga pest was continued but has led to no important practical result. A new scheme was sanctioned for research on the pulse crops—a step long overdue, we should think. A good deal of work has been done on the different oil seed crops, including coconuts and action has been taken to popularise cotton seed oil cake as a cattle feed. It is gratifying to note that one dozen mills have been started in the Punjab for the extraction of cotton seed oil and a large plant including an oil refinery has been started in Hyderabad (Sind).

In tobacco, the co-operative flue-curing scheme came to a close in the year and though the work was not all that was expected, it has demonstrated that high grade cigarette tobacco can be grown successfully in Nadiad, Jullundur, Sabour, Balasapur and Warangal. In the section of Horticulture, the cold storage schemes have yielded excellent results worthy of being adopted on a commercial scale, and so have the schemes on fruit preservation. We should like more attention being paid to the diseases

and pests of fruit trees, as it is in this field that the cultivator looks for relief to scientific research. The prevalence of the codling moth in apples coming into India, is reported and it is a question for consideration if the imports of such fruits into free areas like Bangalore or the Nilgiris should not be prevented or controlled.

Schemes relating to Animal Husbandry alone and in combination with agriculture were twelve in number with an allotment of Rs. 25 lakhs. Among the schemes sanctioned in the year, two are of considerable interest both scientifically and practically, viz., one relating to the transmission of genetical factors in cattle, another to the artificial insemination of livestock. Several sheep-breeding schemes were in progress though with no outstanding results. A scheme for breeding Angora goats was sanctioned in the year. All feeding experiments have stressed the great value of berseem with meth (menthya) as the next best; groundnut oil cake has been found richest in digestible protein and deserves much wider use. Disease investigation has rightly received great attention; the spread of tuberculosis and Johne's disease is noted with alarm and the need for proper control measures has been emphasised. Very little progress has been made in milk recording and in pedigree registration. The question of the supply of milk from villages to towns was discussed in all its aspects and a number of appropriate recommendations have been made. There was a large increase in the number of stud bulls, to the extent of 30 per cent. Schemes for grassland improvement and mixed farming were sanctioned during the year, as well as several for the improvement of poultry and for pisciculture. We wish that the Council had stimulated the preparation of shark oil with some more direct financial and other aid than it appears to have done. Schemes on sugarcane and sugar research, agricultural marketing and cold-storage have all much useful work to show.

On the publication side the event of the year is the publication of *Indian Farming* which has been started as a popular monthly Journal and which keeps up a high level of excellence.

A. K. Y.

GUJARAT PREHISTORIC EXPEDITION

A PRESS COMMUNIQUE from the Director-General of Archaeology in India states:—

The Archaeological Department has recently organised an Expedition for the study of the prehistory of Gujarat with the co-operation of a number of institutions and scholars. Although the Department has hitherto organized systematic work on a large scale at sites belonging to the historic and prehistoric periods, particularly in Northern India, the occurrence and sequence of the earlier stone age cultures

were not brought within the purview of its activities. Much interest has recently been taken in this subject, particularly since the British-American Expedition led by Dr. de Terra of the Yale University worked on the Ice Age and connected human cultures in North-West India and other areas. The Archaeological Department has now in hand a Bibliography of South Indian prehistory, with a view to serve as the basis of future work. The pioneers of research in India's stone age

were geologists, particularly R. Bruce Foote, who, over 50 years ago, found palæolithic implements in Peninsular India so far north as Gujarat. One of the problems stated by Bruce Foote concerns the age of the palæolithic culture in the Sarbarmati valley and the gap or distance in time between that and the neolithic or later stone age culture. This has now been investigated by the Gujarat Pre-historic Expedition organized by the Archaeological Survey.

The area chosen for this year's work is the Baroda State and parts of the Sarbarmati valley which lies in the Vijapur Taluka and of the Narmada valley in the Sankheda region have already been surveyed. On the Sarbarmati the examination of the river bed for a length of nearly 25 miles has yielded hundreds of specimens of quartzite implements, mostly found embedded in the pebble conglomerate formation. The age of these deposits is indicated by the fact that nearly 80 feet of alluvial deposits and blown loess overlies the original river bed forming the habitat of early stone age man. This roughly indicates the age as some 50,000 years. Besides these early stone

age finds, a number of microliths or tiny stone implements left by man have been recovered from the top strata of the loess hills. In the valley of the Narmada and its tributary the Orsang besides microlithic finds, palæoliths have also been discovered for the first time.

Thanks to the ample facilities afforded by Sir V. T. Krishnamachari, the Dewan of Baroda, it was possible for the Archaeological Department to extend this expedition to Baroda State. Two scholars especially trained in pre-history have been engaged by the Department, and the Deccan College Post-Graduate and Research Institute, Poona, lent the services of its Professor of Ancient Indian History. The Baroda Archaeological Department, the Gujarat Sahitya Sabha and the Gujarat Research Society have also co-operated. The results obtained so far have considerably advanced the scientific knowledge of early man in India, and it is hoped that if this enterprise is continued on a systematic basis the story of India's earliest inhabitants would be better known and a chapter of human endeavour in its earliest form unearthed from the fruitful banks of India's rivers.

CENTENARIES

Shrapnel, Henry (1761-1842)

HENRY SHRAPNEL, the inventor of the shell bearing his name, was born at Bradford-on-Avon 3 June, 1761. He received a commission as second lieutenant in the royal artillery in 1779. He saw service in Newfoundland, Gibraltar and West Indies. He became first assistant inspector of artillery in 1804, colonel in 1813 and major-general in 1819 and retired in 1825.

Between 1784 and 1804 he made many experiments at his own expense on hollow spherical projectiles filled with bullets. By 1803 his shell was adopted for service. This destructive shell has now come into universal use. In 1808 the Duke of Wellington testified to its remarkable value and recommended that the invention should not be made public but that Shrapnel should be given a suitable reward as compensation for being deprived of fame and honour by such a secrecy. He further said, in regard to the praise that should go to Shrapnel, "You may say anything you please, you cannot say too much". Sir George Wood who commanded the artillery brigade at Waterloo wrote in 1815 that had it not been for Shrapnel's shells, the battle of Waterloo could not have been won.

The Board of Ordnance did not, however,

uphold the request of Shrapnel to be compensated for the expenditure he had incurred in the invention. In 1837 when Shrapnel was the guest of William IV, the king personally acknowledged his high sense of his services and was agreeable to confer a baronetcy on him. But the death of Shrapnel's son shortly thereafter led to the dropping of the proposal. Shrapnel himself died a disappointed man, at Southampton 13 March, 1842.

Courten, William (1642-1702)

WILLIAM COURTEN, a British naturalist, was born in London 28 March, 1642. While in his travels to Montpellier, he came across Sloane and this led to his interest in botany. After a good deal of foreign travel, he opened in 1684 his botanical museum in the Temple. It was estimated to cost 50,000 guineas. This went over to Sloane and ultimately became the nucleus of the famous Sloane collection of the British Museum.

Courten's name was immortalised by Robert Brown who founded the genus *Courtenia* upon a plant from Java.

Courten died at Kensington 29 March, 1702.

S. R. RANGANATHAN

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Madras.