

THE PRESENT POSITION OF BOTANICAL RESEARCH IN INDIA.

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Botanical research in all branches is at present actively pursued in the botany laboratories of the Universities and affiliated colleges. Research in Systematic Botany is being done in the Royal Botanic Gardens, Sibpur, and in the Forest Botanist's Department of the Imperial Forest Research Institute, Dehra Dun. Researches in botany (Plant breeding, Cytology, Mycology and Plant diseases) are being carried out in the Imperial Agricultural Research Institute and the provincial departments of agriculture (economic botanists). The Industrial Section of the Indian Museum (Botanical Survey) is mainly concerned with supplying information on economic products, though a certain amount of research is also being done. The Forest Research Institute is doing a considerable amount of research on the ecology of forest trees (silviculture section), fungal diseases of forest plants, and the investigation of minor forest products, by which are meant all forest produce excepting timber. Some work is also being done by the Bose Institute. The School of Tropical Medicine is doing a certain amount of work on the investigation of Indian drug plants.

A clear idea of the research work being done in these institutions may be had from the review of the subject published in 1938 in the volume on 'The Progress of Science in India during the Past Twenty-five Years'. In this review I stated that 'whereas up to the year 1920 or thereabouts, research work in botany was mainly carried on by Government departments like the Botanical Survey or by officers of the agricultural departments and was mainly floristic and systematic in character, in the period since 1920, a continually increasing current of work in all branches of botany has been done by the staffs of the botany departments of the Universities and the colleges affiliated to them. This is principally due to the introduction of Honours and Post-graduate courses in most Universities. The University departments are now generally staffed by persons with research qualifications, most of whom are actively engaged in original investigations'. In the selection of topics for research the University workers are generally guided by their personal predilections and the facilities available. The researches of investigators belonging to the agricultural and forest departments are directed to the solution of problems arising during the course of work. The Botanical Survey of India, which is at present in a condition of suspended animation, owing to the absence of a pucca Director, is mostly continuing the work of supplying information and replying to routine enquiries. The staff of the Royal Botanic Gardens, Sibpur, is continuing the work of identification and description of new species discovered during the course of the work. No systematic and planned survey of any part of India could be undertaken owing to the absence of funds. Monographic studies of large Indian genera or families have not been published recently, though there are indications of this being done in the near future.

Work in Systematic Botany is still hampered by the want of central herbarium containing types of Indian species. It is hoped that this defect will soon be remedied and a National Herbarium worthy of the country will be established utilising the collections of the Sibpur Herbarium as the basis. Experimental ecological work is not being done owing to want of facilities so far, but there are indications that this line of work will soon be taken up in some centres. The study of plant genetics as such has not as yet been undertaken, nor is *Pharmacognosy* being studied anywhere.

REORGANISATION OF THE BOTANICAL SURVEY OF INDIA.

One of the most urgent problems is the reorganisation of the Botanical Survey of India. This question was considered by a committee appointed by the Botany Section of the Indian Science Congress Association at its Jubilee Session. The committee met on the 9th January, 1938, in the Botany Laboratory of the Presidency College, Calcutta.

Sir Arthur Hill, Director, Royal Botanic Gardens, Kew, was also present at the meeting and agreed to the conclusions arrived at. As the result of these deliberations it was resolved to recommend the following scheme for the reorganisation of the Botanical Survey and the establishment of a National Herbarium to the Government of India:—

Botanical Survey.

It was resolved to recommend that the separation of the Industrial Section of the Indian Museum and the Cinchona Department from the Botanical Survey be made permanent. The Industrial Section should be maintained as a separate department of the Government of India, and the scope of its exhibits expanded so as to illustrate in a readily intelligible form the outlines of botanical science in general and the vegetation of the Indian Empire and its chief economic vegetable products in particular. The herbarium of this section should be developed as a special herbarium for Economic Botany.

It was resolved to recommend the appointment of scientific assistants on the staff of the Museum for this purpose.

The headquarters of the Botanical Survey should be located at the Royal Botanic Gardens.

National Herbarium.

(1) It was agreed that the Sibpur Herbarium was the most suitable for being developed into the National Herbarium.

(2) It was resolved to recommend that the Royal Botanic Gardens and Herbarium be taken over by the Government of India, the Government of Bengal making a suitable contribution for the maintenance of the garden in view of the benefit derived by the public of Bengal from it.

(3) Resolved further that a strengthening of the permanent scientific staff was necessary.

In order to train personnel for the purpose, it was resolved to recommend that the existing provision for the assistant for India at Kew be utilised for the training of officers selected from among the permanent staff of the Universities and the national and provincial herbaria. The selection of the liaison officer was to be made by the Advisory Committee referred to later on.

The co-operation of the staff of Indian Universities in working out collections and in conducting a botanical survey of parts of the country which have not yet been explored was to be enlisted and an annual grant of Rs.5,000 provided for exploration purposes.

Special Herbaria.

It was recommended that the herbarium of the Imperial Forest Research Institute and mycological herbarium of the Imperial Agricultural Research Institute be maintained as special herbaria.

Provincial Herbaria.

The establishment of provincial herbaria for the following areas was recommended:

(1) Madras Presidency, (2) the United Provinces and Bihar, (3) the Punjab and the North-Western Frontier Province, (4) Bombay and Sind, and (5) Central India.

The nuclei for such herbaria, already available in some of the areas, were to be utilised for the purpose.

Advisory Committee.

It was resolved to recommend the appointment of an Advisory Committee to determine the policy of the Botanical Survey, allocate the exploration grant and select the personnel for the purpose.

The Advisory Committee was to consist of the following:—

1. Director of the Botanical Survey.
2. Forest Botanist, Imperial Forest Research Institute, Dehra Dun.
3. Imperial Mycologist, Imperial Agricultural Research Institute, New Delhi.
4. The Ghose Professor of Botany, Calcutta University.
5. A representative from Madras Presidency.
6. " " " Bombay "
7. " " " the Punjab and N.W. Frontier Province.
8. " " " the United Provinces and Bihar.
9. " " " Central India.

The adoption of the proposals of the Committee will increase materially the facilities for the study and identification of Indian plants, which cannot be satisfactorily done without reference to Kew at present. It will also encourage the study of Plant Ecology, which is proving to be increasingly more important for modification of current agricultural and silvicultural practices.

Other needs include the establishment, in some suitable locality, of an institution for the study of Plant Genetics in general and for the study of Pharmacognosy.

The formation of a National Research Council is expected to help materially in co-ordinating the research programmes of the various organisations doing botanical research and lead to a planned development of their activities.