

of the city on the Ganges was viewed from boats, and many of the party found perhaps their greatest satisfaction in wandering among the lively and infinitely picturesque streets of the Indian city.

It had been ascertained during the voyage that for a very large proportion of the party Darjeeling was the Mecca of the tour, and it was accordingly requested by wireless, and duly arranged, that the special train should proceed to Siliguri, the terminus for the mountain road and railway, after a short halt at Calcutta, where there was time for no more than a few personal introductions, and for taking temporary leave of Prof. J. N.

Mukherjee, who had accompanied and guided the party from Bombay, and to whom every member owes gratitude beyond expression.

It is from Darjeeling that this note is written. The weather, perfect throughout the tour, has favoured us to-day beyond conception: the famous views from the town and from Tiger Hill, of Kangchengjunga and its satellite range, of Makalu, of glimpses of Everest vouchsafed to some through a cloak of cloud, have reached their most splendid standard, and the half cannot be told of them. The party has to-morrow here for rest, and then returns to Calcutta for the Congress next week.

Obituary Notices

Prof. H. Molisch

HANS MOLISCH, whose death at the age of eighty-one years took place on December 8, was born in Brünn in 1856, the son of an intelligent and progressive nurseryman, who employed his son in his early years in his business, so that from his boyhood Molisch became interested in plants, and already when at the Grammar School in Brünn he distinguished himself by his botanical knowledge. His enthusiasm for the subject may have been further fired by his knowledge of the experimental plant-breeding which was being carried on in Brünn by the Abbé Mendel, who was a friend of his father. At any rate, when he entered the University of Vienna in 1876, he had already made up his mind to become a botanist, and in his autobiography, which was reviewed in *NATURE* of September 28, 1935, p. 494, he speaks with enthusiasm of his teacher, Julius Wiesner, and also of many kindnesses he received from Kerner von Marilaun, the director of the Botanical Gardens.

Molisch's doctor's degree was awarded to him for a thesis on the anatomy of the wood of the Ebenaceae, and he was then appointed assistant to Prof. Wiesner, a post which he retained until 1889. Whilst acting as assistant, he became *Privat dozent*, and his lectures, which dealt with plant physiology, were always well attended. In 1889 he was appointed to a professorship in the Technical College at Graz, and in 1894 to the German University of Prague. While occupying the former position he published his histochemistry of vegetable foods and an important physiological study entitled "Die Pflanze in ihren Beziehungen zum Eisen", in which he showed that the chlorosis induced by growing plants in a medium devoid of iron is not a direct result of the absence of that element, but is the symptom of a pathological condition induced by lack of iron, for by sensitive microchemical tests, in which he always excelled, he proved that chlorophyll itself does not contain iron. After his promotion to Prague, he devoted some

attention to the lower forms of plant life, stimulated in part by a request to investigate the microflora of the water supply of Prague, which was at that time of a very impure nature. In this way he became interested in the phosphorescent bacteria and other fungi, of which he published an account, and also made important discoveries in connexion with the nutrition of Algae. But he also continued to work on the anatomy of plants, particularly on the laticiferous tissues, and studied microscopically the phenomena associated with the freezing of vegetable tissues. In 1897 he undertook a botanical tour into the tropics, spending some time on physiological investigations in Buitenzorg and returning via China, Japan and America.

On the retirement of Prof. Wiesner in 1909, Molisch was appointed to the chair of plant physiology in the University of Vienna, which he held until 1928, when on retiring he was made emeritus professor. During this period, he received an invitation to take charge for three years of the newly established Biological Institute of the University of Tôhoku in Japan and was granted leave of absence for three years for this purpose by the University of Vienna. This Eastern visit, and a subsequent invitation to lecture and work at the Bose Institute in Calcutta, widely extended his opportunities for observation as one can readily see in his "Lebensdauer der Pflanze" (1929), in which plants from many lands are discussed.

In a more recent book, "Pflanzenchemie und Pflanzenverwandschaft" (1933), Molisch took up again what he admits was his favourite study, the microchemistry of plants, this time with a view of ascertaining what connexion exists between the chemical composition of plants and their relationship.

In all his studies, Molisch never lost sight of the applied side of botany, and his early horticultural training led him to write in 1915 a most useful "Plant Physiology as a Theory of Horticulture", which has passed through six editions and has been

translated into several languages. When we consider the multiplicity of subjects which have engaged his attention, we realize that Molisch possessed an eager and inquiring mind constantly seeking for the solution of problems which presented themselves to him, working unremittingly and rapidly, and that he was able to present the results of his investigations with clarity and in forceful language. He remained active to the end, and so recently as 1937, when in his eightieth year, he published a striking series of experiments under the title "Der Einfluss einer Pflanze auf die andere".

By Molisch's death botany has lost a veteran who has enriched botanical science not only in the domain of plant physiology, in which he was one of the foremost workers, but also, as the record of his numerous books indicates, one who was a capable investigator in many other directions.

WE regret to announce the following deaths :

Prof. N. A. Borodin, emeritus curator of fishes in the Harvard Museum of Comparative Zoology, on December 22, aged seventy years.

Mr. W. B. Grove, formerly honorary curator of the Fungus Herbarium in the University of Birmingham, on January 6, aged eighty-nine years.

Dr. A. B. Rendle, F.R.S., formerly keeper of the Department of Botany in the British Museum (Natural History), on January 11, aged seventy-two years.

Mr. J. L. Starkey, director of the Wellcome-Marston Expedition excavating at Tell Duweir, on January 10.

Prof. Otto H. Warburg, For.Mem.R.S., director of the Kaiser Wilhelm Institut für Zellphysiologie, on January 11, aged fifty-four years.

News and Views

Science and Social Problems

WE recorded last week (p. 69) the formation of a National Institute of Economic and Social Research, one of the functions of which will be scientific inquiry into the facts and problems of contemporary human society. The committee which has had this development under discussion since last March includes leading representatives of various aspects of economics; but we miss the names of scientific workers in the wider field of social biology, or with intimate knowledge of the forces which are chiefly responsible for the problems involved in the changed and changing social structure of all civilized peoples. Two statements on the interaction between science and society may be used to illustrate what we have in mind. One is an address given by Prof. H. Levy on December 13 at a meeting called by the Manchester Scientists Peace Association. He pointed out that men of science and their pursuits are a part of society and that the results of their work do not affect society more certainly than the nature of society itself determines the nature and extent of their own investigations. Prof. Levy's address was in the main concerned with the scientific and objective study of problems of peace, and he urged the claims of the scientific man to a greater share in administrative responsibility. His argument is, however, essentially similar to that of Prof. J. Marrack in his thought-provoking essay on the social implications of biochemistry, contributed to the volume of essays "Perspectives in Biochemistry" which was presented to Sir Frederick Gowland Hopkins by past and present members of his laboratory on his seventy-fifth birthday. Prof. Marrack points out that the future trend of biochemical investigation in problems of nutrition depends largely on what form society takes. It is only as a result of the biochemical work of the last thirty years, the discovery of vitamins

and the later investigations of mineral and protein requirements that it has become possible to draw up diet standards. From this fundamental knowledge, the conclusion is reached that the health of a large proportion of the people of Great Britain would be improved by a better diet and that the adequacy of a family's diet depends on the family income.

CONTINUANCE of the present interest in the study of deficiencies may provide the level of scientific and economic development which makes the study of such problems practicable, and the impact of biochemistry on society may result in an economic diet standard based on the principle of the law of diminishing returns. Instead of social services being expanded to ensure that such a diet can be obtained by all, our present social system may equally lead to a collapse with even more examples of food deficiency, and perhaps destroy the environment necessary for their study. Prof. Marrack suggests, however, that a society which took as a major objective the use of all possible resources to increase the material welfare of the people would aim at the physiological optimum, and investigation would be transferred from the negative object of avoiding disease to the positive object of using an abundant food supply to achieve a new standard of health and vigour. To the provision of this abundance, biochemistry can make its own contribution, and Prof. Marrack refers also to the way in which the study of the hormones offers man the possibility of controlling his environment to suit his wishes. The sense of power over Nature which the growing knowledge of biochemistry supplies should gradually give all men the confidence to shed traditional beliefs and inhibitions and to shape a society in which all the possible resources of science and production are used for the common good.