

## Disease Resistance in Plants

VOL. 3, No. 6, of the *Proceedings of the Indian Academy of Sciences* is devoted entirely to the papers submitted for the symposium at Coimbatore in October 1935 on "Disease Resistance in Plants". Interest in the contributions lies in methods of stimulating disease resistance. These are adopted as a result of investigations along the lines of inheritance of resistance, structural modification associated with resistance and physiological conditions associated with the plants' response to the disease. Thus in the case of sugar-cane, frequently attacked by mosaic, N. L. Dutt, Syed Abbas Hussainy and M. K. Krishnaswami; C. S. Krishnaswami, and others, have found it possible to breed resistant plants and that those with *Saccharum spontaneum* parentage are more resistant than others.

Other workers, investigating the wilt disease of cotton (due to attacks of *Fusarium* species), have found that environmental conditions are important factors in relation to susceptibility, and in particular soil management can control the disease. A striking example of this is furnished by the work of B. B. Mundkur, who shows conclusively that in the case of *Fusarium vasinfectum* the American variety could

not attack American cottons on Indian soils, and will not attack Indian cottons in any circumstances, whilst Indian cottons are less susceptible to the Indian variety of *Fusarium* on American soils. It is interesting to note that American soil in affected districts is light sandy and acidic, whilst affected Indian soils are heavy clayey and alkaline. Soil conditions (mainly physical) have also been found by J. Madhusudan Rao and Yeshwant D. Wad to be responsible for development of leaf roll and red leaf in American cottons.

With reference to anatomical developments in relation to disease, B. P. Pal shows that in certain varieties of gram (*Cicer Arietinum* L.) which are affected by the cutworm, those which are relatively immune have large stem diameters and extensive development of woody tissues, while severely attacked varieties show a smaller stem diameter and poorly developed secondary wood.

In most cases work has been carried out under field conditions and in connexion with various growers, so that some very interesting statistics are possible in view of the quantity of material available.

---

## Progress in Building Research

A PERUSAL of the report of the Building Research Board for 1935 recently issued by the Department of Scientific and Industrial Research (H.M. Stationery Office. 3s. 6d.) shows how elementary is our scientific knowledge of building technique. In his introductory survey of the recent work of the Board, Dr. R. E. Stradling, the director of research, suggests that a wrong emphasis has been given by concentrating on the engineering side, strength and stability of structure being studied to the neglect of other equally vital considerations associated with the "Efficiency of Buildings from the Standpoint of the User".

Recent developments have given special prominence to three of these problems, especially in connexion with slum clearance schemes. The increase of noises of all kinds and the influence of mechanical continuity, as adopted in modern construction, in causing a sound made at one point to be extended over a large area, have made the sound insulation problem serious and pressing. The results of earlier work on walls, partitions and floors, treated individually, have focused attention on the interaction of the several elements of a building, and this is now being investigated with the full realization of treating the building as a whole. Trials are in progress on a frame building, on the principle that the construction should be such as to confine the noise to the room in which it is made; and this is arranged as a box, built into, but acoustically insulated from, a structural framework. It is appreciated that unforeseen troubles may arise in the full-scale developments, but "these must be overcome for the need is urgent".

From the same source comes the difficult problem of bug infestation, in which the survey work carried out has shown that virtually every urban authority is more or less troubled with this problem. Dr. Stradling urges that the building industry should endeavour to contribute to its solution by preventing the formation of cracks and by devising a form of construction which will, when the need arises, admit of disinfestation by the poisonous gases at present used, without danger to the occupants of surrounding houses.

It is claimed that considerable advance has been made towards placing the investigation of fire resistance on a scientific basis by the provision of a fire-testing station at Elstree, where full-size building elements are tested and graded in accordance with the new specification. Arrangements have been made for a programme of research covering not only the investigation of different forms of construction but also of tests of proprietary systems with the view of issuing appropriate certificates.

In the demolition of Waterloo Bridge, opportunity has been taken to investigate the condition of granite after exposure for 120 years. The outer half-inch was found to be seriously affected, but no reason appeared to suggest that decay would have become apparent in the near future had the structure been undisturbed. Laboratory examination of Portland stone from St. Paul's Cathedral also showed that, except for surface portions, the material was sound and, with regard to the use of old stones, the report states that, in the case of the more durable kinds, provided an appropriate thickness is removed, these should prove as good as new.