

Further Observations on the Distribution and Associations of *Lantana camara* Linn in Hyderabad (Deccan).

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IN a previous communication* attention was drawn to the fact that lantana is fast spreading in Hyderabad City and its environs and that it is often to be found along with Cactus (*Opuntia dillenii*). With a view to determine the mode of distribution and association of lantana with Cactus and other plant species, we proceeded to Vikarabad, a distance of 43 miles from Hyderabad, stopping at various places on the way to study the nature of vegetation.

Within 10 miles of the City, we found that in 95 per cent of the cases, lantana was growing amidst Cactus which forms almost a continuous hedge all along the road. In this part of the district the soil is chiefly of the *morum* type which is made up principally of coarse and fine gravel. Between the 10th and the 18th miles, Cactus was almost absent having been destroyed either by the cochineal insect or by fire. From about 15 miles out of Hyderabad, lantana was mostly seen with the spiny shrub, *Gymnosporia montana* of the *Celastraceae* family. Occasionally these two were also seen in association with *Anona squamosa* Linn. Further on, lantana was found growing with *Dodonaea viscosa* Linn (Sapindaceæ). At different spots lantana had divorced its former associates and was in company with *Butea frondosa* Roxb. and *Acacia* (sp?) forming a consociation in which it was dominant. A striking association was met with at a spot about 24 miles from Hyderabad City where lantana, *Gymnosporia montana*, *Butea frondosa*, *Tectona grandis*, *Dodonaea viscosa* and *Gloriosa superba* were all growing together. The last-named plant has been found for the first time on this side, and it may be of interest to note that we found only one within a distance of about 45 miles. As we approached Vikarabad we could see all the hillocks covered with luxuriant growth of lantana which showed all shades of colours—crimson, pink, yellow and white.

In Vikarabad itself lantana had entirely displaced Cactus as a hedge plant.

To obtain a preliminary idea of the distribution of lantana and its associates a

representative area of about 2,500 sq. yards was chosen and the vegetation mapped out on a chart. The results showed that lantana is the most prominent form of vegetation



Fig. 1.

Showing Lantana and Cactus growing together.

L.—*Lantana camara*.

C—Cactus (*Opuntia dillenii*).

while *Dodonaea viscosa* and *Zizyphus aenoplia* are next in prominence. A few *Acacias* and groups of *Gymnosporia montana* are also to be seen. The other forms of vegetation were not seen in any large numbers.

In his paper on "The Hyderabad State Ornithological Survey, Part I" Salim Ali has drawn attention to the fact that bulbuls, mynas, babblers and such like birds visit lantana for its fruit. The observations of the present authors have confirmed the above findings and have shown that birds are chiefly responsible for the rapid spread of lantana. Our studies have shown that many of the birds visiting lantana often follow up with eating the fruits of Cactus. Lantana seeds are thus dropped amidst Cactus bushes so that eventually lantana springs up in the midst of the latter. In regions where Cactus is not prominent, lantana seeds are merely dropped at random by birds as the birds fly from place to place.

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Since lantana bush is highly prolific and large numbers of berries are eaten by birds it would follow therefore that the seeds get well disseminated in a very short space of time.

It will be seen from the above that there

is a grave danger of lantana rapidly spreading throughout Hyderabad State. The method of destroying the Cactus through the agency of cochineal insect has already been discovered but the problem of eliminating lantana is still awaiting solution.

Biology : its Importance in Modern Education.

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ONE of the most important and remarkable developments of modern times has been in the study of Biology. Educated men have only very recently recognised the fact that this science is in a large sense the foundation of nearly all forms of human progress.

In the past few years vast advances have been made in all the sciences, and in the realm of the Physical Sciences particularly, investigations and discoveries and their practical application to production have resulted in an immense increase of material wealth. This increase, however, is swallowed up by the drain due to the destructive activities of animals and plants which as parasites, carriers of disease germs, and destroyers of crops, are slowly gaining a dominance in the world. Their activities are a menace which unless checked may lead ultimately to the degeneration of the human race. We are awakening to the fact that human efforts in checking this colossal drain on the wealth of nations can only be successful if undertaken on a national basis. A nation's health and efficiency is the health and efficiency of its citizens, and unless this is of a high standard national wealth and prosperity will suffer.

The first step in this great campaign is the education of the general public in the fundamental principles governing life—the laws of health, the functions of the body in health and disease, the chief types of animals and plants beneficial or dangerous to human health, the rôle of animals and plants in the spread of disease and the dangers of uncontrolled human reproduction, especially in the undesirable classes of humanity. Mass ignorance in these respects has undermined the health of nations, incapacitated millions and endangered the health of the fit.

The two main channels for the drain of the world's wealth are through human disease and animal and plant pests, and the progress made hitherto by experts has been

almost entirely in the field of cure rather than prevention.

In the problem of disease we have left the task to the medical fraternity. It is impossible for medical men and other scientists alone, with all their knowledge, experience and willingness to serve, to combat disease brought about through ignorance. For every individual cured through the corporate knowledge of doctors and other scientists, there are tens of others who contract disease through that arch enemy, ignorance. The need for more doctors and more money to heal the ever-increasing numbers of suffering humanity will obtain scant relief as long as we fail to change our methods of approaching the problem. A nation's knowledge of the means of preventing disease is probably the biggest and most important step in man's warfare with disease.

In the problem of animal and plant pests similar conditions prevail. Crores of rupees are annually lost in India through the devastating depredations of insects alone. Add to this the wealth lost by other animal and plant pests and the figure far outstrips the wealth that can be accumulated through the combined achievements of all modern science.

The world can never be adequately grateful to the workers in the physical sciences whose achievements and discoveries have contributed much to the progress and prosperity of the world. Admirable as the progress and effect of these achievements may be, the world has not yet found an effective check to the drain of human life and wealth. Indeed we owe it as a tribute to these silent workers to specialise and concentrate on a study of the comparatively neglected Biological Sciences; a knowledge of which is absolutely essential for conserving the health and prosperity that the Physical Sciences have won for us.

Such development in the medical and