

Although the birds eat away the pulp and get rid of the seeds by wiping or striking their beaks against branches or other objects, occasionally some of them are swallowed. Out of these a few pass unharmed through the gut and germinate quite well while others are destroyed by the digestive juices in the gut. However, this fact is an established one that birds are responsible for the dissemination of seeds in *Loranthus*.

As a result of the attack of *Loranthus* on its hosts, outgrowths of considerable size and peculiar complicated shape result. Ultimately the host becomes almost brittle and falls down. Further observations are being made.

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Hyderabad, Deccan,
September, 1935.

¹ Srivastava, G. D., *Curr. Sci.*, 1935, 4, 106.

² Partridge, E. A., *Forest Flora of Hyderabad*, 1911, 343.

³ Cooke, T., *Flora of the Bombay Presidency*, 1903-08, 2.

⁴ Duthie, J. F., *Flora of the Upper Gangetic Plain*, 1903-20, 2.

⁵ Hooker, J. D., *Flora of British India*, 1875-79, 4.

⁶ Keeble, F. W., *Trans. Linn. Soc.*, 1896, 52, Pt. 3.

⁷ Sahni, *Jour. Ind. Bot. Soc.*, 1933, 12, 2, 96.

⁸ Engler and Prantl, *Die Natürlichen Pflanzenfamilien*, Teil 3.

Double Parasitism of *Loranthus* and *Viscum* on *Eugenia*.

Loranthus is a very common parasite of flowering plant all over Western India. It has numerous hosts which include a number of cultivated plants. The species *longiflorus* is the commonest and is found very extensively both on cultivated and wild plants. *Viscum*, on the other hand, is less common and is usually found in thick forests and in shady places. I have never seen *Loranthus* parasitic on Myrtaceæ but a case has recently been reported by Mr. G. D. Srivastava¹. I am therefore inclined to record another case of a similar kind but still more interesting. In July last I observed a *Loranthus* parasitic on a tall plant of *Eugenia jambolana* and when the specimen was collected I discovered that it has itself been parasitised by *Viscum articulatum*, the *Loranthus* being a parasite directly on *Eugenia*.

The parasitism of *Loranthus* on Myrtaceæ is certainly rare but such a case of *Viscum* on *Loranthus* and *Loranthus* on

Eugenia jambolana is certainly very rare and is worth recording. Perhaps such double parasitism is seen in the deeper forests of the Thana District where this plant was found, but I know of no record of the kind.

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September 4, 1935.

¹ *Curr. Sci.*, 1935, 4, 106.

N.B.—Since writing the above I saw in the Victoria Gardens, Bombay, *Loranthus longiflorus* parasitic on *Callistemon linearis* (*C. coccinea*, the Australian Bottle Brush), a member of the family Myrtaceæ. This fact is worth noting because *Callistemon* is an introduced garden plant, and more so because this garden is remarkably free from *Loranthus* parasites, this case being one of the very few in the garden.

September 9th, 1935.

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Chromosome Numbers in Two Species of *Hibiscus* (*H. sabdariffa* L. and *H. cannabinus* L).*

THE genus *Hibiscus* belongs to the fairly big family of Malvaceæ which includes a great many familiar plants of cultivation, notably cotton. Cytological work on this economically important family is receiving greater attention in recent times and the work of Davie (1934)¹ gives a comprehensive survey of results obtained. While the cytology of the genus *Gossypium* has been worked out in some detail by several authors that of other genera has not received so much attention. In the genus *Hibiscus* itself only nine species have been examined for their chromosome numbers which reveals polyploidy with high chromosome numbers. The author, while at Pusa, examined cytologically two other species, namely *H. sabdariffa* and *H. cannabinus* for their chromosome numbers and the results are embodied in this note.

Root tips of a pure line of *H. cannabinus* and several varieties of *H. sabdariffa* were fixed in Allen's modification of Bouin's fluids at different times of the day and after the usual dehydration, clearing, and embedding, cut into sections from 10-12 μ thick and stained with Haidenhain's Hæmatoxylin. Drawings were made with the aid of a camera lucida at a magnification of 2500. It was found that under conditions obtaining at Pusa, cell divisions started as early as 10 A.M. and continued till 3 P.M. with a maximum phase in the middle, after which there was a cessation and a renewed activity

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SUPPLEMENT TO "CURRENT SCIENCE".

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Norwich, 1935.

The Presidential Address.

Form, Drift and Rhythm of the Continents.

By Professor W. W. Watts, LL.D., SC.D., F.R.S.,

President of the Association.

IT is now sixty-seven years since the British Association enjoyed the hospitality of the city of Norwich, a privilege which is being renewed to-day under the most happy auspices.

At that meeting we find the scientific community was particularly interested in underground temperatures and tidal phenomena, in the application of the spectroscope to celestial objects, and in the discovery of the oldest Cambrian fossils and the earliest fossil mammals then known. Many papers were read on local natural history, including those on Norfolk farming and the drainage of the County and of the Fens.

In his address at the meeting the President, Sir Joseph D. Hooker, made special reference to the work of Charles Darwin: not to the *Origin of Species* which had been acrimoniously discussed by the Association on previous occasions, and notably at Oxford in 1860, but to some of the work that followed.

It should be remembered that Hooker was one of the three scientific men, representing botany, zoology and geology, whom Darwin had selected as judges with whose opinion on the soundness of his theory of the origin of species he would be content. The others were Huxley and Lyell; and of the three Lyell was the hardest to convince, chiefly because the record of life in the past then furnished by the rocks was manifestly so incomplete and unsatisfactory that its evidence was insufficient to warrant a definite verdict.

Lyell had set out to 'treat of such features of the economy of existing nature, animate and inanimate, as are illustrative of geology,' and to make 'an investigation of the permanent effects of causes now in action which may serve as records to after ages of the present condition of the earth and its inhabitants.' By laborious study of the work of others, and by his own extensive travel and

research, he had been able to enunciate, for the inorganic world, the principle of uniformitarianism, which in its original form we owe to Hutton. This principle involved that the history revealed by the rocks should be read as the effect of the slow but continuous operation of causes, most of them small, such as could be seen in action in some part or other of the world to-day. This was set in opposition to the opinion of the older geologists who had postulated a succession of catastrophes which, by flood, fire and convulsion, had periodically wrecked the world and destroyed its inhabitants: each catastrophe necessitating a new creation to provide the succession of life on the earth as it then was known.

But in the organic world Lyell, like Hutton, had failed to detect any analogous principle, and, as he rejected all the theories of transmutation of species then in vogue, he had to accept their absolute fixity; and to suppose that, as species became extinct one after another, replacement by special creations followed. And yet the reading to-day of the chapters devoted to this branch in the earlier editions of Lyell's great work produces the haunting feeling that a better explanation had only just eluded him. It was the story revealed in Lyell's work, Darwin tells us, the new conception that the earth had been in existence for vast æons of time, the proof that it has been continuously peopled by animals and plants, and that these had steadfastly advanced and improved throughout that time, which showed him the necessity for an explanation of the progression of life, and gave him the first hints of his theory. When he had enunciated this he was enabled to repay his master with the principle of organic evolution, which brought changes in the animate world into harmony with those of the inanimate.

His *Antiquity of Man* shows that by