

# NOTES FROM THE TROPICAL STRAND: IPOMOEA PES-CAPRAE AND CANAVALIA LINEATA

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In connection with an investigation of the revegetation of Taal Volcano,\* in the Philippine Islands a very striking case of the similarity of appearance under the same conditions was encountered. *Ipomoea pes-caprae* is a characteristic, trailing strand plant in the tropics and is quite well represented on Taal Island. Its flowers are entirely like those of other members of the Convolvulaceae, so considerable surprise was at first manifested at finding leguminous flowers rising from seeming beds of

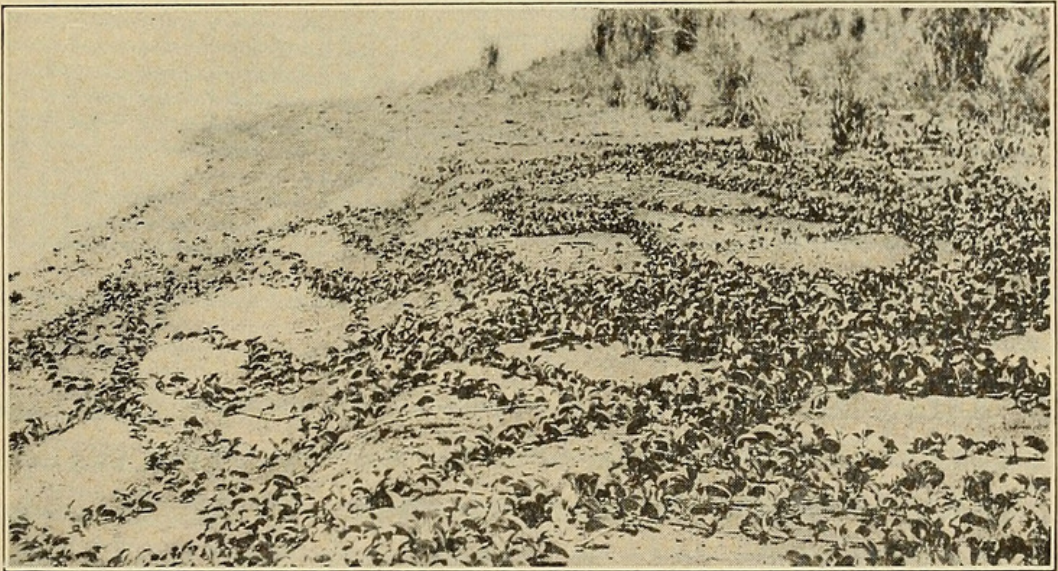


Fig. 1. *Ipomoea pes-caprae* on the strand, Taal Volcano, P.I. (April 18, 1914 10 A.M.)

*Ipomoea*. Except for the flowers no distinction was apparent even from so short a distance as three meters. Closer examination however revealed a trifoliolate-leaved legume, *Canavalia lineata*, whose leaflets quite closely approached the position if not the form of the leaves of *Ipomoea*.

In one of its forms, *Canavalia lineata* is quite characteristic of the strand, alternating with *Ipomoea pes-caprae*, as well as growing together with it in the same patch. That the *Ipomoea* was better adapted for severe strand conditions was apparent in that it developed hardily under severer conditions than the *Canavalia*

\* In edition, in the Philippine Journal of Science. 1914,



could withstand. Its clam-shell-like leaves exhibited marked *xerophytic* movements (upward movements due to a partial loss of turgor on the side towards intense sunlight), although of much less intensity than in the *Canavalia*. In the early morning the leaves of *Ipomoea* were flat but soon after the sun began to grow stronger, the halves of the leaves folded upwards, assuming an

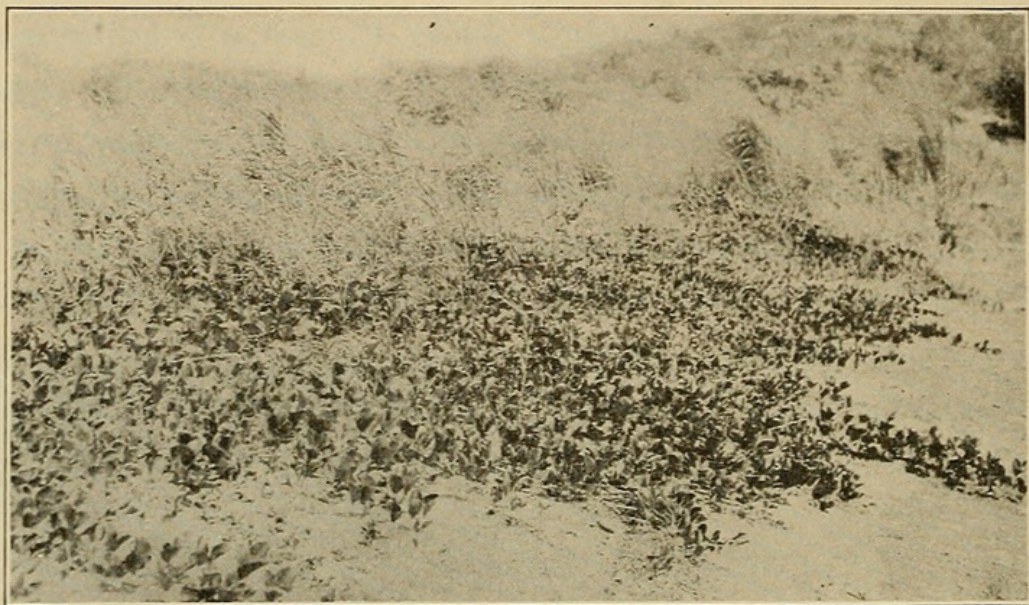


Fig. 2. *Canavalia lineata* on the strand, Taal Volcano, P.I. (April 19, 1914, 9:30 A.M.)

angle of from 30 to 45° from the vertical. Stomates were present in larger numbers on the upper surfaces of the leaves and whenever tested during the daytime were open. The leaves might at times be less turgid, but at no time appeared really wilted. With the coming of dawn the leaflets of *Canavalia* spread out flat and the stomates opened wide. As the sun became hotter, the two lateral leaflets folded together upwards in a nearly vertical position, while the terminal leaflet turned up and folded on its midrib, partially enclosing the lateral leaflets. The leaflets were often quite limp throughout the day and the stomates became closed very tight soon after limpness was apparent. Often this period of closure lasted from about 9 in the morning until 3 or 4 in the afternoon.

In slight shade, a condition which *Canavalia* can endure very much better than *Ipomoea*, all of these reactions were less pronounced as the conditions were less intense.



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