undeniable facts of accurate observation. The rest of the summary is devoted to showing how these articles dove-tail together in mutual confirmation.

Part II. describes what the author calls 'Non-natural Features,' by which he means those which have the least analogy to features on the earth, and which differ most from what our terrestrial experience would lead us most naturally to expect. In this category he places the canals, and describes their system and their gemination, and presents arguments to substantiate their objectivity as opposed to the diplopic, or the interference, or the illusion theory. A full account of the double canals is given, also of the canals in the dark regions, of the oases, of the 'carets' on the borders of the great diaphragm; and a description of Lampland's success in photographing thirty-eight canals, the doubling of Nilokeras and a snowfall, together with the more prominent 'continents,' 'seas' and 'oases.'

Part III. deals with the 'Canals in Action,' under the headings Canals: kinematic, Canal Development Individually Instanced, Hibernation of the Canals, Arctic Canals and Polar Rifts, Oases: kinematic. The purpose of this section and also of Part IV. is to show that the canals are real water arteries for the distribution of the melting polar caps to the arid equatorial regions, and to the constitution and purpose of the canals and oases in this scheme, with arguments in support of the hypothesis that life, sentient and vegetable, does exist on Mars.

The book is copiously illustrated, and closes with an index of nine pages.

Herman S. Davis

SOCIETIES AND ACADEMIES

THE TORREY BOTANICAL CLUB

The second stated meeting for the year 1907 was called to order at the Museum Building of the New York Botanical Garden at 3:30 o'clock P.M. on January 30, 1907, with Vice-president Professor L. M. Underwood in the chair. Twenty-three persons were present.

The scientific program was as follows:

Experiences on the Island of Jamaica during the Earthquake of January 14, 1907: Dr. M. A. Howe.

A trip for the collection and study of marine algæ and other plants brought Dr. Howe to the island of Jamaica on December 14, and he was on the island during the recent earthquake. An interesting account was given of his experiences at that time

New or Rare Mosses from Jamaica: Mrs. N. L. Britton.

Mrs. Britton exhibited some of the most interesting mosses collected in Jamaica, showing several genera and subgenera, not heretofore known in the West Indies, and several new species, and also indicated some reductions of names to synonyms. Specimens of types of Jamaican species were also shown from the Mitten Herbarium and one of Miss Taylor's drawings of a new species and subgenus.

The Probable Function of Tannin in Galls: Dr. Melville T. Cook.

The origin, chemistry and uses of tannin have been studied very extensively, but other phases of the subject have received comparatively little attention. This is especially true concerning the functions which it serves in the plant. It is usually very abundant in diseased tissues, such as insect galls, fungus galls, fungus spots, etc. In insect galls it is developed very early and in some cases it appears to result in the gall-makers moving to other parts of the plant. It is also formed in fungus-galls, frequently completely surrounding the point of rupture. In such fungus spots as those produced by *Cercospora* the successive circles are due to the depositing of tannin within the tissues. The author has made extensive studies on the anatomy of both insect and fungus galls and is now conducting a series of physiological experiments.

C. Stuart Gager,
Secretary

SPECIAL ARTICLES

THE LIMITATIONS OF ISOLATION IN THE ORIGIN OF SPECIES

Any adequate consideration of the bearing of the geographical distribution of organisms