

rant, during Prolonged Normal Stimulation,' pp. 341-349, with 1 colored Plate.

R. H. WHITEHEAD: 'A Study of the Histogenesis of the Adrenal in the Pig,' pp. 349-361, with 6 Text-figs.

E. L. MELLUS: 'On a Hitherto Undescribed Nucleus Lateral to the Fasciculus Solitarius,' pp. 361-365, with 3 Text-figs.

KATHERINE FOOT AND E. C. STROBELL: 'The Sperm Centrosome and Aster of *Allolobophora foetida*,' pp. 365-371, with 1 Plate.

C. F. W. MCCLURE: 'Contribution to the Anatomy and Development of the Venous System in *Didelphys marsupialis* (L.)—Part I., Anatomy,' pp. 371-405, with 5 colored Plates and 11 Text-figs.

W. H. LEWIS: 'Wandering Pigment Cells Arising from the Epithelium of the Optic Cup, with the Development of the M. Sphincter Pupillæ in the Chick,' pp. 405-417, with 15 Text-figs.

#### SOCIETIES AND ACADEMIES.

##### BIOLOGICAL SOCIETY OF ST. LOUIS.

THE Biological Society of St. Louis was organized March 3, 1903. Dr. A. W. Greeley was elected president. The membership numbers about fifteen at present and increases at each meeting. It speaks well for the future of the society that the present membership is exceptionally homogeneous and harmonious, and that a place is rarely vacant at the meetings.

Although but four meetings have been held, and the society is yet in the formative stage, gratifying progress has been made. Current literature in botany, zoology and physiology has been reviewed. Several of the reviews have been given by members whose personal and professional relations with the authors gave to the reviews an unusual interest. Considerable original work will doubtless be presented during the next year.

At present steps are being taken looking toward closer relations with the Academy of Science of St. Louis. The meetings of the society are held on the last Tuesday evening of the year excepting in the months of June, July and August. Visiting biologists are cordially invited to attend.

W. L. EIKENBERRY,  
Secretary.

St. Louis, Mo.

#### DISCUSSION AND CORRESPONDENCE.

##### THE ADVANTAGES OF THE GOVERNMENT CINCHONA PLANTATION IN JAMAICA AS A TROPICAL BOTANICAL STATION.

IN a month's residence this spring, at Cinchona, during which time I was daily occupied in field work within a radius not greater than ten miles from the Cinchona garden, I was much impressed with the advantages of this location for a permanent tropical botanical station in America. After conversation and correspondence with botanists who have worked in this and various other tropical regions, I have become thoroughly convinced that, for such a station, no other location combines the many superior advantages of Cinchona.

A luxuriant and varied flora to meet the diverse demands of American botanists wishing to work on problems of distribution, development or physiology of tropical plants is, of course, the first requisite of a locality proposed for such a station. Associated with the extremely varied physiographic and climatic characters of the region accessible from Cinchona is a flora which makes this location pre-eminently advantageous for botanical work.

Cinchona is on a hill which forms a spur projecting southward from the Blue Mountain Range. Within three miles of Cinchona, in the Blue Mountains, is the well-known Morce's Gap, through which moisture-bringing clouds drift almost continuously, thus giving rise, near the Gap, to a dense and greatly varied vegetation especially rich in lichens, bryophytes and pteridophytes. In the deep valley of the Mabess River, just north of this, the vegetation is even more luxuriant than about the gap itself. Other moist gaps, many high mountain peaks and several deep river valleys directly below Cinchona Hill have a luxuriant plant covering of mesophytic type. Nearer Cinchona are the more xerophytic foothills of the Blue Mountains, and below these are the still drier plains about Kingston. These different regions, to reach the most distant of which requires not more than a two-day trip from Cinchona, afford a complete series of moisture conditions and plant

formations ranging from the broom of Cinchona Hill to the dildoes and *Melocactus* of Port Henderson. Cinchona thus possesses the chief requisite for a botanical station in the abundance and variety of its flora. There are also numerous and important accessory advantages of an even more exceptional nature.

The accessibility of Jamaica makes it a most desirable location for a botanical station. Six to ten steamers each week land passengers at Port Antonio or Kingston, and from either of these places Cinchona can be reached readily in ten or twelve hours of delightful travel by train, carriage and saddle. No other portion of tropical America has as fine a system of carriage roads in the lower country, and bridle paths in the mountain regions, as has Jamaica. To the collecting grounds about Cinchona one can walk or ride, in all directions, upon well-graded and well-drained mule paths. These paths lead to the thickets of Blue Mountain Peak, the dense forests of Mabess, the dry hills and the fertile bottoms of the Clyde, Yallahs and Hope valleys.

The stable government and efficient police system which make life and property secure are an advantage possessed by Jamaica over many tropical countries. The use of the English language throughout the island is a very evident advantage to the transient resident. As a consequence of superior political conditions, we find here government gardens, with corps of resident trained botanists familiar with the flora and very courteous in offering aid, which may prove invaluable to a worker on his introduction to the island. The government gardens are valuable adjuncts to the native flora in furnishing material of many exotics growing under practically normal conditions. In this connection it should be remembered that at Cinchona itself is an extensive garden with greenhouses containing many native and exotic temperate plants. There is also here a series of buildings which can readily be made to fill all the requirements of a tropical botanical station. Such an equipment, I believe, is not to be found in any other available location.

Health conditions at Cinchona, which is 5,000 feet above sea level, are most favorable, and the botanist is, therefore, not liable to be prevented by physical disability from taking fullest advantage of the excellent opportunities for botanical work. Malarial troubles are unknown, and the many dangers to health, so frequent in tropical regions, are here absent. Food in sufficient quantity and variety and pure drinking water from the source of the Clyde River are readily obtained. Moderate temperatures, ranging from 50° to 80°, prevail throughout the year, and the climate is stimulating to physical and mental effort.

DUNCAN S. JOHNSON.

JOHNS HOPKINS UNIVERSITY.

#### SHORTER ARTICLES.

##### THE STRATIGRAPHIC POSITION OF THE JUDITH RIVER BEDS AND THEIR CORRELATION WITH THE BELLY RIVER BEDS.\*

THE readers of SCIENCE will recall that during last winter and spring a discussion was carried on in its pages concerning the age and relationships of the formations mentioned in the title of this note. This discussion, which was provoked by the publication of Osborn and Lamb's paper on the vertebrate fossils of the Belly River beds, was participated in by Messrs. Hatcher, Stanton, Osborn and Williston.

Since June 1 the undersigned have been engaged in an investigation of this subject in the field, and have reached some definite conclusions which are deemed worthy of prompt publication. Our field studies were begun on Milk River at Havre, Montana, and we examined the excellent exposures along that stream to the International Boundary, and beyond to Pendant d'Oreille Police Barracks, which is near one of Dawson's described localities, where the base of the Belly River beds is seen resting on the marine 'lower dark shales.' This is near Lake Pakowki of the maps, locally known as 'Badwater Lake.' We also examined the exposures of upper Belly River beds showing contact with the

\* Published by permission of the Director, United States Geological Survey.