emphasis upon the local marine fauna. It is hoped that students from other southern schools and instructors interested in research upon local marine forms will join the undertaking.

A LARGE number of specimens of plants, birds, mammals and insects are included in the collections brought back by the Lee Garnett Day expedition to Mount Roraima, according to an announcement by the American Museum of Natural History. A total of 1,260 birds, some 350 mammals and many plants and insects were sent back by the party. The members of the expedition were G. H. H. Tate and T. D. Carter, of the museum's department of mammalogy, and Mr. Tate's brother, G. M. Tate, who joined them after traveling from Para, Brazil, up the Amazon and Negro Rivers to Manaos, thence by boat and canoe to the confluence of the Rivers Surumu and Cotinga. From there the journey was made in eleven days on foot.

PURCHASE of the plant collections of the late Dr. L. M. Umbach, of North Western College, Napierville, Ill., has added about 50,000 specimens to the University of Wisconsin herbarium. The acquisition practically doubles the collections of the university, and makes it one of the largest herbariums of middle west plants. Included in the addition are also collections from other parts of the country, from Europe, some from Asia and elsewhere.

IT is reported that the Rockefeller Foundation has given to the Stockholm High School 25,000 crowns for a building for a biochemical institute, with Professor Hans Von Euler as director. A like sum has been raised in Sweden.

THE Puget Sound Biological Station of the University of Washington, located at Friday Harbor, Washington, is erecting a fireproof store room 24 x 56 feet and a fireproof research laboratory, 31 x 73 feet. These are to be finished by June 1.

UNIVERSITY AND EDUCATIONAL NOTES

THE University of Chicago has received a gift of $250,000 from Mr. Julius Rosenwald to be used for graduate work and research in the departments of physics, mathematics and astronomy.

SIX friends of Wesleyan University have pledged a total of $600,000 to the centennial committee. The aims for the centennial year include a fund of $1,000,000 to raise the faculty salaries and to provide adequate pensions for retired faculty members.

DR. EDWARD HICKS HUME, former president of Yale-in-China, has been appointed to the newly created post of director of the Post-Graduate Medical School and Hospital at Yale University. Under the new organization, the dean of the medical school, the superintendent of the hospital and the principal of the school of nursing will all be responsible directly to Dr. Hume, who in turn will be responsible to the board of directors.

DR. GARY N. CALKINS, professor of protozoology in Columbia University, has been named executive officer of the department of zoology for three years.

HAROLD GOULDEN, formerly of the Squibb Laboratories, has been appointed an instructor in the department of biochemistry of the New Jersey College of Pharmacy.

ASSOCIATE PROFESSOR LAO G. SIMONS has been promoted to a full professorship and head of the department of mathematics at Hunter College.

A. J. WILSON, professor of analytical chemistry at North Carolina State College, has been appointed chairman of the department of chemistry for the remainder of the session, succeeding Frank E. Rice.

M. E. DELAFIELD, head of the department of public health and hygiene at University College, London, has been appointed to the university chair of chemistry as applied to hygiene tenable at the London School of Hygiene and Tropical Medicine.

DR. F. G. TRAYHORN has been appointed professor of chemistry at University College, Hull.

DR. SIGURD, of Freiburg, has succeeded Professor Trendelenburg in the chair of pharmacology at Berlin.

DISCUSSION AND CORRESPONDENCE

TREE FROGS AND PITCHER PLANTS

IT is well known that the regions where the southern pitcher plant (*Sarracenia flava*) abounds may also be the home of the carolina, or green tree frog (*Hyla cinerea*), but an association between them has not been noticed. However, the following observations seem to show that these frogs make use of the pitcher plant, though this may prove to be no general rule but only a local habit, possibly restricted to special conditions of weather.

In June and July, 1888, an examination of some of the pitcher plant leaves growing in abundance in the wet lands amidst pine groves close to Beaufort, North Carolina, showed that not a few of the leaves were inhabited by tree frogs. The leaves of this plant form beautiful yellow-green trumpets that stand straight up, in clusters, so high that one is naturally tempted to look down into their wide mouths to the water and insects that may be down in the narrowly

pointed base. In this way it was noticed that now and then a leaf contained a tree frog. These frogs having exceptionally long legs and slender trunks seem especially well shaped to fit into any narrow cavity and as they sat holding to the side of the trumpet some distance down from its mouth where they yet had ample room, they presented very quaint and attractive pictures. The color of these frogs being a yellow-green with some golden spots, they harmonized excellently with the background illuminated by light in part transmitted through the walls of the leaf.

The frogs sat with their heads up toward the mouth of the pitcher or trumpet, and were advantageously placed to seize any insect that might come down into the cavity of the leaf. That this was a chance worth considering was perhaps indicated by the fact that in some cases small spiders had spun their webs across the opening of the leaves, thus being placed well to intercept the insects that might else have gone down to the frog.

In the latter part of June and the first of July as many as twelve frogs were found, on two days, a week or more apart, while looking into about six hundred leaves. That this occurrence of frogs in the leaves was not limited to the above cases was proved by a third examination made July 9, when just two hundred leaves were looked into as they came; one hundred in the locality previously visited and the other hundred in a new locality. In both cases the leaves examined were on plants growing along the edges of the woods where the frogs were probably more numerous than out in the open where the pitcher plants were more numerous. The first hundred leaves contained three frogs; the twenty-ninth leaf harbored two frogs and the thirty-sixth one. The second hundred contained five frogs; one in the fourth, in the fifty-sixth, fifty-eighth, sixty-sixth and eighty-seventh. Thus in these leaves skirting the woods some two to five per cent. contained frogs.

The season being then very dry the occurrence of the green-tree frog in the leaves of the pitcher plant may have been an unusual occurrence due to the frogs seeking protection from drying; on the other hand, this frog may have developed a special appreciation of the advantages of these retreats, both as affording food and as giving the comparative immunity from attacks of enemies that the protective resemblance of the frog to the leaf suggests.

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THE JOHNS HOPKINS UNIVERSITY

THE OCCURRENCE OF CONJUGATION IN PARAMECIUM CALKINSI

Paramecium calkinsi was described as a new species in 1921 by Woodruff[1] after he had carried pedigreed cultures of it for nearly a year and had made various tests to determine that the new species belonged to the genus Paramecium. Woodruff states that every effort was made to secure conjugation, but without success. He further states that during the life of his pedigree culture an intensive study of the nuclear conditions was made to detect endomixis if it occurred. There was no indication of endomixis, although there were rhythms in the rate of fission. So far as we are aware, neither Woodruff nor any other investigator has succeeded in inducing conjugation in *P. calkinsi* and we have seen no record of endomixis having been observed. One of us (Wenrich) has made repeated but unsuccessful efforts to induce conjugation in a strain of this species obtained from Professor Woodruff.

As a result of all these failures to observe conjugation or endomixis, the impression has been developing that these phenomena do not occur in this species. In view of the important theoretical implications of such an exceptional behavior on the part of a distinct species of Paramecium, it seems worth while to record here the fact that conjugation has been observed in cultures of *Paramecium calkinsi* secured originally at Woods Hole, Mass.

The original material was a sample of water taken from the pond on the east side of the Eel Pond at Woods Hole. The water in this pond is brackish, since at high tide sea water from the Eel Pond flows into it; at other times during the day, it drains into the Eel Pond. The material collected from the source pond on August 18, 1927, contained large numbers of *Paramecium calkinsi,* and some of it was distributed into syracuse watch glasses for more convenient culture and study. At the beginning of September, each of these cultures was placed into a vial and transported to Philadelphia. On September 5 each of these cultures was reestablished in a syracuse watch glass without change of media. On September 7 it was noticed that in culture number 5 many individuals had died, so a new culture, 5A, was made, by transferring about 200 individuals to another watch glass containing an infusion made by boiling together some timothy hay and wheat grains. The old culture was made over by taking out most of the fluid and replacing it with the infusion just mentioned. Within the next few days other cultures were replenished with the hay-wheat infusion. Examination on September 16 showed heavy populations in both cultures 5 and 5A and some dozens of pairs of conjugants. Conjugation has since been observed in five others of the

[1] "The Structure, Life History, and Intrageneric Relationships of Paramecium calkinsi," Sp. Nov. *Biol Bull.*, Vol. 41, pp. 171–180.