school of business administration, and $125,000 from Mrs. Joseph T. Jones for the establishment of a chair of French. With the exceptions noted, practically all the remaining contributions are to be used as the university trustees see fit.

AT the annual fall meeting of the trustees of Williams College gifts for endowment totaling approximately $384,600 were announced, of which nearly $136,000 has been donated for the Williams Professorship Foundation.

MISS NANCY BARTLETT, of Olean, N. Y., has given $150,000 to Alfred University for the construction of a men's dormitory. The building will be a memorial to her father, Frank H. Bartlett, of Olean, N. Y., long a trustee of the university.

DR. J. S. BOYCE, director of the Northeastern Forest Experiment Station, has resigned, effective September 30, to join the faculty of the Yale Forest School as professor of forest pathology.

WILLIAM DUNCAN STRONG, assistant curator of North American ethnology and archeology at the Field Museum of Natural History, Chicago, has been appointed professor of anthropology in the University of Nebraska to take the place of Dr. Hutton Webster, who has leave of absence.

CHANGES of staff in the department of chemistry and chemical engineering at the University of Maine for the college year 1929–30 were as follows: H. C. White and R. N. Pollock resigned to enter industrial fields; Dr. F. J. Guerin, E. J. Bogan and E. S. Durgan were appointed as instructors. M. G. Moore, since graduation a chemist at the Geneva Experiment Station in New York, was appointed as a teaching fellow.

DR. EDWARD J. PETRY, from 1920 to 1923 professor of botany and plant pathology in South Dakota State College at Brookings, who was successively consulting botanist for the experiment station and survey botanist for the South Dakota Geological and Biological Survey during 1924–25, has recently been transferred from Hendrix College, Conway, Arkansas, where he was for three years professor and head of biology, to the headship of biology in Central College, Fayette, Missouri.

DR. GEORGE P. STEINBAUER, formerly instructor at the University of Minnesota, has been appointed assistant professor of botany at the University of Maine.

SIR WILFRED GRENFELL was installed as rector of the University of St. Andrews on November 6.

DISCUSSION

COLLECTING IN THE LOWER EOCENE

FOLLOWING in the footsteps of Granger, Loomis, Sinclair and others, it was our privilege this summer to visit the Big Horn Basin of Wyoming and search for vertebrate fossils in the Wasatch beds of lower Eocene age. The season's hunting produced hundreds of teeth, jaws, limbs and partial skeletons which pertain to such widely varied classes as the fishes, reptiles, birds and mammals, not to mention a few invertebrates.

Collecting in this formation, which is the very threshold of the Age of Modernized Mammals, generally produces fragmentary things only. Whole skeletons are exceedingly rare, but occasionally one is found: it may be a complete crocodile or coryphodont; two or three fine specimens of *Eohippus* are known; there is in existence a splendid skeleton of *Notharctus*, an ancestral primate; a magnificent skeleton of *Diatryma*, the giant bird, was found by the American Museum. Few others such as these are in our museums.

Fossil birds are always rare, and especially in the older geological horizons, therefore the finding of a fairly complete specimen of *Diatryma* (but without skull and neck vertebrae) was particularly fortunate. This new discovery will supplement our knowledge of the giant wading birds of the Wasatch, heretofore known almost exclusively from two specimens.

A detailed report can not be made until the slow work of preparing and classifying the many specimens is completed, but it is hoped that in the array of small mammals: primates, carnivores, ungulates, rodents, insectivores, etc., there may be some new varieties now unknown to paleontology. In addition to this more technical use the collection offers choice study material for students, and much of it will be placed on exhibition.

EDWARD L. TROXELL
TRINITY COLLEGE

CONCERNING THE MEDITERRANEAN FRUIT FLY

THE biological basis for the cure of most diseases of parasitic origin—whether of animals or plants—is to be found in the existence of a differential in susceptibility between the host and the parasite. In other words, the remedy in at least a large percentage of cases is a poison to both organisms, but it works somewhat more easily or quickly upon one than upon the other. Sometimes the differential is large, some-

times it is so small that the greatest of care must be exercised in the application of the remedy.

In a way of speaking, this principle of the differential in susceptibility applies not only to disease but to many other problems of economic zoology and botany. In other words, before any attempt is made at the control of an insect or plant pest, or at least some time during the attempt, there is a fundamental question that must be answered positively if the attempt is to be justified. It is the question of whether or not the cost of the remedy—in terms of all the factors involved—justifies the effort, even assuming that a cure is theoretically possible. Is the differential broad enough to justify the risks that are assumed in the application of the supposed remedy? Or are we boldly to adopt a "kill or cure" policy?

A wave of hysteria—I know of no other word for the condition—has swept over the fruit growing sections of the United States and over the agricultural bureaucrats and the entomologists of the country with the word that the Mediterranean fruit fly has appeared in Florida. Immediately government-employed entomologists by the score have descended upon that unfortunate section and have begun treating it for its ills. Nor is the effect of the resulting disturbance limited to Florida alone. As far away as the northwest border of California, at least, the tremors are registered at the seismographs of the plant quarantine stations established on the highways —to the annoyance of automobilists—in the hope of intercepting any fruit fly that might attempt to sneak around and enter by the back door. But it is Florida that has had to swallow the most bitter medicine. The state seemingly has attained somewhat to the ancient status of the leper, compelled to reside without the walls and to condemn himself by the cry of "Unclean, unclean."

The enormous funds already expended or appropriated directly by the state itself and by the Federal government in attempts to "eradicate" the insect, the imposition of quarantines preventing the marketing and movement of fruit, the consequent economic dislocation with the failure of bank after bank, resulting in monetary losses of millions of dollars, not to speak of the sociological disturbances or the costs elsewhere, these have already been the price of the remedies applied. Nor can one predict how long these costs will continue or to what heights they may mount in the future. Even should the fruit fly be for the time "eradicated"—from a biological point of view a most improbable outcome—at whatever cost, it will inevitably come again and the whole performance must again be gone through. Those who believe that any quarantine can guarantee future immunity are leaning upon a hollow reed.

Theoretically perhaps the fruit fly can be eradicated. Theoretically *any* insect can be eradicated—at a price. A country can be converted into a desert. Its inhabitants can be ruined. It can be depopulated. Theoretically any disease-producing organism can be destroyed if we are willing to destroy the host along with it. But at what a price!

The time has come when the question should be publicly asked: Is it worth the price in the case of the Mediterranean fruit fly?

There are certain questions that must be answered unequivocally and on the basis of fact and not on the basis of theory or preconceived dogmas if the bureaucrats who are behind the quarantines and other supposedly remedial measures and the entomologists who have participated in the prevailing hysteria are eventually to justify themselves for their activities and the disturbances for which they are responsible.

What reason is there—other than highly debatable theory—to suppose that any quarantine, other than one which is utterly intolerable and subversive of the rights of the mass of the people, will keep any insect such as the Mediterranean fruit fly out of the United States in the first place? It has not done so.

What reason is there to suppose that such an insect once established over a wide area in a favorable environment can be eradicated at all, little less at any cost that is economically and sociologically within reason?

What reason is there to suppose that quarantines established around such regions will have any adequate effect against a flying insect? Have such quarantines kept the European corn-borer—another recent provocative of entomological hysteria—from spreading?

What has been the actual monetary loss caused by the fruit fly of and by itself through rendering fruit unusable and on the basis of known facts what would be such loss in the regions where it could live?

What, on the other hand, has been and what will be the loss occasioned not by the fruit fly itself but by the effect of quarantines and other activities of government officials attempting to control the insect?

In other words, is the differential between grievous injury to the patient and the elimination of the disease sufficiently large to permit the unrestricted application of such poisonous but supposedly remedial methods as have been and are being applied?

It might be well if, among the many other national investigating commissions that are being appointed, one more were named to consider with a cold and critical eye the whole question of plant quarantines from biological, sociological and legal points of view. The present writer is one entomologist who believes

that the agricultural bureaucrats and the economic entomologists of the country have gone wild upon the subject and that the time has come for the whole question to be reconsidered from the ground up and some restraints applied.

G. F. FERRIS

STANFORD UNIVERSITY, CALIF.

THE MICROMETRIC MUDDLE

USE the symbol μμ and it will be variously interpreted depending upon the audience. Chemists and biologists and hence most workers in agricultural sciences will almost unanimously agree that you are indicating the unit equal to one millionth of a millimeter and will permit you to call it a millimicron or a micromillimeter—though the biologists may maintain that the term micromillimeter is synonymous with micron; physicists will be certain that you mean one billionth of the millimeter (which you do if you have pledged allegiance to the U. S. Bureau of Standards) and will smile wisely if you should call it a millimicron. They know that millimicron is the term applied to the unit equivalent to one thousandth of a micron, but contrary to the other groups they would abbreviate that by the symbol mμ, again having the sanction of the Bureau of Standards and hence (probably) most handbooks. But—and this is the sad fact—the others are also correct according to the traditional usage in their fields, and they have for their authorities most of their text-books and the dictionaries.

The state of this affair is deplorable. All micrometric terms and symbols are useless, with the exception of those of the micron and Ångström unit, unless accompanied by an exact description referring back at least as far as the micron. Otherwise one runs the risk of being misinterpreted.

The various, more or less accepted, terms are as follows: The unit representing one thousandth of a millimeter is usually called the micron (symbol, μ) but it may also be called the micromillimeter according to Webster's Dictionary and certain older biological texts. The latter term, happily, is seldom applied to this unit and it may be considered obsolete. One millionth of the millimeter is commonly represented, except by light-wave measures, by the symbol μμ. Physicists apply the abbreviation mμ. All groups agree to call it either the millimicron (favored by the light-measurers) or the micromillimeter. It is indeed fortunate that these tongue-twisting twins commonly have the same meaning. The confusion is amply completed by the acceptance, mainly by physicists, of the symbol μμ to represent the smallest unit of measure, the millionth-micron or micromicron, 10^{-9} mm.

Certainly the system should be definitely put in order. What to do about it is not so easy to decide; for though it might seem proper to insist on strict adherence to the present authorization of the Bureau of Standards it can be argued that their system is that of the physicists who are a minority and that the biologists and chemists besides being greatly in the majority use the terms and symbols most widely distributed in scientific literature. But the fact remains that the common system does not provide for the micromicron (10^{-9} mm) whereas that authorized by the Bureau of Standards is complete in this respect.

JOHN P. CAMP

UNIVERSITY OF FLORIDA

OESTRUS DURING PREGNANCY

So far as the writer is aware no cases have been reported of oestrus occurring during the period of pregnancy in the white rat and allied forms. The observation of Long and Evans[1] (1922), based upon an extended series of investigations on the rat, is that oestrus is suspended during the gestation period. From a thorough study of the vaginal smears of a great number of pregnant rats they concluded (p. 56) that, "In our experience no oestrous changes occur in the cell content of the vaginal smear during the period of pregnancy." However, they recorded two cases of animals copulating during the gestation period. Allen[2] (1922) found no instances of oestrus during pregnancy, nor did Parkes[3] (1926). The latter, however, has shown that a lactating mouse, which is suckling two or less young, may exhibit typical oestrus cycles. Animals suckling more than two do not show the rhythmical vaginal changes during the period of lactation.

During the course of some experimental work in this laboratory a series of oestrous cycles was observed in a pregnant albino rat. The animal in question was a healthy virgin female. She had been unilaterally ovariectomized several days prior to her first copulation. Five days later she again came into oestrus and copulated. Thereafter for four successive cycles her vaginal content exhibited the typical cornified cell picture on every fourth day; further copulation was observed on two of these occasions. We had no suspicion of her actual condition since her size at no time approached that of the ordinary pregnant rat. The usual "placental sign" on the thirteenth or fourteenth day also was lacking. However, on the evening of the twenty-first day after the initial copulation she gave birth to five healthy young.

[1] "The Oestrous Cycle in the Rat and Its Associated Phenomena," The Memoirs of the University of California, Vol. 6, 1922.

[2] Edgar Allen, "The Oestrous Cycle in the Mouse," *American Journal of Anatomy*, 30: 297, 1922.

[3] A. S. Parkes, "Observations on the Oestrous Cycle of the Albino Mouse," *Proceedings of the Royal Society, B*, 100: 151, 1926.