ence. The meeting of the association includes a research conference, on Wednesday, June 16, and other meetings and excursions extending through Saturday, June 19. The meeting of the American Physical Society will be on June 17, the morning session beginning at 10.00 o'clock. The afternoon session will be a joint session with the Astronomical Society of the Pacific. Other meetings for the current seasons are as follows: November 26–27, 1926, Chicago; December 27–29, 1926, Philadelphia, annual meeting.

THE Commonwealth Fund has appropriated $400,000 for a comprehensive study under the auspices of the American Psychiatric Association of community mental hygiene.

Nature states that the Royal Society will receive from Messrs. Brunner, Mond and Co., Ltd., a donation of £500 in respect of the current year towards the cost of scientific papers on the physical side. The society will also receive a publication grant of £2,500 from H. M. Government during the current year. Both grants are available for helping the publications of other scientific societies as well as for assisting the separate publication of books, memoirs, etc., of a scientific nature.

AN expedition has sailed from Honolulu under the joint auspices of the Bernice P. Bishop Museum and the University of California. The party, which consists of Professor W. A. Setchell, of the department of botany at the University of California; J. M. Ostergaard, of the University of Hawaii; J. E. Hoffmeister, fellow of the Bishop Museum and professor of geology in the University of Rochester, and others, has selected for especial study Eua Island in the Tongan group. The primary intention in going to Eua, which is one of the eastern line of so-called coral islands in the Tongan group, is to study the aspects of the submerged reef and the emergent or elevated reefs representing at least six or seven different terraces in order to compare the situation with that on Fiji, Oahu of the Hawaiian Islands and others of the South Seas, as well as the barrier reefs of Australia, which it is hoped will throw light on the structure, development, origin and biological and geological history of the reefs throughout the Pacific.

UNIVERSITY AND EDUCATIONAL NOTES

AMONG bequests in the will of the late John Kennedy Tod are the sum of $250,000 to Princeton University and $100,000 to the Presbyterian Hospital, New York City.

GROUND was broken at Wellesley College on May 14 for a new building to house the departments of botany and zoology. The building will be erected at a cost of approximately $500,000.

DR. EDWARD MORGAN LEWIS, dean of the Massachusetts Agricultural College, was elected president on June 14. Dr. Lewis has been acting president since the resignation of Dr. Butterfield two years ago to become president of the Michigan Agricultural College.

DR. E. J. LUND, assistant professor of physiology at the University of Minnesota, has accepted a professorship of zoology at the University of Texas. Dr. Lund will have charge of the work in physiology in the department of zoology.

PROFESSOR HENRY MCE. KNOWER, formerly of the University of Cincinnati, has accepted appointment as head of the department of anatomy in the University of Alabama.

THE University of California announces the following changes in the staff of the department of physics: Dr. Marcus O'Day, instructor, has resigned to accept an assistant professorship at Reed College, Oregon. Samuel K. Allison, Ph.D. (Chicago), of the Geophysical Laboratory of the Carnegie Institution, has accepted the position left vacant by Dr. O'Day. To replace Edward Condon, assistant in the department, who has been granted a National Research Fellowship for the purpose of studying with Professor M. Born in Göttingen, the position has been given to Mr. Harold P. Knauss, a graduate of New York University, who is just returning from a year spent abroad under a Coffin Foundation Fellowship. Mr. Gerhard Dieke, of the University of Leiden, who will receive the Ph.D. degree in physics in September, has been granted an International Education Board Fellowship to work with Professor P. Epstein at the California Institute.

DISCUSSION

A PROGRAM FOR BIOLOGISTS

WITHIN the last few weeks three papers have come to hand which appear to be of more than ordinary importance, to say the least. One is C. C. Hurst on "Chromosomes and Characters in *Rosa*"; one is Morgan, Sturtevant and Bridges on the "Condition of the Germ Material in Relation to Heredity," and the third is Turesson on "Plant Species in Relation to Habitat and Climate." Taken together, these papers indicate the magnitude of recent advances in biological knowledge and corresponding theory. They have this in common that all are based on intensive studies, conceived from a broad point of view. They appear to indicate the direction in which we are moving, and where we may expect notable advances. To the ordi-

nary biological worker they may perhaps suggest some modification of current methods. Unquestionably all constructive work in taxonomy, morphology, cytology, physiology or genetics is of value, and will be built into the general structure of knowledge. But if *Drosophila* or *Rosa* had only been studied to the same extent and in the same manner as it is possible to study the majority of insects or plants, the advances we now herald might have been delayed some hundreds of years. The field is too great to be adequately covered in any near future. I have spent a good part of my life describing about three thousand five hundred supposed new species of bees, but the combined work of all bee-students to date leaves the subject in much the condition of a page of a book, on which each line contained only one or two words and a few scattered letters. It would be impossible to do more than guess at the nature of the narrative. The thing to do is to admit that the book can never be completed in our generation, but by concentrating on certain pages we may make them intelligible. They should be selected from diverse parts of the book. That is to say, it would be more profitable to study intensively and cooperatively certain groups of animals and plants, such as *Rosa, Salix, Viola* and *Crataegus* among flowering plants, *Helix* and its allies among snails, *Drosophila* and its allies among flies, the Saturniidae among moths, and so forth. I mention some of the groups which are being intensively studied, but even in the *Drosophila* group much more might be done. The world is inhabited by great numbers of species of these flies, particularly, it seems, on remote islands. Ideally, there should be perhaps a hundred collectors and workers scattered over the earth. Even among the best-known groups there is still much to discover. The museums contain only a small part of the existing species, and adequate collecting must be done by experts, who also must make the field observations. We soon find that our program is too vast to realize, but there is nothing to prevent the cooperative concentration of existing workers on some of these subjects. This does not imply any denial of individual responsibility and credit. Each worker should contribute his separate part and if this has to be incorporated in another's report it should be fully credited, if only to enable the reader to learn the source of his information. The greatest obstacle perhaps would be to find adequate means of publication, but this ought to be overcome.

Even in the absence of organized cooperation it is possible for numerous workers to interest themselves in particular groups, in particular parts of the world. It would be possible for certain journals or societies to announce that they would give preference to papers on these groups, and for museums to make special efforts to accumulate and arrange materials pertaining to them. Thus there would be no sort of domination or coercion, but only a concentration of interest in given directions.

Along with the kind of specialization described should go another, at right angles to it. Particular localities should be intensively studied, to determine the biological interrelations of all the organisms present. The Clare Island survey and the investigation of Plummer's Island on the Potomac show how richly this kind of investigation may be rewarded. This class of work equally requires cooperation, but also permits and even necessitates individual responsibility for the several contributions.

T. D. A. COCKERELL
UNIVERSITY OF COLORADO

THE DE REVOLUTIONIBUS ORBIUM COELESTIUM

LAST summer, being desirous to check up some statements regarding the famous work of Copernicus, I found that if I wished to consult the work I must do so in the original. Fortunately, the New York Public Library possesses a copy of "De Revolutionibus Orbium Coelestium," and I procured the volume and closely examined it. It is not a large book, containing only some two hundred pages and sixty thousand words. The ink seems as black and the thick, heavy paper as good as the day in 1543 when it issued from the press. The text proper starts out with one of those abstract "demonstrations" which are passed aside as "scholastic" if found in a medieval book, but bowed down to reverently when found in some Platonic dialogue. But, after leaving this "proof" of the cosmic significance of the circle, Copernicus begins to review the known astronomical facts of his time and to draw one conclusion after another towards establishing the thesis that the sun is the central pivot around which the planets revolve.

This part of the text has extreme interest. The Latin is very easy to read and, as far as I could judge, seems to be almost wholly of the classic type. The book is broken up conveniently in many small subdivisions. There are about forty geometrical diagrams. The really striking point about this ancient book, however, is its air of extraordinary freshness, due partly to the fact that, Copernicus' mathematical apparatus being limited to Euclid and Ptolemy's presentation of trigonometry, he uses many ingenious proofs where a modern astronomer would, no doubt, use a more powerful method. But the main reason for the striking quality of the book seems due to another fact: Copernicus was studying the heavens with his naked eyes. Any one had only to look up in the