York seem to have reached the stage of definitive results in their study of multiple sclerosis. During the eleven years in which the fund has shared the cost of this research, existing knowledge of the disease and of its treatment has been greatly clarified. Dr. Tilney is now trying to develop a blood test by which it can be detected in an early phase. At their June meeting, the directors of the fund voted to reserve funds for three further annual appropriations of $5,000 each to continue and presumably to complete this project. Two years ago the Child Research Council of Denver, associated with the University of Colorado Medical School, reshaped its program and employed Dr. Alfred H. Washburn as full-time director of research. Under Dr. Washburn's leadership, and with promised fund assistance, the council has entered upon the systematic study of growth and development from early infancy through adolescence. A research group has been assembled. The fund will provide $32,250 this year and next to meet the major part of the council's budget. A reservation of $12,500, the fourth of five annual subsidies, was made available to the Committee on Effects of Radiation, headed by Dr. W. C. Curtis of the University of Missouri. This committee is conducting a group of studies, of biological, physiological and medical significance in the field of radiation. At Washington University, St. Louis, the study of trachoma in which the fund has been participating has been reorganized, and an appropriation of $20,887.23 has been made to carry it through the coming year on a somewhat reduced scale.

EXCEPT for some curtailment of the work of the Institute for Child Guidance, the mental hygiene program of the Commonwealth Fund for the coming year, approved by the Board of Directors on June 14, shows no important change. A total net appropriation of $227,358 provides for the operation of the institute with a professional staff of thirteen persons; for the consultant and research service of the Division on Community Clinics of the National Committee for Mental Hygiene; for the continuance of fellowships in psychiatry at the Institute and the University of Colorado, and in psychiatric social work at the New York School of Social Work and the Smith College School for Social Work (four each this year), the School of Applied Social Sciences at Western Reserve, and the School of Social Service Administration at the University of Chicago; for further aid to the study of psychiatric education by the National Committee for Mental Hygiene; and for limited psychiatric service at Union Theological Seminary. The Division of Psychiatric Education of the National Committee has taken steps this year toward the evaluation and strengthening of psychiatric education in American medical schools. Dr. Noble and Dr. Ebaugh have visited fifty schools. Fifteen schools have definitely asked advice and assistance in bettering their teaching of psychiatry; ten have provided for increased psychiatric training next year; two have planned to include psychiatric training in the education of pediatricians. Five of the best mental disease hospitals in the country are enlarging their facilities for intern training. The fund will continue in the coming year to pay half the cost of this division's work.

THERE is being printed in *Nature* each week a "Calendar of Geographical Exploration." In the issue of February 13 one of the entries reads: "Feb. 22, 1844. —Between the Mississippi and the Pacific. J. C. Frémont, one of the greatest of American explorers, reached the summit of the snow-covered Sierra Nevada mountains. He had started out in 1842 to explore the route beyond the Mississippi as far as South Pass in Wyoming. He ascended the second highest peak of the Wind River mountains which now bears his name and in the following year reached the Oregon settlements. Thence he turned south and east via the Klamath lakes to north-western Nevada and the Truckee and Carson rivers, covering much previously unexplored country. After crossing the Sierra Nevada he spent the rest of the winter on the Sacramento River, and returned round the southern end of the range to the Great Salt Lake, following the old Spanish trail from Santa Fé to California. Frémont had accompanied J. N. Nicollet, the French explorer, in his survey (1835–40) of the country between the upper waters of the Missouri and Mississippi rivers. In 1841, Frémont headed an expedition to the Des Moines River and thus completed Nicollet's map. His explorations opened up a great part of the country between the Mississippi valley and the Pacific Ocean. Frémont had a varied career, afterwards becoming soldier, politician and multi-millionaire."

DISCUSSION

DOODLE-BUGS AND LAW-MAKERS

IN the language of the naturalist we might say that there has been much controversy among law-makers over the study of doodle-bugs. A doodle-bug is defined in the Century Dictionary as the "ant lion." I happen to have lived in the section of the United States where the law-makers have waged the greatest battles over the question whether it is legal to study the doodle-bug (and have listened to such voices as the late free-silver-tongued orator) and

where many persons are acquainted with the little conical sand pits made by the doodle-bugs but very few persons have actually seen the doodle-bug.

Fifty years ago my black mammy tried to tell me how to see the doodle-bug. A certain incantation was necessary. I am not certain whether this arose from voodooism or some other worship, but if one took a stick and stirred the sand at the bottom of the pit and repeated the words,

Doodle-bug, doodle-bug,
Come out of your hole,

the doodle-bug was supposed to appear.

After trying this with and without the incantation for fifty years, I have concluded that the doodle-bug is deaf or else the spirits that control his destiny are deaf, and it is the stick that pokes the doodle-bug out when it is properly applied to his tail. This is due to the fact that the doodle-bug always burrows in the sand backwards. If the presence of a stick behind prevents this backward motion, he may be successfully pried out of the sand, in which case he feigns death for a short time and may be rather closely observed.

According to some persons, the law-makers are not fighting over the question as to whether one may study the doodle-bug but whether one may study his cousins and his ants as well as his uncles and his aunts. The question is whether the doodle-bug's cousins are legitimate or illegitimate.

One of the foremost American scientists, William Morton Wheeler, has written a book, called "Demons of the Dust," in which he has very beautifully described the doodle-bug and his cousins. In fact, he has quite a number of cousins in all continents of the world, and they are often as different in their habits as two different races of mankind. Unfortunately, doodle-bugs are not very plentiful in cold climates. One of the most intelligent queens of Sweden studied at least the cousins of the doodle-bug, but she had them shipped from further south.

It is too bad that the law-makers have not studied doodle-bugs. Such a study would give them a more philosophical view of life. Thus it might entail considerable emotion to discuss the question of whether the different races of mankind were cousins or the monkey's distant relatives, but one can have a more objective view-point in discussing the cousins of the doodle-bug.

In fact, I believe the doodle-bug himself has a more philosophical view of life than has mankind, since he can often sit for months motionless and just think. Perhaps one might say he is less afflicted with vanity than is the human race. He does not need to claim divine ancestry in order to puff up his pride. Clad in a humble coat of sand, dwelling in a house of sand, he claims a long line of doodle-bugs in his family tree. His doodle-bug ancestors go back millions of years, their tombs being imperishable rocks. These tombs need no inscriptions, since the mummified doodle-bugs are so perfectly preserved. They are dated by the geological strata. The doodle-bug's cousins also claim an ancient lineage. These family trees are all preserved in the rocks. In such a day of strife and differences of opinion, it is comforting to take over a doodle-bug philosophy.

On holidays I sometimes wander over dry sandy areas and even old battlefields, looking for doodle-bugs, who are still making their conical pits in the dry sand under the shelter of some projecting object. Wars over the same field have not disturbed them in their philosophy. Neither have the law-makers impaired their eternal hope that some day a wandering ant will fall into the pit and thus keep alive the race of doodle-bugs.

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THE RELATION OF DETERIORATION OF ORANGE JUICE TO ITS IODINE REDUCING VALUE

IN the course of investigations on the nature of deterioration of orange juice during storage it was found that direct titration of the juice with standard iodine solution gave a good indication of the extent of browning and of the general deterioration in quality. The iodine titration decreased from 20 to 25 cc 0.01 N I_2 per 50 cc of pasteurized or benzoated juice to less than 2 cc during storage. The decrease in the iodine titration was found to be a good indication of degree of discoloration. Darkening, which normally occurred during storage at room temperature in the presence of oxygen or air, was not perceptible until the iodine titration was low. The greater the darkening, the lower was the iodine titration. The iodine reducing substances present in fresh orange juice were not appreciably changed by the manner of extracting the juice, the amount of suspended pulp, by deaeration for several hours with air or oxygen or by heating. The maturity of Valencia and Navel oranges did not materially affect the initial iodine value, although for Navel oranges it was, in some cases, appreciably higher than that of Valencia juice. In view of the fact that Szent-Györgyi[1] has shown that this reducing factor present in orange juice and other peroxidase containing plants is largely hexuronic acid and that G. C. King and W. A. Waugh[2] have shown that a pure crystalline

[1] *Biochem. J.*, 22: 1387, 1928.
[2] SCIENCE, 75: 357–358, 1932.