

first two were given without any drug, the third four and one-half hours after the drug. The dose and time interval produced a "kick" comparable to a satisfying amount of marihuana in most cases.

When asked whether they noticed any differences in their own performances on the tests, eight said they felt sure they had improved with the drug, three felt they remained the same, and one "couldn't say."

Actually, however, nine of the 12 had lower scores on the tests after the drug than on the second trial without it.

"The Seashore test," Dr. Aldrich points out, "measures only sensory musical capacity and leaves out of account such factors as motor-speed and coordination, release of inhibitions and fatigability, which could conceivably influence the playing of present-day music."

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GENERAL SCIENCE

Guggenheim Fellowships

➤ POST-WAR Guggenheim Fellowships from a special appropriation have been announced as awarded to five men either in the Army or engaged in war research. A total of \$200,000, in addition to the usual Fellowship budget, has been set aside by the John Simon Guggenheim Memorial Foundation for fellowships exclusively for men and women now serving the Nation in the war effort.

Recipients of post-service Fellowships include Dr. Melvin Calvin, University of California chemistry professor now in war research, who plans to go to Soviet Russia after the war to study new methods of synthesis in organic chemistry. Joseph Hickey, an ornithologist now engaged in war research at the University of Chicago, proposes to analyze approximately 250,000 records of banded birds to learn their life expectancies, population turnover, and other facts of value to conservationists.

Sixty-nine Guggenheim Fellowships, totaling \$155,000, were awarded for the year 1944-45 to American and Canadian scholars and creative workers. The list contains 13 women, the largest number ever to receive Guggenheim Fellowships in any one year. Two Negroes and one American-born Japanese were so honored.

Fellowships for work in the biological sciences are more numerous than Fellowships granted for work in any other field. Dr. Tilly Edinger of Harvard University will study the development of teeth in the evolutionary line leading from ancestral fishes to mammals.

Investigations of the causal factors involved in the embryonic development of vertebrates will be conducted by Dr. Johannes F. K. Holtfreter, one of the world's leading experimental geneticists. Of German origin, Dr. Holtfreter was sent from England to an internment camp in Canada. He was

released from there upon the appeal of Canadian scholars who admire his work and have a high personal esteem for him. During the past two years he has worked at McGill University as the guest of the University and under the auspices of the Rockefeller Foundation.

The origins of corn and tomatoes, food plants indigenous to the Western Hemisphere, will take two Fellows to Latin America. Dr. Paul Weatherwax of Indiana University will go to the highlands of Peru and Bolivia, one of the great pre-Columbian centers of agriculture, where corn may have been domesticated. Dr. James Angus Jenkins of the University of California at Berkeley will study varietal differences in cultivated tomatoes in the state of Jalisco, Mexico.

This is the 19th annual series of Fellowship awards by the Foundation, established and endowed by the late United States Senator Simon Guggenheim and his wife as a memorial to their son John. Fellowships are granted to scientists, artists, writers and others who have shown creative abilities in their previous work.

Citizens of the United States and Canada, and of certain Latin-American countries, are eligible on equal terms. The stipends usually amount to \$2,500 a year. Those announced now were granted to Americans and Canadians; a series of Fellowships for Latin Americans will be granted in June.

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ENGINEERING

Speed Motion Pictures Used To Study Stoker Fuel

➤ "SPEED-UP" motion pictures in color are used in a new method of determining efficiency and economy of combustion in stoker fuel beds in industrial



WORM'S EYE VIEW—One look at this miniature monster should be enough to scare away most of its natural enemies. A mature *Cecropia* caterpillar is about four inches in length and bluish-green in color. It is armed with rows of spiny tubercles which are red with spots of black near its head, yellow along its back and blue on the sides. Photograph by George A. Smith, Quarryville, Pa.

furnaces. Pictures were shown and the method explained by Otto de Lorenzi of the Combustion Engineering Company, New York City, at the meeting of the American Society of Mechanical Engineers in Birmingham, Ala. Ordinary motion pictures of stoker fuel bed movements are too slow to have value in studying the burning coal behavior.

"The general impression gained, when looking into a stoker-fired furnace, is that the fuel bed is motionless, incandescent and active," he stated. "While the actual motion is very slow, nevertheless it is positive and regular. The slowness makes it difficult for the human eye to see, follow and remember successive steps during any given cycle. Consequently, to have a true picture of sequence of operation and resulting changes, the action must be speeded up."

Interval photographs pieced into a continuous motion picture are found satisfactory for complete analysis of coal behavior in the various fuel bed zones. The exposure rate can be adjusted to secure any desired degree of speed-up. The studies made by this new method are being used in improved designing and engineering.

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