

THE MONTH AT CALTECH

*Dr. George W. Beadle—pollinating corn at the
Biology Division's Experimental Farm in Arcadia*

Lasker Award

GEORGE W. BEADLE, chairman of the Institute's Biology Division, was awarded the 1950 Lasker Award last month for his "outstanding and fundamental contributions to the understanding of genetic control of metabolic processes."

The award, given annually by the American Public Health Association, was established five years ago by the Albert and Mary Lasker Foundation, and consists of a \$1,000 grant, a bound citation and a gold statuette. This is the first time it has been won by a West Coast scientist.

Before 1941 there were some indications that genes controlled chemical reactions, but this was not a widely accepted fact. In that year, though, Dr. Beadle, working with Dr. E. L. Tatum at Stanford University, made the significant discovery that the synthesis of vitamins and amino acids in the living cell is under the control of the genes. In other words, he found that each of the biochemical reactions of a cell is governed by a particular gene. In making this discovery he used the bread mold *Neurospora Crassa*, and he has been identified not only with the discovery but with the addition of this new tool for genetic research ever since.

The discovery, of course, opened up a whole new field of research which has led to new knowledge of genes themselves, to new knowledge in biochemistry, and even in bacteriology—where, for the first time, it made possible the study of bacterial genes.

During the recent war, the application of genetic

principles resulted in a four-fold increase in penicillin production, as well as the development of new means for assaying vitamins and amino acids in foods and tissues.

"Fulfillment of the implication of these pioneer studies," says the Lasker Award citation, "will undoubtedly lead to an understanding of human constitution as related to the vital problems of host resistance and susceptibility in both metabolic and infectious disease."

Dr. Beadle, born in Wahoo, Nebraska, in 1903, was graduated from the University of Nebraska in 1926, received his master's degree there in 1927, and his Ph.D. at Cornell University in 1931. He then came to Caltech as a National Research Council Fellow, where he worked under the great geneticist and Nobel Prizewinner Thomas Hunt Morgan, then head of the Institute's Biology Division.

In 1935 Dr. Beadle went to Paris to work with Dr. Boris Euphrussi, of the University of Paris, whom he had met at the Institute. In 1936 he taught at Harvard, then moved to Stanford University in 1937, where he remained until he came to Caltech in 1946 as head of the Biology Division, succeeding T. H. Morgan and carrying on the strong genetics tradition of the Institute.

Industrial Associates

ON FRIDAY, NOVEMBER 17, the first meeting of the Industrial Associates of the California Institute of Technology will be held at the Institute.

Members of this group now include the Douglas Air-

craft Company, Inc., E. I. du Pont de Nemours and Co., Inc., Lockheed Aircraft Corporation, North American Aviation, Inc., Socony-Vacuum Laboratories, Standard Oil Company of California and Union Oil Company of California. Representatives of these companies will attend the November 17 meeting, at which members of the Institute staff will report on new research here.

Dr. Linus Pauling, Chairman of the Division of Chemistry and Chemical Engineering, will discuss *Properties of Alloys in Relation to Their Structure*. Dr. Frederick Lindvall, Chairman of the Division of Engineering, will talk on *Computers*. Dr. Robert Bacher, Chairman of the Division of Physics, Mathematics and Astronomy will discuss *High-Energy Physics*. And Dr. George Beadle, Chairman of the Division of Biology, will speak on *Smog and Crop Damage*.

The Industrial Associates officially came into existence on July 1, 1950, but it actually had its beginnings long before then. World War II showed how quickly the fundamental research carried on in U. S. colleges and universities could be used to develop new weapons, new machines and new materials. At the end of the war, then, many large corporations realized that it would be good business to support the universities where fundamental research is carried on, and they began to allocate money to these universities over and above the amounts they were already devoting to fellowships and specific research contracts.

In December, 1948, E. I. du Pont de Nemours and Co. transmitted a grant of \$10,000 to the Institute, as one of ten institutions in the country selected for what is expected to be an annual grant for a period of years. A few weeks after that, the Standard Oil Company of California contributed \$25,000 to the Institute, with assurance that similar grants would continue for three years.

With these indications of business interest, the Institute proceeded with the development of a plan under which business might make allocations of funds to the Institute and receive concrete benefit in return. The outcome of this work was the organization of the Industrial Associates of the California Institute of Technology last July.

Under the terms of membership, an Industrial Associate is allowed access to fundamental research in all Divisions of the Institute. Regular and special publications are sent to the company. Representatives of the company are invited to semi-annual seminars at the Institute where new developments in science and engineering will be presented, and these representatives are also given the privilege of a limited amount of consultation with the Institute staff on problems of mutual interest.

In return for these services by the Institute, member companies pay a fee ranging from \$10,000 to \$50,000 a year, depending upon the size of the company and the extent of its interest in Institute research. This fee is considered by the companies as analogous to a consult-

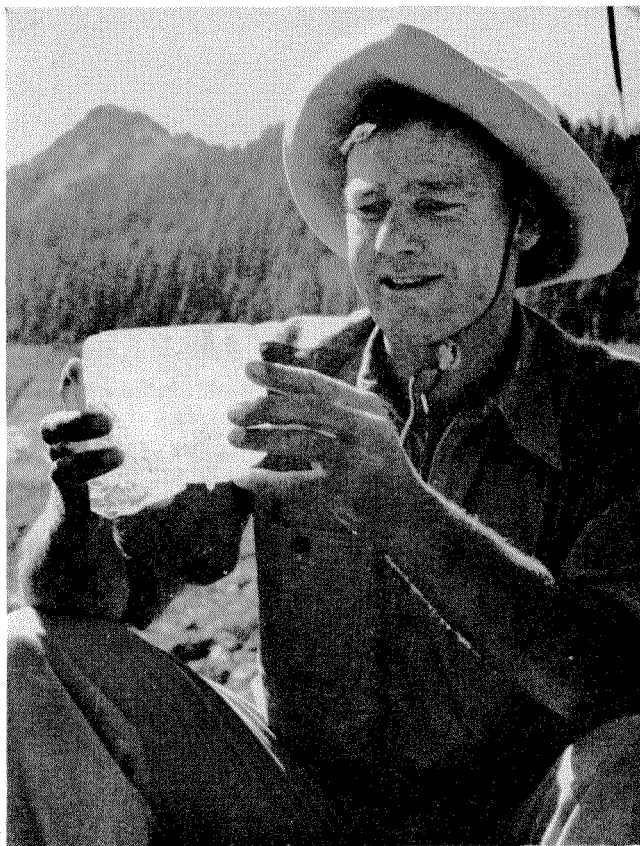
ing fee for technical information, and is charged as business expense. Fees paid by the member companies have now reached the level of \$85,000 a year, and it is likely that this amount will increase for some years to come.

In addition to the seven corporations who are now members of the Industrial Associates, four others have signified their intention of joining, and a number of others have the plan under consideration.

Great Teacher

BY SOME INTRICATE (naturally) and secret (apparently) process involving a poll of student governing bodies at 52 leading U. S. colleges, *Life* Magazine recently selected 8 Great Teachers of 1950. Among the 8: Caltech's Robert P. Sharp, Professor of Geomorphology.

Said *Life*: "To keep in shape for his back-packing geology field trips, Professor Sharp of the California Institute of Technology jogs around the cinder track almost every day that he is on the Pasadena campus. Few of his students ever go this far, but Sharp's enthusiasm is contagious, and his sophomore geology course is one of the favorites on the Cal Tech schedule. It is credited with attracting many unsuspecting students into the lifetime study of geology. Though only 39, Professor Sharp has been identified with the Cal Tech campus for 20 years, first as a football quarterback and today as an international authority on geomorphology, which is con-



J. R. Byerman. Courtesy *Life* Magazine

Life study: Great Teacher, piece of glacier ice, and hat

cerned with the study of land forms and shapes."

Early in August, and right up against a deadline, *Life* decided to send a photographer out to the Caltech campus to get a picture of Sharp for this feature. It being summer, Sharp was far from the campus, working in the Trinity Alps in Northern California. He could not be reached by phone or wire, though a letter might be sent him c/o General Delivery, Weaverville, California—with no guarantee when or whether it would be called for. As it turned out, Sharp *didn't* call for the mail that included *Life's* palpitating letter for three weeks.

Eventually, though, the *Life* photographer caught up with Sharp—who, by this time, had moved on to work with a group of students on Emmons Glacier on Mt. Rainier. Sharp was, duly shot and, as in the picture below, duly appeared before *Life's* readers — easily distinguishable from the other Great Teachers, who appeared in their coats, vests, ties or classrooms. He was also distinguishable, of course, by the hat he has worn in the field for upwards of 10 years. Fortunately, the *Life* picture records this worthless old curio for posterity, because at any moment now it is liable to burning by Mrs. Sharp.

U.S.P.H.S. Grants

THE U. S. PUBLIC HEALTH SERVICE last month announced grants of nearly \$75,000 to Caltech researchers, to carry on projects for which grants were allotted last year.

Dr. Linus Pauling, Chairman of the Division of Chemistry and Chemical Engineering; Dr. Carl Niemann, Professor of Organic Chemistry; and Dr. Dan H. Campbell, Professor of Immunochemistry were given a flat sum of \$30,000 for research in the chemistry of the blood.

Dr. Pauling and Dr. Robert Corey, Professor of Chemistry, were given \$19,980 for studies of X-ray diffraction and the structure of protein molecules.

Dr. Herschel K. Mitchell, Associate Professor of Biology, and Dr. Carl Niemann received a grant of \$10,740 for work with amino acids involving the substitution of fluorine for hydrogen and studies of the effect of the acids on the metabolism of various organisms.

Dr. Henry Borsook, Professor of Biochemistry was given a grant of \$9,504 for research in estimating the relationship of Vitamin B-12 to metabolism.

Dr. Anthonie Van Harreveld received \$4,190 for work in determining the relationship of oxygen supply to the functioning of the nerve cells.

Huntington Library Addition

CONSTRUCTION GETS UNDER WAY this month on an underground addition to the Huntington Library in San Marino which could serve as a bomb shelter in case of an emergency. The building will cost close to \$250,000, have one story above ground, and two below. R. R.

Martel, Professor of Structural Engineering at the Institute; as well as Wesley Hertenstein, Superintendent, and Ernest E. Hugg, Assistant Superintendent of Buildings and Grounds at the Institute served on the committee which worked out the design of the new building.

Student Registration

STUDENT REGISTRATION at the Institute this year totals 1070—645 undergraduates and 425 graduate students.

Of the 645 undergrads, 174 are freshmen, 151 sophomores, 153 juniors and 167 seniors. About 437 of the undergrads come from California, 178 from other states and 30 from foreign countries.

Of the 425 graduate students, 138 come from California, 227 from other states, and 60 from foreign countries.

The student body comes from 42 states (with no representatives from Maine, Delaware, South Carolina, South Dakota, West Virginia or Mississippi), Alaska, and 35 foreign countries.

Parents Day

MORE THAN 150 mothers and fathers of freshmen and new students visited the campus on Parents Day, October 21. The program was sponsored by the Caltech Service League in cooperation with the Institute, and included talks by the Deans, by ASCIT President Ulrich Merten and by President DuBridge, as well as guided campus tours, luncheon and afternoon tea at the Athenaeum and a freshman football game with Occidental. Some of the hardier parents stayed on until evening and went to the varsity game at Occidental. An all-around success, Parents Day will probably go on the books now as an annual event.

Kerckhoff Explosion

HOWARD J. TEAS, Research Fellow in Biology, in corn genetics, was seriously injured on the evening of October 9 in an explosion which occurred in his laboratory in Kerckhoff, while he was transferring compressed air from a large cylinder to two smaller ones. Apparently the smaller tanks gave way under pressure, and blew out their ends. Teas, with a severe cut on his right leg, and injury to his left eye, was taken to the Huntington Hospital. By the end of the month, however, he was on the mend, due to return to work in November.

Palomar in Print

THE NATIONAL GEOGRAPHIC Magazine for September carried a 20-page story on Palomar and the Sky Survey, a joint research effort of the National Geographic Society and the Institute . . . And the October 16 issue of *Life* included an exhaustive story on Cosmology, largely based on research at Palomar.