

door-opening to other more important labors. Whoever, looking out over the Pacific, off the California coast, be the person professional scientist or layman, would like to picture in his imagination what a myriad animal population extending through cubic miles of the ocean water may be doing, as day and night follow each other, month after month and year after year, such doing consisting of the ceaseless activity of the animals in their "struggles for existence," has only to search Dr. Esterly's writings for material out of which to construct such a picture. What the creatures eat, how they catch their prey and how fast they digest it; by what creatures they in turn are preyed upon; when and how they propagate; how the different kinds respond, each largely in its own way, to the change of light from midday to midnight, back and forth, and from midsummer to midwinter, also back and forth; how far into the depths they descend—such are the items of information available for his picture, thanks to Esterly's perseverance and skill in catching, counting, computing statistics and experimenting. The history of marine biology does not furnish many instances of such a well-balanced combination of field, statistical work and laboratory experimentation as is furnished by the researches of Esterly on the Copepoda of the "San Diego area" of the Pacific.

But no account of the man's life, however brief, would do him justice that said nothing about him as a teacher. President Remsen du B. Bird, of Occidental College, with whom he worked hand-in-hand for many years, is especially fitted to speak of him in this capacity:

Dr. Esterly was one of our great teachers. He had those qualities of personality which endeared him to everybody. He gave himself without stint to the college and his devotion carried him to all its activities. Particularly was he active as chairman of the Committee on Athletics, a position which he handled with tact and fairness and deep interest in student affairs.

There was universal respect for him in the work of the classroom. His quietness, thoroughness and deep interest in all his students won from his colleagues and those who were in his classes the very highest praise. I do not see how a professor in a college such as Occidental could have been better fitted for his task in scholarship, progressive interest in his departmental affairs, wise counselling and fine loyalty than Dr Esterly.

Through the years of my association with Dr. Esterly at the Scripps Institution, I was impressed with his case as an example of the possibilities there are in the identification of teachers of science in non-research colleges and schools, with institutions devoted exclusively to research.

The loss which Dr. Esterly's personal friends and professional associates have suffered from his untimely death is unrecordable in printer's ink. Much less is so recordable the loss suffered by Ruth Orgren Esterly, the wife and vital companion of most of his adult life.

WM. E. RITTER

UNIVERSITY OF CALIFORNIA

SCIENTIFIC EVENTS

THE INTERNATIONAL TEMPERATURE SCALE

THE Seventh General Conference on Weights and Measures, at its meeting on October 4, 1927, adopted provisionally a temperature scale, including certain standard temperatures, interpolation formulae, and methods of measurement. This scale will be used by the Bureau of Standards and other national laboratories.

In addition to the melting and boiling points of water (0° and 100°), the standard temperatures adopted are:

(a) Boiling point of oxygen.....	-182.97° C.
(b) Boiling point of sulphur.....	444.60
(c) Melting point of silver.....	960.5
(d) Melting point of gold.....	1063

The platinum resistance thermometer is standard below 660° C., the platinum rhodium thermocouple between 660° C. and 1063° C. Above 1063° C., the temperature scale is based on the Wien-Planck equation with $c_2 = 1.432$ cm degrees. There is also included a series of temperatures for calibrating secondary measuring instruments, and details of experimental technique.

The complete text of the decisions of the conference will appear in the October number of the Bureau of Standards *Journal of Research*.

GEORGE K. BURGESS

NATIONAL BUREAU OF STANDARDS

THE NAVAL GRAVITY DETERMINATION SURVEY

LAST fall the International Geodetic and Geophysical Union communicated with the Navy Department on the subject of contributing to an oceanic gravity determination survey, but the initiation of such work without a background of technical experience and with no apparatus to start with presented such difficulties as necessitated a more or less indefinite postponement of any participation. Fortunately, however, Dr. William Bowie, chief of the division of geodesy of the U. S. Coast and Geodetic Survey, learned from Dr. F.

A. Vening Meinesz, of the Netherlands Geodetic Commission, that the latter would be willing to instruct representative scientists in the United States in the technique of his methods of determining gravity at sea, if afforded the opportunity. A conference of those interested followed and the Secretary of the Navy designated the Naval Observatory as his agency in arranging for an expedition of instruction. The problem of securing Dr. Meinesz's invaluable services without too much international formality was happily solved by the Carnegie Institution of Washington, with the approval of whose president it was made possible for Dr. A. L. Day, the director of the Geophysical Laboratory, to extend an invitation to Dr. Meinesz to visit the United States with his entirely unique pendulum apparatus and supervise the instruction in its use so highly desirable before this country should participate in the oceanic gravity determination work which the International Geodetic and Geophysical Union is fostering.

The Secretary of the Navy has assigned the United States Submarine S-21 to conduct the sub-surface work of the expedition and has set aside a period of about two months for the expedition which will establish a series of gravity stations embracing the Atlantic continental shelf south of the Chesapeake Capes, the Gulf of Mexico, with emphasis on the Mississippi delta, the Bartlett Deep south of Cuba, and particularly the Nares Deep adjacent to Porto Rico. Besides Dr. Meinesz, who will supervise the pendulum determinations, there will accompany the expedition Dr. Frederick E. Wright, of the Geophysical Laboratory of the Carnegie Institution, and Elmer B. Collins, principal scientist, of the Hydrographic Office, Navy Department. The S-21 is being accompanied by the United States Eagle Boats Nos. 35 and 58, and Lieutenant-Commander T. L. Nash, U. S. Navy, commands the expedition, while Lieutenant J. L. Fisher, U. S. Navy, commands the submarine itself.

Before the departure of the expedition from the Washington Navy Yard, an opportunity was given to members of the various scientific bodies in Washington to view the pendulum apparatus in place aboard the S-21, while Dr. Meinesz explained its workings.

Upon his return from the expedition in December, Dr. Meinesz will deliver a lecture in Washington on the apparatus, the general character of its results and on the features of scientific interest that develop during the current cruise.

Since the above was written word has reached the Navy Department of a successful run from Hampton Roads to Key West of the naval gravity determination expedition, consisting of the submarine S-21 and two Eagle boats acting as tenders.

Provisional results obtained by Dr. Vening Meinesz, the distinguished Dutch geodesist, from his comparisons made in Washington between his special apparatus and the standard pendulum apparatus used by the Coast and Geodetic Survey show variations only in the millionth place of the computations, which is naturally very satisfactory, especially as the results are subject to still greater refinement, when the rates of the clocks employed are more exactly determined.

Three gravity stations were established off the Atlantic Coast during the cruise south to Key West. On Thursday, October 11, the expedition left Key West for Galveston via the Sigsbee Deep in the western part of the Gulf of Mexico. The expedition was due in Galveston on the 17th instant for refueling and minor overhaul work.

Dr. Meinesz expresses his special gratification over the cooperation of officers and men of the expedition.

C. S. FREEMAN

U. S. NAVAL OBSERVATORY

DEDICATION OF THE SHANKLIN LABORATORY OF BIOLOGY AT WESLEYAN UNIVERSITY

THE Shanklin Laboratory of Zoology forming the third quarter of the new Johnston quadrangle at Wesleyan University was dedicated with appropriate ceremonies on October 12.

Professor Charles M. Child, of the University of Chicago, delivered an address on "The Individual as a Biological Problem." Immediately afterward the memorial tablet opposite the main entrance on the first floor of the laboratory was unveiled by a member of the late President Shanklin's family.

Following is the inscription on the memorial tablet in the new building:

SHANKLIN LABORATORY OF BIOLOGY

A MEMORIAL TO

WILLIAM ARNOLD SHANKLIN, D.D., LL.D.

PRESIDENT OF WESLEYAN UNIVERSITY

1909-1923

Professor Edwin G. Conklin, of the department of biology at Princeton University, delivered an address in the evening on "Biology and Human Life" in Memorial Chapel.

President James Lukens McConaughy presided at the ceremony in the afternoon in the Shanklin Laboratory. A brief description of the new science hall was given by Professor Edward Christian Schneider, professor of biology, followed by the introduction of Professor Child, a member of the class of 1890.