astronomers belonging to more than thirty clubs throughout the country.

A national convention of amateur astronomers, with sessions at the museum and the New York World's Fair, will be held on August 19 and 20, the closing days of the exhibition. August 19 will be Amateur Astronomers Association Day at the New York World's Fair. An address "Astronomy in the World of To-morrow" will be given on that day at the fair by Dr. Harlow Shapley, director of Harvard College Observatory.

A nine-inch reflecting telescope made by school students in Flint, Mich.; star photographs from an amateur in New Brunswick, Canada; lens-making tools from Lewiston, Maine, and a home-made spectroscope from Norwalk, Conn., are among the exhibits. The Alabama Astronomical Association shows photographs; Earl C. Witherspoon, of Sumter, S. C., is displaying a home-made Herschel wedge for use in solar telescopic observations. A Schmidt camera, the new type of telescope now being widely used by professional astronomers, difficult of design and construction, is being exhibited by Stanley Brower, of Plainfield, N. J., with samples of stellar photographs. A celestial globe, complete with automatic electric motions, is being shown by E. C. Stanton, of Bethesda, Md. The Cook Observatory of Wynnewood, Pa., is exhibiting photographs of its equipment and samples of its work. Exhibits from members of the National Capital Amateur Astronomers Association in Washington, D. C., are also on view. The New Haven Astronomical Society includes in its exhibit tools and devices used in the production of telescope mirrors, grinding machines, testing apparatus and the like. Donald S. Kimball, president of the group, is showing a series of forty-four auroral photographs taken from his home in Hamden, Conn.

Visitors are invited also to visit the workshop of the optical division of the association in the basement of the Hayden Planetarium, where they may watch the making of telescopes, mirrors, lenses, mountings and other equipment. The Junior Astronomy Club is represented by photographs and the paintings made on its 1932 eclipse expedition to Peru, as well as by instruments constructed by its members.

Honorary life membership in the association will be presented during the convention to Leslie C. Peltier, of Delphos, Ohio, who has to his credit the discovery of several comets and novae. A special performance will be given at the Hayden Planetarium and at "Time and Space," the special exhibit of the museum at the World's Fair. The exhibition will be open on week days and Saturdays from 10 A.M. to 5 P.M. and on Sundays from 1 P.M. to 5 P.M.

RECENT DEATHS AND MEMORIALS

DR. WILLIAM JAMES MAYO, of the Mayo Foundation and the University of Minnesota, surgeon and chief of staff of the Mayo Clinic, died on July 28 at the age of seventy-eight years.

DR. WILLIAM ARTHUR TARR, professor of mineralogy and geology at the University of Missouri, died on July 28. He was fifty-eight years old.

DR. HARTLEY BURR ALEXANDER, professor of philosophy at Scripps College, Claremont, Calif., previously professor of philosophy at the University of Nebraska, died on July 27 at the age of sixty-six years. In addition to his publications in philosophy and psychology Dr. Alexander is known for his work in Indian anthropology.

DR. ALFRED HARKER, emeritus reader in petrology at the University of Cambridge, a fellow of St. John's College, died on July 29 at the age of eighty years.

Nature announces the death of Dr. W. A. Jolly, professor of physiology in the University of Cape Town, and of Brigadier-General the Hon. C. G. Bruce, leader of the Mount Everest Expeditions of 1922 and 1924.

As a permanent recognition of the contribution of the late Professor Charles Sumner Plumb, the animal husbandry building of the Ohio State University will be called "Plumb Hall," on the recommendation of the College of Agriculture, in which Professor Plumb served as professor of animal husbandry for thirty-seven years. At the same time the board of trustees recorded its "profound appreciation and the gratitude of the university for the gift of the priceless library" of Professor Plumb, whose death occurred in March. The library consists of more than 1,600 items.

SCIENTIFIC NOTES AND NEWS

THE "golden jubilee" of David Fairchild, formerly chief of the Division of Plant Exploration and Introduction of the U. S. Department of Agriculture, author of "The World is My Garden," who joined the department fifty years ago, was marked on July 24 at Glenn Dale, Md., when Secretary Henry A. Wallace presented him with the Frank N. Meyer Medal. This was the sixteenth award of the medal, which was established by the will of Mr. Meyer, who was also a plant explorer of the Department of Agriculture.

THE Southern Minnesota Medical Association has presented its annual gold medal to Dr. Vernon L. Hart, professor of surgery at the medical school of the University of Minnesota, for the best scientific exhibit at the recent meeting of the Minnesota State Medical

Association. Dr. Hart's subject was "Fracture Problems."

THE senate of the University of Glasgow announces the award of the Struthers Gold Medal and Prize to Dr. George M. Wyburn for a series of embryological studies embodied in papers published in the *Journal of Anatomy*. The Harry Stewart Hutchison Prize has been awarded to James Holmes Hutchison for his dissertation entitled "The Iron-deficiency Anemia of Childhood."

IT is stated in *Nature* that Dr. Emil Abderhalden, professor of physiology at Halle, and Dr. Max Planck, professor of theoretical physics at Berlin, have been elected honorary members of the Société Philomathique of Paris.

THE University of Leeds has conferred the degree of doctor of science on Dr. W. L. Bragg, Cavendish professor of physics at the University of Cambridge.

THE University of Tasmania has conferred the degree of doctor of science on John William Evans, government entomologist of the Department of Agriculture, Tasmania.

DR. MARJORIE S. HARRIS, professor of philosophy at the Randolph-Macon Woman's College, Lynchburg, Va., has been elected president of the Southern Society for Philosophy and Psychology; Dr. Norman L. Munn, professor of psychology, Vanderbilt University, has been elected secretary and treasurer.

DR. FRANK BRAWLEY, of Chicago, has been made president-elect of the American Academy of Ophthalmology and Otolaryngology. He succeeds Dr. Albert C. Snell, of Rochester, N. Y., who has resigned because of ill health.

THE following members of the faculty of the Ohio State University are among those who will retire with the title professor emeritus on September 1: Dr. Clair A. Dye, dean of the College of Pharmacy, who has been on the faculty for forty-nine years; Charles W. Foulk, professor of chemistry, and Christopher E. Sherman, professor of civil engineering, for forty-three years; Frank C. Caldwell, professor of electrical engineering, for forty-six years; Horace Judd, professor of mechanical engineering, for thirty-seven years, and Elmer G. Horton, professor of medicine, for thirty-seven years.

DR. BIENVENIDO M. GONZALEZ, from 1927 to 1939 dean of the College of Agriculture, has been elected president of the University of the Philippines. Dr. Leopoldo B. Uichanco, professor of entomology and head of the department of entomology, will take his place as dean of the College of Agriculture.

ADELBERT DIEFENDORF, for the last nine years professor of civil engineering at the University of Pittsburgh, has been made head of the department of civil engineering at the University of Utah.

DR. R. D. HAWORTH has been appointed to the chair of chemistry in the University of Sheffield in succession to Professor R. P. Linstead, who has resigned. Dr. Wilson Smith has been appointed professor of bacteriology in succession to the late Professor J. W. Edington.

B. L. GOODLET, professor of electrical engineering in the University of Cape Town, Union of South Africa, has been appointed to the chair of electrical engineering at the University of Birmingham to succeed the late Professor W. Cramp.

DR. K. N. KAUL, of the University of Lucknow, has become a member of the staff of the Royal Botanic Gardens, Kew, England.

PROFESSOR FRANCIS COLIN MINETT, director of the Research Institute in Animal Pathology at the Royal Veterinary College, London, and professor of pathology at that college, has been appointed director of the Imperial Veterinary Research Institute of the Government of India. He will leave for India late in August.

DR. DAVID F. SMITH, professor of chemistry at the University of Buffalo, has been placed at the head of the work on agricultural motor fuels at the Northern Regional Research Laboratory of the U. S. Department of Agriculture at Peoria, Ill. He plans to study methods of producing gaseous, liquid and solid motor fuels from agricultural materials.

BY action of the house of delegates at the annual meeting of the Ohio State Medical Association, a bureau of public education has been established in the executive offices of the association in Columbus. Richard A. Aszling, recently a member of the staff of the Dayton *Daily News*, has been appointed director of the bureau.

DR. VERN O. KNUDSEN, professor of physics and dean of the graduate division of the University of California at Los Angeles, has been named a member of the Los Angeles Building Commission. Dr. Knudsen has specialized in acoustical problems and in 1935 won the $1,000 prize of the American Association for the Advancement of Science for his research on the absorption of sound by gases.

DR. HARRY F. OLSON, director of acoustical research for the Radio Corporation of America, will inaugurate work in electrical acoustics at Columbia University. A study will be made of the possibility of improvement in the quality of sound reproduction in radios and motion pictures. The course is part of a program undertaken by the School of Engineering to enable practicing engineers of the metropolitan area to enroll for specialized academic studies. It is parallel with,

and complements, two other courses in sound production, one on communication electronics given by Dr. Eugene Peterson, of the Bell Telephone Laboratories, and the other on the acoustical properties of rooms and buildings conducted by Dr. V. A. Schlenker, of the department of physics.

HERBERT HOOVER has been named a member of a committee of the board of trustees of Stanford University to recommend a successor to President Ray Lyman Wilbur, who will retire on January 1, 1942. The trustees' committee will cooperate in the selection with an advisory committee of the Stanford Academic Council, composed of Dr. Eliot Blackwelder, professor of geology; Edwin A. Cottrell, professor of political science; J. P. Mitchell, registrar; Dr. C. V. Taylor, dean of the School of Biology, and Dr. Lewis M. Terman, professor of psychology. Dr. Wilbur's term was recently extended by the board of trustees beyond the retirement age of sixty-five in order that he might be president of the university when it celebrates its fiftieth anniversary.

HENRY LUNZ, in charge of the Seed and Weed Control Section of the Wisconsin State Department of Agriculture, was elected chairman of the Seed and Weed Council at a recent joint meeting with the Wisconsin Seed Dealers Association at Madison. He succeeds O. S. Aamodt, chairman of the department of agronomy at the College of Agriculture. The council is an organization of groups in Wisconsin interested in seed and weed problems, including the Wisconsin Experiment Association, the State Department of Agriculture, Wisconsin Seed Dealers Association, State University College of Agriculture, State Extension Workers Association, the Central Retail Feed Dealers, Wisconsin Bankers Association, Wisconsin Crop Reporting Service, the Association of Agricultural Instructors, the Wisconsin Council of Agriculture, and others.

ACCORDING to *The Australian Journal of Science* elections representing the States and the Australian Capital Territory on the Executive Committee of the Australian National Research Council have been made as follows: Australian Capital Territory: Dr. B. T. Dickson, Dr. W. G. Woolnough; New South Wales: Professor R. D. Watt, Professor W. J. Dakin; Victoria: Professor E. W. Skeats, Mr. W. E. Wainwright; South Australia: Sir Douglas Mawson, Sir William Mitchell; Queensland: Professor H. C. Richards, Dr. D. A. Herbert; Western Australia: Professor E. de C. Clarke, Dr. G. L. Sutton. Professor R. D. Watt has been elected deputy chairman.

DELEGATES to represent the United States at the seventh International Congress of Genetics at Edinburgh from August 23 to 30 have been appointed as follows: Dr. Hugh C. McPhee, of the U. S. Department of Agriculture, *chairman;* Dr. Albert F. Blakeslee, of the Carnegie Institution, Cold Spring Harbor, N. Y.; Dr. Lewis J. Stadler, of the University of Missouri, and Dr. Sewall Wright, of the University of Chicago.

PROFESSOR E. C. SLIPHER, of the Lowell Observatory, is visiting the South African Observatory of the University of Michigan at Bloemfontein in the Orange Free State for special observations of the planet Mars.

DR. N. H. DARTON is spending the summer in central Europe. He plans to visit Berlin, where he will read the proofs of his contributions to the American volume on the "Geology of the Earth," now in press in Berlin.

A PUBLIC meeting of the Chicago branch of the American Association of Scientific Workers held on July 18 at the University of Chicago was addressed by J. D. Bernal, professor of physics at the University of London, who spoke on the subject of his recent book, "The Social Function of Science."

THE American Astronomical Society will hold its sixty-second meeting at the University of California at Berkeley on August 7, 8 and 9.

THE twenty-fourth annual meeting of the Optical Society of America will be held at the Lake Placid Club, Essex County, New York, on October 12, 13 and 14. In addition to the usual program of contributed papers, a special program of invited papers is being arranged on the general topic of the "Optics of Vision." Papers are being prepared on the following subjects: Comparison of Structures of the Eyes of Humans and of Other Animals, Neural Connections between the Retinas and the Brain and Binocular Vision; Chemistry of Visual Systems, Recent Researches in Color Vision, Aniseikonia, Luminosity Methods and Results, Vision and Highway Accidents, the Supra-Threshold Realm of Seeing. The program committee is attempting to leave afternons free for recreation, except as this time may be required for committee meetings and similar activities. The annual dinner will be held on Friday evening, October 13, when the award of the Frederic Ives Medal will be made.

THE sixteenth annual meeting of the History of Science Society will be held in conjunction with the American Association for the Advancement of Science at Columbus, Ohio, from December 27, 1939, to January 2, 1940. The headquarters of the society will be at the Chittenden Hotel. Members wishing to appear on the program should communicate with Professor Louis C. Karpinski, department of mathematics, University of Michigan, Ann Arbor, Michigan. Dr.

Henry R. Viets, 8 The Fenway, Boston, Mass., is secretary of the society.

THE regular summer meeting of the Pennsylvania Academy of Science will be held at Laporte, Pa., on August 11 and 12. Field trips in botany and geology are planned. For further information, address the Secretary, Dr. V. Earl Light, Lebanon Valley College, Annville, Pa.

THE American Institute of Physics, New York City, has announced that it will conduct from November 2 to 4 a symposium on temperature. It is planned to coordinate the treatment of the subject of temperature in the several branches of science and engineering, to review principles and record recent work, to accumulate contributions for a comprehensive text to be published after the symposium, to emphasize the importance of temperature as a branch of physics and to improve technical curricula through making available up-to-date information.

DISCUSSION

SURFACE CURRENTS IN DEEP TIDAL WATERS

IN a recent article in SCIENCE, Shepard, Revelle and Dietz[1] report the discovery of unexpectedly strong bottom currents well out on the rugged continental shelf off the coast of Southern California. They note that these currents can not be explained as tidal currents of the regularly alternating type usually recognized, but must be due primarily to large eddies having no direct relation to the state of the tide.

Since some observations of my own during several summer vacations have led me to a similar conclusion about many surface currents in the deep water of the Inside Passage along the coast of British Columbia and since the importance of such eddies is only beginning to be recognized, I venture to present the results of these observations, even though they are only those of an amateur.

So far as I have observed, the times and heights of high and low water in the Inside Passage and its tributaries follow the predictions in the tide tables remarkably well, indeed so accurately that I have sometimes set my watch by them and later found it right within five minutes. The same is true of the times of turning of the current in the tidal rapids, of which there are at least ten on this coast strong enough to make white water. On the other hand, there are passages such as Welcome Pass, about 40 miles NW of Vancouver, where I have observed the current many times, and where there is no way to predict it at all. Thus on consecutive days with but little difference in the heights of the highs and lows, one may observe the current at corresponding tidal intervals and find it running in opposite directions on the two days, often with a strength of one or two knots, which is about as strong as the current gets in this pass. This pass differs from ones where the current can be predicted, however, in running parallel to a much wider alternative passage between the two bodies of water which it connects and in having only a moderately strong current.

[1] F. P. Shepard, R. Revelle and R. S. Dietz, SCIENCE, 89: 488, May 26, 1939.

Similarly along the shores of the Strait of Georgia, in the calm, clear weather that justifies the local steamship company in calling it "The Sunshine Belt," one may often observe currents of a knot or so, either alongshore or toward the shore or boiling up out of the bottom near the shore or meeting one another and sinking along a line made visible from afar by a thick accumulation of driftwood. Such currents all show a similar unpredictability.

My guess on the origin of these currents has been that they are eddies broken off from the strong tidal currents entering the Strait of Georgia through the relatively narrow Rosario and Haro Straits and Discovery Passage. With the configuration of the shore and bottom as it is, any such eddy, formed in the flood, can easily become detached from the current of the narrow strait and wander about aimlessly all over the Strait of Georgia. The observation of these unpredictable currents at places 60 or 80 miles away indicates that the eddies may persist for many days after detachment.

A similar effect occurs in the narrow fjords, such, for example, as Jervis Inlet. In this inlet the chart reports tidal currents of one knot, both ebb and flood, in places where calculations from the cross-sections of the fjord and the areas inland of those places would not indicate as much as one tenth of a knot, and where there are no big currents of fresh water like that of the St. Lawrence River. In some of those places at least, the currents are unpredictable. This I have observed especially in Jervis Inlet; and likewise in Alaska, in Le Conte Inlet. In the latter fjord I have observed the eddies only once, but that time with considerable detail owing to the fact that the eddies unexpectedly packed the small icebergs from Le Conte Glacier in around me and almost crushed my boat. On that occasion, with the boat unable to make her usual speed, the slow milling around of the icebergs gave a clear picture of the big, slow eddies.

My general conclusion from these observations, then, is that in deep waters of this type, aside from narrows or straits carrying exceptionally strong currents, the current at any point is most likely to be primarily