

explosions from earthquakes. In explosions, as I told in my previous testimony to you, the first motion is always outward. You push the earth away by the explosion, and you observe this outward motion at all seismic stations wherever you are. In an earthquake, on the other hand, you get an outward motion in some directions and an inward motion in other directions, and therefore, if you can observe the seismic signal at many stations, then you can tell an earthquake from an explosion by observing carefully the first motion. If you find that at all stations the first motion is positive, as we say, outward, upward, then you have an explosion. If you observe that it is positive at some stations and negative at other stations, then you have almost surely an earthquake.

"Now the Geneva Conference of Experts did not write this conclusion down in detail, but generally agreed in the discussions that in order to identify an earthquake one should observe two negative motions: one should have at two seismic stations a clear negative signal, downward signal, where the earth first moves down and then comes back up again. So it is the first motion which permits you to tell an explosion from an earthquake.

"Now why is that important? It is important because there are hundreds of earthquakes each year which give as big a signal as the explosions that we are concerned about, and therefore we must be able to distinguish the earthquakes from the explosions, and the best way we have found so far is this first motion. This is not the only way, but it is the best way, the most established way."

Education Act Hearings Stir Altercation on Security Clauses

In hearings before the Committee on Education and Labor of the House of Representatives a wide range of testimony has been presented recently on the progress of the National Defense Education Act of 1958. Officials from the U.S. Office of Education spoke on the implementation of the various titles of the act and discussed some of the problems that have arisen. One subject, the controversial loyalty oath and disclaimer clauses, caused an exchange that brought out the positions of a number of committee members.

Many members of the academic community are opposed to these clauses on the grounds that the first is unnecessary and that the second implies that the student is a "particularly suspect part of the population" who must pass a special test not required of other citizens. The exchange on the two security sections of the act, taken from a stenographic transcript, follows.

Frank Thompson (D-N.J.): "I think before we leave the loan fund I would like to ask Mr. Derthick whether he shares the feeling expressed by Secretary Flemming on about December 15, concerning the loyalty oath provision of this act."

Lawrence Derthick, U.S. Commissioner of Education: "I do."

Thompson: "In other words, you feel they are not necessary?"

Derthick: "I do."

Thompson: "I am very glad to hear that. Mr. Frelinghuysen (R-N.J.), has legislation which would eliminate it. I have it, and others do.

"I note with some interest I have communications from a great many institutions, the president of Yale University wrote a beautiful letter to the Secretary in this connection, which I think should be made a part of the record, Mr. Chairman, and I would like to do that.

"Princeton, Harvard, Yale, Bryn Mawr, three colleges in Maine, and numerous others, have expressed themselves as not being interested in participating in the loan features of the act if the loyalty oath remains."

Graham Barden (D-N.C.), chairman of the full committee: "Mr. Chairman?"

Cleveland Bailey (D-W.Va.), chairman of the subcommittee on general education and the presiding officer: "Mr. Barden."

Barden: "Mr. Chairman, I would not like for that exchange of remarks to go by as though it had the unanimous approval of this committee, because as a member of the committee I shall resist with everything that is within me the removal of that provision.

"Now, I have heard enough of this, every time we pass a law there is somebody who wants to come in and grab the money. They are interested in the money, then they want to raise a great howl over taking an oath of allegiance to America.

"I have been signing and swearing allegiance to America ever since I was a Boy Scout; did so when I entered the service in World War I, and have done so thousands of times since, including the oath that I did not belong to any organization that advocated or taught the overthrow of my government.

"When I became a member of Congress I took an oath. Every clerk or employee connected with this Congress, everyone who works for this government, takes that kind of oath, now up comes a bunch of college professors thinking it is so horrible and terrible to have to say they will not belong or do not belong to an organization that teaches the overthrow of this government.

"Here we are pouring out billions of dollars to teachers and professors to teach people. Are they going to instruct

kids that they do have a right to belong to organizations that teach the overthrow of this government?"

"I shall resist the removal of these obligations with everything there is in me. I do not think that is going to make any loyal citizen out of anybody, but the very fact that somebody raises the question and resists making a full declaration of loyalty raises some question in my mind. Now, I could not sit here and let that go."

Thompson: "I can understand the chairman's sentiments. I might point out that as well as is known, I doubt that a practicing communist would have any hesitation on swearing on any number of Bibles that he was not a communist."

Braden: "It will not hurt him to tell one more lie which he will gladly do."

Bailey: "Gentlemen, we will thresh this out in executive session when we are ready to vote on this bill."

John LaFore (R-Pa.): "For the record, I would like to associate myself with the chairman and his remarks."

Dominick Daniels (D-N.J.): "I do likewise."

Robert Griffin (R-Mich.): "Mr. Chairman, before we leave this section, because it deals with the administration of the acts, I would like to ask the commissioner, how are you administering this particular provision? It says that an affidavit shall be filed with the commissioner. Has a form been drawn up and is this thing in operation now?"

Derthick: "Let me say that our position does not object to the first part of this requirement. The oath of allegiance we don't object to that at all. Dr. Babbidge, would you report in response to Mr. Griffin's question?"

Homer Babbidge, an assistant to Derthick in the Office of Education: "Forms have been developed in connection with each program under which students received assistance. They will be required to fill out the form."

Griffin: "May I suggest that it be inserted in the record at this point."

Babbidge: "We will be very happy to do so."

Roy Wier (D-Minn.): "Mr. Chairman, I see a difference here of a point of view. I have no objection at all to the allegiance to the United States, but the communists, they are something else again. I think everybody here ought to take an allegiance, but the allegiance and the communist oath are two different things."

Barden: "As long as I am willing to do what I have done, and that is bare my chest to the bullets of enemy nations, I am willing to take any oath and preserve it and keep a screwball from getting into a position of spreading some kind of propaganda or something that will harm my government. I feel that very strongly.

"I must say this: I think Mr. Fleming should entertain himself in some other manner than attacking these requirements which were approved and passed by the Congress of the United States, and signed by the President.

"We are representatives of the people and we, likewise, are servants like the rest. So I am not so fond of Mr. Fleming's attack. If he has a suggestion to make about it, the committee is the proper place to do it and not shower that kind of stuff on members of Congress who are doing the best they can to safeguard and protect this country from every type of enemy or termite that might relish an opportunity to dig from within."

Australian Atomic Institute

The inaugural meeting of the Australian Institute of Nuclear Science and Engineering was held on 4 December at the headquarters of the Australian Atomic Energy Commission, Coogee, New South Wales.

At the meeting, the institute formally came into being when its constitution was unanimously adopted by its founding members, comprising every Australian university and the commission. Through the institute, the commission will allow universities to use nuclear research reactor HIFAR and other equipment and facilities at the Lucas Heights Research Establishment which is near Sydney. The institute will be managed by a council of commission and university representatives and a small permanent secretariat. The council, through the secretariat and in association with the commission, will organize research projects and training courses for university staff members and students at Lucas Heights.

The Commonwealth Government has provided £60,000 for a headquarters building at Lucas Heights. This will include a lecture hall, study rooms, and offices and will be ready for occupation by mid-1959.

The objectives of the institute, as set out in the rules adopted by the inaugural meeting, include the carrying out of research and investigations in connection with matters associated with uranium or atomic energy; arrangements for the training of scientific research workers and the establishment of scientific research studentships and fellowships in matters associated with uranium or atomic energy; the collection and distribution of information relating to uranium or to atomic energy; the publishing of scientific and technical reports, periodicals, and papers in connection with the activities of the institute and other similar activities.

The meeting elected as first president

of the institute, D. O. Jordan, professor of physical and inorganic chemistry at the University of Adelaide. Vice-presidents will be representatives of the universities of Melbourne and New South Wales.

News Briefs

The Atomic Energy Commission has established an awards program for outstanding top-management contractor employees upon their retirement. Its purpose is to formally recognize noteworthy performance and length of service. The award will be a parchment scroll. It will be given to management employees who have performed outstanding service under an AEC contract for an extended period of time and who retire from the contractor organization while they are still engaged in AEC work.

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The National Broadcasting Company's television program on weather, "The Unchained Goddess," is being repeated on 22 March. This hour-long Bell System program, which was directed by Frank Capra, explains weather fundamentals with the help of animated characters and charts. Meteorologists Bernhard Haurwitz and Morris Neiburger were technical advisers.

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The Columbia University School of Engineering's new program of college-level science courses for gifted high-school students, inaugurated last fall, has met with such success that plans are under way to make it permanent if sufficient financial support is forthcoming. An expanded class, with possibly a dozen high-school science teachers as observers, is in prospect for the 1959-60 academic year. High schools within commuting distance of New York may nominate students during the spring.

Scientists in the News

JAMES B. CONANT, chemist and president emeritus of Harvard University, has been presented the 1959 Tuition Plan Award for outstanding service to education, in tribute to his 2-year study of American high schools. The award was presented before an assemblage of education leaders at the organization's 19th annual luncheon forum at the Sheraton-East Hotel in New York.

Conant was cited for his "very special service to education" through what has been termed the most extensive examination of the American high school ever made. The findings of his study, financed by grants of \$370,000 from the Carnegie Corporation, are detailed in his formal report, *The American High School Today*.

WILLARD F. LIBBY, scientist member of the U.S. Atomic Energy Commission who recently announced that he will resign in June, received Dickinson College's annual \$1000 Priestley Memorial Award on 19 March. Libby, a nuclear chemist, was the first to find carbon-14 atoms in nature. He is the founder of radiocarbon dating.

GEORGE E. UHLENBECK, professor of theoretical physics at the University of Michigan and codiscoverer with Samuel E. Goudsmit of Brookhaven National Laboratory of electron spin, has been elected president of the American Physical Society. He succeeds JESSE W. BEAMS, professor of physics at the University of Virginia.

R. WINSTON EVANS, pathologist in the department of clinical pathology at the University of Liverpool, England, has been named visiting professor of pathology at the University of Chicago. He is the author of *Histological Appearances of Tumours*.

NORMAN KRETCHMER, associate professor of pediatrics at Cornell University Medical School, has been appointed head of Stanford University's pediatrics department, effective 1 July. He will succeed ROBERT H. ALWAY, dean of Stanford University Medical School. RUTH T. GROSS, associate professor, has been acting head of the pediatrics department for the past 2 years.

A competition designed to encourage improvement of apparatus for physics teaching was held at the recent annual meeting of the American Association of Physics Teachers in New York, under the sponsorship of the association's committee on apparatus and with the support of the W. M. Welch Scientific Co.

The first prize of \$500 in the lecture-demonstration category was won by HAROLD M. WAAGE, of the physics department at Princeton University, for a beat analysis using an optical pendulum.

The first prize of \$500 in the laboratory category was won by WILLIAM M. WHITNEY and ROBERT G. MARCILEY, both of the physics department of Massachusetts Institute of Technology; for air-suspended collision disks for studying conservation of momentum.

CLARE P. STANFORD, formerly of the Westinghouse Electric Company's Atomic Power Division, has been appointed chief of the engineering department in the nuclear division of the Martin Company, Baltimore, Md. He succeeds J. A. HUNTER, who has been assigned to the office of the vice-president for engineering.