creasing radioactive contamination of the sea and atmosphere may make the detection of tracers impossible.

The accumulated radioactive waste products of a world-wide atomic power industry may represent more radiation than would be released in an atomic war. A national agency should control and keep records of all dumping of radioactive material in the ocean, and an international body should set up without delay safe standards, based on present knowledge, for the marine and air disposal of waste materials.

Accelerated research is needed in the following fields: genetics; radiation pathology; mixing between various parts of the atmosphere and the oceans; the concentration of radioactive materials by plants and animals; the geophysical and geochemical aspects of the ultimate disposal of radioactive wastes; the selection of biologically suitable sites for various atomic facilities; and safety devices for the control of accidental power surges in nuclear reactors.

Accidents in Nuclear Work

The British Atomic Energy Authority has announced that Graham Hawkins, a senior experiment officer, died of an electric shock suffered during tests of the Harwell Research Center's new proton particle accelerator. Hawkins was the first victim of a research accident at Harwell.

A serious breakage a year ago in Britain's biggest atomic explosives factory, and the heroism of 251 volunteers of the staff who kept the plant going, has also been reported. The volunteers, working in the face of intense radioactivity, welded a broken plate in a reactor and maintained production. They took turns manipulating welding equipment at the ends of 60-foot flexible arms thrust through holes in a protective screen.

The volunteers, both men and women, were allowed to work only a few minutes at a time—and in that time received the equivalent of 2 weeks of radiation exposure.

The accident occurred in one of two reactors at Sellafield, which makes plutonium. If the plant had been shut down, Britain would have lost a large part of her plutonium output.

Another accident, fortunately far less serious, has been reported in the United States. The Atomic Energy Commission announced recently that at least 15 persons, workmen and others engaged in the construction of a power reactor, had been exposed to "small doses" of gamma radiation at Fort Belvoir, Va., but that the amount was "not serious."

The AEC said that a bit of radioactive iridium, used in the x-ray examination of welds, "was removed from its shielded container and, contrary to standard practice, left unshielded for about three hours. . . . The amount of radiation to which the men were exposed was considerably lower than any which could result in an observable clinical effect."

What Happens to Science Fair Participants?

Alan T. Waterman made the following observations about the future of high-school science students in a speech delivered at the recent National Science Fair in Oklahoma City, Okla.

"So perceptive are the judges who evaluate your exhibits that I am able to read your futures. Would you like to know what you will be doing in the next few years? Of the 213 present at this Seventh National Science Fair, 187 of you will actually become scientists or engineers. . . . So expert has been the selection of former judges that we know that 88 percent of those whom they send to the national competition will go on to make science or engineering their career.

"A survey of the 248 young people named as finalists in the first five National Science Fairs developed the following information: of 85 percent who replied, 131 were in colleges or other institutions of higher learning, attending 83 institutions in 28 states, 58 were still in high school, 12 were in full-time employment, eight were in the armed service, and four were devoting full time to homemaking and child care. Interesting to you will be the career choices of the 131 college students: 41 were in physical science (chemistry 27, physics 13, biochemistry 1), 31 in engineering, 28 in biological science and medicine, 13 in miscellaneous science, and 10 in miscellaneous non-science."

Recent Archeological Finds

Salim Abdel Abdulhak, head of the Syrian Archaeological Department, Damascus, Syria, has reported the discovery of the 4000-year-old seaport city of Semira, which he describes as a "treasure mine of Phoenician, Aramean, Assyrian, and Greek archaeological finds." The city, which is in northern Syria, vanished at about the end of the Greek Empire, before the birth of Christ. United States, French, British, and Belgian expeditions have been trying to find it for a century but failed because they excavated along the seacoast. Semira was located about 3 miles inland, probably as protection against pirates.

Other recent archeological finds are seven Roman graves in Yugoslavia and a large source of Stone Age flint instruments in Jordan. The graves were excavated in a park near St. Mark's Church in the center of Belgrade. They bear the seal of a Roman legion and date from the second to the fourth centuries A.D. They appear to have been plundered by grave robbers, perhaps several centuries ago.

Workers clearing a spring under the direction of the United States International Cooperation Administration made the flint find at Qasr Azraq oasis, about 50 miles east of Amman. More than 500 artifacts of many sizes have been excavated and the workmen continue to turn them up. Some of the items appear to date back to the Lower Palaeolithic period, about 200,000 years ago. The flints are principally oval or roundish handaxes, ranging in size from 2 inches across to one of approximately 10 inches. This source of prehistoric instruments is considered to be one of the richest ever discovered.

Signals from Venus

The planet Venus has been heard from for the first time. Several times during May Ohio State University's Radio Observatory received strong radio signals. On each occasion the signals, crackling sounds like static, were observed distinctly for a period of several hours.

Venus, which is often called the earth's twin, is nearly the same size as the earth and comes closer to it than any other planet. In the evening it is the brightest object in the western sky. Before 22 June it was approaching the earth at the rate of 500,000 miles per day; on that date it reached its nearest point, 27 million miles, and then started to recede.

Conditions on Venus are not known because it is perpetually covered by clouds. The planet is the second from which radio signals have been received. Last year observers at the Carnegie Institution, Washington, D.C., picked up radio sounds from Jupiter, and since early this year studies of the Jupiter signals also have been made at Ohio State.

Assistance for Germany

Franz Josef Strauss, German Minister for Atomic Problems, recently said of his visit to the United States:

"As compared to the big nations of the world we have a backlog of 10 to 15 years with regard to the peaceful development of nuclear energy. The gate leading to the atomic era is closed to us, as it were. To open it, and to catch up with international developments more speedily, we need the assistance of the big

powers, above all of the U.S.A. If I spoke of myself as of a 'can-opener'—a word which was taken up with some relish by the American newspaper men—I meant to say that my visit to the U.S.A. was not intended to be a sight-seeing trip, but that it was to serve the purpose of obtaining American assistance for overcoming this backlog as quickly as possible.

"The Americans have offered to give us as a gift a complete library on atomic literature. Moreover, they gave us to understand that we may avail ourselves of the President's offer, extended to all countries receiving American assistance in respect to nuclear research, to participate in the purchase of research reactors up to a total sum of $350,000, taken from American funds.

"I met my namesake Admiral Strauss a number of times: Three times at social functions, at which political or rather nuclear conversations took place, and twice at official meetings. I was much pleased to find that Admiral Strauss has full understanding for our desire to get ahead quickly and that he is willing to examine sympathetically our plans and to submit them to the U.S. Atomic Energy Commission. He said, moreover, that he was prepared to let me know in detail the measures the United States is planning for our assistance in this field."

Ford Committee

The Ford Foundation has announced the appointment of a special committee to recommend a plan for distribution of the foundation's appropriation of $90 million to the nation's privately supported medical schools. The appropriation is part of the $500 million grant announced last December for college faculty salaries, private hospitals, and medical schools, and is entirely apart from the $10 million appropriated in April for the National Fund for Medical Education.

Lee DuBridge, president of the California Institute of Technology, will serve as chairman of the medical school grants advisory committee. Executive chairman will be Carlyle Jacobsen, executive dean for medical education at the State University of New York. Other members of the committee are: George P. Berry, dean of the Harvard University Medical School; Detlev W. Bronk, president of the National Academy of Sciences and the Rockefeller Institute; Leonard Carmichael, secretary of the Smithsonian Institution; Ward Darley, president of the University of Colorado; John H. Dingle, professor in the School of Medicine, Western Reserve University; Leon Falk, Jr., chairman of the board, Maurice and Laura Falk Foundation, and director of the National Steel Corporation, Pittsburgh, Pa.; A. Crawford Green, attorney, San Francisco; Robert M. Hanes, president of the Wachovia Bank and Trust Company, Winston-Salem, N.C.; Mrs. Albert D. Lasker, president of the Albert and Mary Lasker Foundation, New York; Robert F. Loeb, professor of medicine at Columbia University; William F. Loomis, director of the Loomis Laboratory, Greenwich, Conn.; Franklin D. Murphy, chancellor of the University of Kansas; and Robert W. Woodruff, chairman of the finance committee, Coca-Cola Company, Atlanta, Ga.

Index to Science

The volume index to *Science,* which has customarily appeared in the last issue of a volume, will henceforth appear in the fourth issue of the month following the close of a volume. The index for volume 123, January–June 1956, will be included in the issue of 27 July.

News Briefs

■ The new building for *Chemical Abstracts* at Ohio State University was dedicated on 8 June. The structure is perhaps the first ever planned exclusively for an abstracting and indexing service. Officers and directors of the American Chemical Society, which publishes *Chemical Abstracts,* and officers and trustees of the university, which has housed the publication since 1909, took part in ceremonies that were held at the main entrance to the three-story, 67-room building.

A prominent participant in the dedication was E. J. Crane, director of the Chemical Abstracts Service, who joined the editorial staff upon his graduation from Ohio State in 1911 and became editor in 1915. Under his leadership the publication has achieved such massive proportions that this year it will carry 90,000 abstracts of articles in 7000 scientific and technical periodicals that come from 85 countries and involve 40 languages.

■ Lord Chorley, president of the Association of University Teachers in Britain, observed recently that high-salaried American university professorships and research fellowships had tempted a large number of scientific teachers and students to cross the Atlantic. Chorley commented: "Unless we are careful, a large amount of the cream will be skimmed off and deposited in the United States." In addition, American firms have been advertising scientific posts extensively in British newspapers.

■ The British Atomic Energy Authority recently invited scientists from industrial research concerns to a meeting on controlled thermonuclear energy. Heretofore all work on this subject has been as secret in Britain as it is in the United States.

■ Maynard M. Boring, president of the American Society of Engineering Education, said in a recent address before the National Society for Professional Engineers, that "much hysteria" had surrounded the subject of engineer shortage. Boring, who is also manager of technical personnel development for the General Electric Company, Schenectady, N.Y., referred to industry's contention that it needed 68,000 more engineers and declared:

"I think there is too much water in their figures. . . . If we had a 10 percent drop in our economy, we would have engineers raining out of our ears." He also said that if 68,000 engineers were provided for industry, "they wouldn't know what to do with them."

Referring to general education, the speaker, who recently toured Europe studying educational processes in various countries, commented that "We are really in trouble in the United States." He attributed this situation to the fact that high-school students in this country were not being properly prepared for college.

Scientists in the News

DONALD H. LOUGHRIDGE, formerly dean of the Technological Institute at Northwestern University, has recently accepted an appointment as special executive assistant at the new General Motors Technical Center.

IRVING KAPLAN, senior scientist and head of the reactor division of the nuclear engineering department at the Brookhaven National Laboratory, has been appointed Gordon McKay visiting lecturer at Harvard University for the fall term. He will replace HARVEY BROOKS, who has been granted a Guggenheim fellowship for the coming year. Brooks will be engaged in research at the Cavendish Laboratory in Cambridge, England.

STELLA L. DEIGNAN, director of the Bio-Sciences Information Exchange, Washington, D.C., has received a certificate of appreciation from the American Cancer Society in recognition of the services rendered the cancer control movement by Dr. Deignan and her staff in collecting, indexing, and dispensing information on medical research. The services of the office are free to recognized scientists and research institutions, as well as to 80 voluntary agencies that support investigation of health problems.

The Bio-Sciences Information Ex-