tion of a 200-inch telescope. An observatory council, composed largely of institute trustees, was placed in charge of the project. Because of his broad experience in instrumentation and in optical techniques, Anderson was immediately appointed executive officer of the council, a position which he held until the essential parts of the telescope were completed, in 1948. In this position he was in direct charge of all phases of the observatory project. This included observations of "seeing" and other meteorological conditions at dozens of sites in southern California and Arizona. This survey resulted in the selection of Palomar Mountain as the location of the new observatory. At the same time a search for the best material for the 200-inch mirror was started. After extensive efforts to make a disk of fuzed quartz were finally abandoned, Pyrex glass was selected.

The detailed design of the telescope was then undertaken. This involved many studies to eliminate or compensate for flexure, to provide a smooth and accurate drive mechanism, and to investigate innumerable other problems. In all these projects the best engineers and scientists of the country were called in as consultants but to Anderson and the small group working with him fell the responsibility of integrating the information and the various suggestions into a design for an effective instrument. When the mirror was completed and shipped to Pasadena, Anderson directly supervised the optical work done on it. During the long period of polishing it to its final figure he personally made most of the detailed optical tests.

In its first decade of operation the 200-inch telescope has proved itself to be an unusually effective instrument. It is also one of the very few large instruments which has gone smoothly into operation with only minor adjustments and modifications being required to perfect its performance. Much of the credit for this unusual record is due to John A. Anderson.

Anderson, a quiet retiring person, was very reticent about his own investigations and published a relatively small number of papers, but every one represented a major contribution to its field. He was always ready to give helpful suggestions on instrumental problems to his colleagues, and many of his ingenious ideas bore fruit in their publications and investigations. His broad interests were shown by his membership in the American Astronomical Society, the Seismological Society, the Physical Society, the Optical Society, the Chemical Society, the National Academy of Sciences, and the American Association for the Advancement of Science.

I. S. BOWEN
Mount Wilson and Palomar Observatories, Pasadena, California

Science in the News

Navy Releases Sounding Information; Availability of Data Will Expedite International Scientific Exchange

A recent revision of Navy policy has made available for the first time all oceanic sounding data obtained by Navy ships when they are on routine operations and are using conventional methods of navigation. A very large amount of bathymetric material has been accumulating in Navy files for many years, yet only the very few scientists specially qualified in this field who are working for the Navy, and about ten civilian scientists, have had access to this reservoir of invaluable information.

Action Recommended by Academy

In recent years, and particularly since the International Geophysical Year, science has been increasingly concerned with the structure of the earth, 70.8 percent of which is covered by ocean. The Committee on Oceanography of the National Academy of Sciences–National Research Council has long urged release of the Navy data, pointing out that classification of the data was retarding research in an area of growing importance. All of the eleven members of the academy committee, which is headed by geochemist Harrison Brown of California Institute of Technology, have worked on classified government projects and are therefore well aware of security requirements.

A committee spokesman commented recently: "We need a large number of people working in a field in order to have a reaction to a new idea—or, in fact, even to have a new idea. Release of this information may increase by a factor of about 100 the possibility of finding something new."

He also pointed out that the revised policy would put this country in a much better position internationally by speeding up the flow of information. Other countries have sometimes been somewhat slow and erratic in providing data for United States research because the exchange has been one-sided. Most maritime countries make such material freely available—England and Japan, for example, although not the U.S.S.R.

Bathymetric data have commercial as well as research value, as demonstrated by the fishing industry's need for knowledge of the sea floor.

Data of Little Military Use

The Navy's move to declassify these data was first mentioned on 26 January in a *New York Times* report on the International Symposium on Arctic Geology, held recently in Canada. The *Times* article implied incorrectly that data of military importance were to be declassified. This prompted Senator Styles Bridges to write in protest to Secretary of the Navy William B. Franke. Bridges said, in part:

"I am deeply disturbed by the report . . . stating the Navy is about to issue an open-door policy on hitherto secret deep-sea soundings. . . .

"I cannot go along with the underlying philosophy that our scientists are hampered by having to keep such information secret. I notice the Soviet

scientists, who work under conditions of extreme secrecy as far as the rest of the world is concerned, manage to distinguish themselves. . . ."

In his letter of reply, Franke explained that the data to be released would be of no value for "precise work required by a potential enemy." All sounding information obtained by precise, electronic methods will continue to remain classified, as will all data obtained from ships which are on classified maneuvers.

Franke also emphasized that the new instruction regarding oceanic soundings is not a reversal of Navy policy and certainly does not represent a concession to American scientists at the expense of national security. Franke said:

"The present policy represents rather a reappraisal of former directives so that all military information remains safeguarded while at the same time data which are not of material use to a potential enemy are made available to our own scientific community. In no case is this a carte blanche release of information. . . ."

It is only precise knowledge of the kind that is still classified that might, for example, help an enemy submarine to move more stealthily or to fire a missile accurately at an American city.

The Navy Order

The section of the Navy directive that is of the greatest significance to scientists, particularly geologists and oceanographers, reads as follows:

"All . . . sounding information, charts, collection sheets, and other means of portraying ocean depths [except for special information that must remain classified for military reasons] shall be unclassified. This includes but is not limited to sounding records, echograms, collection sheets, small scale chartlets prepared for inclusion in scientific or technical papers, and similar sounding information where the method of positioning is by conventional navigational means such as piloting, navigation radar, celestial navigation, loran A, or dead reckoning."

The newly declassified information, which is available both to individuals and to organizations, may be obtained by writing to the Hydrographer, U.S. Navy Hydrographic Office, Washington 25, D.C. An applicant must bear the expense involved in reproducing the data that he requests.

Cosmic-Ray Balloon Flights Successfully Completed before French Nuclear Explosion

Two of the largest high-altitude balloons ever launched were sent up recently from an aircraft carrier as part of an over-all study of cosmic rays known as Project ICEF (International Cooperative Emulsion Flights). The experiment, which took more than a year to prepare, might have failed if the French Government had set off its nuclear explosion before the launching.

About 25 universities and other research institutions, representing every continent except Antarctica, are participating in the ICEF program, which is centered at the University of Chicago, under the sponsorship of the National Science Foundation and the Office of Naval Research. The program's scientific work was under the direction of the late Marcel Schein, professor of physics at Chicago, prior to his death on 20 February.

The 10-million-cubic-foot balloons, which were more than 400 feet high, carried 800-pound blocks of special photographic emulsion sheets to record primary cosmic-ray particles. The launchings, called Skyhook 60 by the Navy, were made from the deck of the U.S.S. *Valley Forge* as she cruised in the Caribbean late in January.

Schein Writes France's Perrin

The timing of the launchings was of especial significance, for France had announced plans to conduct a nuclear test in the Sahara Desert. Radiation from such an event would have fogged the emulsion sheets to be sent aloft.

It has just been revealed that in mid-December Schein wrote to his friend Francis Perrin, high commissioner of the Atomic Energy Commission of France, to ask for reassurance about "possible interference" in his experiments between 23 January and 5 February. When the *Valley Forge* sailed from Norfolk, Va., for the Caribbean on 18 January, the letter was still unanswered and Schein had a telegram sent that indicated his concern.

A reply came from Perrin on 20 January which said: "I have passed on information sent by Professor Schein in order to avoid failure of the forthcoming experiments." In a letter dated the same day, which arrived later, Perrin wrote: "I believe you can go on without any risks of interference with the experiments you are planning before 5 February." These communications, are clear evidence of France's unusual interest and good will, although they do not indicate whether or not changes were made in France's test schedule in response to Schein's appeal. The Sahara nuclear explosion occurred on 13 February.

The Flights

The first balloon, Skyhook Bravo, rose without mishap to 116,000 feet (about 21 miles) on 26 January. However, unexpectedly strong winds in the upper stratosphere drove the balloon southwestward too fast. To avoid the risk of losing the gondola in the Venezuelan jungle, it was cut down over the sea about 400 miles off the South American coast, where it was retrieved by a destroyer the next day.

Because the emulsion had been exposed only 5 hours, it was decided that the same gondola should be sent up a second time in a flight designated Skyhook Bravo Re-Fly. However, this was delayed until after Schein had flown to Puerto Rico to talk with the all-important weather advisers for the project, Herbert Riehl, professor of meteorology at the University of Chicago and former head of the university's Institute of Tropical Meteorology at San Juan, and Ralph Higgs, supervisory meteorologist at the U.S. Weather Bureau airport station in San Juan.

On 30 January Bravo Re-Fly ascended to 113,500 feet but then steadily lost altitude, apparently because of ballast difficulties. The balloon finally held level at 61,000 feet. Meanwhile, a third flight, Skyhook Charlie, was attempted the following day, 31 January. When Charlie tore free of its load and collapsed into the sea, Bravo Re-Fly assumed new importance. The latter's gondola was cut free and parachuted down after 27 hours, and thus its film now holds the record of 32 hours of cosmic-ray bombardment—the total for the two flights.

The stack of emulsion sheets that were to have been carried by Charlie will last only a short time, even when kept refrigerated. Therefore, another flight is scheduled to take place within the next few weeks.

The emulsion sheets will be divided among a number of research groups at universities throughout the world. The international aspects of the program