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SCIENCE, founded in 1880, is published each Friday by the American Association for the Advancement of Science at Business Press, Lancaster, Pa. Entered at the Lancaster, Pa., Post Office as second class matter under the Act of 3 March 1879.

SCIENCE is indexed in the *Reader's Guide to Periodical Literature* and in the *Industrial Arts Index*.

Editorial and personnel-placement correspondence should be addressed to SCIENCE, 1515 Massachusetts Ave., NW, Washington 5, D.C. Manuscripts should be typed with double spacing and submitted in duplicate. The AAAS assumes no responsibility for the safety of manuscripts or for the opinions expressed by contributors. For detailed suggestions on the preparation of manuscripts, book reviews, and illustrations, see *Science* 125, 16 (4 Jan. 1957).

Display-advertising correspondence should be addressed to SCIENCE, Room 740, 11 West 42 St., New York 36, N.Y.

Change of address notification should be sent to 1515 Massachusetts Ave., NW, Washington 5, D.C., 4 weeks in advance. If possible, furnish an address stencil label from a recent issue. Be sure to give both old and new addresses, including zone numbers, if any.

Annual subscriptions: \$7.50; foreign postage, \$1; Canadian postage, 50¢. Single copies, 25¢. Special rates to members of the AAAS. Cable address: Advancesci, Washington.

Rates effective 1 January 1958: \$8.50; foreign postage, \$1.50; Canadian postage, 75¢. Single copies, 35¢.

Radio Astronomy at Green Bank

On 17 October 1957 a few hundred people gathered in the high school gymnasium at Green Bank, West Virginia, to take part in the ground-breaking ceremonies for the National Radio Astronomy Observatory. These ceremonies marked the beginning of a major effort to restore the United States to a place among the leading nations in radio astronomy as well as the culmination of a search for the most suitable site for an observatory of this kind.

The United States has lagged behind several other nations—Great Britain, the Netherlands, Australia, and the Soviet Union—in the development of radio astronomy despite the fact that radio waves of extraterrestrial origin were first detected by Karl G. Jansky, a Bell Telephone Company engineer, in this country in 1932.

The rapid progress abroad has been made possible by the construction of large radio telescopes, construction that in turn has been made possible by Government financing either directly as in the Soviet Union or indirectly as in Great Britain. In the latter country, for example, the 250-foot steerable radio telescope at Jodrell Bank was built by the University of Manchester with the aid of funds from the Government-supported University Grants Committee. In the United States, until recently, no large-scale support was available, and no instruments comparable in size to that at Jodrell Bank or to the 350-foot radio telescope in the Soviet Union have been built; the largest radio telescope in the U.S. is the 60-foot paraboloid at Harvard.

The National Science Foundation recognized that adequate facilities for research in radio astronomy were beyond the means of universities and research institutes. Accordingly the NSF, which is not an operating agency, gave a contract to Associated Universities, Inc., to select a site for, and to construct and operate, an observatory. (Associated Universities is a non-profit corporation that was formed in 1946 by nine eastern universities in order to operate Brookhaven National Laboratories under contract with the Atomic Energy Commission.)

The specifications for the site were hard to meet; the site had to be free, insofar as possible, of man-made electrical disturbances, hurricanes, and heavy snowfall. The first requirement meant that there should be no neon lights, no major power lines, no radio or television broadcasting stations and, furthermore, that none of these would be installed in the future. Extensive search showed that Green Bank was probably the most favorable site in the eastern part of the country; it has none of the man-made sources of disturbance listed above, and the surrounding mountains screen it fairly effectively from outside sources; hurricanes are a rarity; and snowfall is relatively light.

The second phase—the building of the telescopes—has already begun. By mid-July 1958, an 85-foot steerable radio telescope will be in operation; by 1960 a 140-foot instrument will have been completed. Plans for considerably larger instruments are under study, but even before any additional telescopes are completed, Green Bank will have become one of the world's major research centers for radio astronomy.—G. DuS.

