

cheaper," Johnson wrote Pastore, "the nuclear excavated canal was projected to have a width of 1000 feet as compared with 600 feet for the conversion of the present canal."

Even allowing for the vast uncertainties on which such calculations must depend, unless the figures are monumentally in error, the savings from nuclear excavation would be substantial. The money angle, however, is probably the least of the uncertainties facing a canal project: others are whether (or when) research will be able to minimize radioactivity from such explosions to the point where they can be safely carried out, and whether we will be able to persuade the "anti-imperialist" inhabitants of proposed canal sites that they want an American-inspired canal, nuclear or not, across their territory. Finally, it is clear that unless radioactivity can be fully eliminated, any canal project would require an amendment to the treaty, since by definition it involves nuclear explosions outside U.S. territorial limits. Although that time is still far off, it appears likely that the U.S. would seek a formal treaty revision when it arrived. In the meantime, however, whenever it is decided to renew cratering shots to develop the necessary technology, officials hope that informal international participation in the U.S. effort can be substituted for formal treaty amendment.

At the same time that some of Plowshare's earth-moving activities are being curtailed, however, industrial interest in other uses of nuclear explosives—particularly in their commercial application to mining and gas production—is on the rise. Most of the overtures are still in preliminary stage, but some companies in the Western states are reported to be on the verge of asking the AEC to cooperate with them in making test detonations. Detonations for these purposes would be fully contained, and there would be little or no risk of violating the treaty.

It would not be surprising to see the AEC, after its first disappointments are overcome, concentrating on industrial and scientific uses of nuclear explosives that will not embarrass the government. Though less dramatic than canals and mountain passes, this work is no less potentially revolutionary; a few scientists have argued from the beginning of Plowshare that its emphasis should be on these opportunities. In sum, if because of the test ban the AEC is beating swords into plow-

shares at a somewhat slower rate than formerly, there is no reason why it cannot nonetheless continue to beat them steadily.—ELINOR LANGER

Announcements

Esso Research and Engineering Company is sponsoring a group of scientists which organized last month to "help in the **analysis of the carbon compounds of the carbonaceous chondrites**." The group invites other scientists who can contribute meteoritic material or help in the analysis to contact the chairman, W. F. Libby, director of the Institute of Geophysics, U.C.L.A., Los Angeles, California.

A national headquarters for the American Federation of **Information Processing Societies** has been established in New York. The new offices were set up in an effort to provide "a full-time, year-round point of contact between the profession and the general public." The federation is located at 211 East 43 St., New York 17.

Meeting Notes

Warsaw, Poland, will be the site of the 15th **international astronautical congress**, 7-12 September, sponsored by the International Astronautical Federation. The congress will include meetings on technical problems of manned lunar exploration. The call for papers has been issued; triplicate copies of a 500- to 800-word summary must be submitted to the appropriate session chairman. The chairmen are listed at the beginning of the forthcoming events section in this issue. Deadline: 15 April. (Further information on the congress is available from the International Astronautical Federation, 250 rue Saint-Jacques, Paris 5, France.

The Franklin Institute will present its second annual **organic solid state** symposium 25 May in Philadelphia, Pa. It is designed for research chemists and physicists in the field. Advance registration is required. Deadline: 11 May. (M. M. Labes, Franklin Institute Laboratories, 20th and The Parkway, Philadelphia 3)

Papers are invited for presentation at the fourth general meeting of the **International Mineralogical Association** 14-22 December, in New Delhi, India.

Symposiums will be held on natural and synthetic zeolites, and on carbonatites, kimberlites, and their minerals; sessions will also take place for presentation of papers of general interest. Deadline for submitting titles and abstracts: 31 May. (Zeolite papers: J. V. Smith, Department of Geophysical Sciences, University of Chicago, Chicago, Ill.; carbonatite papers: H. von Eckermann, Edeby, Ripsa, Sweden; general papers: M. S. Krishnan, National Geophysical Research Laboratory, Osmania University, Hyderabad 7, India)

Scientists in the News

Gerald R. MacLane, chairman of the mathematics department at Rice University, has been appointed head of the division of mathematical sciences, Purdue University, effective 1 July.

The Institute of Electrical and Electronics Engineers has elected as president **Clarence H. Linder**, a retired vice president of General Electric Company.

Bruce A. Reese, former chief scientist in the U.S. Army's Nike-Zeus anti-missile program, has been appointed associate director of the Purdue University Jet Propulsion Center. He recently returned to Purdue after a 2-year leave of absence spent as technical director at the Redstone Arsenal, Huntsville, Ala.

Robert Griffith Page, associate professor of medicine at the University of Chicago, has been appointed associate dean of the university's division of the biological sciences.

Isidor I. Rabi, Higgins professor of physics at Columbia, has been chosen to receive the 1964 Priestly memorial award from Dickinson College. The prize and \$1000 honorarium honoring Rabi's "contributions to the welfare of mankind through physics," will be presented 19 March.

Elizabeth Dexter Hay, at Harvard, has been appointed the first Louise Foote Pfeiffer associate professor of embryology at the school.

Robert C. Little, professor of physiology at Seton Hall College of Medicine and Dentistry, has been named chairman of the physiology department at Ohio State University's medical college, as of 1 April.