

Lynemouth, Northumberland (ironically less than ten miles from IRD), by as much as £1 million.

#### MOON FLIGHTS

### Vinogradov and Apollo

from a Correspondent

ALTHOUGH Russian space research seems to have been tied, from the beginning, to the sequence of projects envisaged by Tsiolkovskii, which gives the creation of an orbital station priority over any voyages beyond the Earth's orbit, there is no doubt that the Apollo projects have evoked considerable scientific and popular interest throughout the Soviet Union. In a recent interview (*Pravda*, November 27) Academician A. P. Vinogradov, vice-president of the Academy of Sciences of the USSR, gives what would be called, in military terms, an "appreciation" of the Apollo results to date.

After outlining the surface experiments carried out by the landing parties of Apollo 11 and 12, he emphasizes that neither crew included a geologist, and hence that the rock samples collected would be entirely random, although the longer spell of the Apollo 12 crew outside the rocket would result in samples being "more diverse and richer". The chemical and geological findings of the Apollo 11 specimens are outlined, with especial note of their similarity to achondritic meteorites. Cautiously, Vinogradov states: "I do not therefore consider it to be an absurd idea that the basalt meteorites found on Earth are of lunar origin". He stresses, however, that for a proper appraisal, it would be necessary to have selenological specimens from different parts of the lunar surface, in particular from the highlands.

The problem is raised of the greater dustiness of the Ocean of Storms in comparison with the Sea of Tranquillity; this, says Vinogradov, is a "riddle", and he contents himself with restating the basic problem as "Is the presence of lunar dust connected with the nature of the surface or do any other factors play a part here?"

Finally, when asked to comment on the contribution of manned flights to lunar studies, he chose as a particularly noteworthy example the fact that the Moon is now supposed to have a definite crust and not to be the homogeneous body previously imagined. Rather strangely, no indication is given as to how this result was inferred. From Vinogradov's article it might be assumed that this new model of the lunar structure had been obtained either from the analysis of specimens or from the readings under natural conditions of the seismometer, magnetometer and spectrometer which he enumerates at the beginning of his appreciation. In extending the congratulations of Soviet scientists to the American "cosmonauts, scientists and engineers", he makes no mention whatever of the Intrepid crashdown nor of its world-shaking (or moon-shaking) consequences.

#### AGRICULTURE

### Fast Growth at Nottingham

from our Botany Correspondent

THE University of Nottingham seems to be defying those pessimists who hold that the fruits of university

agricultural research are inferior to those that come out of special institutions. Nottingham has a fast expanding school of agriculture and financial backing to prove that many people think that its activities are very valuable. The latest annual report of the school of agriculture (price 10s.) records that the 1968-69 session, which marked the fiftieth anniversary of the teaching of agriculture on the site at Sutton Bonington, has seen the virtual completion of the new teaching and research block. This will house the departments of agricultural economics, agriculture and horticulture and the animal physiology group. There has also been a new building for avian physiology, and animal accommodation which has been built jointly with the new medical school.

Perhaps it is cooperation and diversification that are the secret of Nottingham's success in agriculture, for there is a generous admixture of pure and applied work in progress with no isolation from the other biological departments of the university. The spirit of diversity represented by the constituent departments of agricultural economics, agriculture and horticulture, applied biochemistry and nutrition and physiology and environmental studies is carried over into the undergraduate courses. The honours BSc degree depends on a "triad" system in which a student takes three honours units, selected to form an effective combination, and writes a dissertation in one of them. The wide scope of this system is partly a consequence of cooperation between faculties, so that topics such as embryology and entomology can be studied in the department of zoology. On the other hand, students of zoology can go to Sutton Bonington to learn about genetics, while lawyers and social scientists are instructed in agricultural economics.

Signs of approval of the research effort are recorded in the form of grants from government, industry and other organizations, which have recently been supplementing the contribution from the university's own funds. The department of applied biochemistry and nutrition, for example, has received £55,300 from diverse sources, most of it to cover one year's activities. The department of agricultural economics has been spending £134,000, which it is receiving in several instalments. This sum includes £30,000 over three years for joint work with the University of Zambia, involving an examination of factors affecting labour productivity. The rest of the school of agriculture has fared equally well, and no doubt feels confident in expanding its activities.

#### WATER RESOURCES

### Icebergs for Sale

from our Geomagnetism Correspondent

THE idea of towing icebergs from Antarctica to irrigate deserts farther north sounds at first as if it might have been invented by Spike Milligan. But with the shortage of fresh water in many areas, a serious evaluation of the idea is being carried out by Dr William Campbell of the US Geological Survey and Dr Wilford Weeks of the US Army's Cold Regions Research and Engineering Laboratory. More than 80 per cent of the world's fresh water, equivalent to about sixty years' precipitation over the entire globe, is tied up in Arctic and Antarctic glaciers. Even in North America the volume of water stored as snow and ice exceeds that