NEW WORLD

Scientific Agreements Signed in the United States

from our Soviet Correspondent

THE agreement signed last week between the United States and the Soviet Union on cooperation in agriculture, transportation, ocean studies and cultural and scientific exchange, together with the agreement on nuclear arms limitation and the peaceful uses of atomic energy would seem, at first sight, to be a major step forward in scientific and technical cooperation between the two powers.

But a great deal of the ground covered is not so much an innovation as a ratification in greater detail of the Soviet–United States agreement of May 24, 1972, which left room for further cooperation between the countries.

Cooperation in oceanography has already begun with such projects as the two month long meteorological survey of the Bering Sea (*Nature*, **241**, 420; 1973), or is well into the planning stage as in the case of the joint Glomar Challenger mission (*Nature*, **242**, 289; 1973). A preliminary cooperation programme in marine pollution has already been drafted and the working group dealing with this problem first met in Washington at the end of May.

The new United States–USSR Environmental Commission, under the co-chairmanship of Academician Fedorov of the USSR and Dr Russell Train, Chairman of the United States Council of Environmental Quality, has already met some ten times this year.

Dr Lee Talbot, a senior adviser to Dr Train, said in London this week that the joint commission "has been a success" and added that the new cooperative programme is welcome.

Soviet reaction to the recent scientific agreements takes a double course. For external consumption, the *Novosti* press releases stress the benefit the United States may be expected to gain from the new arrangement. But *Pravda* stresses the advantages to be gained by the Soviet Union.

Thus whereas *Novosti* stresses that Soviet experience in collectivisation might "well prove to be useful" to the United States agricultural industry, an article on town planning (*Pravda*, June 16, 1973) in anticipation of the expected agreements, indicated that cooperation with the United States over "city environment" would play a considerable part in future Soviet planning.

Regarding future developments the agreement on scientific exchange is at first sight ludicrously small, an annual interchange of "40 graduate students, young researchers and instructors for study and postgraduate research in the natural sciences, technical sciences, humanities and social sciences . . . at least 30 language teachers to participate in summer courses of ten weeks . . . at least 10 professors and instructors of universities and other institutions of higher learning to conduct scholarly research for periods of between three and six months" is all that is specified. But these are minimum figures, and presumably do not include participants in specific programmes otherwise covered. A separate clause also provides for short-term exchanges of academics.

But it may be noted that the British–Soviet exchange arrangements of January 1971 failed to materialize on the scale originally envisaged (see *Nature*, **229**, 482; 1972) so that those visits for prolonged research which did occur became matters for special comment rather than the routine of a working agreement.

The implementation of one clause in the ocean studies agreement could result in acceptance by the Soviet Union of the 10-year moratorium on whaling that is currently under discussion at the International Whaling Conference in London. It is too early to forecast the outcome of the conference, but the large Soviet capital investment in pelagic whaling equipment makes acceptance of the moratorium unlikely. It remains to be seen whether this will be the first clause of the agreement to be broken.

The Nixon–Brezhnev talks have ended in an atmosphere of goodwill, with many references to cooperation already achieved with the progress already made in planning the Soyuz–Apollo project being inevitably cited. In the fields where the interests of both parties coincide, such as the project on oncological and vasculo-cardiac research for example, or where they are not in conflict (general environmental studies) good progress is already being made. The new agreements serve largely to approve and extend these promising beginnings. In cases where interests conflict, however, as in the current whaling issue, the outcome seems far less clear.

LARGE SPACE TELESCOPE

Experimental Definition

by our Cosmology Correspondent

NASA plans to launch a large space telescope (LST) by the shuttle sometime in the 1980s. The telescope will have a 3 m mirror, and may be up to 16 m long and 4 m wide, with a total weight of some 9,000 to 11,000 kg; this makes it one of the most important scientific experiments planned for the 1980s and representatives of four countries have now been chosen to define the experiments which will be carried out.

The LST will be able to examine galaxies 100 times fainter than those seen by the most powerful Earth based optical telescopes, but it is not intended solely to study the remote depths of space. Present immediate plans are for twenty-eight members of the experiment definition team to study proposals covering five areas of astronomy:

- high resolution spectrography
- low resolution spectrography
- imaging optics
- infrared devices
- astrometry

Data handling and operations problems for all experiments are being coordinated by a separate team. There are also five "at large" members of a scientific working group to oversee the development of the project: Lyman Spitzer, Princeton; Arthur Code, Wisconsin; Margaret Burbidge, RGO; John Bahcall, Institute for Advanced Study; and B. Field, Smithsonian Astrophysical Observatory. There can be no doubt that the glamorous astronomical subjects — the energy processes in galactic centres, supernova remnants, QSOs for example—will receive considerable attention. Conventional astronomy will not be ignored, however, and the LST will, for example, provide a good platform for long-term monitoring of atmospheric phenomena on Venus, Mars, Jupiter and Saturn.

A few details of the telescope and its systems have already been decided, as well as the basic size. The guidance system will be accurate to 0.005 arc s ("equivalent", according to NASA, "to locking onto a single strand of hair at a distance of two miles"), and the orbit will be at an inclination of 28.5°, reaching an altitude of 648 to 778 kilometres.