

In the words of an official bulletin (*Pravda*, July 22, 1969) the Molniya-1 satellites are "intended to guarantee the working of the system of long-distance telephone and telegraphic communications, as well as transmitting the programmes of the central television network of the USSR to points of the 'Orbita' network (the ground stations) situated in the Far North, Siberia, the Far East, and Central Asia".

The Molniya-1 satellites are given a highly elliptical orbit to ensure the maximum transmission time over Soviet territory. The first successfully launched Molniya-1, which went into orbit on April 23, 1965, had an apogee of 40,000 km and a perigee of 500 km, giving it a period of 12 hours and an effective transmission time of 6 to 8 hours. These parameters have apparently proved satisfactory, since the latest Molniya is close to these values with an apogee of 39,175 km and a perigee of 487 km.

One of the most interesting uses of the Molniya-1 satellites has been the transmission of newspapers from Moscow and Leningrad to the Far East. Test transmissions carried out as early as February 1968 proved highly successful. The system of video transmission used has not been published in full; it has been stated, however (*Elektrosvyaz*, 5; 1969), that the necessary frequency multiplexing is most simply achieved on the video frequency, for this does not require a special transmitter and eliminates the danger of transient noise in the onboard retranslator of the satellite. It is arranged that the newspaper columns can be transmitted simultaneously with the regular TV transmissions, by the addition at the edge of the TV video signal of a subcarrier modulated by the video signal of the newspaper.

On the expansion of the Molniya-Orbita system, V. P. Minashin, chairman of the governing body of the Ministry of Communications of the USSR, stated in a recent interview that the USSR now has the widest network of "reception points" (ground stations) in the world "especially in sparsely populated and inaccessible regions".

Colour television transmissions were introduced on July 22 last, and experimental exchanges of colour TV programmes between Moscow and Paris proved most promising.

By the end of 1969, 30 Orbita ground stations were to be in operation, covering many of the Siberian "new towns" particularly in the newly opening petroleum and natural gas belt.

An extension to the Orbita network to cover Mongolia is planned as a joint venture between the Soviet Union and the Mongolian People's Republic. This, said Minashin, will pose particular problems in view of the "local climatic conditions and requirements of the country".

Easier, technically speaking, will be another proposed extension—the launching of an "Intersputnik" Comsat system by the Soviet Union in conjunction with the countries of Eastern Europe.

One final refinement of the Molniya-1 should be noted: besides the transmitting apparatus, it has on board a "command-measuring complex" and systems for the correction of orbit and orientation, which are used to bring the satellite from its initial orbit into the optimum orbit for maximum transmission time, and thereafter to correct any deviations which may occur—thus maximizing the effective transmission lifetime of each satellite of the series.

## Parliament in Britain

### Britain's Space Programme

THE Prime Minister seems to be unmoved by a new request from Mr Neil Marten that more effort and resources should be put into space activities. Mr Wilson said that he does not believe that spending large amounts of money on prestige space projects is the most efficient way of using Britain's technological resources. Mr Marten thought, however, that it is high time that Britain moved towards getting its own capability for launching satellites for commercial purposes, instead of relying on the United States. (Oral answers, March 12.)

### University Files

THE Privy Council cannot prevent universities from keeping files containing information on the political activities of students and staff. Its powers are restricted to approving amendments to university charters and statutes, and it has no jurisdiction over the internal administration of individual universities. This information was given by Mr Fred Peart, Lord President of the Council, in reply to a question from Mr J. P. W. Mallalieu, but Mr Peart also said that he believes that the practice of keeping such files should be condemned. The political opinions of staff and students are no business of a university, he said.

Mr Short, Secretary of State for Education and Science, said later that he also is powerless to prevent universities from keeping such files. Mr Short said that this is the responsibility of the university authorities, and he has no power to intervene in their internal affairs. (Oral answers, March 11 and written answers, March 12.)

### Herbicide 2,4,5-T

ALTHOUGH the US government has banned the civilian use of the herbicide 2,4,5-T, and limited its use in Vietnam to unpopulated areas, it is not necessary to ban it in this country. This statement was made by Lord Delacourt-Smith, Minister of State, Ministry of Technology. The decision of the US government was based on toxicological tests which indicated that a toxic impurity in the herbicide may cause foetal abnormalities, but the British-manufactured variety is free from this particular impurity, said Lord Delacourt-Smith.

A voluntary safety scheme is operated with the assistance of a committee which gives guidance on the use of pesticides and herbicides, and Lord Delacourt-Smith said that, provided 2,4,5-T is used in accordance with the instructions laid down by the safety scheme, no danger and no hazard should arise.

Lord Brockway, for one, was not convinced. He suggested that many scientists are doubtful whether even the clean process used in Britain eliminates all the toxic impurity, because it may be regenerated by heat and light. He also accused the government of hushing up an accident in one of the factories manufacturing the herbicide, in which some people were poisoned. But Lord Delacourt-Smith said that the accident occurred because of overheating of the reaction mixture, and in such conditions the toxic impurity would be expected to form. He did not say whether anybody was injured by the accident. (Oral answers, Lords, March 11.)