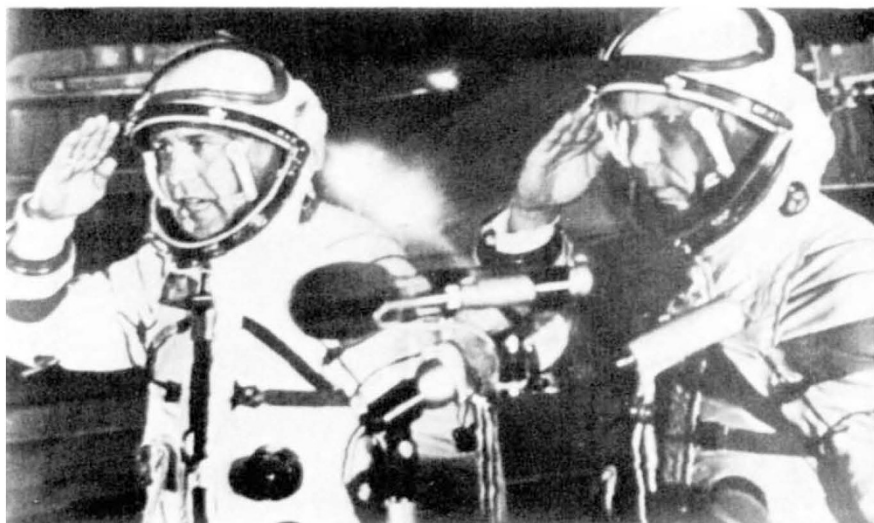


THE launching of the space station Salyut 3 on June 24, 1974, and the successful docking with it of Soyuz 14 and the transfer of the two-man crew on July 5, marks a resumption of the Soviet programme of manned orbital space stations which was tragically interrupted in June, 1971 with the death of the three-man crew of Salyut 1 during re-entry.

In the three year moratorium, modifications have been made both to the Salyut station itself, and to the Soyuz programme which supports it. The re-designed Salyut was officially flight-tested (unmanned) during April 1973. This craft incorporated modifications to the solar panels (three panels rotatable through 180°, instead of the previous four) and to the optical ground-viewing systems. In addition to this "official" test (Salyut 2), other craft of the series have almost certainly been tested, unnamed, under the cover-all of the Kosmos programme.

The Soyuz, too, was almost certainly tested out as a number of Kosmos satellites (numbers 496, 573, 613, in particular, are widely considered to have been unmanned Soyuz craft) before manned testing was resumed with Soyuz 12 (launched September 29, 1973—a two-day flight) and Soyuz 13 (launched December 18, 1973—an eight-day flight).

The principal modification to the resumed Soyuz programme was the use of a two-man, rather than a three-man crew. In view of the cause of the Salyut 1 tragedy—the failure of a seal and loss



Cosmonauts Popovich and Artyukhin reporting ready for take-off on July 4th.

of cabin pressure during re-entry, this is almost certainly intended as an additional safety precaution, providing the additional space needed for the crew to wear spacesuits during re-entry. This policy is continued with the latest flight, and it is significant that the *Pravda* picture of cosmonauts Pavel Popovich and Yuri Artyukhin, apparently inside the Soyuz cabin, shows them in space suits.

The official aims of the test according to the Tass reports are: "Further elaboration of the improved construction of the station and also of the on-board systems and apparatus, and the conducting of scientific and technological investigations and experiments in cosmic flight". This includes observa-

tions of geomorphological features of the Earth's surface and atmospheric phenomena, investigation of the physical parameters of space, and medical and biological studies of the effect of "the factors of space flight on the human organism and the "determination of rational regimes of the crews working" on board.

This last aim seems to be of particular significance in view of the joint Apollo-Soyuz mission planned for next year. Although the official aims make no specific mention of this, the timing of the flight, to coincide with President Nixon's visit, is surely intended to imply that the Soviet preparations for the joint United States-USSR mission are well in hand.

on foetuses before induced abortion.

Specifically prohibited will be research projects which, for example, involve the administration of drugs or vaccines to a pregnant woman scheduled to undergo an abortion, in order to see whether they cross the placental barrier and affect the foetus. Such studies have, however, produced some extremely important findings.

A study carried out in Helsinki and reported in 1972, for example (Vaheer *et al.*, *New Engl. J. Med.*, **286**, 1071; 1972) showed that virus from rubella vaccine can cross the placenta and enter the foetus. The research, which consisted of vaccinating ten women before they had abortions and analysing the foetal tissue for signs of rubella virus, was described by a Harvard scientist last week as "fantastically important", since it provides very strong evidence against vaccinating women during early stages of pregnancy. The research was particularly significant since previous studies had indicated that the virus from the rubella vaccine does not cross to the

foetus through the placenta.

It is also worth pointing out that four doctors are now awaiting trial on criminal charges arising from a research project they conducted at Boston City Hospital in 1971 and 1972. The study consisted of administering antibiotics to 33 women about to undergo abortions to see which was the most effective in crossing the placenta. The idea was to find the best drug to use in place of penicillin to clear up foetal infections. But the four doctors were charged earlier this year with infringing an obscure 19th century Massachusetts law which was originally designed to prevent grave robbing. Although Delahunt said last week that his bill was in no way connected with those indictments, it is clear that if the grave robbing law is found ineffective in preventing such research projects the new Massachusetts law will certainly do the job.

Two chief arguments have been raised against such research, for one thing, it puts the mother who has consented to take part in the study in a

position in which it would be difficult to change her mind about having an abortion. And for another, it constitutes research on a human being (the foetus) without its consent, which is contrary to every code of biomedical ethics including the Nuremberg Code, which was promulgated in response to Nazi medical experiments. Such a view point rests, however, on the assumption that life begins at conception rather than at any other stage of foetal development—an issue which was deliberately left vague by the Supreme Court when it issued its historic abortion decision last year.

Dr Michael N. Oxman, a virologist at the Children's Hospital Medical Center in Boston, argues, however, that a ban on foetal studies *in vivo* "creates a situation where children are going to be put at risk rather than foetuses which are going to be aborted". He pointed out that if a vaccine or a drug administered during pregnancy crosses the placenta and harms the foetus, it would be better to know about it through research on