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NORTH AMERICAN AIR DEFENSE COMMAND

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NORAD Weekly Intelligence Review

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The WIR in Brief

Portion identified as non-responsive to the appeal

Portion identified as non-responsive to the appeal

Space

Portion identified as non-responsive to the appeal

COVER: BOUNDER bomber (from Red Star)
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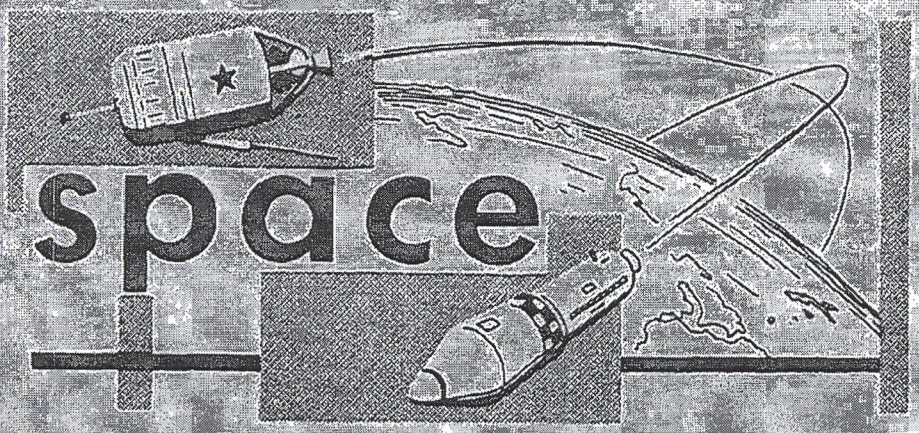

significant intelligence on space developments and trends

Animals May Be Orbited for Long Periods in Support of Extension of Manned Flight

Soviet plans for orbiting animals for long periods of time are indicated by recent discussions between US and Soviet bioastronautics specialists. Such flights could help pave the way for manned flights of long duration by collecting data on the biological effects of prolonged weightlessness and exposure to radiation in space. A series of similar but shorter flights by recoverable biosatellites (Spaceships 1-5) in 1960 and 1961, preceded the first manned space flight. A resumption of biosatellite launches after 4 or more years of inactivity would tend to support Western estimates that:

- The Soviets intend to extend the duration of their manned flights.
- They have encountered biological problems -- possibly associated with weightlessness -- which require solution before manned flights can be extended significantly.

Early Soviet biosatellites carried dogs, as well as biological specimens, into orbit. Monkeys, which are physiologically more similar to humans, reportedly are being readied for coming Soviet launches. The duration of possible pending biosatellite flights is not known, but a system for collection and disposal of waste adequate for flights of up to 30 days reportedly has been developed.
(DIA)
~~(SECRET~~ NO FOREIGN DISSEMINATION -- Releasable to US & Canada)

Experiments in Celestial Navigation Possibly Conducted Aboard Voskhod

The Soviets may have conducted experiments in the use of celestial navigation for spacecraft during the flight last October of the 3-man Voskhod. Colonel Komarov, the pilot-cosmonaut, said in a 21 October interview that he made a manual orientation of the spaceship during the sixth orbit, using

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stars as a reference point, and that scientist-cosmonaut Feoktistov had determined the ship's position by means of astro-orientation. Feoktistov said that observations of the horizon were conducted to obtain data for a program which envisions the use of horizon definition for navigation and attitude control during orbital and interplanetary flights.

These statements jibe with Western views that conventional techniques of celestial navigation may be used in space navigation. The location of the sub-satellite point (the point on the Earth directly below the vehicle) can be determined from a star fix taken aboard the spacecraft. Other orbital parameters can then be calculated if the craft's altitude is known.

A USAF experiment planned for Gemini will test equipment for determining the orbital parameters of spacecraft in flight. The operational system proposed by USAF's Avionics Laboratory at Wright-Patterson AFB, Ohio, includes a master space sextant, star tables specially prepared for navigating in space, and a manually operated analog computer to solve the equations for orbital parameters. The master sextant will permit altitude determination, using the total horizon, and determination or orbital inclination, using star-horizon measurements.
(FTD)
(UNCLASSIFIED)

Soviets Hope to Use Older Men as Cosmonauts, Shorten Training Time

The Soviets apparently hope to raise the age limits on cosmonaut selection which they originally imposed and to shorten the period of cosmonaut training, judging by information available on the 24-hour flight of the 3-man Voskhod last October.

Pilot-cosmonaut Komarov and scientist-cosmonaut Feoktistov were 37 and 38, respectively, or about 10 years older than the age limits which apparently characterized the original Soviet cosmonaut selection program.

Doctor-cosmonaut Yegorov has said that he and Feoktistov did not train as long as Komarov. The Soviets thus may be trying to find out, by using cosmonauts with different levels of training, whether the lengthy training period initially programed was necessary.

Shortening the training period and raising the age limit did not seem to produce any discernible ill effects, judging by [redacted] although the cosmonauts admitted that at times they felt uncomfortable. A final judgment would be difficult to make, however, in view of the brevity of the Voskhod flight.

The use of older men as cosmonauts would enhance any nation's space exploration program, since it would make available the services of men who have spent one or two decades of study and research in the sciences involved in space exploration.
(FTD; NORAD)
(~~SECRET~~ NO FOREIGN DISSEMINATION -- Releasable to NATO, Aus & NZ)