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W Weekly I Intelligence R Review (U)

RETURN TO HQ USAF/AFRC MAXWELL AFB AL 36112-6878	<i>K410.607-151</i>
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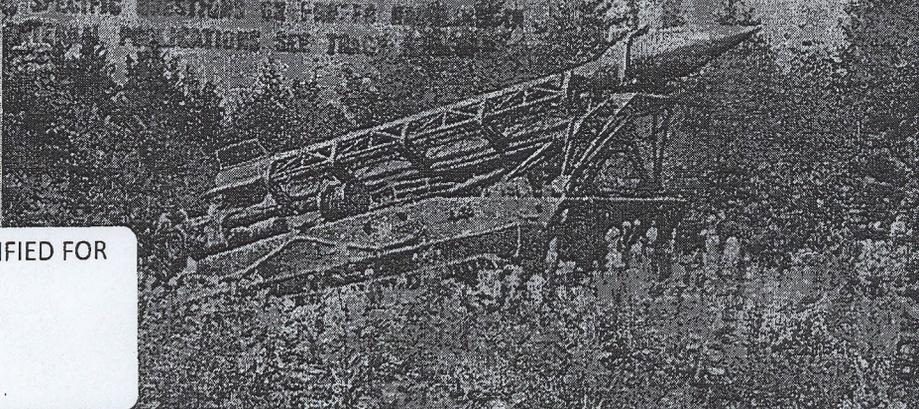
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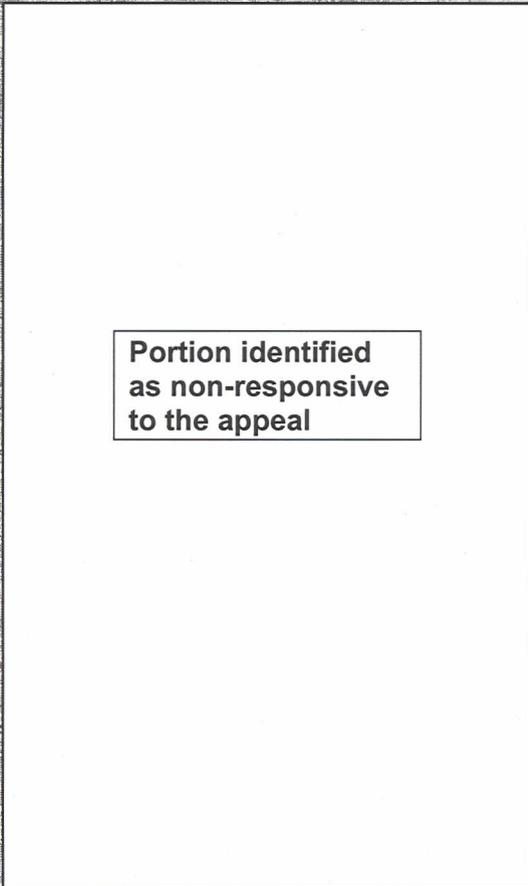
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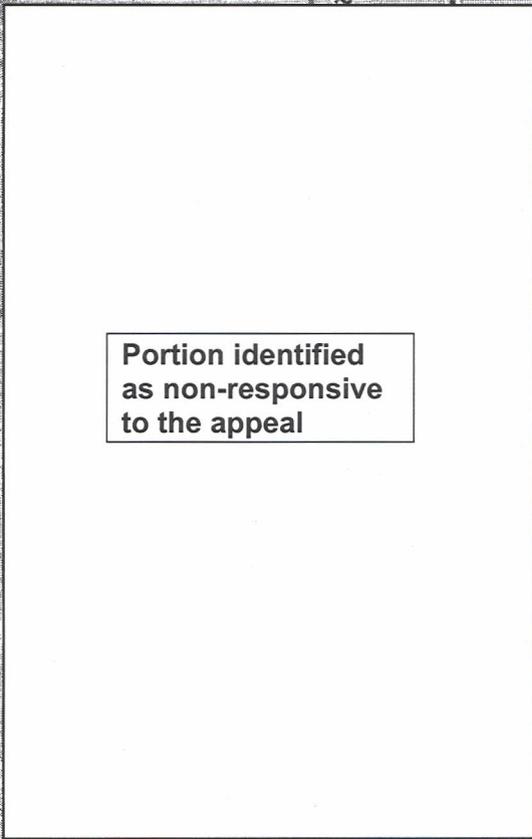
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The WIR in Brief



Portion identified as non-responsive to the appeal



Portion identified as non-responsive to the appeal

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Space

CORRECTION -- LAST WEEK'S SPACE LISTING WAS IN ERROR

New listing as of 13 Sep given.
VOSTOK CAPSULE MAY HAVE BEEN FLIGHT-TESTED DURING 'MISSILE' SHOTS OF JANUARY 1960

Evidence of possible wind-tunnel testing early in 1959 unearthed.

RECORD BREAKERS AMONG EARTH SATELLITE VEHICLES

Vehicles with most unusual orbital characteristics listed.

COVER: FROG-2 (free rocket over ground) (OFFICIAL USE ONLY)
NOTE: Pages 2, 30, 31, 32, 34, 35, 38, and 39 of this issue are blank.

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space

significant
intelligence
on space
developments
and trends

CORRECTION

LAST WEEK'S SPACE LISTING
WAS IN ERROR

The listing of earth satellite vehicles in orbit as of 1200Z, 8 September 1961, which was published in last week's WIR contained several items of incorrect data as to orbital periods, apogee, perigee, and number of orbits completed:

- Data on 1959 Iota 2 (not listed) was erroneously included as pertaining to 1960 Beta 2.
- Data on 1960 Lambda was erroneously omitted.
- As a consequence of these 2 errors, the data on each satellite on the list between 1960 Gamma 2 through 1960 Lambda 2 actually applied to the vehicle listed on the preceding line.

The data on date of launch, inclination of orbit to the equator, and transmitting frequencies is correct. A correct listing is published on page 40.

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VOSTOK CAPSULE MAY HAVE BEEN FLIGHT-TESTED
DURING 'MISSILE' SHOTS OF JANUARY 1960

A 5-ton capsule of the type used in the 2 Soviet man-in-space flights (Vostoks I and II), as well as in Sputniks IV, V, VI, IX and X, may have had its first flight tests in January 1960 during 2 firings (20 and 31 January) that were first evaluated as tests of the Soviet ICBM.

This possibility emerges from an analysis of information indicating that the capsule may have had its first wind tunnel testing a year previously.

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A large, canvas-covered object transported through the streets of Moscow in February 1959 was very similar in size and shape to the Vostok model which was carried by a HOOK helicopter during the Tushino air show of 9 July 1961. The object was hauled into the gates of Old TsAGI, which is believed to be a "downtown" branch of the Central Aerodynamic Institute (New TsAGI) near Ramenskoye Airfield. If this object was a model of Vostok, then it was probably being shipped to TsAGI for wind-tunnel testing and the solution of various aerodynamic problems.

Testing of re-entry in low-trajectory flights, the next step in development, would come some time later, and it is possible that this occurred during the firing of 2 rocket shots into the central Pacific in January 1960. An Academician of TsAGI was quoted in Komsomolskaya Pravda of 8 January 1960 as saying that scientists would be particularly interested in the size of the payload of the "Soviet space rocket" which was to be tested in the Pacific between 15 January and 15 February 1960.

On 15 May 1960, less than 4 months after the January shots, the Soviets launched Sputnik IV, a 10,000-pound space craft carrying a dummy spaceman. When the craft broke up during an unsuccessful re-entry attempt, 2 "pieces" or objects appeared to stabilize -- probably being the escape capsule, the other the instrument compartment. The Soviets called this vehicle a space ship, a term which they also applied to Sputniks V, VI, IX, X, XI, and XII. The evidence indicates that the same type vehicle was used for all these shots.

A possible timetable for development and introduction of the 5-ton Vostok would appear to be somewhat as follows:

1955-1957	Feasibility studies, preliminary design, and mock-up
1958	First hardware
1959	Wind tunnel test, possible first boost test
20 & 31 Jan 1960	First low-trajectory re-entry tests
15 May 1960	First orbital flight (Sputnik IV), unsuccessful re-entry attempt
19 Aug 1960	First successful re-entry from orbital flight (Sputnik V)
1 Dec 1960	Unsuccessful re-entry (Sputnik VI)
9 & 22 Mar 1961	Successful recovery from single orbital flights (Sputniks IX & X)
12 Apr 1961	First successful manned orbital flight (Sputnik XI)
6 Aug 1961	First successful manned multi-orbit flight (Sputnik XII)

Design and development of the capsule appears to have been the responsibility of a "Large Spaceship Group" headed by Igor Alekseyevich Merkulov. This group and 3 others were formed during an expansion and reorganization of the Academy Committee on Space Travel which reportedly started in September 1955. (The other three groups were a Satellite Design Group, an





Electronics Group, and a Theoretical and Ballistics Group.) Merkulov, reported to be the leader of the Large Spaceship Group, has been singled out for praise as one of the outstanding scientists who have contributed to Soviet space successes. He is the author of an article in the Soviet press describing Lunik I (the first Soviet moon shot), an indication that his group may have also been connected with the design of the Lunik-series capsules.

The 4 groups were probably housed at Dolgoprudnaya, a suburb north of Moscow, along with the Central Aerological Observatory, which has been making studies of upper atmosphere conditions based on data collected by satellite vehicles.

The Dolgoprudnaya area has long been suspected of missile activity, with no firm indication of the nature of the work going on there. Dolgoprudnaya lies within a few miles of Khimki and its missile plant (No. 456), and both are in a closed area to the north of Moscow.

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**RECORD BREAKERS AMONG
EARTH SATELLITE VEHICLES**

NORAD SPADATS gives the following data on earth satellite vehicles with outstanding characteristics: (Data as of 1430Z, 13 September 61)

- Most nearly circular orbit: 61 Omicron 43 (piece of Transit 4A), with an eccentricity of 0.00005. Its apogee is 894.4 statute miles, perigee 893.9.
- Most nearly circular payload orbit: Midas II. Eccentricity: 0.00123.
- Most eccentric orbit: Explorer XII. Eccentricity: 0.85236.
- Longest orbital period: 1,592.9 minutes -- 1 day, 2 hours, 32 minutes, 54 seconds -- Explorer XII.
- Highest apogee: 48,058.5 statute miles (Explorer XII)
- Highest perigee: 2,084.3 statute miles (Midas III)
- Oldest vehicle: Explorer I, launched 1 February 1958, which was on its 14,411th orbit as of 1430Z, 13 September 1961.

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Earth Satellite Vehicles in Orbit as of
1430Z, 13 SEPTEMBER 1961

Rocket castings & pieces of satellites not listed

Smithsonian Designation	Common Name	Launch Date	Inclination to Equator	Period (minutes)	Apogee (statute miles)	Perigee (statute miles)	No. of Orbits Completed	Transmitting Frequency (mc/s)
1958 Alpha	Explorer I	1 Feb 58	33.19	106.2	1100.3	217.0	14411	
1958 Beta 2	Vanguard I	17 Mar 58	34.24	133.9	2453.9	403.6	13717	
1959 Alpha 1	Vanguard II	17 Feb 59	32.88	125.4	2051.8	343.5	10778	
1959 Delta	Explorer VI	7 Aug 59		INSUFFICIENT OBSERVATION				
1959 Eta	Vanguard III	18 Sep 59	33.38	129.8	2325.4	309.8	8043	
1959 Iota 1	Explorer VII	13 Oct 59	50.31	101.1	669.2	343.6	9976	
1960 Beta 2	Tiros I	1 Apr 60	48.39	99.1	466.6	428.9	7699	
1960 Gamma 2	Transit IB	13 Apr 60	51.28	94.9	411.0	228.7	7832	
1960 Epsilon 1	Sputnik IV	15 May 60	65.02	92.2	301.5	174.7	7518	
1960 Zeta 1	Midas II	24 May 60	33.00	94.3	310.3	299.8	7279	
1960 Eta 1	Transit 2A	22 Jun 60	66.77	101.6	649.3	389.2	6352	
1960 Eta 2	Greb Capsule	22 Jun 60	66.77	101.6	636.7	380.8	6352	
1960 Iota 1	Echo I	12 Aug 60	47.26	116.7	1169.3	741.4	4877	
1960 Nu 1	Courier IB	4 Oct 60	28.30	106.9	755.1	599.0	4634	
1960 Xi 1	Explorer VIII	3 Nov 60	49.98	112.5	1408.0	262.0	4021	
1960 Pi 1	Tiros II	23 Nov 60	48.57	98.2	461.3	378.0	4313	
1961 Alpha 1	Samos II	31 Jan 61	97.40	94.9	341.2	294.8	3409	
1961 Delta 1	Explorer IX	16 Feb 61	38.36	118.2	1534.4	460.5	2546	
1961 Epsilon 1	Discoverer XX	17 Feb 61	80.91	94.0	407.0	176.4	3158	
1961 Zeta	Discoverer XXI	18 Feb 61	80.74	95.3	506.7	154.3	3082	
1961 Kappa	Explorer X	25 Mar 61		INSUFFICIENT OBSERVATION				
1961 Lambda 1	Discoverer XXIII	8 Apr 61	82.31	93.0	336.0	183.1	2429	
1961 Lambda 2	Capsule	8 Apr 61	81.94	98.5	726.6	426.0	2269	
1961 Nu	Explorer XI	27 Apr 61	28.80	107.8	1107.5	302.1	1856	
1961 Omicron 1	Transit 4A	29 Jun 61	67.00	103.8	620.2	547.1	1060	
1961 Omicron 2	SR 3 & Injun	29 Jun 61	67.00	103.8	619.4	548.3	1060	
1961 Pi 1	Discoverer XXV	7 Jun 61	82.93	93.2	391.8	142.3	1035	
1961 Rho 1	Tiros III	12 Jul 61	47.84	100.3	510.6	456.5	906	
1961 Sigma 1	Midas III	12 Jul 61	91.17	161.5	2191.1	2084.3	561	
1961 Upsilon 1	Explorer XII	15 Aug 61	33.92	1592.9	48058.5	183.1	25	
1961 Omega	Discoverer XXX	12 Sep 61	82.52	92.3	365.9	101.3	12	