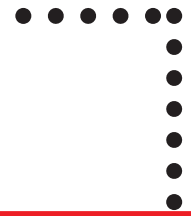


Volume 18, Number 1
2011

QUEST



THE HISTORY OF SPACEFLIGHT QUARTERLY



*An Interview with
Scott Crossfield*

The First to Mach 2

**Socks for the First
Cosmonaut of
Planet Earth**

**Ferenc Pavlics and
the Lunar Rover**

**NASA, the NRO, and
Earth Observation
1965-1967**

**Space Support to
Homeland Defense**

Project Tsiolkovsky:

Automated
Spacecraft to Study
the Solar System and
the Sun

- 2 Letter from the Editor
- 5 Letter to the Editor: *Apollo VIII* Navigation

Features

- 6 **In Memoriam: Paul Calle**
By Andrew Chaikin
- 7 **The Law of the Stronger:
Ferenc Pavlics and the Lunar Rover**
By David Clow
- 31 **Space Support to Homeland Defense**
By Jerome E. Schroeder
- 37 **Period of Adjustment: NASA, the NRO,
and Earth Observation 1965-1967**
By Vance O. Mitchell
- 44 **Socks for the First Cosmonaut of
Planet Earth**
By Mike Gruntman
- 49 **The Tsiolkovsky Solar Probe**
By Philip Horzempa

Oral History

- 20 **The Reminiscences of Scott Crossfield**
Interview conducted by Kenneth Leish

Book Reviews

- 54 **Beyond UFOs: The Search for Extraterrestrial Life and its Astonishing Implications for Our Future**
Book by Jeffrey Bennett
Review by Roger D. Launius
- 56 **The Eerie Silence: Renewing Our Search for Alien Intelligence**
Book by Paul Davies
Review by Linda Billings
- 58 **Red Cosmos: Tsiolkovskii, Grandfather of Soviet Rocketry**
Book by James T. Andrews
Review by Cathleen S. Lewis
- 59 **Live TV from the Moon**
Book by Dwight Steven-Boniecki
Review by Jennifer Levasseur
- 60 **Trailblazing Mars: NASA's Next Giant Leap**
Book by Pat Duggins
Review by James L. Johnson
- 62 **Come Up and Get Me:
An Autobiography of Col. Joe Kittinger**
Book by Joe W. Kittinger and Craig Ryan
Review by Col. Greg "Chappy" Chapman
- 63 **Cosmos and Culture: Cultural Evolution in a Cosmic Context**
Edited by Stephen J. Dick and Mark L. Lupisella
Review by Christopher Stone
- 64 **Moon Men Return: USS *Hornet* and the Recovery of the *Apollo 11* Astronauts**
Book by Scott W. Carmichael
Review by Kristen Starr

Front Cover Image Credit

Pilot Scott Crossfield stands in front of the X-15.

Courtesy: NASA

Socks for the First Cosmonaut of Planet Earth

by Mike Gruntman

For many years spaceflight served as a battlefield between competing ideologies of the free world and radical socialism. A recently published compilation of declassified government documents focuses on the early history of Soviet cosmonautics.¹ The publication provides details of the compensation of cosmonauts. It also illustrates in an unusual way economic conditions in a country conducting an expensive space program. In addition, the documents highlight the inevitable micromanaging of the everyday life in totalitarian societies.

Recovering from the devastation of World War II, the Soviet Union focused its resources on building nuclear weapons and maintaining a status of a superpower expanding its sphere of influence. In May 1946, the USSR (Union of Soviet Socialist Republics) Council of Ministers issued a decree, making development of ballistic missiles a new expensive national priority.² Subsequently, the launch of the first artificial satellite, Sputnik, in October 1957 followed the earlier success of achieving the first intercontinental ballistic missile. Then, in April 1961, Yuri A. Gagarin became the first man to orbit the Earth, the first cosmonaut.

Governments in democratic countries had to justify—to varying degrees—military-related expenditures to their people. In the world of communism, ruling elites made the

decisions without annoyance of dealing with the diverging public views and dissent. With a standard of living low, the national pride and demonstration of ideological superiority served as a substitute for bread on the table or shoes on the feet.

The flight of Gagarin became a powerful weapon in advancing the communist cause. The Soviet Union proudly emphasized that “the new era [of spaceflight] has been opened by our country, the country where socialism had won.”³ As the organ of the communist party, *Pravda* reported, the jubilant people on Moscow streets greeted the first cosmonaut and Soviet leaders shouting “Hoorah to the hero of cosmos” and “Glory to the party of communists.”⁴ The country felt genuine pride being the first in launching satellites and placing men and a woman, the cosmonauts, into space. Impressive public monuments (figure 1) and displays (figure 2) reinforced the enthusiasm.

In the meantime, the everyday life of ordinary people remained difficult. As a former high-ranking Soviet intelligence officer, Alexander Orlov, described it in his testimony to the U.S. Senate in February 1957, the Soviet economic “policy remains the same. That means stress on heavy industry for war armaments and nothing for the consumer, no consumer goods, very little food, and the shortages of food and goods and the hardship of the

Russian people continue.”⁷

Soviet cosmonauts projected the happy image of the Soviet Union. They inspired pride in ordinary Soviet citizens at home and emphasized the ideological superiority of the communist system abroad. The cosmonauts had to look good and neat, which posed special challenges in a country with never-ending shortages of everything.



Figure 1. Monument to the conquerors of space opened in Moscow in 1964 (photo taken in 2001). The upper 99-m (325-ft) part of the monument is made of titanium and steel; the rocket on the top is 11 m (36 ft) tall.

Photo⁵ courtesy of Mike Gruntman.

The recently published documents¹ detail the gifts that the Soviet government gave to the celebrated heroes of space exploration. Direct monetary awards were certainly important but not sufficient alone to dramatically improve the life and appearance of the cosmonauts. Not only Soviet people were paid meager wages under a debilitating socialist system, but they often could not purchase basic items, even if they had money, unless they belonged to a privileged group of apparatchiks, the nomenklatura. Food staples and most essential items were in short supply. Real socialism made the life especially miserable for Soviet citizens who lived outside major cities.

The Soviet government considered human spaceflight a top national priority and placed cosmonauts in a special category. On 3 August 1960, the USSR Council of Ministers approved a top-secret decree (N. 866-361): “On Preparation of a Flight of Man to Space.”⁸ The decree ordered construction of what would become known later as the Yu. A. Gagarin Cosmonaut Training Center in Zvezdnyi Gorodok (Star Town) near Chkalovskaya, 20 miles from Moscow. It assigned special salary categories and bonuses for future

cosmonauts and created for them accelerated promotion schedules in the Air Force. The decree also established one-time monetary awards for spaceflight, ranging from 5,000 to 15,000 rubles⁹ in circulation after the reform of 1961 (see textbox on page 47).

The Council of Ministers also established special monthly salaries for cosmonauts: cosmonaut-in-training—200–300 rubles; cosmonaut—up to 350 rubles; instructor-cosmonaut—up to 400 rubles; senior instructor-cosmonaut—up to 450 rubles.¹⁰ In addition, the Air Force paid them extra standard increments for officer ranks.

Yuri Gagarin made his historic flight on 12 April 1961. On the same day, the Soviet government recognized him with the highest state award, the title of the *Hero of the Soviet Union*. (The decoration included the *Medal of the Hero of the Soviet Union* and the *Order of Lenin*). The title of *Hero of the Soviet Union* would be given to all Soviet cosmonauts henceforth.

On 13 April 1961, Soviet leader Nikita S. Khrushchev signed a secret decree (N. 323-140) of the USSR Council of Ministers, awarding 15,000 rubles to Major Gagarin.¹¹ The follow-on decrees established a special rank of a *Pilot-Cosmonaut of the USSR*.¹²

On 13 April 1961, Khrushchev signed an ordinance (N. 1037rs) of the Council of Ministers that awarded Yuri Gagarin and members of his family “an automobile ‘Volga,’ living house, furniture, and equipment according to the appendix.”¹³ The car, GAZ M-21 Volga, was a highly-prized symbol for the nomenklatura and had a price of about 4,000 rubles, or three to six annual salaries of engineers at the time. In addition, the Ministry of Defense was instructed to provide a “4-room apartment” to the cosmonaut. (A four-room apartment meant a three-bedroom apartment in the American terminology.) The ordinance used the word *ekipirovka*, which roughly translated as *equipment*, to describe personal items and clothing presented to the cosmonaut. This word sounded odd even in the extreme bureaucratese of apparatchiks. (The meaning of the word *ekipirovka* has the flavor of special protective clothing and gear equipping miners, firefighters, mountain climbers, et cetera.)

The list of presents¹⁴ to the first cosmonaut, Gagarin, included everyday items readily available at that time in the United States to broad segments of the population. The presents ranged from a television set, washing machine, refrigerator, and vacuum cleaner to most private items, such as underwear and socks. (The price of television sets or refrigerators was a few average monthly salaries.) The list also included presents for Gagarin’s wife and children, his mother, father, and monetary gifts to his brothers and sister. Gagarin and his family were expected to use the new



Figure 2. Vostok rocket that launched first cosmonauts into space on display in Moscow (photo taken in 1999).

Photo⁶ courtesy Mike Gruntman.



Figure 3. First cosmonaut Yuri A. Gagarin in Tyuratam (Baikonur) on 12 June 1963, more than two years after his historic spaceflight. Gagarin is in the uniform of an Air Force lieutenant-colonel. Major Andrian G. Nikolaev, the third Soviet cosmonaut (*Vostok 3*), is on the left.

Photo¹⁵ by Sergei A. Gruntman. Courtesy Mike Gruntman.

Figure 4. First woman cosmonaut Valentina Tereshkova (left) in Tyuratam (Baikonur) on 13 June 1963, three days before her flight on *Vostok 6*.

Photo¹⁸ by Sergei A. Gruntman
Courtesy Mike Gruntman



“equipment” for public commitments demanded of the first man in space.

The translation of Ordinance N. 1037rs¹⁶ is given in the appendix to this article.

Imagine the communist rulers of a superpower pondering questions of how many ties and socks should be allocated to Yuri Gagarin or underwear sets to his wife. Later they would struggle with the similar challenges of determining the number and types of head scarves, underwear sets, stockings, and blouses for the first woman cosmonaut Valentina V. Tereshkova.¹⁷

The second Soviet cosmonaut, Gherman S. Titov, stayed in orbit (*Vostok 2*) for more than one full day in August 1961. The Council of Ministers awarded him, as Gagarin, 15,000 rubles, an automobile Volga, and a three-room (two-bedroom) apartment.¹⁹ (The detailed list actually suggests that it was a four-room apartment.) Titov, his wife, his parents, and the parents of his wife received gifts similar to those given to the Gagarins. The next two cosmonauts, Andrian G. Nikolaev (*Vostok 3*) and Pavel R. Popovich (*Vostok 4*), flew in August 1962 and also received monetary awards, as Gagarin and Titov.²⁰

Valery F. Bykovsky (*Vostok 5*) and the first woman cosmonaut, Valentina V. Tereshkova (*Vostok 6*), followed to orbit in June 1963. They both received the then standard monetary awards of 15,000 rubles each, automobiles Volga, and apartments, in addition to presents similar to those given to the earlier cosmonauts.²¹ In a sign of social justice, the all-caring state allocated three blankets, three bedspreads, and six pillows to the married man, Bykovsky, while the single woman, Tereshkova, received only two blankets, two bedspreads, and four pillows.

In October 1964, the spaceship *Voskhod 1* took to orbit three men: an Air Force officer, Vladimir M. Komarov, and the first two civilian cosmonauts, engineer Konstantin P. Feoktistov and physician Boris B. Egorov. After the flight the cosmonauts got the same 15,000 rubles each, automobiles, upright pianos, washing

Ruble Exchange Rate and Salaries

In 1961, the Soviet Union implemented a currency reform. Each ten “old” (pre-1961) rubles were exchanged for one “new” ruble. This new currency was in circulation until the dissolution of the Soviet Union in 1990s.

In planned socialist economies, governments control exchange rates and prices. The official exchange rate of the ruble was close to 1.5 U.S. dollars, while on the black market 1 dollar bought 5–6 rubles in 1970s. A joke from the Soviet times described the exchange rate between rubles, dollars, and (British) pounds as “one pound of rubles buys one dollar.”

To put into perspective, the prices and monetary gifts, salaries of ordinary Soviet engineers in 1960s varied from 70 to 120 rubles per month (800–1,500 rubles per year), with engineers in technical management positions earning up to 150–200 rubles per month (1,800–2,400 rubles per year).

machines, shoes, and underwear sets.²² Their lists of presents, however, did not include vacuum cleaners or socks.

Could it be a sign that the economy improved to the point that one could now find socks in stores?

About the Author

Mike Gruntman is professor of astronautics at the University of Southern California (USC). He served as the founding chair, 2004–2007, of the Astronautical Engineering Department at USC. Mike authored and coauthored more than 200 publications in the areas of astronautics, space physics, space technology, space instrumentation and sensors, space education, and space history. His book *Blazing the Trail: The Early History of Spacecraft and Rocketry*, AIAA, 2004, received the Luigi Napolitano book award from the International Academy of Astronautics.

The author thanks Bob Brodsky and Tanya Arvan, both of Redondo Beach, California, for help in the preparation of the manuscript.

Notes

1 Yurii M. Baturin, editor, *Sovetskaya Kosmicheskaya Initsiativa v Gosudarstvennykh Dokumentakh (Soviet Space Initiative in State Documents), 1946–1964* (Moscow: RTSOft, 2008), in Russian.

2 Mike Gruntman, *Blazing the Trail: The Early History of Spacecraft and Rocketry* (Reston, Virginia: AIAA, 2004), 276.

3 *Pravda*, “To Communist Party and Peoples of the Soviet Union! To Peoples and Governments of All Countries! To All Progressive Mankind! Appeal of the Central Committee of the CPSU, Presidium of the Supreme Soviet of the USSR and Government of the Soviet Union”, 13 April 1961, 1.

4 *Pravda*, “Yuri Gagarin Reports. Celebratory Greeting in Moscow”, 15 April 1961, 1.

5 Gruntman, *Blazing the Trail*, 457.

6 Gruntman, *Blazing the Trail*, 346.

7 Alexander Orlov, Testimony, *The Scope of Soviet Activity in the United States, Hearings before the Subcommittee to Investigate the*

Administration of the Internal Security Act and Other Internal Security Laws of the Committee of the Judiciary, United States Senate, Eighty-Fifth Congress, First Session, 14–15 February 1957, Part 51, 3421–3473, U.S. Government Printing Office, Washington, DC, 1957, 3469.

8 Baturin, *Sovetskaya*, 101–106.

9 Baturin, *Sovetskaya*, 105.

10 Baturin, *Sovetskaya*, 105, 207.

11 Baturin, *Sovetskaya*, 166.

12 Mike Gruntman, *From Astronautics to Cosmonautics* (North Charleston, South Carolina: BookSurge, 2007), 36.

13 Baturin, *Sovetskaya*, 174.

14 Baturin, *Sovetskaya*, 174–177.

15 Mike Gruntman, *Blazing the Trail*, 347; Sergei A. Gruntman is the brother of the author of this article.

16 Baturin, *Sovetskaya*, 174–177.

17 Baturin, *Sovetskaya*, 267, 268.

18 Mike Gruntman, *Blazing the Trail*, 322.

19 Baturin, *Sovetskaya*, 194–197.

21 Baturin, *Sovetskaya*, 265–268.

23 Baturin, *Sovetskaya*, 174–177.

20 Baturin, *Sovetskaya*, 219, 220.

22 Baturin, *Sovetskaya*, 281–284.

Ordinance ²³

Ordinance of the USSR Council of Ministers—presents to Yu. A. Gagarin

N. 1037rs

18 April 1961 **SECRET**

1. To recognize it being necessary to present on behalf of the Government of the USSR to the first pilot-cosmonaut of the USSR Major Yu. A. Gagarin and members of his family an automobile “Volga,” a house, furniture, and equipment according to the appendix.

Charge the related expenses to the reserve fund of the Council of Ministers of the USSR.

2. Task the Ministry of Defense of the USSR (comrade Malinovsky) to provide Major Yu. A. Gagarin a four-room apartment at the location of his work.

Chairman of the Council of Ministers of the Union of the SSR - N. Khrushchev

Appendix

SECRET

Appendix to the Decree of the Council of Ministers of the USSR

Dated 18 April 1961, N. 1037rs

1. Furniture for the bedroom, dining room, children room, study, and kitchen
2. Automobile “Volga”
3. Television set “Rubin”
4. Radio-gramophone set “Luks”
5. Washing machine
6. Refrigerator

7. Vacuum cleaner
8. Floor rugs
9. [Upright] piano
10. Bed linen—6 sets
11. Blankets—2

For parents of Comrade Yu. A. Gagarin

1. Prefabricated three-room house
2. Television set
3. Radio
4. Furniture for three rooms

Equipment for Yuri Alekseevich Gagarin

1. Light overcoat
2. Light summer overcoat
3. Raincoat
4. Suits—2 (light color and dark color)
5. Shoes—2 pairs (black and light color)
6. White shirts—6
7. Hats—2
8. Socks—6 pairs
9. Silk underwear [pants and shirt]—6 sets
10. Underwear shorts and singlet undershirts—6 sets
11. Handkerchiefs—12
12. Ties—6
13. Gloves—1 pair
14. Electric razor—1
15. Two sets of military uniform (one dress uniform set and one every day uniform set)
16. Travel suitcases—2

Equipment for the wife [of Yu. A. Gagarin]

1. Light overcoat
2. Light summer overcoat
3. Raincoat

4. Dresses—3
5. Black suit
6. Hats—2
7. Underwear sets—6
8. Stockings—6 pairs
9. Shoes—3 pairs
10. Women’s bags—2
11. Gloves—2 pairs
12. Head scarves—2 (woolen and silk)
13. Blouses—2
14. Knitted woolen blouse

[...]

Author: the list continues with

“Equipment for the children” of Yu. A. Gagarin

9 items: bed, overcoats, shoes, toys, etc.

“Equipment for the mother” of Yu. A. Gagarin

9 items: overcoats, clothing, shoes, linen, etc.

“Equipment for the father” of Yu. A. Gagarin

11 items: overcoats, shirts, shoes, ties, socks, etc.

.....]

To two brothers and the sister of Comrade Yu. A. Gagarin

—1000 rubles each.

Signed,

Executive manager of the Affairs of the Council of Ministers of the USSR
G. Stepanov