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Chapter 19

Soviet Space Designers When They Were Secrets*

Christian Lardier[†]

In the Soviet Union, from 1957 to 1991, the conquest of space was a complete state secret, because it was under the control of the defense industry, in other words the military-industrial complex. What the Western world knew about the Soviet Union space program was the official version through TASS press releases published in *Pravda* (The Truth). Meanwhile, the Americans spread another version, unofficial, which was intended to clarify the many mysteries behind the Soviet Union's space program. The lack of information was an open door to disinformation.

For example, after the launch of Sputnik-1, questions were raised concerning the paternity of the satellite project. For many years, the father of Sputnik was called Leonid Sedov.¹ Then, a mysterious "chief engineer" appeared during the first manned flights in 1961. His name, Sergei Korolev, would be revealed only at his death on 14 January 1966. This marked the beginning of active research into the identity of the chief designers of the Soviet space program. Researchers had to rely on necrologies signed by important people (under their real name), and histories such as those by the engineer Alexei Ivanov² and the journalist Alexander Romanov³ who used pseudonyms to hide the identity of designers, plus reports issued during Communist Party congresses (every five years) and elections for the Academy of Science (every two years). Among the people identified in this way were the ministers in charge of Space activities,

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† *Air & Cosmos Magazine*.

the “Space Theoretician” Mtislav Keldysh, and the six main designers of rockets and satellites, as well as numerous directors of institutes (NII) and design offices (OKB).

The names of some designers who had been identified, broke out in western publications. Charles Vick (USA) was listing 19 names in 1974: M. V. Keldysh, S. P. Korolev, L. A. Voskressensky, K. D. Bouchouyev, B. V. Raouchenbakh, K. P. Feoktistov, V. P. Glouchko, N. A. Piliougine, M. K. Yangel, V. N. Tchelomei, V. P. Makeiev, A. M. Isaiev, G. N. Babakine, G. I. Voronine, V. V. Parine, A. Trefimur(?), L. Yaglom (?), and N. Stern(?).

In 1974, Claude Wachtel (France) mentioned the names of S. P. Korolev, V. P. Glouchko, M. P. Vassiliev (Michine) and B. E. Evseiev (Tchertok) in volume 11 of *Cosmos Encyclopedia*. In 1977, in “Le livre d’or de la Science,” Christian Lardier (France) quoted the names of V. F. Outkine, M. F. Rechetnev, V. P. Makeiev, I. M. Andronov (Iossifian), V. P. Michine and K. D. Bouchouyev. At that time, the TsSKB activities had been attributed to Makeiev while he was heading the Tcheliabinsk KBM.

Then, in 1985, in the *Journal of the BIS*, Claude Wachtel published an article on the main designers. He was later quoted by M. F. Rechetnev himself in the first “open” article, which came out in the *Pravda* dated November 13, 1989. He gave a comprehensive list of 43 names: S. P. Korolev, V. P. Glouchko, N. A. Piliougine, V. P. Barmine, V. I. Kouznetsov, M. S. Riazansky, V. P. Michine, K. D. Bouchouyev, You. P. Semenov, B. E. Tchertok, S. O. Okhapkine, A. You. Ichlinsky, B. V. Raouchenbakh, S. M. Alexeiev, G. I. Voronine, N. A. Lobanov, N. S. Stroiev, V. G. Sergueiev, M. K. Yangel, V. N. Tchelomei, G. N. Babakine, A. G. Iossifian, M. F. Rechetnev, D. I. Kozlov, A. M. Isaiev, S. A. Kosberg, A. D. Konopatov, V. F. Outkine, V. S. Boudnik, V. M. Kovtounenko, P. I. Nikitine, V. P. Makeiev, A. D. Nadiradze, P. D. Grouchine, B. P. Joukov, K. N. Roudnev, L. V. Smirnov, S. A. Afanaseiev, G. A. Tiouline, B. V. Balmont, V. Ya. Litvinov, O. D. Baklanov, and You. A. Mozjorine.

However, an inaccuracy can be found in this article regarding the Salyut orbital station program. Indeed, he wrongly attributes this program to Tchelomei, while the latter was only responsible for Almaz military stations. Finally, a fairly comprehensive list was published by Asif Siddiqi in the magazine *Spaceflight* in August and September 1994.

The first clues on the designers’ identity could be found in the memoirs of Oleg Penkovsky⁴ published in 1965. They mentioned the trials made on the missiles R-12, R-14 and R-16 which were built in Dnepropetrovsk and related the October 24, 1960, accident which cost Marshal M. I. Nedeine’s life. Moreover, it referred to the rockets made by the constructor V. N. Tchelomei who had two laboratories at his disposal in Moscow and whose assistant was N. S. Khrushchev’s son.

The book *The Russian Space Bluff*, written by Leonid Vladimirov⁵ and published in 1971, mentioned for the first time the competition existing between Korolev and Tchelomei. It had, however, quite a few inaccuracies. For example, it said that Tchelomei was at the head of the NII-88 in 1946 where Korolev supervised the rocket department and that he remained later on a more powerful level than Korolev up to 1958, when a decree compelled him to help Korolev in the development of Vostok. The book narrated that Korolev had given up the moon project in response to Apollo because, had this project been realized, it would have been attributed to Tchelomei. But after Khrushchev was dismissed, in 1965, he suggested to Brezhnev a new program, which included the lunar landing. Actually, Tchelomei was competing with Beria's son and the plane manufacturer Mikoyan in the field of cruise missiles from 1944 to 1959. He only became Korolev's rival after 1960, when Khrushchev decided to transfer part of aeronautical industry towards space industry (OKB of Tchelomei, Miassichtchev, Lavotchkine, Kouznetsov, Lioulka, Toumansky, etc). However, Tchelomei's influence ceased by 1964, with Brezhnev coming to power. Vladimirov quoted for the first time the name of life support system designer G. I. Voronine.

In the *Soviet Encyclopedia of World Astronautics*, published under the direction of V. P. Glouchko in 1971, a few names attributed to places on the dark side of the moon are former colleagues of Glouchko (G. S. Giritsky, A. I. Gavrilov, A. D. Gratchev, N. P. Alekhine, N. N. Artamonov, You. B. Mezentsev), designers L. A. Voskressensky (1913-1965), S. A. Kosberg (1903-1965) and A. A. Raspletine (1908-1967), or M. I. Nedeline (1902-1960), B. M. Konoplev (1912-1960) and G. F. Firsov (1917-1960) who died during the October 24, 1960 accident (the explosion of the first R-16 in Baikonour).

Khrushchev's memoirs published in 1974 brought a number of additional details on the role of few designers. According to him, Korolev had been involved in the "Bouria" missile of Lavotchkine and had created the "Semoirka" with the help of those who built the engine and the launch platform Barmine, whereas Yangel had created the missiles with a storable propellant (R-12, R-14). Coastal defense missiles were attributed to V. N. Tchelomei and A. I. Mikoyan (altered MiG-15). The anti-aircraft missiles were built by two persons, one working with Beria's son on the SA-1 and 2, and the other one on the SA-3 mobile system. An anecdotal detail on Tchelomei was quoted: he had imagined a kind of V-1 with spreadable wings launched from a container, but when the idea was suggested to Stalin, Tchelomei was dismissed and the works were handed over to Mikoyan whose brother was the vice-president of the Ministry Council.

Pseudonyms

The Russians used pseudonyms to preserve the designers' anonymity. Alexei Ivanov's book published in 1975 (2nd edition) gave a list of personalities, among whom some were hidden under pseudonyms. The list included S. P. Korolev, Roman Anissimovitch (Tourkov), L. A. Voskressensky, Boris Evseievitch (Tchertok), Konstantin Dmitrievitch (Bouchouyev), Mikhail Stepanovitch (Khomiakov), Alexei Ivanov (Ivanovsky), Arkadi Ilitch (Ostachev), A. V. Pallo, Semen Mikhailovitch (Alexeiev), Fedor Anatolievitch (Vostokov), Vassili Fedorovitch (Bogomolov), Piotr Fedorovitch (Bratslavetz), etc.

A. P. Romanov's book on Korolev, published in 1976 (4th edition) provided the following names: K. N. Roudnev, M. V. Keldysh, S. P. Korolev, V. P. Glouchko, N. A. Piliougine, Vadim Semenov (S. M. Alexeiev), L. A. Voskressensky, Professor Vassiliev (V. P. Michine), Konstantin Davydov (K. D. Bouchouyev), Alexei Ivanov (O. G. Ivanovsky), Evgueny Alexandrovitch (E. A. Frolov), Konstantin Feoktistov, Alexandre Mrykine, Georgui Alexandrovitch (Tiouline), Anatoli Semenovitch (Kirillov), etc. Romanov had disclosed the name of Piliougine in an article of *Socialist Industry* dated December 29, 1974.

In 1977, volume 24 of the *Great Soviet Encyclopedia* gave the names of Keldysh, Korolev, Yangel, Tchelomei, Glouchko, Piliougine, Barmine, Babakine, Isaiev, Kosberg, Ichlinsky, B. N. Petrov, G. I. Petrov, etc. In the 1981 edition, the names of K. D. Bouchouyev, A. G. Iossifian, V. I. Kouznetsov, M. S. Riazansky and V. A. Kotelnikov were added.

Obituaries

The designers' identities were only revealed at the moment of their death, when an obituary would be published in daily newspapers. The latter was signed by most of the designer leaders and colleagues, thus granting it a very special importance.

The main obituaries were those of S. P. Korolev in 1966, M. K. Yangel, A. M. Isaiev and G. N. Babakine in 1971, M. V. Keldysh and K. D. Bouchouyev in 1978, N. A. Piliougine in 1982, V. N. Tchelomei in 1984, V. P. Makeiev in 1985, A. D. Nadiradze in 1987, M. S. Riazansky in 1987, V. P. Glouchko in 1989, V. I. Kouznetsov in 1991, and V. P. Barmine in 1993.

The Science Academy of the Soviet Union

This academy led the civil space program. Its president M. V. Keldysh was the "theorist of cosmonautics" and he also presided over the Scientific Committee for Space Research in 1961-1975. He was replaced by the atomist

A. P. Alexandrov from 1975-1986, by G. I. Martchouk from 1986-1991 and then, by You. S. Ossipov starting in 1991. The Intercosmos Council for space cooperation was directed by B. N. Petrov from 1966-1982, then by V. A. Kotelnikov from 1982-1991. Every other year, elections of active or correspondent members were organized. The list of candidates was published in an issue of *Izvestia* and in the magazine *Vestnik AN SSSR*. In the departments of physics and astronomy or mechanics and guidance process, a large number of space industry designers could be found in the lists, with some of them being elected after one, two or three attempts. Usually those designers were doctors of the technical sciences, but rarely a professor. In a book published in 1979 on the Ukrainian Academy of Sciences, one could find biographies of M. K. Yangel, V. S. Boudnik, V. F. Outkine, V. M. Kovtounenko, I. I. Ivanov, N. F. Guerassiouta (OKB-586 of Dnepropetrovsk) as well as V. G. Sergueiev (OKB-692 of Kharkov). With the elections of 1982 and 1987, the names of V. F. Prisniakov and P. I. Nikitine were added to this list.

The Soviet Communist Party

Most designers were members of the Soviet Communist Party and representatives at national congresses. Some of them were even helped in their career thanks to their membership in the Soviet Communist Party (Yangel, Kozlov, Makeiev, etc.). Others would rest on family support to develop their influence (Mikoyan with Beria's son, Tchelomei with Khrushchev's son, etc.).

There were lobbies at government level. Indeed, the ministry of defense industries protected Korolev, while the ministry of aviation industry supported Tchelomei. The defense ministry switched over from supporting Tchelomei, when it was headed by A. A. Gretchko, to supporting Glouchko when D. F. Oustinov came to power.

Decorations

In the *Great Soviet Encyclopedia* in 30 volumes published between 1973 and 1978, the biographies of members from the Science academy could be found with their decorations: the Heroes of Socialist Work (HTS), the Lenin Prize (PL), and the State Prize (PE). These prizes had been awarded since 1939 (HTS), 1957 (PL) and 1967 (PE). The latter was called the Stalin Prize until 1953. Only nine atomists and two airplane constructors⁶ have been honored. Khrushchev and Keldysh were heroes three times, while on the other hand, one hundred persons were heroes twice.

Conclusion

The designers' names were so secretly kept that none of them could acquire fame on the international stage. Thus, when the idea of awarding the Nobel Prize to the creator of Sputnik-1 arose, Nikita Khrushchev refused it because he did not want to unveil the identity of Korolev. Of course, the latter was a member of Nomenklatura and did receive all national honors, but he remained unknown outside the USSR. Many other constructors as important as Korolev still remain little known or totally unknown in Western countries. We must change this situation if we want them to have the honors they deserve.

Reference Notes

- ¹L.I. Sedov (1907) was president of the astronomy council space commission (AN SSSR) in 1954-1962 and president of the IAF from 1961-1963. A. A. Blagonravov (1894-1975) was president of the state commission for geophysical rockets, vice-president of COSPAR in 1959, then president of the space study commission of AN SSSR in 1963. Both of them were public interfaces since the space program was actually in the hands of Keldysh's commission. Sedov's secretary was A. G. Karpenko, Blagonravov's secretary was M. G. Krochkine (1923-1974), Keldysh's secretary was G. A. Skouridine (1927-1991), then M. Ya. Marov.
- ²O. G. Ivanovsky (1922) entered the Korolev OKB in 1946 where he was assistant chief designer of Sputnik-1, then chief designer of Luna, Vostok, Zenith, Elektron and Molnya from 1958-1961, head of a department in the VPK from 1961-1965, main designer of the OKB-301 for the Luna from 1965-1971, then main designer of the NPO Lavotchkine for the Luna from 1971-1983. He was the author of "Pervye Stoupeni" in 1970, 1975, 1982.
- ³A. P. Romanov was one of the official biographers of S. P. Korolev with Olga Apentchenko (1969), P. T. Astachenkov (1969, 1973, 1975), Ya. K. Golovanov (1973, 1994), You. V. Birioukov (1980), and G. S. Vetrov (1988, 1994). His books on Korolev were published in 1969, 1971, 1972, 1976, 1981, and 1990.
- ⁴O. V. Penkovsky was a close friend of the artillery marshal S. S. Varentsov. He had stayed in Great Britain and France from 1960-1962. After the Cuban Missile Crisis, he had given information on Russian rockets to Americans. He was executed for high treason on May 16, 1963.
- ⁵Leonid Vladimirov was a journalist for the magazine *Znanie Sila* before becoming a refugee in the United States.
- ⁶The two are S. A. Lavotchkine and P. D. Grouchine whose OKB-301 and OKB-2 are in Khimki near Moscow. The OKB of Lavotchkine built the SA-1 missile from 1951-1960, then was a subsidiary of Tchelomei from 1960-1964 before becoming the OKB of interplanetary space probes directed by G. N. Babakine in March 1965. Grouchine, who was a collaborator of Lavotchkine from 1951-1953, will deal with the OKB-293 of M. R. Bisnovat to make the SA-2 and SA-3 missiles. The OKB of Grouchine became the leader in producing the SAM ground-to-air missiles.

Annex 1

ANNEXE n°1

Les pseudonymes:

-L'équipe des médecins chargés des expériences avec des chiens à bord des fusées géophysiques (1956):

V.N.Tchernov = Tchernygovsky

A.V.Petrov = Pokrovsky

V.I.Yakovlev = Yazdovsky

O.G.Gorlov = Gazenko

A.M.Galkin = Guenin

A.R.Kotova = Kotovskaya

I.I.Kossov = Kassian

A.D.Serov = Seriapine

E.M.Yougov = Youganov

B.G.Bougrov = Bouïlov

-K.Sergueïev (Korolev):

Articles dans les Pravda du 18/9/57, 10/11/60, 1/1/65 et 1/1/66 et livre "Stations dans le Cosmos" en 1960.

-G.V.Petrovitch (Glouchko):

Articles dans le Vestnik AN SSSR n°10/65 et 10/67, Brochures APN sur la technique des fusées en URSS en 1968, livres "Moteurs-fusées du GDL-OKB en 1929-1969" en 1969 et "Encyclopédie soviétique de l'astronautique mondiale" en 1969.

-M.Mikhailov (Riazansky):

Livre "Stations dans le Cosmos" en 1960.

-V.I.Viktorov (Kouznestov)

Krougouzor en avril 1971 ???

-B.V.Vladimirov (Barmine):

Articles "Au début de l'ère cosmique" dans la revue A&K n°10/67 et "Baïkonour" dans la revue "La Terre et l'Univers" n°1/78.

-M.P.Vassiliev (Michine):

Livres "Pont vers le Cosmos" en 1971, "Pas vers les étoiles" en 1972, "Saliout en orbite" en 1973, Articles dans la Pravda du 4/10/72, Izvestia le 28/12/73, Etoile Rouge le 12/4/74, etc.

Le nom de Michine est apparu pour la première fois dans dépêche de l'AFP signée Pierre Dumas ("Un train spatial habité vers Mars en 1978") qui sera reprise par la revue "La recherche" n°3 de mai/juin 1972 (p26). En 1974, il devient professeur au MAI, puis dirige la commission d'étude sur F.A.Tsander à l'AN SSSR en 1976.

Livres "Balistique des fusées à longue portée" en 1966 avec S.S.Lavrov et R.F.Appazov, "Introduction à la conception par machines d'engins volants" en 1978 avec M.I.Ossin, "Mécanique du vol spatial" en 1989, "Dynamique des fusées" en 1990.

-K.Davydov (Bouchouyev):

Article dans Izvestia du 9/6/71, Livres "Pont pour le Cosmos" en 1971 et "Pas vers les étoiles" en 1972.

Le nom de Bouchouyev est apparu lors de la mission Apollo-Soyouz pour laquelle il était de patron russe.

-Y.Pavlov (Tsybine)

Article sur Soyouz-9 dans Pravda du 21/6/70.

-B.Evseïev (Tchertok)

Livres "Pas vers les étoiles" en 1972 et "Les fusées et les hommes" en 1994.

-S.O.Ossipov (Okhapkine):

Livre "Fusées-porteuses" en 1981.

co-auteurs:

V.A.Alexandrov = ???

V.V.Vladimirov = ???

R.D.Dmitriev = Dolgopiatov

-A.P.Volsky (Abramov)

Livre "Cosmodromes" en 1977.

co-auteurs:

V.M.Karin = Karachtine

V.N.Nikolaïev = ???

-G.N.Nikolaïev (Babakine)

Livre "Le laboratoire mobile sur la Lune Lunakhod-1" en 1971.

co-auteurs:

G.N.Nikolaïev = Babakine

O.G.Ivanov = Ivanovsky

M.B.Kolessov = Faïnchtein

A.A.Alexandrov = Bolchoï

P.A.Artemeïev = Agadjanov

L.N.Leonidov = Lupitchev

(directeur de l'institut des problèmes physico-techniques)

A.K.Leonovitch = Kemourdjian

(VNII TransMach)

-S.S.Sokolov (Krioukov)

Article sur G.N.Babakine dans Izvestia du 13/11/74

Les résultats scientifiques des sondes Mars 4, 5, 6, 7 en 1973 et Venera-9, 10 en 1975 publiés dans la revue "Recherche cosmique" étaient signés par:

V.S.Avdouïevsky

S.S.Sokolov = Krioukov

V.G.Fokine = Perminov

R.S.Romanov = Kremnev

V.P.Bourtsev = Panteleïev

M.K.Rojdestvensky

V.V.Kerjanovsky

M.I.Mikhailov (Borissenko)

Cité dans un article sur Cosmos-97 de la Pravda du 1/11/66

Livre "Premiers panoramas de la surface de Vénus" en 1979 :

co-auteurs:

S.S.Sokolov = Krioukov

M.I.Mikhailov = Borissenko ?

A.L.Lvov = Moratchevsky ?

A.L.Alexandrov = Kemourdjian ?

-V.Mikhailov (Kovtounenko)

Articles "Télescope sur orbite" sur Cosmos-215 dans Pravda du 9/6/68, "Dans la gamme des super-longues" sur Cosmos-142/259 dans Pravda du 29/10/69, "500 satellites-Jubilé" dans Izvestia du 11/7/71.

A partir de 1971, il signe de son nom de nombreux articles dans la revue "Recherche cosmique", ainsi que le livre "Flèche cosmique" sur Cosmos-149 en 1974, le livre "Aéro-dynamique des appareils cosmiques orbitaux" en 1977, "Dynamique des satellites à système de direction magnétique" en 1978, etc.

-D.Ilitchev (Kozlov)

Article "Un radiotélescope regarde la Terre" sur Cosmos-243 dans Pravda en janvier 1969 (A.M.Oboukhov, D.Ilitchev, A.E.Bacharinov, A.S.Gourvitch, S.T.Egorov).

-M.Fedorov (Rechetev)

Articles "En orbite - Ionozond" dans la Pravda du 8/1/71 (Ya.Alpert, M.Fedorov, You. Kouchnerovsky, R.Rabinovitch, V.Matazov, A.Barinov), "Les Cosmos, satellites de la Terre, satellites de la science" sur Cosmos-381 dans A&K de 1971 (M.Fedorov, L.Sergueiev, R.Rabinovitch, V.Matazov).

Livre "Direction et navigation des satellites en orbite quasi-circulaire" en 1988.

-I.M.Andronov (Iossifian)

Articles "Les satellites au service de la météorologie" dans la Pravda du 21/8/66, "La météorologie spatiale" dans la Pravda du 16/3/67, "La veille apportée par les Météor" dans la Pravda du 25/5/72, "A la différence des premiers" dans la Pravda du 30/6/77.

Article "Electrotechnique dans le cosmos" dans la revue Electrotechnique de juillet 1970.

Articles au congrès IAF de 1973, dans la "Recherche cosmique" en mars 1974 sur les moteurs plasmiques du satellite Météor (A.I.Morozov, You.P.Rylov, I.M.An-dronov, N.N.Cheremetievsky, You. V.Trifonov).

Co-auteur du livre "Cosmos et Climat" en 1974.

Apparaît sous son vrai nom dans les brochures "Electro-mécanique dans le cosmos" en 1977 et "Systèmes électrotechniques de stations automatiques interplanétaires" en 1979 de Znanie.

-A.You.Dmitriev (Mozjorine)

Article sur Zond-5 dans la Pravda le 25/9/68

Brochure sur le Soyouz publiée en 1971

A.You.Dmitriev = Mozjorine

(directeur TsNII Mach)

V.P.Denissov = Senkevitch

(chef secteur TsNII Mach)

-D.Alexeiev (Poloukhine)

Article "Un nouveau maillon du complexe" sur Cosmos-1443 dans la Pravda du 3/7/83.

-G.Alexandrov (Efremov)

Article "Le bras puissant de Proton" sur V.N.Tchelomei dans la Pravda en décembre 1984.

-P.I.Pavlov (Nikitine)

Article sur M.K.Yangel dans la "Terre et l'Univers" en 1981.

-V.L.Lavrentiev (Lapvgine)

Article sur N.A.Piliougine dans Vestnik AN SSSR en 1988.

-P.Fedorov (Bratslavetz)

Article "Les yeux de la télévision dans l'espace" dans la Pravda du 22/8/60.

-I.Alexandrov (Rosselevitch)

Articles "Sur les écrans bleus - les cosmonautes" dans Izvestia du 23/8/62, "Sur les écrans - l'Univers" dans Komsomolskaya Pravda du 5/4/63, "Le cosmos sur les écrans bleus" dans Izvestia du 16/6/63.

Dans la revue "Technique du cinéma et de la télévision, sous son vrai nom, "Les appareils de TV des satellites pour l'observation des nuages" avec S.P.Pivovarov dans le n°5/66 et "La méthode du petit cadre dans les systèmes de TV spatiaux" avec L.I.Khromov dans le n°9/67.

-V.Ya.Likhatchev (Likhouchine)

Livre "Diagnostic technique des systèmes pneumo-hydrauliques des moteurs-fusées à liquides" en 1983 (avec A.S.Vassin et B.F. Glikman).

Annex 2

ANNEXE n°2

Les signataires des nécrologies:

-Korolev: D.F.Oustinov (CC), L.V. Smirnov (VPK), R.Ya.Malinovsky (MO), N.I.Krylov (RVSN), M.V. Keldysh (AN SSSR), S.A.Afanaseiev (MOM), G.A.Tiouline (1e adjoint MOM), V.M.Riabikov et K.N. Roudnev (présidents des commissions d'état pour Spoutnik-1 et Vostok-1), les académiciens A.A. Blagonravov (Cospar) et L.I.Sedov (IAF).

-Yangel: D.F.Oustinov (CC), L.V. Smirnov (VPK), A.A.Gretchko (MO), N.I.Krylov (RVSN), M.V.Keldysh (AN SSSR), S.A.Afanasaiev (MOM), G.A.Tiouline (1e adjoint MOM), N.D.Khokhlov (adjoint MOM), V.P.Glouchko (OKB-456/Energomach), P.D.Grouchine (OKB-2/Fakel), N.A.Piliougine (NII AP), V.F.Outkine (OKB-586/Youjnoe), A.M.Makarov (directeur YoujMach).

-Isaiev: D.F.Oustinov (CC), L.V. Smirnov (VPK), A.A.Gretchko (MO), N.I.Krylov (RVSN), M.V.Keldysh (AN SSSR), S.A.Afanaseiev (MOM), G.A.Tiouline (1e adjoint MOM), G.M.Tabakov (adjoint MOM), V.P.Glouchko (OKB-456/Energomach), P.D.Grouchine (OKB-2/Fakel), A.M.Lioulka (OKB-165/Saturn), N.D.Kouznetsov (OKB-276/Troud).

-Babakine: D.F.Oustinov (CC), L.V. Smirnov (VPK), A.A.Gretchko (MO), N.I.Krylov (RVSN), M.V.Keldysh (AN SSSR), S.A.Afanaseiev (MOM), G.A. Tiouline (1e adjoint MOM), V.P.Glouchko (OKB-456/Energomach), P.D.Grouchine (OKB-2/Fakel), N.A.Piliougine (NII AP).

-Bouchouyev: D.F.Oustinov (CC/ MO), L.V.Smirnov (VPK), V.F. Toloubko (RVSN), A.P.Alexandrov (AN SSSR), S.A. Afanaseiev (MOM), B.V.Balmont (1e adjoint MOM), V.P.Glouchko (NPO Energia), N.A.Piliougine (NII AP), V.P. Barmine (GSKB SpetzMach/KB OM).

-Piliougine: D.F.Oustinov (CC/MO), L.V.Smirnov (VPK), V.F.Toloubko (RVSN), A.A.Maximov (VKS), A.P.Alexandrov (AN SSSR), S.A. Afanaseiev (MOM), O.D.Baklanov (1e adjoint MOM), V.P.Barmine (GSKB SpetzMach/KB OM), V.P.Glouchko (NPO Energia), V.I.Kouznetsov

(NII-944/ NII PM), V.P.Makeiev (SKB-385/KBMach), A.D.Nadiradze (NII-1/ MIT), M.S.Riazansky (NII-885/ RNII KP), V.F.Outkine (NPO Youjnoe).

-Tchelomei: D.F.Oustinov (CC/MO), L.V.Smirnov (VPK), V.F.Toloubko (RVSN), A.A.Maximov (VKS), A.P. Alexandrov (AN SSSR), O.D.Baklanov (MOM), V.N.Konovalev (1e adjoint MOM), les adjoints du MOM A.S.Matrenine et V.N.Ivanov, V.P. Glouchko (NPO Energia), V.F. Outkine (NPO Youjnoe), V.I. Kouznetsov (NII-944/NII PM), D.A. Poloukhine (OKB-23/KB Saliout), A.I.Kisselev (Usine Khrounitchev de Fili), D.A.Tarakov (Usine Strela d'Orenbourg), G.A.Efremov (OKB-52/ NPO Mach).

-Makeiev: L.N.Zaikov (CC), L.V.Smirnov (VPK), S.L.Sokolov (MO), A.P.Alexandrov (AN SSSR), O.D.Baklanov (MOM), V.N.Konovalev (1e adjoint MOM), les adjoints du MOM V.Kh.Dogoujiev, G.F.Grigorenko, V.V.Lobanov, A.I.Dou-naiev, E.A.Jelonov, A.S.Matrenine, V.N.Sochine et O.N.Chichkine, V.F.Outkine (NPO Youjnoe), V.I.Kouznetsov (NII-944/NII PM), S.N.Kovalev (TsKB Rubine), V.K.Goupalov (Usine Krasmach), V.M.Popsoui (?), V.I.Feofilak-tov (?).

-Nadiradze: L.N.Zaikov (CC), You.D. Maslioukov (VPK), D.T.Yazov (MO), G.I.Martchouk (AN SSSR), O.D. Baklanov (MOM), B.P.Joukov (NII-125/NPO Soyouz), V.L.Lapygine (NPO AP), V.F.Outkine (NPO Youjnoe), V.D.Protassov (TsNII SpetzMach), V.G.Sadovnikov (Usine de Votkinsk).

-Riazansky: L.N.Zaikov (CC), You.D. Maslioukov (VPK), G.I. Martchouk (AN SSSR), A.A. Maximov (VKS), G.S.Titov (1e adjoint VKS), O.D.Baklanov (MOM), V.Kh.Dogoujiev (1e adjoint MOM), E.A.Jelonov (adjoint MOM), V.P.Glouchko (NPO Energia), V.P.Barmine (GSKB SpetzMach/KB OM), V.I. Kouznetsov (NII-944/ NII PM), V.M. Kovtounenko (NPO Lavotchkine).

-Glouchko: O.D.Baklanov (CC), I.S.Beloussov (VPK), D.T.Yazov (MO), G.I.Martchouk (AN SSSR), A.A.Maximov (VKS), G.S.Titov (1^e adjoint VKS), K.A.Kerimov (président commission d'état pour les vols habités), O.N.Chichkine (MOM), R.R.Kiriouchine (1^e adjoint MOM), les adjoints du MOM S.S.Vanine, G.F.Grigorenko, A.I.Dounaiev, V.V.Lobanov, A.S.Matrenine, V.E.Sokolov, V.N.Sochine et A.E.Chestakov, V.P.Barmine (GSKB SpetzMach/KB OM), V.I.Kouznetsov (NII-944/NII PM), V.P.Radovsky (NPO Energo-Mach), V.L.Lapygine (NPO AP), L.I.Goussev (NII-885/RNII KP), D.I.Kozlov (TsSKB), M.F.Rechetnev (NPO PM), V.M.Kovtounenko (NPO Lavotchkine), V.F.Outkine (NPO Youjnoe), G.A.Efremov (NPO Mach), D.A.Poloukhine (KB Saliout), G.E.Lozi-no-Lozinsky (NPO Molnya), A.D.Konopatov (KB KhimAutomatiki), L.N.Lavrov (NPO Iskra), You.P.Semenov (NPO Energya), V.D.Vatchnadze (1^e adjoint NPO Energya), B.I.Goubanov (adjoint NPO Energya), N.I.Zelenchikov (adjoint NPO Energya), A.A.Borissenko (Usine expérimentale de Kaliningrad), A.A.Tchijov (Usi-ne Progress de Kouybichev), You.A.Mozjorine (TsNII Mach), S.P.Polovnikov (NPO Kompozit).

-Kouznetsov: O.D.Baklanov (CC), D.T.Yazov (MO), G.I.Martchouk (AN SSSR), O.N.Chichkine (MOM), R.R.Kiriouchine (1^e adjoint MOM), V.E.Sokolov (adjoint MOM), You.P.Semenov (NPO Energya), V.F.Outkine (NPO Youjnoe), D.I.Kozlov (TsSKB), M.F.Rechetnev (NPO PM), V.M.Kovtounenko (NPO Lavotchkine), V.L.Lapygine (NPO AP), N.A.Semikhatov (NPO Automatika), I.N.Sapojnikov (NII PM), A.P.Zoubov (?).

-Barmine: V.K.Gloukhikh (VPK), P.S.Gratchev (MO), I.D.Sergueiev (RVSN), V.L.Ivanov (VKS), You.S.Ossipov (RAN), You.N.Koptev (RKA), You.P.Semenov (NPO Energya), D.I.Kozlov (TsSKB), M.F.Rechetnev (NPO PM), V.M.Kovtounenko (NPO Lavotchkine), G.A.Efremov (NPO Mach), D.A.Poloukhine (KB Saliout), A.I.Kisselev (Usine Khrounitchev de Fili), A.D.Konopatov (KB

Khim-Automatiki), You.A.Mozjorine (ex directeur du TsNII Mach), V.P.Michine (ex chef de l'OKB-1), N.M.Korneiev (KB OM), V.N.Bogomolov (?).

NOTA: en gras, les constructeurs et directeurs d'usine.

Le 20/4/56, A.N.Choukine, A.A.Raspletine, G.V.Kissounko, A.L.Mintz, S.A.Lebedev, S.A.Lavotchkine, A.M.Isaiev sont HTS pour le système S-25 pour la défense anti-aérienne de Moscou, M.V.Keldysh, S.P.Korolev, V.P.Glouchko, N.A.Piliougine, V.I.Kouznetsov, M.S.Riazansky, V.P.Barmine, V.P.Michine, P.M.Zernov, N.A.Petrov, E.A.Negine pour la fusée nucléaire R-5M. En 1957, G.N.Pachkov, L.A.Voskresensky, K.D.Bouchouyev, S.O.Okhapkine, A.F.Bogomolov, A.I.Nossov sont HTS pour le lancement de Spoutnik-1.

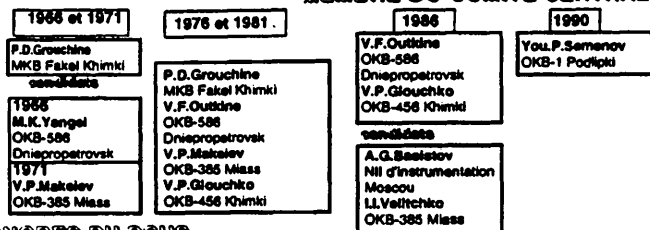
Le 17/6/61, pour le lancement de Gagarine, 95 personnes reçoivent un premier HTS, sept autres un second (Oustinov, Keldysh, Korolev, Glouchko, Piliougine, Kouznetsov, Yangel), et Khrouchtchev un troisième. Parmi les 95, il y a des dirigeants (F.R.Kozlov, L.I.Brejnev, L.V.Smirnov, K.N.Roudnev, V.D.Kalmykov, etc), l'équipe de Korolev (B.E.Tchertok, S.S.Krioukov, A.You.Ichlinsky, M.K.Tikhonravov, I.E.Yourassov, A.D.Goulko, R.A.Tourkov, etc), l'équipe de Yangel (V.M.Kovtounenko, N.F.Guerassiouta, I.I.Ivanov, L.V.Smirnov, A.M.Makarov, etc), des constructeurs principaux (V.P.Makeiev, D.I.Kozlov, S.A.Kosberg, S.M.Alexeiev, G.I.Vorinine, A.G.Iossifian, V.G.Sergueiev, N.A.Semikhatov, L.I.Goussev, You.S.Bykov, G.Ya.Gousskov, I.A.Rosselevitch, etc), des scientifiques (D.E.Okhotsimsky, G.I.Petrov, G.M.Tabakov, etc), et des militaires (A.I.Semenov, A.G.Mrykine, G.A.Tioulina, You.A.Mozjorine, V.I.Vozniouk, A.S.Kirilov, V.A.Bokov, etc). Le prix Lénine sera décerné pour Spoutnik-1 en 1957, Luna-3 en 1960, Luna-9 et Voskhod en 1966, Luna-16, Soyouz, Vénéra-5/6 et Météor en 1970, etc.

Le prix Lénine 1957 a été décerné à S.P.Korolev, V.P.Michine, B.E.Tchertok, S.S.Krioukov, D.I.Kozlov, M.S.Khomiakov, S.S.Lavrov, A.I.Ostachev, A.N.Voltzifer, E.I.Kor-jenevsky, P.V.Novojilov, I.V.Popkov, V.D.Vatchnadze, B.A.Sokolov, I.I.Raïkov, P.F.Choulyzine, V.P.Glouchko, A.P.Vanitchev, N.A.Jel-toukhine, N.A.Piliougine, M.S.Ria-

zansky, V.G.Sergueiev, V.I.Kouz-netsov, V.P.Barmine, M.V.Keldysh, G.A.Skouridine, D.E.Okhotsimsky, T.M.Eneiev, A.I.Sokolov, You.A.Mozjorine, G.A.Tiouline, P.A.Agad-janov, G.S.Narimanov, P.E.Elias-berg, M.K.Tikhonravov, G.You. Maximov, I.K.Bajinov, O.V.Gourko, I.M.Yatsounsky, A.V.Brykovo, A.A.Vassiliev, E.I.Ostachev, etc.

Annex 3

MEMBRE DU COMITE CENTRAL



CONGRES DU PCUS

1961	1966	1971	1976	1981	1986
M.V.Keldysh IPM AN SSSR V.Ya.Likhouchine NII-1 Moscou S.P.Korolev OKB-1 Podpiki V.P.Glouchko OKB-456 Khimki V.I.Kouznetsov NII-895 Moscou M.S.Riazansky NII-895 Moscou V.P.Barmine GSKB SpetzMach M.K.Yangel OKB-586 Dniepropetrovsk A.M.Makarov usine YouMach Dniepropetrovsk V.P.Makalev OKB-385 Miass V.N.Tchelomel OKB-52 Reoutov S.A.Kosberg OKB-154 Voronej A.G.Iosel'fan NII-627 Moscou V.G.Sergueiev OKB-692 Khar'kov N.S.Lidorenko NPO Kvant Moscou S.J.K.Toumaneky Sverdlovsk N.S.Lidorenko NPO Kvant Moscou N.D.Kouznetsov OKB-278 Troud Samara A.M.Lioukita OKB-165 Saturn Moscou S.J.K.Toumaneky OKB-300 Soyouz Moscou V.Ya.Litvinov usine Progress Samara P.D.Grouchine MKB Fakel Khimki A.A.Raspoutine NPO Almaz Moscou	M.V.Keldysh IPM AN SSSR V.P.Michine OKB-1 Podpiki V.I.Kouznetsov NII-895 Moscou N.A.Piliougine NII-895 Moscou V.P.Barmine GSKB SpetzMach M.K.Yangel OKB-586 Dniepropetrovsk A.M.Makarov usine YouMach Dniepropetrovsk V.P.Makalev OKB-385 Miass A.D.Konopetov OKB-154 Voronej A.G.Iosel'fan NII-627 Moscou V.G.Sergueiev OKB-692 Khar'kov N.S.Lidorenko NPO Kvant Moscou P.D.Grouchine MKB Fakel Khimki S.V.Boundine NPO Almaz Moscou N.D.Kouznetsov OKB-278 Troud Samara A.M.Lioukita OKB-165 Saturn Moscou S.J.K.Toumaneky OKB-300 Soyouz Moscou	M.V.Keldysh IPM AN SSSR V.P.Michine OKB-1 Podpiki V.P.Glouchko OKB-456 Khimki N.A.Piliougine NII-895 Moscou M.K.Yangel OKB-586 Dniepropetrovsk V.P.Makalev OKB-385 Miass V.N.Tchelomel D.I.Kozlov OKB-52 Reoutov D.I.Kozlov TsSKB Samara A.D.Konopetov M.F.Rachetnev NPO PM Krasnofarok A.D.Konopetov OKB-154 Voronej V.G.Sergueiev OKB-692 Khar'kov N.S.Lidorenko NPO Kvant Moscou A.M.Makarov usine YouMach Dniepropetrovsk P.D.Grouchine MKB Fakel Khimki S.V.Boundine Dniepropetrovsk P.D.Grouchine MKB Fakel Khimki S.V.Boundine NPO Almaz Moscou A.L.Savine NPO Kometa Moscou V.S.Semenitshine NII Appareils automatiques Moscou A.D.Nedirdzhe Institut Teplotehnikhi Moscou	M.V.Keldysh IPM AN SSSR V.P.Glouchko OKB-456 Khimki N.A.Piliougine NPO AP Moscou V.F.Outline OKB-586 Dniepropetrovsk V.P.Makalev OKB-385 Miass V.N.Tchelomel OKB-52 Reoutov D.I.Kozlov TsSKB Samara A.D.Konopetov OKB-154 Voronej N.F.Rachetnev NPO PM Krasnofarok A.D.Konopetov OKB-154 Voronej V.G.Sergueiev OKB-692 Khar'kov N.S.Lidorenko NPO Kvant Moscou A.M.Makarov usine YouMach Dniepropetrovsk P.D.Grouchine MKB Fakel Khimki S.V.Boundine NPO Almaz Moscou A.L.Savine NPO Kometa Moscou V.S.Semenitshine NII Appareils automatiques Moscou A.D.Nedirdzhe Institut Teplotehnikhi Moscou S.P.Nepobedimiy KB Mach Kolomna B.P.Joutkov NII-125 Liouberetsky L.N.Lavrov NPO Iskra Perm N.D.Kouznetsov OKB-278 Troud Samara A.M.Lioukita OKB-165 Saturn Moscou O.N.Favoratsky OKB-300 Soyouz Moscou	M.V.Keldysh IPM AN SSSR V.P.Glouchko OKB-456 Khimki N.A.Piliougine NPO AP Moscou V.F.Outline OKB-586 Dniepropetrovsk V.P.Makalev OKB-385 Miass V.N.Tchelomel OKB-52 Reoutov D.I.Kozlov TsSKB Samara A.D.Konopetov OKB-154 Voronej M.F.Rachetnev NPO PM Krasnofarok G.E.Lozino-Lozinskiy NPO Molnya Touchino A.D.Konopetov OKB-154 Voronej V.G.Sergueiev OKB-692 Khar'kov N.S.Lidorenko NPO Kvant Moscou A.M.Makarov usine YouMach Dniepropetrovsk P.D.Grouchine MKB Fakel Khimki S.V.Boundine NPO Almaz Moscou A.G.Basilev NII RP Moscou V.P.Etremov NPO Antel Moscou V.S.Semenitshine NII Appareils automatiques Moscou A.D.Nedirdzhe Institut Teplotehnikhi Moscou S.P.Nepobedimiy KB Mach Kolomna B.P.Joutkov NII-125 Liouberetsky L.N.Lavrov NPO Iskra Perm N.D.Kouznetsov OKB-278 Troud Samara O.N.Favoratsky OKB-300 Soyouz Moscou	M.V.Keldysh IPM AN SSSR V.P.Glouchko OKB-456 Khimki V.L.Lapygine NPO AP Moscou V.F.Outline OKB-586 Dniepropetrovsk LL.Veitshko OKB-385 Miass D.I.Kozlov TsSKB Samara A.L.Koseliev usine Krounitchev Moscou M.F.Rachetnev NPO PM Krasnofarok G.E.Lozino-Lozinskiy NPO Molnya Touchino A.D.Konopetov OKB-154 Voronej V.G.Sergueiev OKB-692 Khar'kov N.S.Lidorenko NPO Kvant Moscou A.M.Makarov usine YouMach Dniepropetrovsk P.D.Grouchine MKB Fakel Khimki S.V.Boundine NPO Almaz Moscou A.G.Basilev NII RP Moscou V.P.Etremov NPO Antel Moscou V.S.Semenitshine NII Appareils automatiques Moscou A.D.Nedirdzhe Institut Teplotehnikhi Moscou S.P.Nepobedimiy KB Mach Kolomna B.P.Joutkov NII-125 Liouberetsky L.N.Lavrov NPO Iskra Perm N.D.Kouznetsov OKB-278 Troud Samara

Annex 4

Académicien-secrétaire section technique: B.A.Vvedensky en 1946/54, S.A.Khristianovitch en 1954/57, A.A.Blagonravov en 1957/63, B.N.Petrov en 1963/82, puis V.A.Kotelnikov en 1982/91.

1943

Académicien

A.A.Blagonravov
S.A.Khristianovitch

1946

Académicien

M.V.Keldysh

1953

Académicien

L.I.Sedov
V.A.Kotelnikov
A.N.Choukine
S.A.Lebedev

membre-correspondant

G.I.Petrov

S.P.Korolev

V.P.Glouchko

A.L.Mintz

B.N.Petrov

1958

Académicien

G.I.Petrov

S.P.Korolev

V.P.Glouchko

A.L.Mintz

membre-correspondant

N.A.Pillouguine

M.S.Riazansky

V.I.Kouznetsov

V.P.Barmine

V.P.Michine

V.N.Tchelomei

S.A.Lavotchikine

A.A.Raspletine

G.V.Klissouanko

P.D.Grouchine

1960

Académicien

A.You.Ichilinsky

B.N.Petrov

membre-correspondant

K.D.Bouchouyev

D.E.Okhotsimsky

A.M.Liouilka

1962

Académicien

V.N.Tchelomei

membre-correspondant

A.P.Vanitchev

1964

Académicien

A.A.Raspletine

membre-correspondant

V.M.Ievlev

S.K.Toumansky

1966

Académicien

V.P.Michine

N.A.Pillouguine

V.P.Barmine

M.K.Yangel

P.D.Grouchine

membre-correspondant

S.S.Lavrov

B.V.Raouchenbakh

A.F.Bogomolov

N.S.Lidorenko

1968

Académicien

V.I.Kouznetsov

A.M.Liouilka

S.K.Toumansky

membre-correspondant

V.P.Makelev

B.E.Tchertok

T.M.Eneiev

B.P.Joukov

V.S.Chpak

N.A.Jeltoukhine

B.V.Boukhine

V.S.Semenikhine

N.D.Kouznetsov

1970

membre-correspondant

G.N.Babakine

1972

Académicien

V.S.Semenikhine

membre-correspondant

V.S.Avdouievsky

1974

Académicien

B.P.Joukov

B.V.Boukhine

N.D.Kouznetsov

1976

Académicien

V.P.Makelev

membre-correspondant

A.D.Konopatov

M.F.Rechetnev

1979

Académicien

V.S.Avdouievsky

membre-correspondant

A.I.Savine

N.N.Cheremetievsky

N.A.Krivocheiev

1981

Académicien

A.D.Nadiradze

V.S.Chpak

membre-correspondant

N.D.Oustinov

V.V.Vengersky

B.V.Gidaspov

G.V.Sakovitch

1984

Académicien

A.F.Bogomolov

B.V.Raouchenbakh

M.F.Rechetnev

V.F.Outkine

A.I.Savine

N.N.Cheremetievsky

membre-correspondant

D.I.Kozlov

V.M.Kovtounenko

N.A.Semikhatov

G.Ya.Gouskov

N.A.Anfimov

V.E.Alemassov

P.A.Agadjanov

A.G.Basistov

V.P.Efremov

S.P.Nepobedimyy

1987

membre-correspondant

You.P.Semenov

L.N.Lavrov

V.D.Protassov

V.P.Radovskiy

A.M.Lipanov

1990

Académicien

N.A.Semikhatov

membre-correspondant

A.S.Koroteiev

M.Ya.Marov

G.I.Severine

V.N.Soloviev

G.M.Tcherniavsky

1992

Académicien

V.E.Alemassov

V.P.Efremov

A.D.Konopatov

G.V.Sakovitch

D.E.Okhotsimsky

T.M.Eneiev

membre-correspondant

G.P.Anchakov

L.I.Volkov

G.A.Popov

En gras, Héros du travail socialiste en 1956 pour la fusée R-5M et le système S-25. En italique, Héros du travail socialiste en 1961 pour le vol de Gagarine

Annex 5

ANNEXE n°5 DECORATIONS DES CONSTRUCTEURS								
Noms		Acad	HTS	HTS	PL	PE	PE	PE
OKB-1 "Energya"	Podlipki							
S.P. Korolev	1906-1966	1958	1956	1961	1957			
V.P. Michine	1917	1966	1956		1957	1985		
S.S. Lavrov	1923	MC 66			1957			
B.E. Tchertok	1912	MC 68	1961		1957	1976		
K.D. Bouchouyev	1914-1978	MC 60	1957		1960	1976		
L.A. Voskressensky	1913-1965	DTS	1957					
S.S. Krioukov	1918	DTS	1961		1957	1978		
S.O. Okhapkine	1910-1980	DTS	1957		1966			
M.V. Melnikov	?	DTS	?		?			
A. You. Ichinsky	1913	1960	1961		1960	1981		
M.K. Tikhonravov	1900-1974	DTS	1961		1957			
B.V. Raouchenbakh	1915	1984	1990		1960			
K.P. Feoktistov	1926	DTS			1966	1976		
E.V. Chabarov	1922	CTS	?		?			
A.P. Abramov	1919	DTS			?			
P.V. Tsybine	1905-1992	DTS			1966			
I.N. Sadovskiy	?	DTS				?		
I.E. Yourassov	?		1961					
A.D. Goulko	?		1961					
V.D. Vatchnadze	?		?		1957			
You. P. Semenov	1935	MC 87	1976		1978	1985		
V.P. Legostaiev	1931	DTS			1966	?		
N.I. Zelenchikov	?							
V.V. Rioumine	1939							
V.S. Syromiatnikov	1933	DTS			?			
usine EMZ								
R.A. Tourkov	?		1961					
V.M. Kloutcharev	?	CTS				?		
A.A. Borissenko	?					?		
OKB-586 "Youjnoe"	Dnepropetrovsk							
M.K. Yangel	1911-1971	1966	1959	1961	1960	1967		
V.F. Outkine	1923	1984	1969	1976	1964	1981		
V.S. Boudnik	1913	AN Ukr	1959		1960			
V.M. Kovtounenko	1921-1995	MC 84	1961		1960	1978		
N.F. Guerrassiouta	1919	AN Ukr	1961		1972	1967		
I.I. Ivanov	1918	AN Ukr	1961		1964	1977		
B.I. Goubanov	?		?		?	?		
S.N. Konioukhov	1937							
You. A. Smetanine	?							
P.I. Nikitine	1915	AN Ukr				1969		
V.F. Frisniakov	1937	AN Ukr						
usine YouMZ	Dnepropetrovsk							
L.V. Smirnov	1916		1961	1982	1960			
A.M. Makarov	1906		1961	1976	1960			
L.D. Koutchma	1938				?			
You. S. Alexeiev	1948							
OKB-52 NPO MACH	Reoutov							
V.N. Tchelomei	1914-1984	1962	1959	1963	1959	1967	1974	1982
S.N. Khrouchtchev	1934	DTS	1959		?			
G.A. Efremov	1933	CTS	1963		1982	1974		
I.M. Choumilov	?		?		?			
M.I. Livchitz	?		?		?			
V.A. Modestov	?		?		?			
V.F. Malikov	?		?					
M.P. Zakharov	?		?					
V.P. Oudodov	?		?					
V.V. Satchkov	?		?					
V.V. Viter	?				?			
KB Sallout	Fili							
V.N. Bougaïsky	?							
D.A. Poloukhine	1926-1993		?		?	?		
A.K. Nedaïvoda	?							
V.K. Karrask	?				?	?		
G.D. Dermichev	?							
You. V. Diatchenko	?				?			
You. N. Troufanov	?							
usine Khrouchtchev	Fili							
A.I. Kisselev	1938		?		?			
SKB-585 (KB Mach)	Mass							

	1924-1985	1976	1961	1974	1959	1968	1978	1984
V.P. Makeiev	1924-1985							
I.I. Velichko	1934	DTS			1978	1974		
V.Kh. Dogoujev	1935		?			?		
usine KrasMach	Krasnoarsk							
V.K. Goupalov	?							
OKB-1001 (NPO PM)	Krasnoarsk							
M.F. Rechetnev	1924-1996	1984	1974		1980			
Albert Kozlov	?							
G.M. Tcherniavsky	1926	MC 90			?	?		
TsSKB	Samara							
D.I. Kozlov	1919	MC 84	1961	1979	1957	1976	1983	
G.P. Anchakov	1937	MC 92	?		?			
G.E. Fomine	?							
V.D. Kozlov	?							
usine Progress	Samara							
V. Ya. Litvinov	1910-1983		1945	1960				
A.A. Tchiiov	?							
NPO Lavotchkine	Khimki							
G.N. Babakine	1914-1971	MC 70	1970		1966			
V.E. Ichevsky	?	DTS				?		
A.M. Baklounov	?				?			
V.A. Sercbrennikov	?		?			?		
V.G. Perminov	?							
V.P. Panteleiev	?							
O.G. Ivanovsky	1923				1966	1978		
R.S. Kremnev	1929				1986	1972		
G.N. Rogovsky	?							
Valery Poletsky	?							
OKB-456 EmergoMach	Khimki							
V.P. Glouchko	1908-1989	1958	1956	1961	1957	1967	1984	
D.D. Sevrouk	1908					?		
V.I. Kourbatov	?		?		?	?		
V.P. Radovsky	1920	MC 87	1976		1960	1985		
B.I. Katorgine	?							
V.A. Vitka	1901-1989		?		?			
N.S. Chniakine	?		?					
V.L. Chabransky	?		?					
N.A. Jeltoukhine	1915	MC 68			1957			
You.N. Tkatchenko	?							
V.K. Chvanov	?							
OKB-134 (KBkha)	Voronej							
S.A. Kosberg	1903-1965	DTS	1961		1960			
A.D. Konopatov	1922	1992	1966		1976	1970		
V.S. Ratchouk	?							
OKB-2 (KhimMach)	Podlipki							
A.M. Isaiev	1908-1971	DTS	1956		1958	1968		
V.N. Bogomolov	?		?		?	?		
N.I. Leontiev	?							
NII-627 (VNII EM)	Istra (Moscou)							
A.G. Iossifian	1905	AN Arm	1961		1970			
N.N. Cheremetievsky	1916	1984	1986		1978	1967		
V.I. Adasko	1933-1993					?		
S.A. Stoma	?							
NPO "Projektor"	Moscou							
A.M. Goltsman	?							
V.A. Okounev	1930-1991	DTS	1977		1982	1974		
NPO Kvant	Moscou							
N.S. Lidorenko	1916	MC 66	1971		1960			
You. V. Skokov	?							
A.B. Sloutsky	?							
OKB-124 (Nauka)	Moscou							
G.I. Voronine	1906-1987		1961		1966			
I.V. Tichine	?							
OKB-918 (Zvezda)	Tomihno							
S.M. Alexeiev	1909		1961					
G.I. Severine	1926	MC 90	1982		1965	1978		
V.I. Svertchek	?							
I.P. Abramov	?							
NII Parachutostroenie	Moscou							
F.D. Tkatchev	?							
N.A. Lobanov	1909-1978				1965			
O.V. Ryssev	?							
SOKB LII (NIIAO)	Joukovsky							
N.S. Stroeiev	1912	DTS	1966	1982				

S.G. Darevsky	?								
B.M. Abramov	?	DTS							
S.A. Borodine	?								
NPO Energya	Voronej								
E.A. Lolochnikov	1930-1978						?		
GIPKh (Priklad.Khimi)	Leningrad								
V.S. Chpak	1909	1981	1961						
B.V. Gidasov	1933	MC 81				1976	1981		
Guennady Terechenko	?	DsChim							
NPO KriogenMach	Balakhikh								
V.P. Beliakov	1923-1986	MC 79	1983			?			
V.E. Kourtachine	?								
NII-1 (MIT)	Moscou								
A.D. Nadiradze	1914-1987	1981	1976	1982	1966	1988			
B.N. Lagoutine	1927	DTS	1977		1966	1981			
You.S. Solomonov	?								
NII-125 (NPO Soyouz)	Liouberetsky								
B.P. Joukov	1912	1974	1966	1982	1976	1967			
V.V. Vengersky	1932-1989	MC 81			1966	1977			
N.A. Krivocheiev	1930	MC 79							
Z.P. Pak	1939	DsChim			1984	1980			
NPO Altai	Biisk								
Ya.F. Savtchenko	1913-1984	CTS	1971	1983	1976				
G.V. Sakovitch	1931	1992	1990		1984	1970			
NPO Iskra	Perm								
L.N. Lavrov	1933-1994	MC87	1984		1990	1973			
M.I. Sokolovsky	?								
OKB Iskra	Moscou								
I.I. Kartoukov	?								
You.K. Koulikov	?								
B.A. Raisberg	?								
TsNII Spezmach	Khotkovo								
V.D. Protassov	1931	MC87	1990		1976	1980			
NII AP	Moscou								
N.A. Pihouguine	1908-1982	1966	1956	1961	1957	1967			
A.M. Ginzbourg	?								
V.P. Finogenov	?		1961		?				
V.L. Lapyguine	1925	DTS	1971		1960	1976			
V.K. Krotov	?								
S.M. Viazov	?								
G. Glazkov	?								
NII-944 (NII PM)	Moscou								
V.I. Kouznetsov	1913-1991	1968	1956	1961	1957	1967			
D.K. Radkevitch	?								
Z.M. Tsetsiour	?								
I.N. Sapojnikov	?								
NII-885 (RNII KP)	Moscou								
M.S. Riazansky	1909-1987	MC 58	1956		1957				
E.Ya. Bogoulavsky	1917-1969	DTS	?		?				
E.M. Manoukian	?								
E.N. Galine	?								
V.A. Grichmanovsky	1927	CTS			1986	1976			
A.S. Selivanov	?	DTS			?	?			
A.S. Morgoulev	?								
SKB-567	Moscou								
E.S. Goubenko	1911-1959								
A.V. Beloussov	?		?		?				
NII-648 TotchPribor	Moscou								
N.I. Belov	?								
A.S. Mnatsakanian	1918-1992				?				
O.N. Chichkine	1934								
A.N. Tchourkine	?								
V.A. Gorkovoi	?								
A.F. Kalinine	?								
Anatoli Chichanov	?								
OKB MEI	Moscou								
V.A. Kotelnikov	1908	1953	1969	1978	1964				
A.F. Bogomolov	1913	1984	1957		1960	1979	1986		
K.A. Pobedonostsev	?								
NII Televidenie	Leningrad								
I.A. Rosselevitch	?		1961						
M.A. Groudzinsky	?								
NII-695 (MNIIRS)	Moscou								
L.I. Goussev	1922		1961		?	?			
You.S. Bykov	1916-1970		1961		?				

M.I. Borissenko	1917-1984		?		?	?		
A.P. Bilenko	1924-1991	DTS	1977		1986			
A.V. Lissine	?							
OKB-692 (Khartron)	Kharkov							
B.M. Konoplev	1912-1960	DTS						
V.G. Sergueiev	1914	AN Ukr	1961	1976	1957	1967		
Ya.E. Aizenberg	?							
NII Automatik	Sverdlovsk							
N.A. Semikhatov	1918	1990	1961		1959	1968	1978	
NII Micropribor/ELAS	Zelenograd							
G.Ya. Gouskov	1918	MC 84	1961		1974			
GSKBSpezMach/KBOM	Moscou							
V.P. Barmine	1909-1993	1966	1956		1957	1967	1977	1985
I.V. Barmine	?							
V.A. Roudnitsky	?							
You.L. Troitsky	?							
N.M. Korneiev	?							
L.M. Chepelev	?							
V.G. Eliseiev	?							
TsKB TlaMach	Moscou							
N.A. Krivochein	1908-1976	CTS	1961		1975			
B.R. Aksoutine	1922	CTS	1981		1986			
KB SredMekhanizatsi	Leningrad							
E.G. Roudiak	1908-1991	DTS	1963		1961		1967	
A. Chakhov	?							
V.S. Stepanov	1920	DTS	1976		1964			
A.F. Outkine	1928	DTS			1976	1981		
KB TransMach	Moscou							
V.P. Petrov	?							
V.N. Soloviev	1924	MC 90	1980		1972	1988		
G.P. Birioukov	?							
KB TransKhimMach	Moscou							
M.I. Stepanov	?							
SFKB								
V. Filippov	?							
SOKB								
V. Roj dov	?							
OKB Motor	Moscou							
E.F. Stepanov	1929-1991					?		
NII-I (NII TP)	Moscou							
M.V. Keldysh	1911-1971	1946	1956	1961	1957			
V.Ya. Likhouchine	1918-1992	DTS						
A.S. Korotziev	1936	MC 90						
G.I. Petrov	1912-1987	A58	1961			1978		
A.P. Vanitchev	1916-1994	MC 62			1957			
V.M. Ievlev	1926-1990	MC 64						
V.S. Avdouevsky	1920	A78			1970	1978	1987	
NII-88 (TsNII Mach)	Podlipki							
L.R. Gonor	1906-1969		1942					
K.N. Roudnev	1911-1980		1961					
A.S. Spiridonov	?		?					
G.A. Tiouline	1914-1990	DTS	1961		1957			
You.A. Mozjorine	1920	DTS	1961		1957			
N.A. Anfimov	1935	MC84				1980		
NII-229 (NII KhimMach)	Zagorsk							
G.M. Tabakov	1912	CTS	1961		?			
V.S. Chatkine	?							
? ? Poletaiev	?							
F.G. Soukhomlinov	?							
A.I. Bykovsky	?		1942					
N.V. Filine	?							
V.P. Poukhov	?							
You.A. Korneiev	?							
A.A. Makarov	?							
NPO IT	Podlipki							
I.I. Outkine	?							
O.A. Soulimov	?							
NPO Kompozit	Podlipki							
G.G. Konradi	?							
S.P. Polovnikov	?							
IPM AN SSSR	Moscou							
D.E. Okhotsimsky	1921	MC60	1961		1957	1970		
T.M. Enciev	1924	MC68			1957			
M.Ya. Marov	1933	MC90			1970	1978		