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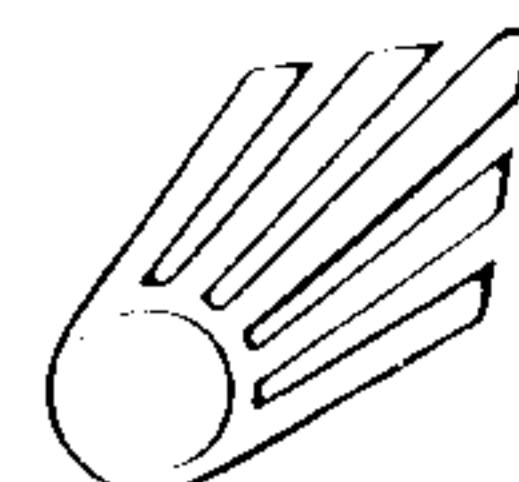
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Gagarin and Khrushchev in Red Square. In the early 1960s, decisions often depended on the personal views of Khrushchev.

Part 2 - Organisational Structure in the 1960s

In the 1950s, the management of the entire defence industry and thus the early space programmes of the USSR was performed by a very powerful body named the Military-Industrial Commission (VPK), which essentially coordinated and controlled all defence-related research, design, development, testing and production activities. The VPK maintained direct contact with the Party structure (i.e. with the real power).

During this period, Khrushchev and Brezhnev determined the actual course of the space programme.

Government: Early 1960s

In the early days of the space programme, following the first Vostok mission in 1961, the Chairman of the State Commission became Leonid V. Smirnov who was also concurrently named Chairman of the GKOT (the State Committee for Defence Technology). The sharing of the two positions by the same individual indicated not only the importance that Khrushchev saw in the space programme, but also hinted at the defence-related nature of much of the space programme's administration.

The same year, an official decree was passed defining the rights and status of the Council of Chief Designers [1]. It appears that Korolev was beginning to have problems with the appropriate Ministries and Committees concerning the jurisdiction and influence of the Council. The new resolution secured the decisions of the Council as binding for all Ministries and Committees [2].

During Khrushchev's reign, the

BY ASIF A. SIDDIQI
Northampton, MA, USA

power of the Council was so strong that it often bypassed the regular hierarchy of the 7th Chief Directorate, the GKOT, the VPK, the Secretariat, the Politburo, finally going to Khrushchev himself. Despite the unofficial channels of leadership, the Council could not be assured of approval of any proposals, and often decisions depended on the personal views of Khrushchev.

During the latter years of the Khrushchev era, Ustinov's personal role in determining space and rocketry policy appears to have diminished. He was relieved of his duties as Chairman of the VPK in March 1963 and replaced by Smirnov. Smirnov's position as Chairman of the State Commission was taken by Maj.-Gen. Georgy A. Tyulin in late 1962.

By the early 1960s, besides the six primary Design Bureaus (KBs) whose

heads were members of the Council of Chief Designers, at least four other KBs were assuming very prominent roles in the space programme:

1. Established in 1952, the SKB-586 had been headed since 1954 by Chief Designer Mikhail K. Yangel, a former employee of Korolev's. Based at Dnepropetrovsk, Yangel was deeply involved in the development of strategic missiles and military satellites for the Ministry of Defence;
2. Chief Designer Vladimir N. Chelomei had headed the OKB-52 since 1959 working under the Ministry of Aviation Industry. By the early 1960s, he had begun research work on space-related projects including a series of new launch vehicles and piloted spacecraft;
3. Since its inception in October 1951, Chief Designer Semyon A. Kosberg had headed a KB focused towards the design of upper stage rocket engines for satellite launch vehicles; and
4. Alexei M. Isayev, an associate of Korolev's and Chief Designer of a KB since about 1944 had by the late 1950s begun design and construction of engines for spacecraft in his own SKB-2.

Although not part of the core Council of Chief Designers, these four individuals played key roles in both the R&D and implementation stages of many space projects at the time.

Party: Early 1960s

Leonid I. Brezhnev was the top Party official in the space programme until 1960 at which point, his duties were transferred to other areas. It appears that most of his responsibilities in the defense sector may have been delegated to Frol R. Kozlov who was Secretary of the Central Committee of the KPSS until 1963. As part of a reshuffling of positions in March 1963, Brezhnev was re-appointed to his earlier position, thus resuming his earlier role as *de facto* head of the space and missile programmes. Brezhnev remained at that position until at least October 1964 when there was a change in the Soviet leadership.

Government: Mid 1960s

Following the ascension of Leonid I. Brezhnev and Alexei N. Kosygin to power in the USSR in October 1964, there was a thorough review of the administration of the space programme. This partly stemmed from the need of a complete re-organisation due to the increasingly growing nature of the Soviet space programme. Following this review, on March 2 1965, the 7th Chief Directorate within the GKOT was completely reorganised, given a wider jurisdiction and renamed the USSR Ministry of General Machine Building (MOM) [3,4].

The MOM was given direct control of almost all of the USSR's missile and space industry (see Organisation Chart overleaf). Sergey A. Afanasyev,

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Left: Valentin Glushko, who believed that hydrogen and oxygen were not the best propellant combination. Centre: Vladimir Chelomei, who led the design of large boosters, such as the Proton and was general designer of the Salyut Programme. Right: Mikhail Yangel, who developed strategic missiles and military satellites.

tariat while Serbin was head only of a Central Committee department; Ustinov obviously exercised control over Serbin, being at the apex of the Party hierarchy. It appears that beginning in the mid-1960s, Ustinov was the *de facto* head of the Soviet space programme. He remained at this position until 1976.

Hierarchy: 1960s

It seems that the Council of Chief Designers lost much of its direct line to the Kremlin following the organisation of the MOM and in particular the death of Korolev in 1966. Still, it remained a fairly powerful and influential body since many of the most significant projects in the Soviet space programme originated from the Council in the form of "resolutions" that were usually passed unanimously. These resolutions would then be reviewed by a special commission of the Academy of Sciences (AN-SSSR) usually headed by President Mstislav V. Keldysh who continued to have influence over project design.

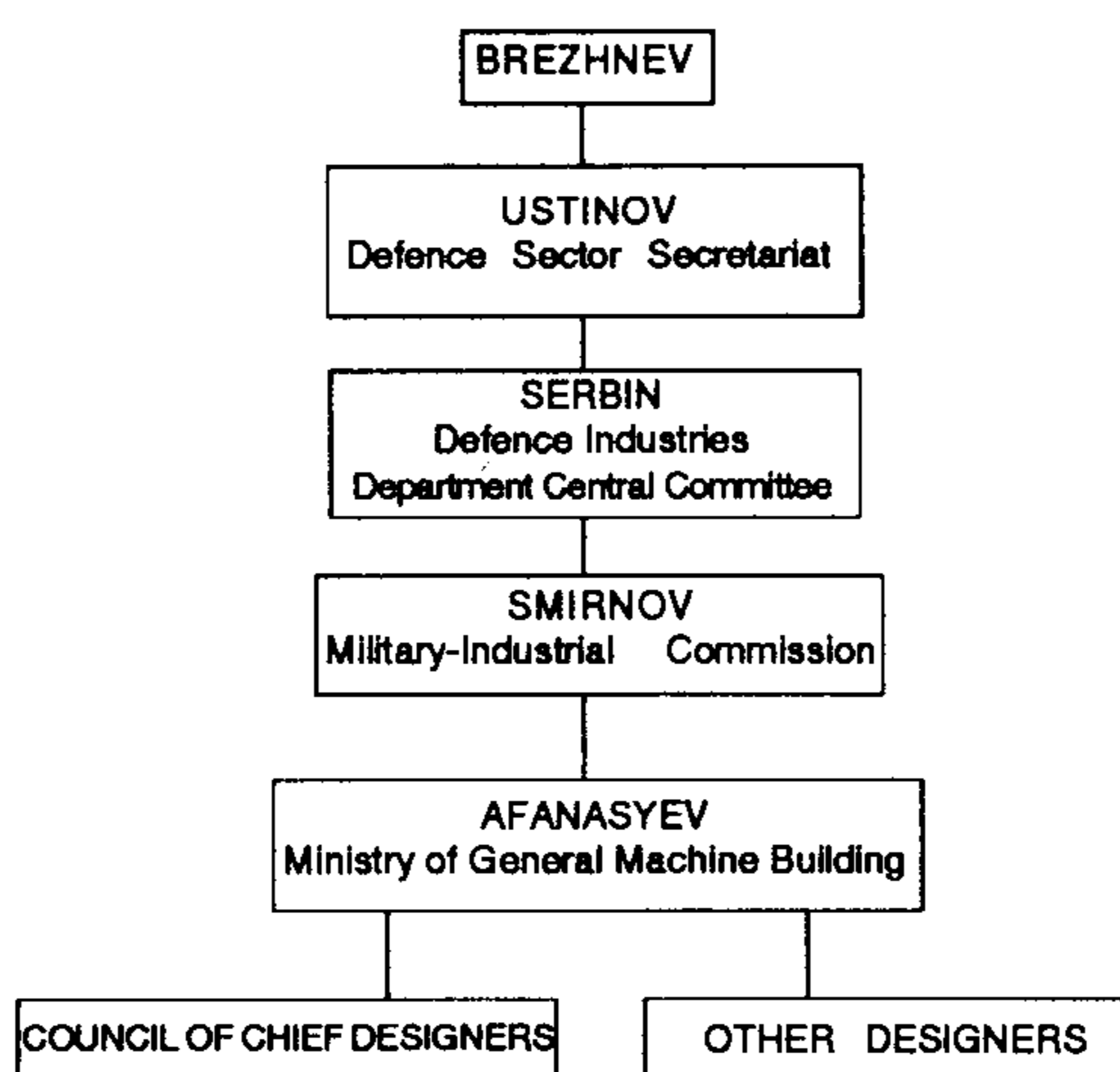
In some cases, it appears that the AN-SSSR would review Council proposals and modify them to fit certain requirements of the space programme. Additional input would be received from the State Committee for Research and Technology (GKNT), the top governmental body for the administration of Soviet science. The approved proposal would then be passed on to the TsNIIMash branch of the MOM which would include it as part of its annual space plan. The plan would then be reviewed by a "collegium" of MOM officials directed by Minister Afanasyev. Often delegates from other Ministries and the AN-SSSR would be involved at this stage of the proposal [5].

The MOM would then pass its budget request to the VPK around May of the following year; the VPK would determine the eventual fate of the proposal. Often, officials at the VPK itself would

restructure the request along the line of its own policy. Following approval by the VPK, the proposal would be signed into law by the President of the USSR [5].

The role of the State Commission remained more focused towards the facilitation of programmes rather than any policy determination. The Commission was headed by Lt. Gen. Kerim A. Kerimov from 1965, but it seems that he did not concurrently hold the post of Chairman of the GKOT as his predecessors did. Thus his overall administrative powers were relatively diminished. This was surely in part due to the formation of the MOM in 1965 and the appointment of Afanasyev. Kerimov did, however, continue to maintain final control of launches, crew selection, launch preparations and flight manifests, certainly key

Hierarchy: 1965-1976. © 1993 ASIF A. SIDDIQI



Selected sources for above chart:

1. Maxim Tarasenko, *Military Aspects of Soviet Cosmonautics*, Agentsvo Rossiskoy, Moscow, 1992, p.19.
2. Harriet Fast Scott and William F. Scott, *The Armed Forces of the USSR*, Westview Press, Boulder, 1979.
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4. Jiri Valenta and William C. Potter, eds., *Soviet Decision making for National Security*, George Allen & Unwin, London, 1983.

areas of the space programme.

This was, of course, the official hierarchy of the administration, but political manoeuvring often distorted or circumvented the established chain-of-command. During Korolev's lifetime, in particular, the unusual nature of the personal relationships between Korolev, Chelomei, Glushko, Yangel and the Soviet leaders played a larger role than any official budget approval process. Often the Soviet government would issue a "resolution" for a particular objective in the space programme, and the different KBs would vie for ultimate selection for the programme, much like the competition of prime contractors in the United States. In particular, three of the most powerful KBs, those headed by Korolev, Chelomei and Yangel competed against each other for ultimate approval by both the AN-SSSR and the TsNIIMash. The final selection was often a result of political manoeuvring and a function of the climate of relationships with Afanasyev, Smirnov or Ustinov. In particular, it should be noted that the Defence Department of the KPSS Central Committee had a significant influence over the approval process. The VPK and the MOM rarely, if ever, failed to approve rulings originating in the Defence Industries Department [5]. Following final selection, the government would issue a timetable for the completion of the project. The Council of Chief Designers in association with the State Commission would then attempt to meet the schedule in co-ordination with the resources of the MOM.

One example of this sequence was the aborted piloted lunar landing programme: the government issued a resolution in August 1964 calling for such a project; three KBs (Korolev, Chelomei and Yangel) then vied for final approval; a commission from the AN-SSSR reviewed the proposals and approved further work for the Korolev proposal in November 1966; finally the

Soviet government issued a decree in February 1967 with a specific timetable. It must be emphasised that each space project had its own anomalies in the process to approval, and the lunar project is just one example of how the process was enacted.

This weblike organisational structure was maintained unchanged almost through to the late-1980s. Despite changes in the personalities in the space programme, the essential nature of the administrative structure of the space programme would not be changed until the dissolution of the

Soviet Union at the end of 1991. It has been argued that the existence of a centralised agency would have hastened the progress of the Soviet space programme, but the evidence shows that despite the overtly bureaucratic structure of the programme, the Soviets were still the foremost spacefaring nation in the late 1950s and early 1960s.

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6. Stephane Chenard, "Twilight of the machine builders," *Space Markets* 5:11-19 (1991).
7. Stephane Chenard, *Space Directory of Russia*, Euroconsult, Paris, 1993, p.166.
8. Maxim Tarasenko, *Military Aspects of Soviet Cosmonautics*, Agentsvo Rossiskoy, Moscow, 1992, p.19.

Table 1: Administrative Organisations in Missile and Space Programmes

POLICY	
Special Commission No. 2:	
Established April 1947	
Oversaw strategic missile programmes policy until the late 1950s:	
Chairmen:	
I.A. Serov:	47-47
G.M. Malenkov:	47-51
V.M. Ryabikov	51-55
KPSS Secretariat:	
Highest individuals in the USSR responsible for defence and space programme policy:	
L.I. Brezhnev:	56-60
F.R. Kozlov:	60-63
L.I. Brezhnev:	63-65
D.F. Ustinov:	65-76
Y.P. Ryabov:	76-79
none	79-83
G.V. Romanov:	83-85
L.N. Zaikov:	85-88
O.S. Baklanov:	88-91
Central Committee Defence Industries Department:	
Second level of individuals responsible for defence and space programmes:	
I.D. Serbin:	58-81
I.F. Dmitriyev:	81-85
O.S. Belyakov:	85-90
IMPLEMENTATION	
Military Industrial Commission (VPK):	
Established January 1938	
Top body responsible for ensuring fulfilment by Ministries of policies for space and defence-related production:	
Chairmen:	
V.D. Malyshev:	53-55
M.V. Khrunichyev?:	55-56
D.F. Ustinov:	57-63
L.V. Smirnov:	63-85
Y.D. Maslyukov:	85-88
B.S. Belousev:	88-91
Y.D. Maslyukov	91-91
Ministry of Defence Industries:	
Established 1946 and named	
Ministry of Armaments 1946-1953	
Governmental supervision over development and production of artillery and strategic missiles in the period 1946 to 1957:	
Minister:	
D.F. Ustinov:	46-57
First Deputy Ministers:	
V.M. Ryabikov:	46-51
K.N. Rudnev:	52-57
State Committee for Defence Technology (GKOT):	
Established January 1958	
Governmental supervision over development and production of artillery and strategic missiles in the period 1958 to 1965:	

Chairmen:	
A.V. Domrachev	58-58
K.D. Rudnev:	58-61
L.V. Smirnov:	61-63
S.A. Zverev	63-65
7th Chief Directorate:	
Established 1946	
Governmental direction of research, development and manufacture of strategic missiles and space vehicles in the period 1946 to 1965:	
Chairmen:	
S. Vetoshkin:	46-??
Ministry of General Machine Building (MOM):	
Established March 1965	
Governmental direction of research, development and manufacture of strategic missiles and space vehicles in the period 1965 to 1991:	
Ministers:	
S.A. Afanasyev:	65-83
O.D. Baklanov:	83-88
V. Doguziev:	88-89
O.N. Shishkin:	89-91
R.R. Kiryushin:	91-91
State Commission:	
Established 1958	
Supervision and approval of launches, crews, manifests, mission events in space programme:	
Chairmen:	
K.N. Rudnev:	58-61
L.V. Smirnov:	61-62
G.A. Tyulin:	62-65
K.A. Kerimov:	65-91
CLIENTS	
Ministry of Defence:	
Ministers:	
G.K. Zhukov:	53-57
R.Y. Malinovsky:	57-67
A.A. Grechko:	67-76
D.F. Ustinov:	76-84
S.L. Sokolov:	84-87
D.T. Yazov:	87-91
Y.I. Shaposhnikov	91-91
Strategic Rocket Forces (RVSN):	
Established December 1959	
Commanders-in-Chief:	
M.I. Nedelin:	59-60

K.S. Moskalenko:	60-62
S.S. Biryuzov:	62-63
N.I. Krylov:	63-72
V.F. Tolubko:	72-85
Y.P. Maksimov:	85-91
RELATED ORGANIZATIONS	
Ministry of Medium Machine Building (MSM):	
Established June 1953 and named	
1st Chief Directorate from 1946-1953	
Governmental direction of research, development and procurement of nuclear weapons:	
Ministers:	
V.A. Malyshev:	53-55
A.P. Zavenyagin:	55-56
M.G. Pervukhin:	56-57
Y.P. Slavskiy:	57-86
L.D. Ryabev:	86-89
Soviet Air Force (VVS):	
Commanders-in-Chief:	
K.A. Vershinin:	46-49
P.F. Zhigarev:	49-57
K.A. Vershinin:	57-69
P.S. Kutakhov:	69-85
A.N. Yefimov:	85-88
Y.I. Shaposhnikov:	88-91

SCIENCE SECTOR	
State Committee for Coordination of Scientific Work (GKNT):	
Established 1961 and named	
State Committee on Science and Technology from 1965	
Primary governmental supervision over scientific research and development:	
Chairmen:	
M.V. Khrunichyev:	61-61
K.N. Rudnev:	61-65
V.A. Kirillin:	65-80
G.I. Marchuk	80-86
B.L. Tolstykh:	87-91
USSR Academy of Sciences (AN-SSSR):	
Direction and monitoring of scientific research and development:	
Presidents:	
A.N. Nesmeyanov:	-61
M.V. Keldsyh:	61-75
A.P. Alexandrov:	75-86
V.A. Kotelnikov:	86-86
G.I. Marchuk:	86-

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