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TITLE: EAST-EAST MILITARY TECHNOLOGY TRANSFER
SOVIET LICENCE POLICY IN THE FRAMES OF THE
COMECON MILITARY INDUSTRIAL COOPERATION

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ABSTRACT:

The paper presents some new evidence that the Soviet Union passed on second-rate technology for the most part for the satellite countries in the early 1950s. The paper shows that in 1954-55 some changes can be seen: it emerged from an examination of the investments implemented to date in the war industries of the region that the developments realised had been of uneven standard, and superfluous concurrent capacities had been constructed. It became clear that as a result of the uncoordinated provision of licences, for the most part out of date armaments of mixed composition were being manufactured in the military industry plants of the satellite countries. This is why the division of labour, mutual cooperation and multilateral coordination was necessary, and the Military Industry Standing Committee of the CMEA was created to provide a framework for this in 1956. The Soviets may not have forbidden the launching of independent research and development projects in the 1950s and 60s, but at the Warsaw Pact alliance level very few non-Soviet developed products were allowed into the system. The paper analyses how the Soviets managed the licence-giving and adaptation in the 60s and 70s, and why they inaugurated the licence-fee from 1973 in the field of military production.

Proposal, December 2009

One aspect of Sovietisation occurring in the late 1940s and the first half of the 1950s, which has as yet been awarded little attention, is the forced transfer of Soviet technology. The domestication of the socialist system and the planned economy was accompanied by the compulsory acceptance of the Soviet technology and production model. In every socialist country the establishment of huge armies followed similar structural patterns: the armies of the Central and Eastern European countries were equipped with the same weaponry and the same uniforms, and the newly founded war plants adopted the same technologies. Although the adoption of Soviet technology was extensive in the whole of heavy industry, the choice has fallen on the military industry, as Sovietisation was the most radical and the most complete in this sector.

The paper will present some new evidence that all of the satellite countries had after all discontinued their earlier manufacture of weapons, military vehicles and equipment, with the exception of a few products, and completely switched over to the production based on Soviet licences. For reasons of secrecy and protection of information, however, and in order to disparage the satellite armies and to keep them in a subordinate position, the Soviet Union passed on mostly *second-rate technology*. The paper shows that in 1954-55 some changes can be seen: it emerged from an examination of the investments implemented to date in the war industries of the region that the developments realised had been of uneven standard, and superfluous concurrent capacities had been constructed. It became clear that as a result of the uncoordinated provision of licences, for the most part out of date armaments of mixed composition were being manufactured in the military industry plants of the satellite countries. This is why the division of labour, mutual cooperation and multilateral coordination was necessary, and the Standing Committee on Defence Industry Co-operation of the COMECON was created to provide a framework for this in 1956.

The Soviets may not have forbidden the launching of independent research and development projects in the 1950s and 60s, but at the Warsaw Pact alliance level very few non-Soviet developed products were allowed into the system. *The paper targets analysing* how the Soviets managed the licence-giving and adaptation in the 60s and 70s, and why they inaugurated the licence-fee from 1973 in the field of military production.

The central hypothesis of the paper is that during the 1970s, a certain tension and clash of interests had emerged between the imported Soviet technology and the national development policies, for example in Hungary. The smaller countries of the COMECON/Warsaw Pact opened new windows for the Third World, and they reorganized their (military) industrial R&D institutions and built new ties with the non-bloc world.

Paper for pre-circulation, May 2010

As the technical development level of individual countries increasingly became a strategic issue in the course of the twentieth century, technology policy became an ever more important component of power politics: what kinds of technology does a major power wish to deliver to its allies (even free of charge), what level of technology does it allow the neutral countries to buy, or how does it try to impede the flow of developed technologies and new scientific results, so that these may not be acquired by its enemies? During the decades of the cold war, it was mainly this last issue that was spotlighted: the embargo policy of the USA and the western powers and the CoCom trade control system, in operation from 1949 (Coordinating Committee for Multilateral Export Controls).¹

At the same time, the number of studies concentrating more on the first two questions has happily increased in recent years. For instance, Thomas-Durell Young presents the British-American-Canadian political, military and technological cooperation after the Second World War via the standardisation program, as well as the air, naval, communications and R&D policies.² In his book *Tools of Hegemony. Military Technology and Swedish-American Security Relations 1945–1962*, Mikael Nilsson provides a profound analysis of when and on what considerations the USA was willing to deliver its guided missiles technology to Sweden, a non-NATO member.³ Albert Presas I Puig then examines the twentieth century relations between Spain and Germany, replete with turnarounds, in the system of correlation between technology and politics.⁴

At the same time, significantly less is known about the flow of information within the Soviet bloc. This is because, as already mentioned above, Soviet technology policy has largely only been examined from the angle of what technologies the Soviet Union attempted to acquire from the West, and in what way.⁵ Although it is common knowledge that the flow of technical information and technology transfer within the bloc occurred basically via the CMEA (Council for Mutual Economic Assistance, COMECON or CMEA), scarcely more is known about this today than what was written by Marie Lavigne in her 1991 book *International Political Economy and Socialism*. (The main reason for this is presumably that the central documentary material of the CMEA kept in Moscow is even today not available for research.⁶)

¹ See for example Antony C. Sutton, *Western Technology and Soviet Economic Development* (Stanford, CA., 1968–73); U.S. Congress, Office of Technology Assessment, *Technology and East–West Trade* (Washington D. C. 1979); Gary K. Bertsch, *Controlling East-West Trade and Technology Transfer: Power, Politics, and Policies* (Durham [N.C.], 1988).

² Thomas-Durell Young, Cooperative Diffusion through Cultural Similarity. The Postwar Anglo-Saxon Experience. In Emily O. Goldman and Leslie C. Eliason (eds), *The Diffusion of Military Technology and Ideas* (Stanford, CA, 2003), 93–113.

³ Mikael Nilsson, *Tools of Hegemony. Military Technology and Swedish-American Security Relations 1945–1962* (Stockholm, 2007).

⁴ See Albert Presas I Puig, *Technological Transfer as a Political Weapon: Technological Relations between Germany and Spain from 1918 to the early 1950s*. *Journal of Modern European History*, 6 (2) 2008 218–236.; Albert Presas I Puig, *Technoscientific Synergies between Germany and Spain in the Twentieth Century: Continuity amid Radical Change*. *Technology and Culture*, 51 (1) 2010 January, 80–98.

⁵ See for example: Thane Gustafson, *Selling the Russians the Rope? Soviet Technology Policy and the U.S. Export Control*. Rand Report (Santa Monica CA, 1981 April). William H. Smits Jr., Transfer of High Technology from the United States to the Soviet Bloc: A Public Policy Issue. *International Journal of Public Administration*, 6 (2). 1984 245–277.

⁶ David R. Stone, for example, when dealing with the history of the CMEA's International Investment Bank, was only able to study the documentary material of the Soviet CMEA representatives while in Moscow. See David R. Stone, CMEA's International Investment Bank

Lavigne considered it important to emphasise that the CMEA member countries spent many times the amount on the purchase of foreign licences than the income they obtained from the sale of their own licences.⁷ In addition, there are no data on the circulation of licences within the CMEA, so the extent of the exchange of technical information and technology transfer between the member countries cannot be measured. Lavigne draws attention to the fact that, “after COMECON was set up, one of the very first principles jointly adopted, the ‘Sofia’ principle (August 1949) laid down that the trade of non-incorporated technology (patents, licences, know-how, technical documentation), would be done at no cost in the spirit of socialist internationalism”. The “Sofia principle” was only gradually abandoned between 1968 and 1971. According to Lavigne’s estimation, therefore, technical documentation corresponding to a value between 15 and 20 billion USD changed hands *free of charge* (i.e. without the payment of licence fees) within the CMEA between 1950 and 1970.⁸

As will also be dealt with in detail in subsequent sections, a substantial part of the exchange of technical information within the Soviet bloc constituted military or dual purpose technologies.⁹ Without mentioning the role played by the CMEA in technology transfer, Christopher Jones stated in his study *Reflections on Mirror Images: Politics and Technology in the Arsenal of the Warsaw Pact*: “The diffusion of military technology from Soviet Union to its Warsaw Pact allies highlights the process of »coercive« diffusion and efforts to shape and tightly control the military practices of other states. This coercive diffusion [...] is driven by the goals of the »supplier« state and is less likely to be sensitive to the social, political, and cultural contexts of »recipient« states, or to the goal of military effectiveness”. Jones emphasised the political considerations, which in his opinion were more powerful in the distribution of Soviet technology than questions of military efficiency.¹⁰ In his chapter he dealt mainly with the standard of equipment of the East German National People’s Army, as well as the provision of modern tanks to the other Warsaw Pact armies. According to his final conclusion, “the spread of military technology from the Soviet Union to its Warsaw Pact allies is not a typical case of interstate diffusion, [...] but rather a case of intrainperial imposition”.¹¹

Picking out a segment of the CMEA military industry cooperation and analysing the Soviet Union’s practice of handing over military licences, the chief characteristics of Soviet technology policy between the beginning of the 1950s and the end of the 1970s are presented in the following article – predominantly with the help of Hungarian archival sources.¹²

and the Crisis of Developed Socialism. *Journal of Cold War Studies*. (10) 3. 2008 48–77. On the other hand, for instance Dagmara Jajeśniak-Quast, The “European Coal and Steel Community” of the East: the COMECON and the Failure of Socialist Integration was produced using national documentary material. In Uwe Müller and Helga Schultz (eds), *National Borders and Economic Disintegration in Modern East Central Europe* (Berlin 2002) 223–244.

⁷ In any case, there is hardly any access to data, for instance in 1975 “a little under 2000 licences for around USD 240 million and had sold 700 licences for USD 30 million”. Marie Lavigne, *International Political Economy and Socialism*. (Cambridge [England], 1991) 205.

⁸ *Ibid.* 225.

⁹ On the Soviet-Chinese nuclear industry cooperation, see: Yanqiong Liu, and Jifeng Liu. “Analysis of Soviet Technology Transfer in the Development of China’s Nuclear Weapons”. *Comparative Technology Transfer and Society*. 7 (1) 2009. 66-110.

¹⁰ Christopher Jones, *Reflections on Mirror Images: Politics and Technology in the Arsenal of the Warsaw Pact*. In Emily O. Goldman, , and Leslie C. Eliason (eds), *The Diffusion of Military Technology and Ideas* (Stanford, CA, 2003). 117.

¹¹ *Ibid.* 144.

¹² On the CMEA military industry cooperation, see Pál Germuska, *From Commands to Coordination: Defense Industry Cooperation within the Member-States of the Warsaw Pact*,

It will be seen that the Soviet Union for political considerations delivered mainly just second-line technology at the beginning, the disadvantages of which that country had to face in 1954-55. Clear and unequivocal principles for the handing over of military licences were elaborated in 1957 in Moscow at the highest level, and the strict information protection measures introduced at that time were hardly relaxed over the following two decades. On analysing the CMEA military industry decisions on manufacturing specialisation, it becomes clear that although the Soviet Union handed over the manufacture of certain kinds of missiles (surface-to-air-missiles, man-portable shoulder-fired SAMs; air-to-air missiles, AAMs) and aeroplane types to its allies, it never shared the technology for ballistic missiles, the most up-to-date radar, or military nuclear devices with them. As the exclusive supplier and largest licence provider for high-tech and nuclear devices, the Soviet Union naturally wished to keep its allies under tight control. Moscow's monopoly on state-of-the-art technology collapsed/came to an end in the 1970s when several smaller member countries reacted faster and more efficiently to the information-technology revolution than the Soviet Union did. With domestic research and western components and technologies, legally or illegally acquired, the Non-Soviet Warsaw Pact countries (NSWP) were capable of coming forward with competitive instruments and with communications and reconnaissance devices even outside the CMEA.

Technology transfer within the Soviet bloc naturally embraced a significantly broader field than that examined in the study, from the activities of technical experts and advisers, via educational and training projects to the flow of scientific research results and the provision of industrial technologies.¹³ Even so, this article focuses on the handing over of licences, because this was the determinative form/channel for the transfer of Soviet military industry technology. Changes in Soviet technology policy are examined in four sections: in the time of sovietisation at the beginning of the 1950s, during the period of formalisation of the military industry cooperation (1956-1963), then in the periods of mass licence take-over (1963-1972) and of the introduction of licence fees (1972-1979). For lack of sources, the processes of later years cannot be presented, as the documentary material after 1980 in Hungary may only be researched in a fragmentary manner at present.¹⁴

1956–1965. In Robert S. Rush, William W. Epley (eds.): *Multinational Operations, Alliances, and International Military Cooperation. Past and Future*. Proceedings of the Fifth Workshop of the Partnership for Peace Consortium's Military History Working Group, Vienna, Austria 4–8 April 2005 (Washington D. C., 2006) 101–108.; Germuska Pál, *Vörös arzenál. Magyarország részvétele a nemzetközi hadiipari együttműködésben a KGST keretei között* (Budapest, 2010)

¹³ On the Soviet technology transfer to China, see Baichun Zhang, Jiuchun Zhang, and Fang Yao, "Technology Transfer from the Soviet Union to the People's Republic of China: 1949-1966". *Comparative Technology Transfer and Society*. 4 (2) 2006 105-167. On the activities of Soviet advisers in Hungary, see Pál Germuska, *Technological Subjection: Soviet Advisers in the Hungarian Military Industry in the 1950s*. In *Expert Cultures in Central Eastern Europe. The Internationalization of Knowledge and the Transformation of Nation States since World War I*. Edited by Martin Kohlrausch, Katrin Steffen and Stefan Wiederkehr. Osnabrück: fibre, 2010 /Einzelveröffentlichungen des Deutschen Historischen Instituts Warschau; 23/. Forthcoming.

¹⁴ According to the Hungarian regulations on information protection (Law 1996/LXV on state secrets and military secrets), top secret documents issued before 1980 are now available to researchers. Archival documents issued after 1980 are only available if their classification has been revised and modified in the course of a special procedure, such as the liquidation of firms. Therefore, a large number of important files are still not accessible, and some significant details cannot be clarified for the time being. The new 2009 law CLV on the protection of classified data was accepted by the National Assembly in the session of 14 December 2009. According to section 39 §-a of the directive which came into force on 1 April

SOVIETISATION WITH SECOND-LINE TECHNOLOGY

When the CMEA was formed, an important consideration was the organisation of the exchange of modern technologies and new technical information within the bloc. The document entitled *On the close cooperation between the Soviet Union and the people's democracies*, accepted at the meeting where the Council was formed on 8 January 1949, regarded this as a paramount duty: "To elaborate the methods of scientific and technical cooperation, and the exchange of technical experience under the most favourable conditions possible (at net cost, etc.)."¹⁵ Months later, session II of the CMEA not only put certain integration steps on the agenda (stimulation of trade between the member countries, implementation of multilateral clearing, etc.), but also a proposal with regard to scientific-technical cooperation and the exchange of technical experience. According to this, the member countries wished to utilise the following forms of cooperation: hand-over and exchange of manufacturing and construction plans, procedures, patents, inventions and innovations, as well as technical documentation, invitation of scientists and experts, exchange of experience, etc.. Delivery of scientific-technical information and patents free of charge was envisaged by the parties, they only wished to charge for preparation of the documentation.¹⁶ The session accepted these principles of cooperation on 25-27 August 1949.¹⁷

Along military lines, however, handing over licences free of charge had become a practice much earlier. From the first months of 1948, elaboration of army development schemes began in every state of the Soviet bloc including Hungary, as well as reorganisation of the military industry and conversion to Soviet technology in parallel with this. In negotiations conducted on various matters in Moscow following the signing of the Hungarian-Soviet treaty of friendship, cooperation and mutual aid on 18 February 1948, Deputy Prime Minister Mátyás Rákosi came to an agreement with leaders of the Soviet general staff that the Soviet Union would hand over weapons manufacturing patents to Hungary. At the same time, the Hungarian party undertook not to pass on the licences further, and not to manufacture more war materials than the quantities stipulated in the licence contract.¹⁸

Negotiations on the creation of conditions for development of the Hungarian army were carried out in Moscow at the beginning of February 1949. On the basis of the discussions, Foreign Minister László Rajk appealed in several letters to Marshall Nikolai A. Bulganin, Soviet Minister of the Armed Forces. Rajk requested the delivery of the licences, technical drawings and manufacturing instructions necessary for the production of war supplies. The Hungarian side requested licence documentation for four kinds of infantry- and 13 types of artillery ammunition, four kinds of small arms and three types of guns from the Soviet side, in addition to gunpowders and

2010, classified materials already in the archives must be reviewed by 30 June 2013. On expiry of the deadline, the classified status of data which have not been reviewed will cease.

¹⁵ Magyar Országos Levéltár (Hungarian National Archive, MOL) M-KS 276. fond (f.) 65/254. őrzési egység (ő. e.) 8.

¹⁶ See the memorandum debated at the 1 June 1949 session of the MDP KV (Hungarian Workers' Party Central Leadership) Secretariat. MOL M-KS 276. f. 54/48. ő. e. 45-46., as well as the document accepted at the 3 August 1949 session of the Secretariat. MOL M-KS 276. f. 54/56. ő. e. 41-65.

¹⁷ Report to the Secretariat on the second session of the CMEA. 31 August 1949. MOL M-KS 276. f. 54/60. ő. e. 32-33.

¹⁸ Imre Okváth, *Bástya a béke frontján. Magyar haderő és katonapolitika 1945-1956.* (Budapest, 1998) 150.

explosives, as well as optical instruments.¹⁹ As the date for the delivery of the documentation and the arrival of Soviet advisers was uncertain, several military industry plants began to prepare for production based on the study of specimens. For instance in January 1949, Diósgyőr ordnance works (DIMÁVAG Engine Works, from autumn 1949 Heavy Machine Tool Works), obtained single specimens of the two Soviet gun types to be manufactured from the Ministry of Home-Defence. Between February and June, drawings of all the component parts were produced for the 76.2 mm anti-tank gun and the 122 mm field howitzer. The Soviet licence documentation for the guns (constructional drawings and complete technical description for manufacturing) only arrived during November-December 1949. Due to a lack of translators and the unknown drawing and numbering system, however, the company could only use the approximately 15 m³ of documentation for refining the earlier drawings. The company began manufacturing the anti-tank gun and the howitzer in March of 1950, and then production was stopped when the Soviet adviser arrived in May. The Soviet technical instructions were used only from that point on.²⁰

It could also be observed in the civilian sector that the Soviet Union re-exported the American and Western technologies imported in the early 1930s, and further developed to some extent, to the new socialist countries (for example, in the case of the metallurgical combines). In the military industry, however, for reasons of secrecy and the protection of information, and due to disparagement of the satellite armies, and in order to keep them in a subordinate position, the Soviet Union was not predisposed to hand over the latest developments and the most modern technologies to the satellite states. This aim is clearly demonstrable on studying the types of guns and small arms delivered for manufacture. These weapons were standardised in the Red Army in the interwar period, or during the Second World War (the year of standardisation and quantity production is indicated by the date following the "M"). Diósgyőr Heavy Machine Tool Works received the following licences between 1949 and 1953: M1938 122 mm field howitzer, M1939 37 mm automatic air defence gun, M1942 76.2 mm anti-tank gun, M1943 57 mm anti-tank gun.²¹ And the Danuvia Machine-tool Factory in Budapest manufactured the following weapons based on Soviet licences: 7.62 mm PPSH submachine gun (standardised in 1941), Degtyaryov DP 7.62 mm light machine gun (1927), 7.62 mm Goryunov medium machine gun (1943).²² Irina V. Bystrova also comments in her monograph on the Soviet military industry, that the gunpowder and explosives manufacturing documentation passed on to Czechoslovakia, Poland, Hungary and China in 1951-53 was based on procedures used in the Soviet Union between 1941 and 1945.²³

At the same time, various signs indicate that the delivery of licences was not adequately coordinated by the Soviet military and industrial apparatus: the real requirements of the recipient countries were not taken into consideration, and the possibility of mutual supplies was not reckoned with. A very mixed combination of largely out of date armaments was thus manufactured by the Central Eastern European countries in the early 1950s. For example, according to a Gosplan

¹⁹ Letters from Foreign Minister László Rajk to Marshall N. A. Bulganin, 12 February 1949. MOL, XIX-J-1-j Soviet Union TÜK, 8. d.

²⁰ Zoltán Farkas, *A magyar hadiipar kialakulásának, tevékenységének történeti feldolgozása a Diósgyőri Gépgyárnál*. Kézirat. Hadtörténelmi Levéltár, Magyar Néphadsereg (HL MN) Különgyűjtemény. [War History Archives, Special collection of the Hungarian People's Army]. Manuscript, Budapest 1984, 4–6.

²¹ *Ibid.* 7.

²² *A Danuvia Szerszámgépgyár hadiipari tevékenysége*. Dátum nélkül. [Undated] Kézirat [Manuscript], HL MN Különgyűjtemény 11.

²³ Irina V. Bystrova, *Советский военно-промышленный комплекс: проблемы становления и развития (1930-1980-е годы)/ Sovetskii voenno-promyshlennyi kompleks: problemy stanovleniia i razvitiia, 1930-1980-e gody* (Moskva, 2006) 329.

(Госплан, Soviet State Planning Committee) report of September 1954, Hungary and Poland were manufacturing the 1939 form of the 85 mm air defence gun, and Czechoslovakia the 1944 form, though the latter also began to introduce production of a more recent version of the gun (the KS-18).²⁴

After the death of J. V. Stalin, along with a gradual recognition of deficiencies, it was expressed at a high level of the Soviet bureaucracy that more intensive coordination and closer cooperation was needed between the Soviet Union and the satellite states. For this reason, reorganisation of the CMEA was begun in the autumn of 1953, in order to make it capable of operating in practice. The CMEA held four sessions in 1954-55, during which a basic organisational framework was created (constitution, operating principles, secretariat, etc.) which had been lacking until then, and preparation for branch cooperation was begun. When the Warsaw Pact was formed, the first initial steps were taken towards integration of the armies of the member countries, and the Statute of the Warsaw Pact Unified Command was produced as part of this in September 1955.²⁵ The Gosplan elaborated various plans as to how the military industry capacities of the smaller member countries could be utilised more efficiently, and the national armed forces be equipped more rapidly by mutual supplies. It became clear that rational employment of the military industry capacities could only be achieved by using a standardised armaments system and a unified military industry development plan.

Between 6 and 11 January 1956, a large-scale summit of the Soviet bloc countries was held in Moscow. At the Moscow meeting beginning on 6 January, besides dealing with various economic matters, N. S. Khrushchev also touched upon the problems of military industrial cooperation in his opening speech:

”The stockpiling of out of date war materials in large quantities is to be avoided. There is a danger of this, because in the people’s democracies, to a significant extent obsolete armaments are being manufactured. It is important to supply the army with modern weaponry, and besides this it may be possible to cut down the armed forces still further. [...] From the point of view of home defence, the Soviet Union in its new five year plan regards the development of the aircraft industry to be its main course of action, principally long-distance war planes, in addition to missile technology and atomic power. The development of these will contribute to the postponement of war. At the same time, traditional armaments may not be neglected; the most important of these must be selected.”²⁶

In a further contribution on 9 January, the Soviet party leader took a clear stand on the strengthening of integration. He called it a ridiculous idea that the individual member countries should develop every branch of production at once, after all, the individual member republics of the Soviet Union did not attempt to produce everything themselves either.²⁷ The scope of the CMEA session was, however, exceeded by discussions of the plan descending even to the level of products, and the creation of additional forums was unavoidable due to bureaucratic coordination of the cooperation. A resolution was therefore passed at the CMEA session VII in Berlin, held between 18 and 25 May 1956, on the establishment of 12 branch

²⁴ Ibid. 323., 329.

²⁵ On the Warsaw Pact, see Vojtech Mastny, Malcolm Byrne (eds), *A Cardboard Castle? An Inside History of the Warsaw Pact, 1955–1991* (Budapest, 2005) 80–82.

²⁶ [1956.] Introductory speech of 6 January. MOL M-KS 276. f. 62/84. ő. e. 1. and 8.

²⁷ Closing speech. [1956.] 9 January. Ibid. 9–11.

standing committees, including a military industry committee (with headquarters in Moscow).²⁸

At the Moscow meeting of the communist and socialist parties of the Soviet bloc on 22-23 June 1956, then at a further sitting between 20 and 30 July, the supply of weapons to the allied armies and the cooperation in military industrial production were discussed. (This was the first genuine agreement in the CMEA on any kind of division of labour.) At this time, the manufacture of more than 70 types of weapons, vehicles, instruments and telecommunications appliances was divided up among the member countries of the Warsaw Pact.²⁹ Based on the agreements made at the 10 day sitting in June, the Soviet Union was prepared to hand over to the partner countries a large number of manufacturing licences for appliances incorporating modern technology. Of the battle planes: *MiG-17* (NATO code-name "Fresco") high-subsonic performance jet fighter aircraft – Poland (planned start of production – 1956), *MiG-19* ("Farmer") second-generation, supersonic fighter aircraft – Czechoslovakia (1958). Of the tanks: *T-54* main battle tank – Poland (from 1957) and Czechoslovakia (from 1958). Of the weapons: *AK-47 Kalashnikov* assault rifle Poland (from 1957) and Bulgaria (from 1958), *D-48* 85 mm anti-tank gun Poland (from 1958), *SON-9* fire control radar ("Fire Can") Hungary (from 1956) and Poland (from 1958), *PUAZO-6* director (fire calculator) Hungary (from 1958), etc..³⁰

There was almost a radical turnaround, therefore, which was motivated by the recognition that the poorly equipped satellite armies were not capable of supporting a western offensive by the Soviet Army. Delivery of the licences took place on the basis of bilateral negotiations, but in order to avoid the earlier parallelism and superfluous developments, there was a need for multilateral coordination. The most important duties of the newly formed standing committee included the provision of mutual consultations, the organisation of the hand-over of licences and technical documentation, the exchange of scientific and research information – as it turns out from the September 1956 draft for the CMEA Military Industry Standing Committee constitution.³¹ A session to form the Military Industry Standing Committee was held in Moscow between 23 and 28 September, where among other things the constitution mentioned above was also accepted. Seven technical subcommittees (sections) were formed in addition, corresponding to the individual types of armaments: aviation industry; infantry and artillery weapons; tanks; ammunition, explosives and gun-powders; telecommunications; warship building; technics (vehicles and special machinery); and also chemical defence in the field of nuclear, biological, chemical reconnaissance and defence.³²

²⁸ Memorandum on the results of CMEA session VII in Berlin. 30 May 1956. MOL M-KS 276. f. 53/289. ř. e. 8–18. p. It is important to note that, although the military industry cooperation took place under the aegis of the CMEA, the member countries outside Europe which joined the organisation later were never included in it: the Mongolian People's Republic (member from 1962), the Republic of Cuba (1972) and the Socialist Republic of Vietnam (1978). As for Albania, although a member of both CMEA and the Warsaw Pact until 1961, it played no part at all in the military industry cooperation.

²⁹ Record of the meeting held in Moscow on 22-23 of the month of June. MOL, M-KS 276. f. 53/293. ř. e. 15–18., as well as Report on the discussions held in Moscow between 20 July and 30 July 1956. MOL, M-KS 276. f. 53/300. ř. e. p. 115–143.

³⁰ Ibid.

³¹ MOL XIX-F-6-dd 59. doboz [box] (d.).

³² Abridged report of the Moscow discussions of the Military Industry Standing Committee. 1 October 1956. MOL M-KS 276. f. 66/43. ř. e.

DIVISION OF LABOUR AND CONTROLLED INFORMATION FLOW

The sections of the CMEA Military Industry Standing Committee (MISC) mentioned above took on a huge task at the turn of 1956–57: from a survey of requirements via the elaboration of technical demands and determination of basic standards to the setting of development targets, numerous issues were discussed. By the spring of 1957, the member countries were holding advanced talks with each other and with the Soviet Union on the division of the manufacturing tasks.³³ Finalisation of the mid-term plans, however, was upset by the enactment on 19 September 1957 by the Central Committee of the Communist Party of the Soviet Union (CC CPSU) and the Soviet government, which required the preparation of a seven year plan for the years 1959–1965 for the whole of the Soviet people's economy, including military industry production.³⁴ At a sitting in Moscow on 5 October, the CMEA MISC delegation chairmen presented the Soviet expectations with regard to the long-term planning.³⁵

Following this, the partner countries naturally set about compiling similar plans. In the meantime, the Soviet party and state apparatus began investigations along several lines, and it gradually became clear according to what principles they wished to share information with the satellite countries, and cooperation of what type and depth was desired by the Soviet interests. The Soviet Union laid claim to the R&D results and ideas of the member countries (with the section meetings serving this purpose), but they themselves wished to share as little information as possible with their allies. Various directives were passed in the autumn of 1957, regarding the branches of industry in which there could be a question of cooperation at all, and the technologies for which passing on knowledge or hand-over was forbidden. These fundamental measures on protection of information and technology determined the kinds of military products the specialisation and cooperation would extend to.

Based on an enactment of 12 September 1957 by the Soviet Executive Council, the Soviet division of the CMEA Military Industry Cooperation Standing Committee elaborated plans for the international harmonisation of scientific research and experimental design work.³⁶ During the consultations, the latest types of armaments, the subject of atomic and missile weapons could not even be mentioned. At the section meetings, only those subjects were discussed on which any one of the member countries made an observation regarding the Soviet resolution plan, or about which the Soviet Union made enquiries. A major approach at the section meetings was also protection of information: designs for the newly developed fighter planes, tanks, medium and large battle ships and modern locators were completely missing from the program.³⁷ In accordance with the Soviet expectations, sessions were held between the end of October and the beginning of December 1957 by, among others, the CMEA MISC Armoured Weapons and Artillery Tractors Subcommittee, the Aviation Industry Subcommittee, the Gunners and Artillery Weapons and Instruments Subcommittee, the Ammunition Section, and the Radio Electronics and Telecommunications Section.³⁸

³³ The Home Defence Council (HT) resolution no. 8/104/1957., MOL XIX-A-98 1. d. 2. kötet. [volume]

³⁴ Bystrova (n. 23 above) 336.

³⁵ Minutes of the meeting of the [CMEA] Military Industry Cooperation Standing Committee delegation chairmen, held in Moscow on 5 October 1957. MOL XIX-F-6-dd 59. d.

³⁶ In the official Russian terminology, "scientific-research work" (NIR) essentially corresponds to "research" in the western sense, and "experimental-design work" (OKR) is equivalent to "development". The two concepts together, therefore, cover "R&D".

³⁷ Bystrova 332.

³⁸ For minutes of the section sittings and subcommittee meetings, see: MOL XIX-F-6-dd 59. d.

In September 1957, the Gosplan, the State Committee for Foreign Economic Relations (in Russian GKES) and the Soviet Ministry of Defence began elaboration of a plan for the development and specialisation of the military industries of the “western people’s democratic countries”. During the preparations, special attention had to be paid to the “great vulnerability of the military industries” in these countries, to the preservation of secrecy for the newly developed weapons, as well as to how economical would the manufacture of the products to be handed over be. On 6 December, Mikhail Khrushchev, Aleksei Sakhurin and Rogion Malinovsky, the leaders of the Soviet military industry complex, presented to N. S. Khrushchev the general principles of military technology cooperation between the Soviet Union and the countries of the socialist camp. It was laid down in the document that the NSWP countries, in times of war and peace, must supply themselves with the basic firearms, artillery appliances, mortars, and the matching ammunition, military telecommunications instruments, chemical protection equipment and radiation measuring tools. They judged that it was not necessary to establish new military industry plants to achieve this, but more efficient utilisation of existing capacities would be sufficient, and supplies could be solved by the countries delivering to one another (mutual supplies). They did not wish to hand over the most recent and most developed military industry technologies to the partner countries, such as the anti-aircraft guided missiles, jet-powered fighters and radar appliances, until mass production of these was underway in the Soviet plants, or until they were in widespread use in the Soviet Army.³⁹

With these principles established, the second session of the CMEA Military Industry Standing Committee was held in Moscow between 10 and 14 December 1957. In contrast to the earlier plans, the committee decided not to create the section dealing with missile technology – appealing to the fact that outside the Soviet Union practically no-one was working on this technology.⁴⁰

The CMEA countries ratified the Soviet principles decided in December of 1957 at the highest level. The issues of the development of CMEA cooperation, and the harmonisation of international division of labour and production specialisation were debated at a summit of the communist and socialist party leaders on 20-23 May 1958. As the second point on the agenda, the questions of military industry specialisation were discussed in a closed session. The Soviet proposal suggested that the military technology requirements of the member countries could be covered by mutual supplies, for which the construction or extension of new military plants was in general not needed, except in the case of new branches of the industry such as vacuum technology. The technology transfer restriction was interpreted to emphasise the “generosity” of the Soviet Union: Moscow corporation, supplying the partner countries with *the most modern military equipment on the same favourable credit terms as before*. The meeting approved the Soviet expectations without modification, by a resolution which was never made public.⁴¹

At a meeting of the CMEA MISC held in Moscow between 25 August and 5 September 1958, a final decision was made on the division of manufacture of numerous military technology products. In line with the principles of December 1957 and the resolutions of the May 1958 meeting, the atomic and missile technology was left out of the division, but at the same time the Soviet Union intended to hand over the manufacture of several modern aircraft (*MiG-19* supersonic fighter aircraft, *Mil MI-4* helicopter), combat vehicles (*T-54* main battle tank, *ZSU-57-2* self-propelled anti-aircraft gun), etc. to its allies. When dividing up the almost 60 types of military

³⁹ Bystrova 336–337.

⁴⁰ Memorandum from Mihály Horváth to the Home-Defence Council. 30 December 1957. MOL XIX-A-98 1. d. 4. kötet.

⁴¹ For details, see Germuska, *Vörös arzenál* (n 12 above) 70–72.

technology articles and war materials to be put into production, the starting point was the existing profiles of the member countries. Czechoslovakia and Poland, possessing the most significant military industry capacity besides the Soviet Union, took on a major role in aircraft, combat vehicle and gun manufacture, as well as in the field of telecommunications. Hungary was given telecommunications and vehicle manufacturing tasks – augmented with some weapons production (for instance, the S-60 automatic anti-aircraft gun). At the same time, it is striking that Bulgaria and Romania hardly contributed anything to supplying the other countries.⁴²

The CMEA MISC sections and work-groups organised by armament types and product branches held frequent sessions (there were 15 sittings in 1959), but it was very difficult for them to make progress with standardisation. For instance the member countries developed certain military radios based on differing technical requirements, so production cooperation and mutual exchange were unfeasible.⁴³

The low efficiency of the sections and information protection considerations spurred the Soviet authorities to clamp down still further. The Engineering Division (in Russian GIU), supervising the Soviet military technology exports and military industry external relations within the scope of the State Committee for Foreign Economic Relations (GKES), reported to Aleksei Kosigin, deputy chairman of the Executive Council of the Soviet Union, in its account of 9 February 1960 “on scientific-technical cooperation and provision of technical help in connection with military technology and other questions of a defence nature between the Soviet Union and the socialist countries.” The document judged the operations of the MISC to be basically crumbling apart, as in its work “a large number of experts from the western people’s democratic countries and Chinese observers participated, in whose countries there were often no plants and no work carried out with the technical methods under discussion.” The GIU judged the flow of information to be strictly one-way: it is restricted to “the hand-over of scientific-technical results achieved in the field of military technology and of experience with regard to manufacturing from the Soviet Union to the socialist countries,” whilst individual member countries are not even capable of utilising the information in practice. In the interest of increasing and centralising the efficiency of monitoring, the GIU also wished to take control of the work involving civilian scientific-technical cooperation, and to limit the multilateral CMEA consultations with many players to bilateral cooperation – between the Soviet Union and the interested socialist country. This proposal met with fierce opposition from the Gosplan and also from the State Scientific-Technical Committee (in Russian GNTK).⁴⁴ The CC CPSU finally made a decision on the issue at the beginning of October 1960: making changes to the organisation coordinating scientific-technical cooperation between the socialist countries is not necessary.⁴⁵

The CMEA MISC sections and work-groups continued to make significant efforts to define and standardise joint lines of development in the military industry, in order for the appliances and parts developed in the different countries to be adequate for exchange and for the communications devices to be compatible with one another. In addition, standardisation of the manufacturing equipment and technologies was also begun (for instance, for ammunition production). Nevertheless, the CMEA MISC

⁴² Minutes of the Military Industry Standing Committee session held 25 August – 5 September 1958. MOL XIX-A-98 2. d. vol. 7.

⁴³ Report on the work and additional activities of the CMEA Military Industry Standing Committee for the year 1959. 4-6 October 1960. MOL XIX-F-6-dd 60. d.

⁴⁴ The GNTK supervised the fields of civilian radio electronics, aviation, ship building, research and meteorological rockets and space projects, in addition to civilian optics, hunting weapons and ammunition, as well as industrial explosives, from the point of view of international cooperation.

⁴⁵ Bystrova (n. 23 above) 333–335.

disbanded the sections and work-groups at its meeting in Moscow between 4 and 6 October 1960 (presumably due to the GIU concerns); the committee took over all the duties and assigned the harmonisation of the technical-development plans to the sphere of the bilateral talks.⁴⁶

In January 1961 the preparation of a *new, large-scale armament program* was begun in the Soviet bloc. The WP Political Consultative Committee accepted the 2.8 billion rouble program at its session in March 1961, then during the spring the Soviet general staff distributed the military industry development plan, now broken down to the level of individual appliances. Due to the Berlin crisis of August 1961, Moscow also radically accelerated implementation of the March program, and the volume of military industry production rose steeply.⁴⁷

The Soviet party wished to hand over the manufacture of numerous new appliances, the distribution of which was debated at a Moscow session of the interested CMEA countries on 25-27 July 1961, as were the delivery plans for 1963-65. For the division of labour, the 1958 agreements were modified somewhat – the number of countries manufacturing armoured vehicles and military radios was extended, and individual missile technologies were handed over to the two partner countries most experienced in military technology (Czechoslovakia and Poland). In order to ease the burden on the Soviet military industry, producing the top technology within the camp, the committee decided that each member country would have to solve the problem of producing spare parts, structural components and materials for itself. In order to standardise the weaponry of the allied armies, the meeting authorised the WP Unified Command to “establish a scheme in which admission into the armaments system and mass production for the chief military technology articles developed in the Warsaw member states should only take place after being assessed by the Unified Command”.⁴⁸ (In the following decades, the Soviet-dominated Unified Command was in practice able to prevent the standardisation of *non-Soviet developed* weapons and appliances on the basis of this resolution, which resulted in a series of conflicts.)

The tempo of development of military force is clearly shown by the fact that military industrial production in the NSWP member countries had *doubled* by the spring of 1962 in comparison with 1958. In spite of this, they still could not meet their needs for conventional weapons, and invariably had to rely on Soviet imports of these. This problem was one of the main themes of the Moscow sitting of the CMEA MISC held on 8-11 May 1962, because, “this is a severe burden for Soviet industry, and reduces the opportunity for Soviet industry to produce modern missile technology etc. in even greater quantities”. In order to unify and standardise the military technology appliances and their production techniques, the committee established unified tactical-operational requirements for USW radio stations and telegraph equipment, as well as integrating the requirements for individual ammunition production machines, and standardising the most important components for special vehicles.⁴⁹

The blanket regulations, accepted at the Moscow session of the CMEA Military Industry Standing Committee held on 20-25 April 1963, constituted a significant advance in international cooperation in military technology: a document entitled

⁴⁶ Minutes of session no. 5/60 of the CMEA Military Industry Standing Committee. 4-6 October 1960. MOL XIX-F-6-dd 60. d.

⁴⁷ See Miklós M. Szabó, Additions to the history of the Hungarian People's Army 1961–1962 (part 1), *Új Honvédségi Szemle*, 61 (9), 2007. 70–100., as well as Mastny–Byrne (n. 25 above) 116–117.

⁴⁸ Minutes no. 1/61 of the meeting of representatives of the interested CMEA countries. 25-27 July 1961. MOL XIX-F-6-dd 61. d.

⁴⁹ CMEA MISC minutes no. 6/62, Moscow, 8-11 May 1962. MOL XIX-A-98 139. d. item 57.

Principles for international specialisation and cooperation of military technology manufacture underway in the CMEA MISC member states. This listed the fundamental purposes of the division of labour and cooperation, including rational utilisation and development of existing capacities, and modernisation of the technical standards of newly created techniques. They ascertained that specialisation and cooperation were to be organised “whilst considering the interests of all the member states of the committee”.⁵⁰

RECEIPT OF LICENCES AND THE CONFLICTS OF NATIONAL R&D

Thanks to the large-scale army development program, military production grew dynamically in all the CMEA member countries, a significant proportion of which comprised Soviet licensed products. In the case of Hungary, for instance, 40% of the military industry articles at a value of around 14 billion forints produced between 1961 and '65 (or planned to be manufactured by the end of 1965) were specialised products, and of the exports worth 4.7 billion forints, 71% were specialised goods. The export consignments essentially made Hungarian military production more economical. 68 % of the military technology manufactured in Hungary was produced on the basis of Soviet licences. This proved advantageous in several respects: mass production could be started in a shorter time, less intellectual input was required, lower development costs were involved, and as it was a question of appliances linked into a unified armaments system, there were no difficulties with sales either. The domestic developments also had to be in harmony with the civilian industrial and economic developmental targets, so they concentrated chiefly on vehicle and telecommunications developments. The greatest problem was recovering the costs of R&D, because standardising a non-Soviet product at the WP level was extremely awkward. The Hungarian planning office and the military command therefore continuously pushed for the CMEA Military Industry Standing Committee to coordinate the research projects and technical developments for military purposes, and for the member states to work out a joint military technology development plan. “The leading state in the development of individual themes should be the Soviet Union, and designated countries should contribute to the development based on specialisation resolutions. As a result of the development coordinated in this way, an apparatus would be elaborated, the manufacture of which would be organised in accordance with the specialisation resolution” – as argued by the National Planning Office.⁵¹

Pursuit of reforms and criticisms by the NSWP countries (chiefly Czechoslovakia, Poland and Hungary) led to fierce arguments in both the CMEA and the WP. For instance, at the Moscow sitting of WP planning office and general staff representatives on 14-15 April 1965, serious criticism was also aimed at the Soviet licensing policy. Hungary brought up as a shortcoming of specialisation, that although Hungarian companies had embarked on the development of armoured reconnaissance vehicles, the partner countries did not wish to order appropriate quantities of them. Obtaining a return on outlays for development thus became doubtful. What also came up is that several countries could shut down military technology development work if practically exclusively Soviet appliances were used in the WP unified armaments system. The Polish delegation criticised the bilateral collation system between the Soviet Union and the rest of the member countries

⁵⁰ Report of the session of the CMEA Military Industry Cooperation Standing Committee held between 20 and 25 April 1963. May 1963. MOL XIX-A-16-aa 107. d.

⁵¹ Proposal to the Home-Defence Committee (HB), and HB resolution no. 1/169/1965. 18 March 1965. MOL XIX-A-16-aa 110. d.

concerning the plans for scientific research and experimental-development work, due to its very low efficiency.

The work of the CMEA MISC was criticised most sharply by the Czechoslovak delegation – chiefly emphasising the lack of multilateral harmonisation. They believed that appropriate synchronisation of the research and the experimental development work was not always successful. The regular non-adherence to the suggestions of the committee was explained by the fact that the MIST did not examine the general economic issues in connection with the manufacture and mutual supply of military technology appliances. In order to improve the military industry cooperation, the Czechoslovak delegation proposed that the Military Industry Standing Committee should be converted into a standing committee to deal with economic and scientific-technical cooperation in connection with military matters. According to them, the committee should provide effective and complex solutions to economic, technical, organisational and methodological questions in connection with meeting home-defence needs. The committee should concern itself with the scientific and experimental-design background of the member countries, and with matters in connection with production (specialisation, cooperation, provision of components, scientific-technical cooperation, etc.).⁵²

The parties managed to find a solution to some of the issues in November of 1965. At a joint meeting of the CMEA MISC delegation leaders and the general staff representatives in Prague between 16 and 19 November, the Soviet delegation made a proposal for the multilateral harmonisation of the scientific-research and experimental construction work within the committee. The initiative enjoyed full support; certain delegations also raised the idea of introducing specialisation at the technical development stage. The Soviets themselves considered the difficulties linked with development to be soluble, if a work organisation (body) were established alongside the WP Unified Command especially for this purpose. (This later became the Technical Committee of the Unified Command.) They finally came to an agreement to present the idea of multilateral coordination of technical development plans (*with the exception of work carried out in the Soviet Union*) to the CMEA Executive Committee. The Soviet party, perceiving the series of difficulties linked with delivering and domesticating the licences, promised to accelerate the process.⁵³

The 19-23 November session of the CMEA MICSC, also in Prague, concerned itself with agreements between the delegation leaders. The measures aimed at improving the work of the committee were approved. The committee reviewed the earlier decisions on specialisation, as well as making decisions on specialisations for new products based on demands and production options for the years 1966-70 – and also accepted a new nomenclature incorporated into a unified structure.⁵⁴ Compared with the 1958 distribution of manufacture, no essential changes can be found in the recommendations accepted in Prague. At the same time, the change in technology is striking: compared with the earlier period, there was a much greater proportion of telecommunications, electronic and radio reconnaissance devices. The consolidation of the Bulgarian electronics industry was spectacular, as was the continuing significant role played by Hungarian telecommunications. The Polish and Czechoslovak military industries were given new telecommunications and instrument industry assignments in connection with the manufacture of tanks and aircraft. The contribution of Romania continued to be the most modest: though the separate ways

⁵² Bystrova (n. 23 above) 352–356.

⁵³ Proposal to the Home-Defence Committee. Meeting of the delegation leaders and general staff representatives of the countries participating in the CMEA Military Industry Standing Committee, session 12 of the CMEA Military Industry Standing Committee. 8 December 1965. MOL XIX-A-16-aa 111. d.

⁵⁴ Ibid.

of Romanian politics could have been in the background here, rather than the limited capacity of Romanian industry.⁵⁵

A further important advance in the cooperation was represented by the introduction of the specialisation contract. By adapting the regulations entitled *Efficient measures for the improvement of production-specialisation and cooperative work* previously ratified by the CMEA Executive Committee, the Military Industry Standing Committee introduced this contract into military industry cooperation too. Based on the document accepted at the Moscow session of the CMEA MISC held on 6-9 June 1967, the contract guaranteed the specialised countries the conditions for the preparation of manufacture, and gave assurances to the user country on the supply of necessary military technology products. The measure provided the parties with the opportunity, should any of them deviate from the agreement in terms of the specialisation, the party causing the damage would be obliged to reinstate the costs of the injured party.⁵⁶

At the session of the CMEA MICS in Sofia on 21-25 November 1967, Moscow came forward with a new, more efficient proposal for the arrangements for the presentation of new military technology devices and familiarisation with licence documentation (under the title *Unified arrangements for the presentation of information and data in connection with supplying the armies with the latest military technology types, as well as the handing-over of the licensed manufacturing documentation for these devices*). On the basis of this, the consultations could be broken down into two stages: 1. acceptance of the new appliance into the armaments systems, and decision whether the given party would import it, or it would be manufactured under licence; 2. final decision on the organisation of national production, based on familiarity with the licence documentation. An essential difference compared with earlier practice was that the Soviet party, in order to accelerate the organisation of production, now agreed to the establishment of direct contacts between companies.⁵⁷

The acrimonious conflicts ever increasing since the mid 1960s, an impediment to the creation of closer military cooperation within the Soviet bloc, were successfully brought to an end in the March of 1969. At its Budapest session on 17 March 1969, the Warsaw Pact Political Consultative Committee decided to set up the Home-Defence Ministry Committee, the Military Council and the Unified Command Technical Committee.⁵⁸ In parallel with bringing the organisational issues of military integration to a rest, genuine progress was also achieved in the CMEA with the launching of the complex program in April of 1969.⁵⁹ Numerous theoretical possibilities thus presented themselves for the extension and deepening of cooperation based on prior bilateral exchange of goods: for combination of branches

⁵⁵ On the politics of Romania, see Dennis Deletant, Mihail Ionescu and Viorel Buda, *Romania and the Warsaw Pact 1955–1989*. Cold War International History Project working paper series, 43. (Washington D. C., 2004).

⁵⁶ Report on session 15 of the CMEA MISC. 16 June 1967. MOL XIX-A-16-aa 113. d.

⁵⁷ Report on the CMEA MISC session of November 1967 held in Sofia. 5 December 1967. MOL XIX-A-16-aa 113. d.

⁵⁸ Note for comrade János Kádár on the Budapest session of the WP PCC on 17 March 1969. 19 March 1969. MOL M-KS 288. f. 5/486. ő. e. For a section of the accepted documents and the declaration to initiate summoning the European Security Conference, see: Mastny–Byrne (n. 25 above) 323–331.

⁵⁹ The extraordinary session XXIII of the CMEA in Moscow on 23-26 April 1969 resolved to elaborate a complex program to aid economic integration of the socialist countries. See Report for the Political Committee and the Executive Council on the special session of the CMEA held in Moscow on 23-26 April with the first secretaries of the communist and labour parties and heads of government of the member countries in attendance. 30 April 1969. MOL M-KS 288. f. 5/489. ő. e. 11–17.

from the interested countries, for joint projects, joint research, establishment of a joint investment bank, etc..

At the Berlin session of the CMEA MISC held between 26 and 29 May 1970, the delegations came forward with further proposals for integration (such as the coordination of development, improvements and sales, the possibility of direct ministry-company contacts, etc.), the Soviet party, however, concentrated more on standardisation – this was served, for instance, by the initiation of international unified materials coding.⁶⁰ At its second session in the year 1970 (on 17-19 November in Moscow), the CMEA MISC laid down rules for the forms and conditions of cooperation with the WP Unified Command Technical Committee, and also made decisions on the preparation of manufacturing and development forecasts. The former provided the organisational-corporate framework for cooperation between the WP and the CMEA, and the latter oriented the people's economies and the national industries to which weapons and appliances needed to be developed and produced over a term of 10-15 years, based on military doctrine and the preparedness of NATO.⁶¹ Then at its session held on 25-28 May 1971 in Mangalia (Romania), the MISC also accepted the regulations making possible the multilateral coordination of military technology R&D, and thus *the activities of the committee now covered the most important areas, with the exception of mobilisation matters.*⁶²

In the 1960s, therefore, huge developments occurred in the military industry of the CMEA member countries. A report produced for the CMEA Executive Committee summarising the activities of the Military Industry Standing Committee between 1963 and 1971 supports this with some important numerical data. Until 1970, the Soviet party had handed over manufacturing documentation for 560 different weapons and military industry appliances to the member countries, had sent more than 7 thousand experts, and had received 6600 attendees at consultations and on production training courses. The report did not include production data by countries or chronologically, but it stressed that in order to meet increasing demands, the value of mutual supplies of military technology between 1971 and 75 was expected to exceed that of 1966-70 by 64%. The military industry of the Central-Eastern European member countries scheduled the production of three times the amount of tanks, ammunition, telecommunications devices and locators. They thus wished to reduce the participation of the Soviet Union in the mutual supply deals from 62% to 50% in the 1971-75 period.

They also wished to increase the ratio of specialised goods still further: whilst between 1966 and 1970 these amounted to 77% of the whole of the mutual supplies, they wished to achieve a proportion of 85% between 1971 and '75. Looking at things from the products side: 95% of the warships, the telecommunications equipment and the radio reconnaissance devices, and 90% of the aircraft and armoured vehicles were produced by the member countries on the basis of specialisation. As to the organisation of cooperative work, however, much more modest progress was made. The report could pick out just two cooperative successes from this point of view: the joint manufacture of the armoured amphibious utility vehicle by Czechoslovakia-Poland, and radio locators and radio stations by Poland-Hungary.⁶³

⁶⁰ Report for the HB – session 20 of the CMEA MISC. Undated. MOL XIX-A-16-aa 116. d.

⁶¹ Minutes no. 21/70 of the twenty first session of the Committee. Moscow, November 1970. MOL XIX-A-16-aa 117. d.

⁶² Report for the HB on session no. 22/71 of the CMEA MISC. 9 June 1971. MOL XIX-A-16-aa 118. d.

⁶³ Minutes no. 23/71 on the twenty third session of the committee. Moscow, November 1971. MOL XIX-A-16-aa 119. d.

INTRODUCTION OF LICENCE FEES

By the turn of the 1960s-1970s, the “Sofia principle” guaranteeing delivery of the licences free of charge had become a decided barrier to technological development, the CMEA member countries being increasingly less willing to share the most modern technology and the latest research results with one another in this way. The 48th session of the CMEA Executive Committee, therefore, held in July 1970, on the initiative of Hungary among others, accepted a new arrangement for the handing over of scientific-technical results which broke with the free-of-charge dogma in force until then. The CMEA Complex Program (July 1971) then stated in connection with this issue that both the *national* interests of the individual member nations and the *joint interests* of the member states must be taken into account when handing over scientific-technical results.⁶⁴

As the largest licence provider, the Soviet Union resigned itself to take the first and somewhat radical step on this issue. In July of 1972, the State Committee for Foreign Economic Relations (GKES) of the Executive Council of the Soviet Union informed the military industry organs of the member countries in a *Memorandum*, that from 1 January 1973 they wished to apply the following principles when handing over licences and documentation:

- The military technology documentation of informative character and the organisation of presentations of military technology appliances will remain free of charge.
- The military technology licences and manufacturing documentation to be handed over on the basis of the CMEA specialisation resolution will also be free of charge, or subject to a charge based on the scientific-technical standard of the documentation.
- The licences and documentation of the non-specialised military technology products, in production or with manufacture in the planning stage, will be subject to a charge – the fee should be determined based on the world market price of similar military technology articles.
- The Soviet Union wishes to levy a licence commission of up to 10% from 1 January 1973, in the currency of the contract, on exported military industry articles delivered to countries other than the WP member countries, Vietnam, Mongolia or Cuba.
- The Soviet party wished to fix the amount of the licence commission and the payment conditions in a separate licence delivery agreement, which would also stipulate the fees to be applied in the case of documentation handed over before 31 December 1972 – according to relations.⁶⁵

Moscow’s demand for a licence fee was an unpleasant surprise for Budapest too. Theoretical objections to the demand could hardly be raised, but there were all the more practical arguments against it. The licence fee and the cost of preparation of the manufacturing documentation increased the earlier acquisition costs from the beginning, and the licence commission could amount to half the price of deliveries made to developing countries. The Soviet Union had given the third world a huge

⁶⁴ Report for the HB – on the Soviet proposal on arrangements for the hand-over of manufacturing licences and documentation for military technology appliances. 1 December 1972. MOL XIX-A-16-aa 121. d.

⁶⁵ Ibid.

discount on the cost of military technology from the start, and in comparison with this, by charging a licence commission the price of Hungarian products would have been screwed up still further – thus ruining Hungary's market chances. The Hungarian Ministry of Foreign Trade considered the licence fee to be paid even for devices which were mass-produced (infantry weapons and all kinds of ammunition) to be entirely unjust, after all these were not specialised products, but basic equipment to be manufactured by all the member countries on the basis of the May 1958 resolutions. Hungary wished to insist on these remaining free of charge in the negotiations to be held with Moscow.

It was also true that for civilian products a licence fee of 0.5-20% was acceptable in international practice, and the planned Soviet percentage (maximum 10%) could be called average in comparison with this. Due to the obligation to produce appliances suitable for exchange down to the spare-parts level, though, the smaller member countries had minimised independent military technology development work, and had, not entirely voluntarily, almost completely converted to licensed products. The licence fee also raised questions in other respects. In contracts under civil law, Hungary had already undertaken to make deliveries to the third world by 1973-75, and the prices could not be modified subsequently. Charging a subsequent fee for licences delivered earlier likewise did not appear elegant, although legally it gave the Soviet party an opportunity to tie deliveries made to a third party to a permit in each case. The standpoint of the partner countries was sounded out by Budapest at a bilateral meeting held in parallel with the November 1972 session of the CMEA MISC. Backing for adherence to the CMEA specialisation resolutions was also supported by the others, indeed, they judged the delivery of licences free of charge to be an essential element of collective defence readiness.⁶⁶

The introduction of the Soviet demands for licence fees, and the possible extent and starting date for these stirred up serious conflicts between the member countries, it came up at several CMEA forums during 1973-74. Partially accepting the counter-arguments, the Soviet Union only sent a new proposal on the matter of licence fees and commissions in December of 1974. Moscow's approach had softened in several respects: they wished to maximise the commission at 5%, they would have set aside the fees in the case of hand arms and ammunition manufactured by all the member countries, the delivery of documentation could have remained free of charge – if the manufacturer only delivered to the licence provider, and also for free consignments offered to developing countries and liberation movements. On the other hand, they would have retained the demand on the licences handed over before October 1974 – assigning the extent of the commission to the sphere of bilateral agreements.⁶⁷

The issue of licence fees continued to stir up fierce animosity at the 27-30 May 1975 session of the CMEA MIST in Leningrad, after all, the sums at stake were not insignificant. The high point of the dispute involved the Soviet expectations with regard to introducing the licence fee with retroactive effect, which every other member country judged to be unacceptable. No agreement was reached at the plenary session, but the following principles were finally accepted at a separate sitting of the delegation leaders and foreign trade experts:

- Licences for military technology articles manufactured on the basis of the CMEA MISC specialisation decision must be handed over basically free of charge.

⁶⁶ Ibid.

⁶⁷ Report for the HB. In connection with establishing the new arrangement for handing over licences and manufacturing documentation for military technology appliances. 15 May 1975. MOL XIX-A-16-aa 125. d.

- The licences for which the committee has no specialisation recommendation basically must be delivered on payment of a fee.
- The licences in connection with the manufacture of military technology which will only be delivered to the country of the licence owner must be handed over free of charge. Besides this, the country receiving the documentation may manufacture military technology for its own needs without paying the value of the licence.
- Licences in connection with the manufacture of pistols, submachine guns, light machine guns and rocket propelled grenades, cartridges, artillery ammunition, mortar shells and aerobombs, as well as gasmasks, for the provision of its own army, or intended for delivery to Warsaw Pact countries must basically be handed over free of charge.
- For military technology consignments to a third country, with the exception of the WP and friendly socialist countries (Yugoslavia, Vietnam, Mongolia, Cuba and the People's Democratic Republic of Korea), a licence commission must be paid of up to 5% of the value of the product, depending on the type and value of the technology.
- The magnitude of the licence commission, the payment deadline and other conditions based on an agreement between the countries must be stipulated in a licence contract in each individual case.
- No licence commission is to be paid on free military aid delivered to developing countries or to national liberation movements.

The resolution took no explicit stand on the starting date for the payment obligation.

In any case, the Soviet negotiating technique is well typified by the circumstance that Colonel-General G. Sidorovich (deputy chairman of the GKES) made a *verbal* promise in bilateral discussions with Major-General György Doró (deputy chairman of the Hungarian planning office), that the Soviet Union would not ask for a commission for the military technology already handed over and registered in records. In the new agreements, however, a *reasonable* fee dependent on the technical standard of the product must be paid after all.⁶⁸

The introduction of licence fees and commissions, in our opinion, was much more for political and economic reasons than for those of technology policy. The chief goal was the protection of the position of the Soviet military industry in the third world, and secondarily, though it was a significant factor, was to enable Moscow to monitor what technologies of Soviet origin the member countries wished to sell outside the WP/CMEA. As Hungary's business contacts grew with the developing countries (Syria, Egypt, Iraq, etc.), the Soviet "nyet" also became increasingly frequent. As licence owner, the Soviet Union forbade the sale of numerous modern types of military radio by Hungary to the developing countries, and for the sale of other products, the 5% licence fee had to be paid from 1 January 1976. One of the important consequences of this was that the Hungarian companies increasingly attempted to export the domestically developed telecommunications products (for instance, the radio reconnaissance equipment), as well as the military training appliances, etc..⁶⁹

⁶⁸ Report on session 30/1975 of the CMEA MISC. 8 August 1975, as well as minutes no. 30/75 on the thirtieth session of the Committee. Leningrad, May 1975. MOL XIX-A-16-aa 125. d.

⁶⁹ On the exports of special products between the years 1971 and '75, as well as the deliveries envisaged for the planned period 1976-1980 with respect to the developing countries. 21 July 1976. MOL XIX-A-16-aa 128. d. On the export of radio reconnaissance

Other member states increasingly complained that the receipt of military licences was practically ruining the national development workshops. At the 24-27 May 1977 session of the CMEA MISC held in Brasov (Rumania), the NSWP countries raised the matter that there were hardly any examples of genuine international R&D cooperation. For the case of manufacture based on the receipt of Soviet licences, those receiving the licences could at most carry out some additional developments, but they could not really initiate independent research. The delegation leaders did not specifically criticise the Soviet Union, but they considered that all this impeded the speedy development of military technology devices representing the most modern technical standards, as well as provision of the armies. They called upon the WP Technical Committee to coordinate and direct the development activities of the individual countries in a more efficient way than previously, and to allocate tasks in a harmonised development plan.⁷⁰

Although the Soviet technology remained definitive in military technology manufacture also in later times, resistance from the smaller member countries became increasingly powerful. At the session of the CMEA MISC held in Debrecen (Hungary) between 29 May and 1 June, it turned out that the manufacture of scarcely 30-50% of the technology needed for the military developments envisaged for the following five years was guaranteed by prior agreements. For this reason, implementation of the armed forces development program resolved by the WP Political Consultative Committee in November of 1976 also came under threat. Colonel-General I. Fabrikov, chairman of the WP Technical Committee, who spoke at the sitting, considered it particularly worrying that there were applicants for scarcely a third of the around 80 kinds of new product licences offered for manufacture by the Soviet Union – in the other cases, the member countries *declared lack of interest*.⁷¹

CONCLUSION

During the three decades under discussion, the substance of Soviet technology policy changed: alongside strict control, the Soviet Union was willing to share increasingly modern technology with its allies. In parallel with this, a certain growth of severity could be witnessed from the beginning of the 1970s, when the arms market of developing countries was also opening up to the NSWP states. With the introduction of licence fees in 1975, the Soviet Union was protecting its interests in terms of power, economics and technology. In face of the ever more oppressive Soviet licence supremacy, the NSWP countries acted to strengthen their domestic R&D capacities and to develop their exports to outside the CMEA. (The diffusion of military technologies was therefore truly restricted, as stated by Christopher Jones, it was by no means a matter of “intraimperial” transfer: the recipient states did indeed have a certain room for manoeuvre, anything and everything could not be forced on them, simply in consequence of the CMEA principles.)

As can be seen from the above, the Soviet Union organised the provision of the WP armies by the delivery of hundreds of licences. It can be assumed on the basis of the Hungarian data, that the contribution of the smaller member countries to the military industrial production of the bloc was minimal in the 1950s, and this began to grow in

equipments, see: Pál Germuska, Eastern Intelligence with Western Components. Development of Radio Reconnaissance Instruments in Socialist Hungary. *Zeitschrift für Unternehmensgeschichte*, 53 (2) 2008. 177–191.

⁷⁰ Minutes no. 34/77 on the thirty first session of the CMEA MISC held in Brasov between 24 and 27 May 1977. MOL XIX-A-16-aa 130. d.

⁷¹ Report on session no. 38 of the CMEA MISC. August 1979. MOL XIX-A-16-aa 134. d.

the first half of the 1960s following the specialisation agreements. The division of labour certainly achieved its goal of reducing the burden of simpler products on the Soviet military industry: the Soviet contribution to mutual military technology supplies had fallen to around 50% by the mid 1970s.

The specialisation of production proved advantageous both to the Soviet Union and to the NSWP member states. Around 70% of the total mutual military technology supplies in the 1960s comprised the products manufactured on the basis of specialisation, and this grew to 80-85% in the following decade. Reviewing the offers for specialisation from 1958 till 1979, it can clearly be seen that the number of specialised products grew several times over, and ever more articles requiring complex technology were portioned out: tanks, supersonic aircraft, certain types of missile, radar equipment, etc.. However, Moscow never gave up the principle set down in writing in the December of 1957 that it would not deliver the latest developments to the partner countries, in general involving atomic technology and ballistic missile technology. Partly at the request of the member states, following individual products the specialisation was extended to heavy repairs, then to components and subassemblies. Although the smaller countries carried out successful independent R&D in several subfields based on specialisation (Polish, Czechoslovak and Hungarian armoured vehicles, Hungarian radio reconnaissance equipment, Bulgarian and East-German computing equipment), the basic purpose of the procedure throughout was for Moscow to assign the tasks intended for the member countries. The computer revolution and the boisterous incursion of electronics signified a true break-out point for the smaller member states: the civilian scientific and development capacities were utilised to a greater extent, the import of dual purpose technologies was also supported by the military industry, and by the 1970s, good use could also be made of an ever broadening sphere of western contacts. At the same time, there is no information on joint R&D projects or multilateral military scientific research – the national industries attempted much more to achieve results by “nicking” (cloning) western products or incorporating western components.

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