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CIA/ER/78-10045-M

LESSA 1/16

MEMORANDUM FOR: Dr. Vasilii V. Strishkov
Bureau of Mines
Department of the Interior

Attached are some additional notes concerning Soviet aluminum. I suggest we meet again after you have had a chance to examine them. As indicated in the attached notes, a closer look at estimates of capacity and capacity utilization may prove helpful in reconciling differences in our estimates of production. Mr. Stamper's participation in the meeting would be most useful.

Hopfully we can make headway on aluminum and move on to other metals and minerals.

[Redacted Signature Box]

17 Jan 78
(DATE)

ER M 78-10045

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ERM 78-10045

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USSR: Production of Aluminum

I. General

Unfortunately our differences in estimating Soviet production of aluminum have widened rather than narrowed since we first compared notes. The starting point, chronologically, for our differences is production during World War II. You initially estimated that production increased from 60,000 tons in 1940 to 65,000 tons in 1945 whereas our corresponding estimates were 60,000 tons and 85,000 tons. Your revised estimate that production in 1945 had to be less than in 1940 considerably widens the difference in our respective estimates for 1945. Moreover, the divergence in subsequent years presumably increases, because, as you pointed out in your notes, your estimates for 1950, 1955, and other years are linked to output in 1945.

II. World War II Production

The evidence you supplied concerning your estimate of a decrease in Soviet production of aluminum from 1940 to 1945 was not convincing. The material contained in the Gartsershtein book, for example, did not seem to support your argument. You stated, "From page 48 and table 5 (page 50) one can see that the total Soviet production of alumina in 1945 was only 94.35 percent of that of 1941."

It was not clear where you had obtained that precise percentage figure. Table 5 contains one figure which is an even 94 percent, but it refers to the share of alumina produced by the Bayer process in 1945 and not to the level of alumina production in 1945 compared with 1941. On page 48 Gartsershtein indicates that the Urals plant rapidly increased its capacity for the production of aluminum during World War II and even more rapidly increased its capacity for the production of alumina. At the start of 1942 the latter was 50 percent above the prewar level and by the start of 1946 was 200 percent above the prewar level. Gartsershtein also provides details concerning wartime difficulties which hampered efforts to master the new capacity, but he concludes page 48 on an upbeat note with the remarks that these difficulties were overcome and that the plant achieved a high output of metal for wartime needs. At the end of his discussion of the war years, the author praises the industry for having achieved growth in spite of the difficulties prevailing during that time. On balance, we believe the book is in accord with other Soviet sources that indicate production of aluminum in the USSR increased during the war years.

We cannot agree with your statement that a decline in the production of aluminum during the war years is "illustrated and confirmed" by declines in the production

of practically all other mineral commodities. It should be remembered that the Soviet aluminum industry was still a fledgling industry in 1940. Compensating for the loss of a major share of capacity is less of a task for a small industry than for a much larger industry, such as the steel industry. It is perhaps more important to note that in using official reports on production of mineral commodities during World War II you selected a recent one which did not include nonferrous metallurgy. Other earlier official reports have included information on nonferrous metallurgy and they tell a different story. Promyshlennost' SSR, published in 1957, indicates that output in nonferrous metallurgy increased by 11 percent from 1940 to 1945.

Pervushin in his 1960 edition of Ekonomika Tsvetnoy Metallurgii SSR cited this official publication and went on to point out that the most significant production increases in nonferrous metallurgy were those for aluminum, magnesium, tungsten, and nickel. Copies of these documents are attached.

The information you provided about war damage and lend lease was interesting, although widely known. It cannot be regarded as conclusive evidence that production of aluminum declined during 1940-45.

III. Production in 1975

We seriously doubt -- as much as we would like to

believe -- that production of primary aluminum in the USSR in 1975 "may be easily estimated" using the published sources you cited concerning raw materials. Uncertainties about supplies of raw materials are as numerous and as vexing as those about production of metal. Soviet supplies of raw materials have been changing considerably in recent years, particularly in terms of supplies from abroad, as reflected by marked increases in imports of alumina and bauxite. In view of this state of flux, it would be somewhat surprising if the authors of A Short Handbook on Metallurgy of Nonferrous Metals were able to pinpoint, in advance, the relative importance of each of the aluminous ores during 1975. Their book was published in 1975 and work on it probably was completed by mid-year at the latest and very possibly as early as 1974. As a result, it seems safe to presume that their statements were approximations or estimates rather than hard facts about the relative importance of various raw materials.

Even assuming that the percentage relationships were fairly accurate, it would be necessary to estimate the actual amounts involved since the authors apparently gave no information on this subject. There seems to be no consensus of opinion on the subject either. In the case of alunite, for example, Shabad and others have estimated that alumina output from this source at 200,000 tons in

1975, or more than twice your estimate of about 90,000 tons. Shabad also estimated the Achinsk plant produced about 550,000 tons of alumina from nepheline ores, or two-thirds of designed capacity, whereas your estimate was based on a 53.6 percent utilization of capacity. Because the source material you cited was published in January 1975 the 53.6 percent utilization rate was clearly for an earlier period and results in 1975 may have been different.

Another serious question arises whether imported raw materials were included in the purview of the study by Gudima and Sheyn. There is actually some merit in considering that they are not included, but, if we assume, as you have done, that imported raw materials are included, certain implications must be recognized. It should be noted, first of all, that imports of alumina in 1975 were adequate to support production of over 500,000 tons of aluminum, or one-third of your estimated production for that year. In addition, imports of bauxite were adequate to support an even larger amount of aluminum production. The possible total output from imported alumina and bauxite exceeds one million tons and implies, according to your estimate of total aluminum production, virtually no production from domestic bauxite.

Of course, there may be other considerations involved, such as stockpiling of raw materials or abnormally large use for non-metal purposes, that affect the balance between domestic and imported supplies of raw materials. But the purpose of this discussion has been to outline some of the uncertainties which make us reluctant to share your confidence that Soviet production of aluminum in 1975 "may be easily estimated" using the methods and information you have described.

IV. Aluminum Production Capacity

The recent survey published by the Bureau of Mines entitled Primary Aluminum Plants, Worldwide hopefully provides a basis for reconciliation of differences in our estimates of Soviet production of aluminum. It gives an estimated production capacity for the USSR at the end of 1976 (2.4 million tons) which is only 5 percent less than our estimate of capacity, although the distribution of capacity by individual plants and the time frame for constructing capacity do not agree with our information on these subjects. Many of these differences probably can be ironed out. For example, the Bureau's survey indicates that capacity additions during 1975-76 amounted to virtually one million tons or 40 percent of total capacity in two years. There is little question about the amount of the addition, but open source materials, such as Moscow radio announcements (BBC), indicate that much of this construction took place during the late 1960s

and early 1970s, mainly in East Siberia.

Hopefully, if we are able to reach a general agreement about chronology of growth in capacity during the past decade, we may be able, in turn, to narrow differences in estimates of production during the same period. The task should not be difficult if you share our view that:

- a) the USSR is constructing capacity for current use and is not "mothballing" it for future use;
- b) the USSR has encountered no technical difficulties in metal production comparable to those in the processing of non-bauxite ores; and
- c) Soviet capacity for the production of aluminum is actively employed, making allowance, of course, for delays and difficulties in starting up new facilities, normal downtime for maintenance and repair, and some degree of sub-par performance at various plants.
- d) Soviet leaders would not push plans to expand existing plants and to construct a new half million ton primary aluminum plant in West Siberia unless available capacity were actively employed.

ЦЕНТРАЛЬНОЕ СТАТИСТИЧЕСКОЕ УПРАВЛЕНИЕ
при СОВЕТЕ МИНИСТРОВ СССР

ПРОМЫШЛЕННОСТЬ СССР
СТАТИСТИЧЕСКИЙ СБОРНИК

ГОСУДАРСТВЕННОЕ
СТАТИСТИЧЕСКОЕ ИЗДАТЕЛЬСТВО

Москва 1957

ПРОМЫШЛЕННОСТИ

в

Всего	В том числе	
	Производство средств производства (группа „А“)	Производство предметов потребления (группа „Б“)
8	83	109
0	73	113
2	122	121
6	129	121
0	125	108
3	126	115
6	117	116
2	112	111
2	112	112
3	114	113
2	115	108

**ВОЙ ПРОДУКЦИИ
ТКАМ**

Четвертая пятилетка	Пятая пятилетка (1951—1955 гг.)		
	(1941—1950 гг.)	1955 г.	
6	5,6	13,2	12,5
8	7,4	13,8	14,9
7	2,1	12,0	9,3

в абсолютном выражении за пятилетку.

ТЕМПЫ РОСТА ВАЛОВОЙ ПРОДУКЦИИ ПРОМЫШЛЕННОСТИ ПО ОТРАСЛЯМ
(в процентах к 1940 г.)

	1940 г.	1945 г.	1950 г.	1951 г.	1952 г.	1953 г.	1954 г.	1955 г.
Вся промышленность	100	92	173	202	225	252	285	320
в том числе:								
Черная металлургия (включая добычу руд)	100	94	184	215	241	267	293	330
Цветная металлургия (включая добычу руд)	100	111	203	241	285	316	361	405
Топливная промышленность	100	74	144	159	175	190	208	235
Электростанции и электросети	100	91	187	215	242	279	316	366
Химическая промышленность (включая горнохимическую)	100	98	183	227	265	303	343	416
Резино-асбестовая промышленность	100	57	229	262	286	322	375	426
Машиностроение и металлообработка	100	120	215	252	292	338	393	466
в том числе машиностроение	100	131	234	283	329	396	470	571
Лесозаготовки и деревообрабатывающая промышленность	100	85	132	148	154	159	178	192
Бумажная промышленность	100	56	192	219	244	277	308	330

С. А. ПЕРВУШИН, С. Я. РАЧКОВСКИЙ,
С. Я. ГОЛЬБРАЙХ, Р. Д. МАЛИНОВА, Т. Д. БЫКОВА

ЭКОНОМИКА ЦВЕТНОЙ МЕТАЛЛУРГИИ СССР

Под редакцией
С. А. ПЕРВУШИНА и С. Я. РАЧКОВСКОГО

Допущено
Министерством высшего образования СССР
в качестве учебника для студентов
специальности «Экономика и организация
металлургической промышленности»



ГОСУДАРСТВЕННОЕ
НАУЧНО-ТЕХНИЧЕСКОЕ ИЗДАТЕЛЬСТВО
ЛИТЕРАТУРЫ ПО ЧЕРНОЙ И ЦВЕТНОЙ МЕТАЛЛУРГИИ
Москва 1960

ленной продукции СССР, 68% всей выплавки чугуна, довольно значительный процент производства ряда цветных металлов. В первые же месяцы войны многие предприятия были разрушены, а значительную часть их пришлось эвакуировать в восточные районы страны.

Были выведены из строя Днепровский и Волховский алюминиевые заводы, Днепровский магниевый завод, комбинат «Севский», «Тырныаузский вольфрамо-молибденовый комбинат», Пятигорский ртутный комбинат, цинковый комбинат на Северном Кавказе, цинковый завод в Константиновке.

В тяжелых условиях войны было развернуто большое новое строительство в тыловых восточных районах страны; в очень короткий срок на базе эвакуированного оборудования были построены на Урале и в Казахстане заводы цветного проката, мощность которых превысила довоенный уровень.

В алюминиевой промышленности была увеличена производственная мощность Уральского алюминиевого завода. Развернулось строительство алюминиевого завода в Западной Сибири. Одновременно строился крупный алюминиевый завод на Северном Урале, который начал выдавать металл 9 мая 1945 г.

В Киргизской ССР вступил в эксплуатацию ртутный комбинат, построенный на базе Хайдарканского месторождения ртути. Производственная мощность по вольфраму и никелю к концу войны значительно превзошла довоенную. В трудных военных условиях промышленное производство значительно увеличилось по всей цветной металлургии.

К концу войны валовая продукция цветной металлургии (включая добычу руды) возросла в 1945 г. по сравнению с 1940 г. на 11%, в то время как по промышленности в целом за этот срок она снизилась на 8%¹.

Наиболее значительное увеличение было по алюминию, магнию, вольфраму, никелю.

Следует отметить, что наименьший прирост добычи руд и производства цветных металлов (от 2 до 5%) имел место по меди, свинцу и цинку, по которым в первые годы войны наблюдалось даже некоторое снижение выплавки. Эти производства, хотя в основном находились в глубоко тыловых районах страны, однако, как более материалоемкие и трудоемкие отрасли они в гораздо большей степени испытывали связанный с военной обстановкой недостаток кадров, а особенно квалифицированных, а также недостаток подготовленного к добыче сырья из-за существенно-

¹ ЦСУ СССР. Промышленность СССР. Статистический сборник. Госстатиздат, 1957, стр. 35.

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