Volume Title: Measuring the Nation's Wealth

Volume Author/Editor: Wealth Inventory Planning Study

Volume Publisher: U.S. Government Printing Office

Volume ISBN: 0-870-14185-6

Volume URL: http://www.nber.org/books/unkn64-3

Publication Date: 1964

Chapter Title: Appendix I-D: The Soviet Capital Stock Inventory and Revaluation

Chapter Author: Adam Kaufman

Chapter URL: http://www.nber.org/chapters/c5202

Chapter pages in book: (p. 229 - 276)

APPENDIX I: PART D

THE SOVIET CAPITAL STOCK INVENTORY AND REVALUATION

By Adam Kaufman

Economic Consultant

THE SOVIET CAPITAL STOCK INVENTORY AND REVALUATION

GENERAL REVIEW

In the last quarter of 1959 a capital inventory and revaluation was carried out in the Soviet Union, covering all state and cooperative enterprises and organizations which were on a self-sustained budget and which were required to set aside allowances for depreciation, with the exception of collective farms. At about the same time a separate housing census was taken providing detailed information on privately owned housing. Two years later, in the last quarter of 1961, a similar inventory and revaluation was carried out in the collective farms and interfarm enterprises operated jointly by two or more collective farms. Thus, only private capital and some administrative institutions supported directly by the state budget were excluded from the comprehensive Soviet censuses of wealth taken in 1960–62.

The Soviet inventories and revaluations of capital had two purposes: first, to revaluate all capital stock at its replacement value in terms of July 1, 1955, prices and cost estimates introduced at the beginning of 1956; second, to measure the degree of physical wear-and-tear of this stock as a percentage of replacement value and thus derive the replacement value net of wear-and-tear.

Great importance was attached by the Soviet authorities to the results yielded by the capital revaluation. According to P. Bunich (Pereotsenka osnovnykh fondov i finansovye organy, Finansy SSSR, No. 8, 1959, p. 68),

> the revaluation of the fixed funds will make it possible:
>
> (*a*) to determine more accurately the amount and structure of fixed funds in the total national economy, their distribution according to uses and segments of social production, as well as by sectors of the national economy, branches of industry and kinds of production, types of property, geographical distribution and administrative subordination.
>
> (*b*) to determine more accurately depreciation allowances, working cost of the gross and market values of output, the cost per ruble of the market value of output, the norms (shares) of working capital in goods in processing and in finished goods production, and also to determine more accurately new wholesale prices, profits, and allocations into the funds of the enterprises, and to account and plan more accurately the replacement fund (fond vozmieshcheniia) of the total social product, national income, and the economic efficiency of investment.
>
> (*c*) to improve the balance sheet of fixed funds, to express accurately their turnover (renovation, discard, readiness (godnost), wear and tear, and their proportions to the working capital, and to determine more accurately the coefficient of technical equipment of labor (pokazatel' teknicheskoi voorushennosti truda)).
>
> (*d*) to attain a uniformity in the evaluation of means of production in different enterprises, to measure more accurately the utilization of fixed funds and the financial effect of their discarding, to straighten out the financing of investment, capital repairs, and modernization of fixed assets and to strengthen economic accounting.

Special emphasis was put on a careful preparation of the general inventory and revaluation, the scope of which had no precedent in the history of Soviet statistics. Over 3 million people participated in carrying out the 1960 census, and over 100 million inventory items were registered by the two inventory revaluations, 1960 and 1962.

In September 1958, a year before the general inventory, a sample registration of machinery and equipment was taken in the 17 most important branches of industry. From May 18 to 22, 1959, an instruction conference was organized by the Central Statistical Administration where the purpose, program, and organizational scheme of the forthcoming census were presented by L. M. Volodarskii, Deputy Director of the CSA, and A. A. Beliakov, Chief of Section of Statistics on Material Supplies and Censuses in the CSA, and others. At this time instructions were also issued in reference to the organization of control works in individual enterprises, the filling out of reports, and a program was elaborated for processing of data yielded by the inventory and revaluation. In June 1959 similar instructional meetings were held for personnel in charge of carrying out the revaluation in Union Republics, krai, oblasti, and regional economic councils (sovnarkhozes). At the same time a network of commissions was organized from Ministries, sovnarkhozes and departments down to individual enterprises and organizations responsible for carrying out the final revaluation.

Fixed capital, or "fixed funds" in Soviet nomenclature, is defined as means of work (in contrast to objects of work which come under the category of working or circulating funds) participating repeatedly in the flow of production, or durable goods of lasting use. Although the definitions of fixed funds differ in different Soviet sources (see P. Bunich, Pereotsenka osnovnykh fondov, p. 29, and V. Ostroumov and V. Gorelik, Organizatsia raboty po pereotsenke osnovnykh fondov, p. 5; and V. Anisimov and V. Ostroumov, O. metodakh opredeleniia iznosa osnovnykh fondov, p. 2), all of them emphasize the physical aspects of fixed funds, which are considered as "an aggregation of material objects values" participating in their unchanged material form in many cycles of the productive process, or, in the nonproductive sphere, they are of lasting usefulness. In accordance with the general Marxian approach, these means of labor, or durable goods, have value only when they are themselves products of labor. Land, therefore, and untapped natural resources as "gifts of nature" have no value and price and they are excluded from inventory and revaluation. However, land improvements, amelioration works, permanent plantings, etc., were subjected to the revaluation, insofar as they required labor expenditures.

In order not to glut the inventory and revaluation, fixed funds with a value of less than 50 (new) rubles or a service life of less than 1 year were exempt from inventory and revaluation.

In defining fixed assets the organizers of the census had to draw a line between the notion of fixed and working (circulating) assets. The emphasis put on the physical aspects of assets blurred, in certain cases, the definition of both these types of assets. So, for example, inventories in a machine-building plant are in the category of working and not fixed assets. The same machinery, however, kept in stock, reserve, or repair, in a plant operating this machine is included in the fixed assets inventory. In general, the durability of assets, their repeated

uses in production, their unchanged material form and the longer period in which their depreciation takes place—all these elements were considered essential in defining fixed assets.

With the exception of objects less than 50 rubles in value or a service life shorter than 1 year,[1] all other fixed assets were included in the general inventory, but not all of them were subject to revaluation. First to be exempted from revaluation were assets acquired or installed in the years 1955–59, because their original price, set on the basis of prices introduced July 1, 1955, is identical or close to the replacement price. In addition, two other groups of assets were excluded from revaluation: one consisting of tools and implements with relatively short service lives, whose original and replacement values are not very different, and a second group consisting of assets whose revaluation is difficult. The most important types of assets in the last group are perennial plantings, land improvements, and irrigation works. Also excluded from revaluation were productive and draft livestock, insofar as a special census of livestock had already taken place on January 1, 1959. For the three types of assets listed above the replacement value is the same as the original cost.

Determination of the replacement values of assets was the most important statistical operation in the 1960–62 censuses. In order to revalue the assets, 138 price handbooks have been compiled directly quoting the prices of an all-inclusive assortment of machines, equipment, and rolling stock, including imported machines and equipment no longer produced by the Soviet machine-building industry. For buildings, structures, and transmissions, the handbooks provided "generalized indicators," estimates of essential elements, as the cost of m^3 of cubature of specific types of buildings, m^2 of their area, the cost of 1 meter of length of water lines, oil pipes, etc., on the basis of which the replacement values were recomputed. In the application of both methods the replacement value is all inclusive: it consists, for equipment, of the wholesale price of July 1, 1955, plus packaging, tare charges, warehousing expenses, expenditures of the equipment foundation, design, and overhead expenditures. Similarly, the estimates of "generalized indicators" in addition to labor and material cost include all other expenditures, as the cost of blueprints, provisional buildings erected on the construction site, and overhead expenditures of the building firms.

The compilers of the 1960 price handbooks adhered strictly to the principle of price identity; i.e., the same replacement price tag was attached to identical equipment and price differentials due to variations of certain types of machinery were in proportion to their measurable performance (capacity, output per time unit, economy in input, etc.). However, in the case of agricultural machines belonging to collective farms this principle of price identity was abandoned: in the 1962 census revaluation, prices of tractors and other agricultural machines and trucks were based not on the 1955 wholesale prices but on new prices introduced February 1, 1961. (See N. Danilov, Pereotsenka mashin, oborudovaniia i transportnykh sredstv i kolkhozakh, Vestnik Statistiki, No. 5, 1961, p. 66.)

The prices in the price handbooks were set in such a way that they took care of the two types of obsolescence, as they are defined in Soviet

[1] These value and service limits do not apply to agricultural equipment, poultry, and beehives.

literature; i.e., price reductions were introduced, first, due to the lesser current cost of production of a given asset, and second, due to the appearance of new similar assets of greater efficiency.

Such an approach simplified and made easier the next step in the Soviet inventory and revaluation; namely, the measuring of wear and tear. Only physical wear and tear is determined outside of the basic revaluation operation.

The general method of determining the degree of physical wear and tear consists in a direct examination by experts and technicians of a given asset and an estimate of its physical condition and its degree of wear and tear expressed as a percentage of its replacement value. In the case of a complex object, separate judgments were passed on each of its components, the weights of which in the total replacement value of the examined asset are furnished by the corresponding handbook.

Only when a direct physical inspection of an asset was impossible, as, for example, underground water pipes, the degree of wear and tear was determined by comparing elapsed service life, or volume of past output with the "norms" of service life as set forth in special handbooks on rates of depreciation.

The organizers of the censuses were well aware that the method of experts' examination is of necessity subjective and vague. Therefore, in order to formalize the opinions of experts, detailed lists of signs of possible deterioration due to service age of buildings and structures were compiled, which provided the experts with a relatively objective frame of reference as a basis for their estimates.

REVALUATIONS OF SOVIET FIXED ASSETS PRECEDING THE 1960 REVALUATION

The first Soviet revaluation of fixed assets on a larger scale was undertaken on October 1, 1925. It was limited to assets of the state industry. The objectives of the 1925 revaluation were similar to those of 1960: to revalue all fixed assets of industry in uniform prices (market prices on October 1, 1925) and to measure the degree of wear and tear. Also similar to the 1960 inventory was the exemption of two groups of assets from the revaluation: assets installed or acquired in the 2 years preceding the revaluation, and assets with relatively short service lives. Equipment kept in stock was also excluded from the revaluation, unlike the 1960 revaluation.

The 1925 industry inventory and revaluation was often in the following years criticized in Soviet literature (see, for example, S. G. Strumulin, Ocherki Sovietskoi Ekonomiki, 1928, p. 146 ff.). The critics considered that the prices applied for the revaluation were set exceedingly high by the particular trusts which had a "vested interest" in attaching a high price tag to assets under their supervision, insofar as the depreciation allowances remained at the trusts' disposition. The results yielded by the measurement of the degree of wear and tear were also disappointing. This was determined through a scrutiny of experts, a method, as said before, necessarily vague and subjective.[2]

[2] The 1925 revaluation yielded an average degree of wear and tear in Soviet industrial assets amounting to 37 to 40 percent of their replacement value, while in 1913 the corresponding figure was considered equal to 34 percent. Thus, in 12 years, including civil war destructions and few new investment projects, wear and tear increased only by 3 to 6 percent, which was considered an understatement by Soviet economists (see P. Bunich, op. cit., p. 17).

In 1927–32 a revaluation of fixed assets was carried out in Soviet railroad transportation. This revaluation was taken in prewar 1913 prices, which through a special price index were updated to the year 1928. The results of this revaluation were in general considered unsatisfactory, especially the price coefficient for 1928, which was considered as being set too high.

In the following years partial revaluations were carried out in some sectors of the Soviet economy: In 1935, the fixed assets of the state farms were revalued; in 1937, the capital stock of river transportation; in 1939–40, housing under the jurisdiction of the local Soviets of the RSFSR was inventoried and revalued. In 1940, the fixed assets of the Soviet railroad transportation system were again revalued, and again this time the results were considered inaccurate and not acceptable as book values on the balances.

All prewar revaluations suffered from the lack of a comprehensively determined price system. Some revaluations were carried out in 1936 prices, some in current prices. The same lack of a comprehensive price system had its impact on the postwar, partial inventories and revaluations as, for example, inventories taken in areas occupied by the Germans during the war. Those revaluations were taken in terms of prices in force in the first half of 1941 and did not take account of the postwar inflationary wave. The same applies also to the revaluation of fixed assets of enterprises located in South Sakhalin taken in 1946 and to the revaluation of oil extraction installations of the U.S.S.R. carried out in 1949.

From the point of view of methods applied in the general inventory and revaluation of 1960, of great importance was the revaluation carried out on January 1, 1952, in all flour milling enterprises under the jurisdiction of the former Ministry of the Food Industry of the U.S.S.R. In this particular revaluation special price handbooks were compiled for all kinds of assets found in the flour milling industry. The methods and procedures accepted in this one industry revaluation were so similar to those applied in the 1960 general inventory and revaluation that the 1952 flour milling inventory may be considered as a one-industry sample of the overall revaluation taken 7 years later. All together, 6,000 flour milling enterprises were subjected to the revaluation of their fixed assets and the determination of wear and tear under the supervision of a special Central Inventory Commission. As in the 1960 inventory, a straightforward method was applied in determining the replacement values of machinery any equipment, the values of which were directly quoted in the price handbooks. For buildings and structures, also as in the 1960 inventory, the concept of "generalized indicators"—price quotations of measurable construction parts—was applied. For revaluation, prices of January 1, 1952, were accepted. The accurate results yielded by the 1952 revaluation in the flour milling industry induced the Soviet authorities to adapt methods and procedures applied in this one industry revaluation to the general inventory and revaluation carried out at the end of 1959.

PREPARATORY MEASURES IN INVENTORY REGISTRATION

From the procedural point of view, the 1960 and 1962 censuses were overall general registrations of fixed capital, carried out through a uniform procedure and methodology in the last quarters of 1959 and 1961, with a time focus set on January 1, 1960 and 1962. For the purposes of registration the census takers relied basically on the current documentation concerning capital stock in all the productive and nonproductive enterprises and organizations. The Soviet bookkeeping and accounting system stipulates that each individual machine and piece of equipment have a technical "passport" which gives a detailed description of technical characteristics, and an inventory card providing data on the service life, time and volume of capital repairs, modernization, etc., of the described item. Less detailed and complete was the inventory documentation for buildings and structures. It goes without saying that the success of the revaluation depended to a large extent on the reliability, accuracy, and completeness of the already existing primary inventory documents. Therefore, as a preliminary step special emphasis was placed on bringing the existing evidence up to date, to fill out omissions, to correct errors in defining fixed funds (quite often some categories of fixed funds were considered as working funds and vice versa), and to complete data concerning technical specifications, original values, and service age of registered items. However, for the sake of simplification and uniformity some changes were made in the current inventory documents. In order to reduce the number of inventory cards (the 1960 census included some 80 million items and the collective farms census another 20 million items), the census instructions recommended doing away with the usually accepted fragmentary definition of an inventory item and applying for the purpose of the general registration a more "integrated" definition.

The regulations on bookkeeping concerning accounts of fixed assets, issued by the Ministry of Finance, January 12, 1955, defined an inventory item as follows:

> **Finished constructions (ustroistva), objects, or complexes of objects with all attached devices and accessories foreordained for the fulfillment of specific functions appropriate to the given objects.**[3]

As a result of such analytical definition, complex equipment was described by many inventory cards, each pertaining to a certain specific part or device of a given machine. So, for example, a rolling press, "mark 500," which in the price handbook is considered as one unit and to which a direct price tag was attached, was covered in the Magnitogorsk metallurgical combine by more than 100 inventory entries.[4] In order to reconcile somewhere the fragmentary approach of the bookkeeping system with the integrating tendency suggested by the census two possibilities were left open: one consisted in revaluating the complex item as an entity, using the price given directly in the corresponding handbook and by applying some adjustment coefficients in cases where the revaluated machines deviate in some parts from the stereotype described in the handbook. Another approach consisted in sum-

[3] A. I. Andreev: O pereotsenke i opredelenii iznosa osnovnykh fondov chernoi metallurgii, Stal', October 1959, p. 950.
[4] Ibid., p. 951.

ming up the prices of basic components of the complex item. The former approach was preferred.

A special emphasis in the preparatory stage was put on bringing the numeration of inventory documents accepted in a given enterprise into accordance with the numeration used later in the census reports. This numeration was to be arranged in such a way that a definite number should pertain to a specific item which could not be repeated or changed until the time of discarding. As an illustration, the following numeration was recommended for machinery and equipment: Industrial machines, 001–199; energy generating machines, 201–299; transportation equipment, 301–399; measuring devices, 601–699; etc. The code number of the group is followed by numbers indicating the quantity of items. (V. Ostroumov, V. Gorelik: Organizatsia raboty po pereotsenke osnovnykh fondov, p. 22).

THE ADMINISTRATION OF THE PREPARATORY STAGES OF THE CENSUS

All the ministries, departments, and regional economic councils were put under obligations to elaborate a detailed organizational plan which would regulate the following problems: lists of subordinate (ancillary) enterprises and organizations in which the census would be carried out; dates at which blanks, questionnaires, and other documents were to be delivered to the subordinated units; dates for instruction conferences and seminars; arrangements for carrying out partial and sample registration, revaluation and determination of wear and tear; and, finally, procedures and time limits (deadlines) for reception, examination, and confirmation of reports on the results of the census. Similar organizational plans, although on a smaller scale, were to be elaborated by the managements of individual enterprises.

As already mentioned, the main administrative bodies in charge of carrying out the revaluation were specially assigned revaluation commissions organized in all the units subject to inventory and revaluation. The staff of a commission consists usually of the director or manager of the enterprise or organization or his deputy (the chairman of the commission), chief engineer, chief bookkeeper, the head of the investment section, chief electrician, the head of the mechanical department, the head of the planning department, and other specialists. If necessary, specialists and experts outside of the commission's staff might be assigned to work on the census.

It is strongly emphasized by the instructions that in the execution of all three operations of the census (inventory, revaluation, measurement of wear and tear) the commissions should rely basically on physical inspection of the fixed assets under scrutiny and not limit themselves to "paper work," i.e., verification of already existing documents. All the inventory cards (opisi; see section below on reporting blanks and forms) prepared specially for the census should be signed by the chairman of the commission. Differences between the inventory entries in the bookkeeping system and inventory lists prepared for the census should be straightened out by the commission. The commission also bore responsibility for the accuracy and completeness of data yielded by the revaluation and determination of the degree of wear and tear. The activities of revaluation commissions on the level of enterprises were supervised and checked in all stages of their work by the corresponding regional economic councils and ministries.

CLASSIFICATION OF SOVIET FIXED ASSETS

In classifying fixed assets by types and uses, the census takers basically applied the scheme accepted by the Central Statistical Administration in 1954 in a document titled, "The Typical Classification of Fixed Funds in the National Economy of the U.S.S.R. (except collective farms)."[5] This scheme comprises the following 13 main groups, classified by type:

1. Buildings.
2. Structures.
3. Transmissions (peredatochrye ustroistva).
4. Power machines and equipment.
   Automatic machines.
5. Operating machines and equipment.
   Automatic machines.
6. Measurement and control devices and laboratory equipment.
7. Transportation equipment.
8. Tools (instrumenty).
9. Productive and household implements and accessories.
10. Draft and productive livestock, other animals, poultry, and apiaries.
11. Perennial plantings.
12. Land improvements, ameliorations, and waterworks.
13. Other fixed capital.

Bunich (Pereotsenka osnovnykh fondov, Moscow, 1959, pp. 37 ff) defines each of the above groups as follows:

Buildings.—"Constructive-architectural objects built with the purpose of creating conditions for work, housing, rendering social and cultural services to the population, and storing material goods." In accordance with their uses buildings are divided into:

(*a*) Buildings for productive purposes (proizvodstvenno-tekhnicheskogo naznacheniia).

(*b*) Buildings serving material production indirectly (storage, construction, transportation, etc.)

(*c*) Buildings providing social, cultural, trade, and other services.

(*d*) Residential dwellings.

From the point of view of their structural characteristics all buildings under (*a*), (*b*), and (*c*) are divided as follows:

(*a*) Extra-solid brick houses (osobo kapital'nye kamennye zdania) with a metal or reinforced concrete frame.

(*b*) Ordinary brick houses.

(*c*) Lightly built brick houses.

(*d*) Wooden structures.

For residential buildings the first three categories remain the same, but the wooden buildings are divided into three subgroups according to the material used and type of construction.

Structures.—A very heterogeneous group which, according to Bunich (ibid., p. 87), includes: First, objects serving technical functions not connected with changes in the object of work (coal pits, oil wells, roads, dams, etc.); second, all kinds of pipelines (gas, water, oil); and third, objects providing municipal services.

---

[5] It should be mentioned that this classification devised for the purpose of accounting differs considerably from a recent classification (Jan. 1, 1963) introduced in connection with new rules for determining depreciation rates for fixed capital. While the former classifies assets according to types and uses, the latter groups them in accordance with their life span and depreciation rate. For the description of the latter classification, see M. Zavalishin and A. Shor: O novom poriadke planirovania i ispolzovaniia amortizatsionnykh otchislenii, Planovoe Khozaistvo, no. 6, 1962, pp. 68–77, and P. Filippov: O klassifikatsii osnovnykh fondov dla ischisleniia amortizatsii, Planovoe Khozaistvo, no. 8, 1958.

P. Filippov (Planovoe Khozaistvo, no. 8, 1958, p. 56) presents a detailed list of types of structures, dividing them into the following 15 subgroups:

1. Mining installations.
2. Pressure and control oil and gas wells.
3. Hydrotechnical structures.
4. Underground structures.
5. Bridges of long duration, water pipes and waterworks, water pressure towers, firefighting towers, grain elevators, chimneys.
6. Brick, concrete or reinforced concrete platforms, and storages.
7. Earth surface of railways and highways.
8. Railroad installations, airways, highway installations.
9. Water and sewer systems.
10. Other structures in water and sewer systems.
11. Radio towers and gas holders.
12. Maritime installations.
13. Timber shipping installations.
14. Wooden platforms, bridges, water wells, fences, dirt roads, and other wooden and earthern structures.
15. River installation, transport, regulations, etc.

Transmission installations include installations for transporting and transforming of electrical energy. In the reports of the capital stock census they are given together with structures.

Power equipment includes all machinery for generating thermal and electrical energy and for transformation of all kinds of energy into mechanical energy. The main types of equipment included in this group are: generators (electric, gas, steam boilers, air compressors), motors (electric, steam engines, steam turbines, mobile steam engines, internal combustion engines), transformers (power transformers, motorgenerators, mercurial rectifiers), distributors (switchboards, oil switches).

Motors attached or built into operating machines, for example, into machine tools, are not included in the power equipment category but are revalued together with the working machine to which they are attached.

Operating machines and equipment: From the point of view of the census takers, this is the most important group of fixed funds. It is defined (Bunich, p. 38) as—

machines, apparatus and equipment assigned for mechanical, thermal or chemical effect (vozdeistvie) on the object of work and for its treatment (peremeshchenie) in the productive process through a mechanical motor, by effort of man or animal, and also objects of a containing type (sosudistogo tipa) participating directly in productive process or rendering services.

Devices and instruments permanently attached to operating machines are considered as parts of those machines.

Operating machines are divided into four basic categories: productive machines, auxiliary equipment, lifting, and transporting machinery, and others.

Productive machinery and equipment is used for changing the form, state, or properties of raw materials and semiproducts through their mechanical, thermal, chemical, thermochemical, electrical, electrochemical, chemomechanical or other kind of processing (Bunich, p. 39).

Productive equipment can be again divided in accordance with its function into basic productive machines and others, the function of the latter being to serve the basic equipment as hand operated presses, tanks, etc.

Auxiliary machinery and equipment does not participate directly in the technological process of production; it serves the basic productive process. It includes equipment used for repairs, for production of spare parts, ventilation, sanitary implements, heating units, etc.

The distinction between productive and auxiliary machinery seems to be based not on the technical properties of the inventoried machines but on the administrative division of Soviet industrial and transportation enterprises. The Soviet enterprise is an agglomeration of productive shops (tsekhy) where the basic process of production takes place and auxiliary shops such as repair shops, shops for providing spare parts, heat, electric power, steam, etc. Repair works and production of spare parts is done in the Soviet industry basically by shops attached to enterprises, and the cost of repair works and spare parts is relatively high. The regional economic councils have been trying recently to build specialized repair plants and factories of spare parts servicing more than one enterprise of a given kind. The distinction between productive and auxiliary machinery seems to be introduced in order to find out the amount of machinery concentrated in the auxiliary shops of industrial enterprises.

Nonstandardized machinery and equipment, i.e., machines constructed according to individual specifications of a given enterprise, are included in a special group. The price handbooks when possible determined their prices directly, or through an elaborate system of adjustment coefficients, from the price of a similar machine.

Measurement and control devices and laboratory equipment: This group includes, first, all kinds of devices for measurement (area, volume, time, temperature, pressure, capacity, intensity, etc.); secondly, regulating mechanisms (electrical, pneumatic, hydraulic, etc.); and finally, laboratory equipment in plant and research laboratories used for quality control and experimentation.

Instruments: This group includes mechanized and nonmechanized manual tools and objects attached to machines for processing of material.

Productive and household implements: These are benches, anvils, bench clamps, safety devices, packing machines, containers, etc., as well as watches, typewriters, calculating machines, firefighting equipment, libraries belonging to plants, hospitals, etc.

Transportation equipment: Means of transporting people and freight by rail, motor, river, sea.

Livestock, productive and draught; poultry, beehives: horses, camels, mules, cows, mares, chicken, ducks, etc.

Perennial plantings: Manmade (artificial) plantings regardless of age. Included are plantations of fruits, berries, plants for technical purposes, decorative plants, plant nurseries, etc.

Land improvements and river regulations (except structures): All kind of amelioration works including landscapping, bush cleaning, forest protection measures, etc.

Each of the 12 groups mentioned was divided into subgroups. A distinction was made between groups of general purpose assets, which are found in more than one sector of the economy or branch of industry, and special purpose assets, which are used only in a specific branch. The Central Statistical Administration prepared lists of specialized assets for the following branches of industry: ferrous

metallurgy, nonferrous metallurgy, coal industry, peat industry, oil industry, gas extraction, chemical industry, power stations, and all basic branches of the food and light industries. In accordance with the character and uses of sepcialized assets they are broken down into subgroups. So, for example, structures of the coal industry are divided into two groups; surface structures and underground structures. On the other hand, buildings which are found in all branches and spheres of economic activity and which as already mentioned, were divided in accordance with their purpose (buildings for productive uses, buildings indirectly serving material production, buildngs for cultural and other nonproductive purposes, and housing), are not reclassified according to specific sectors and branches.

CLASSIFICATION OF FIXED ASSETS BY SECTORS OF THE ECONOMY AND BY BRANCHES OF INDUSTRY

Besides the classification of fixed assets by types and uses the Soviet capital stock censuses redistributed them among basic sectors and branches of the economy. This classification was made among the following sectors of the economy:

1. Industry.
2. Construction (including contract and force-account construction and project-making organizations).
3. Agriculture (including forestry).
4. Transportation.
5. Communication.
6. Procurement.
7. Material-technical supply and sales organizations.
8. Trade and public catering.
9. Housing (including hotels and hostels).
10. Municipal services.
11. Public health, physical education, and social insurance.
12. Education, science, arts.
13. Others.

The sector and branch of industry classification was based on an establishment principle: the predominant product, activity or function determines the sector or branch to which the given unit was assigned. It is the peculiarity of the Soviet industrial structure that large industrial establishements have miscellaneous ancillaries. So, for example, larger coal mine enterprises built residential settlements, eating places, farms, etc. A distinction, therefore, is made between the main leading activity of the registered unit and the function of the attached and subordinate economies. The enterprise as such is put in the corresponding sector or branch in accordance with the predominant product or function, but the fixed assets of attached ancillary units are put in their corresponding sectors and branches (see appendix, form No. 1).

In principle, the classification of fixed assets by sectors of the economy and branches of industry disregards administrative attachment and subordination; the decisive criterion is the character, product, or function of the registered unit. A brickyard belonging to a construction firm is put in the industrial sector as well as a vegetable oil press belonging to a state farm. The only exception from this rule seems to apply to means of transportation. Rolling stock and means of transportation belonging to industry, agriculture, and other sectors are classed in the corresponding sectors and not in transportation. The

transportation sector proper includes means of transportation for public use only (transport obshehevo pol 'zovaniia). The same rule applies also to means of communication. (See P. Bunich, Pereotsenka osnovnykh fondov, p. 51.)

METHODS AND PROCEDURES OF REVALUATION

Revaluation of fixed assets according to their replacement values, accomplished through uniform prices and uniform methods of valuation, was the main purpose of the 1960 and 1962 censuses. Prior to the 1960 census, the values of acquired fixed assets were put in the books according to their original values. Due to the fact that prices of some assets, especially that of machinery and equipment, varied considerably in different periods, this method brought large discrepancies in the book values of identical fixed assets. In the postwar period wholesale prices of machinery and equipment were changed five times and the magnitude of these price movements can be seen from the table below.

TABLE 1.—*Wholesale prices of selected machines in 1949–55*

[Thousands of old rubles]

	Jan. 1, 1949 to Dec. 31, 1949	Jan. 1, 1950 to July 1, 1950	July 1, 1950 to Jan. 1, 1952	Jan. 1, 1952 to July 1, 1955	July 1, 1955 until present
Excavator "E-10003"	400.0	290.0	269.7	195.0	131.0
Crane "K-51"	193.0	164.5	153.0	108.0	66.0
Loading device "T-61"	103.0	60.0	55.8	40.0	25.5
Transporter "T-47"	117.0	91.0	84.65	70.0	60.5
Bulldozer "D-159"	39.0	28.5	26.5	23.8	20.7
Hustling device "SM-44"	46.8	38.0	35.35	32.0	19.6

Source: P. Bunich, Pereotsenka osnoynykh fondov, p. 11.

Discrepancies due to price changes made it difficult, on one hand, to determine the amount of depreciation, and hence, the working cost of industrial products, and hindered, on the other hand, comparisons of capital efficiency of investment projects according to their technological levels.

With the exception of machinery sold to the collective farms, the replacement values of all other fixed assets were expressed in wholesale prices of July 1, 1955. Labor cost in construction as well as overhead expenditures (nakladnye raskhody) were taken on the level of January 1, 1956.

The census applied two different methods in revaluating fixed assets. For machinery, equipment, instruments, and tools the price handbooks compiled by the Central Statistical Administration quoted direct prices. For these groups of assets the census takers endeavored to reduce to a minimum the necessary computations and adjustments in order to determine the replacement values. A different, indirect method was applied for revaluation of buildings, structures, and transmissions. Here the use was made of "generalized indicators" (price per unit of cubature, area, length, etc., varying according to durability, building material, and accommodations). The series of handbooks concerning those types of assets was compiled by the State Committee on Construction Affairs (Gosstroi SSSR) and this method of revaluation required some extensive computations.

REVALUATION OF MACHINERY AND EQUIPMENT

As already mentioned, some assets were excluded from the revaluation and their original prices were given in the reporting documents. This applied to assets with a relatively short service life, assets whose revaluation was difficult, to productive and draught livestock because their value was established by a partial census in 1958, and to equipment installed or acquired after January 1, 1956, because its original value was already given in price lists of July 1, 1955.

For the purpose of revaluation of machinery and equipment, the whole Soviet Union is divided into five regions (zony).[6] The price handbook quotes the price of a given type of equipment only for the first zone, and the prices for other zones are derived by applying adjustment coefficients which vary in accordance with the type of machine. So, for example, for machinery used in the food industry the adjustment coefficients for location are as follows:

Territorial zone	For machinery requiring assembly	For machinery not requiring assembly
I	1.00	1.00
II	1.05	1.03
III	1.10	1.06
IV	1.14	1.09
V	1.20	1.11

Source: V. Ostroumov, V. Gorelik: Organizatsia raboty po pereotsenke osnovnykh fondov, p. 46.

For machinery items to which the Soviet planners assigned a higher preference value due to their importance in general economic development, the differentials for location were larger. So, for example, for lifting and transportation equipment the adjustment coefficients were as follows:

Territorial zone	For machinery requiring assembly	For machinery not requiring assembly
I	1.00	1.00
II	1.10	1.08
III	1.18	1.14
IV	1.33	1.21
V	1.43	1.25

Source: Same as above.

As noted earlier, price handbooks took into consideration obsolescence; i.e., the price of a given machine was reduced when the actual cost of its production was lower than it was in the time when the machine was installed (obsolescence of the first type), or the price reduction was due to an inferior efficiency or performance of the revalued

[6] The first zone comprises the overwhelming part of the Soviet territory. The following provinces (oblasti) are outside the first zone: zone II: The Kazakh S.S.R., Krasnoyarski krai. Arkhangelsk and Murmansk oblasti; zone III: Kirgiz S.S.R., Tadzhik S.S.R., Turkmen S.S.R., Uzbek S.S.R, Buryat-Mongol A.S.S.R., Tuva autonomous province, and Irkutsk oblast; zone IV: Khabarovsk krai, Promorsk krai, Amur and Chita oblasti; zone V: Regions to the north of the Arctic Circle and the Yakutsk A.S.S.R., Kamchatka, Magadansk, and Sakhalin oblasti. (Bunich, p. 113.)

machine as compared to the technical characteristics of a similar machine currently in operation (obsolescence of the second type).

In a case where a given machine was reconstructed or modernized, its replacement value should be determined in accordance with its new capacity. However, if on January 1, 1960, the reconstruction works were still not completed the revaluation should proceed on the basis of technical characteristics before reconstruction.

The price handbooks for equipment included also prices of imported machines and of equipment that had been taken off the Soviet production lines. The prices of imported machines were determined by comparison with similar or analogous machines of domestic production, adjusted when necessary for differences in capacity, efficiency or economy of input (raw material, electricity, labor, etc.). Basically, the same method was applied for prices of machines no longer produced by Soviet industry.

In a case where the efficiency of an imported or obsolete machine (this applies also to unique, nonstandardized equipment utilized in the Soviet economy) is measurable in some natural terms (output in units, meters, kilograms, etc.) or in time units of input of labor (normative hours, normo-chasy), the following formula is applied for revaluation of such machine:

$$Vr = Vm \cdot \frac{Pm}{Pr}$$

where Vr= replacement value of an imported or obsolete machine; Vm equals replacement value quoted in the price handbook of a similar domestic or modern machine; Pr equals productivity of the domestic or modern machine as expressed in natural or time units; Pm equals productivity of the imported or obsolete machine expressed in the same units. Insofar as the domestic or modern machine taken as a stereotype has a lower cost price now than in the past, with this price still reduced for lower efficiency, both types of obsolescence seem to be taken into consideration by the formula given above.

Example: The grain combine SK–1.2, which is no longer produced by the Soviet machine building industry, is compared with the modern combine SK–2.6 which has a price of 17.500 rubles. The productivity of the former combine is 0.5 ha/h and of the latter 1.5 ha/h. Therefore, the price of SK–1.2 is

$$17.500 \cdot \frac{0.5}{1.5} = 5.833 \text{ rubles}$$

For imported or obsolete freight ships, adjustment is made for differences in current (working) cost per 1 kilogram of traction (tiagi). Here the following formula is used: Vr equals Vm by W by Cm/Cr where Vr equals replacement value of the imported or obsolete ship; Vm equals value of 1 ton of weight of a similar type domestic or modern ship, W equals weight of the evaluated ship; Cr equals running cost per kilogram of traction in the prototype ship and Cm the same in the evaluated ship.

For power equipment, adjustments are made for differences in capacity and for differences in fuel input (in terms of conventional units of fuel kilograms per kilowatt-hour).

Example: The replacement value of an obsolete tractor with a Diesel motor, the traction power of which is 50 HP and which uses 220 grams of Diesel oil per 1 HP/h (or 7.7 kopecks), is determined by comparison with a modern tractor,

capacity 60 HP and input of oil 210 grams per HP/h (7.35 kopecks). In this case the replacement value of the obsolete tractor equals 27.523 rb. when the price of the modern tractor equals 34.600 rb.:

$$34.600.\frac{0.0735}{0.077}.\frac{50}{60}=27.523$$

In some specific branches of industry, as for example, in equipment used in thermal power stations, the census takers were forced to abandon at least partially the principle of price uniformity; i.e., that the same prices are applied to identical machines regardless of the size of the productive unit in which they are installed. This was the case in thermoelectrical power stations. For equipment used in such stations two sets of price lists were compiled: one for stations with a capacity below 4,000 kilovolts and another for stations with a capacity of 4,000 kilovolts and over. (See A. Stepanov: Kak opredeliat' vosstanovitel'nuiu stoimost' oborudovania teplovikh elektrostantsii, Vestnik Statistiki, No. 9, 1959, p. 38–49.)

The share of obsolete machines with a relatively lower efficiency seems to be high in the Soviet economy due to the fact that discarding of wornout machines there takes place on a smaller scale than in other countries with a similar technological level. Hence, the importance of measuring obsolescence, especially obsolescence "type 2" as it is called in Soviet nomenclature. The parameters according to which this obsolescence is measured vary for different types of machines. So for example, those parameters for internal combustion engines are utilization of liquid fuels (in grams) per 1 horsepower; for electric motors, consumption of electricity (kilowatt-hours); for steam boilers, use of conventional fuel per 1 ton of steam of a given temperature and pressure; for steam engines, utilization of fuel per 1 horsepower per hour. For locomotives (steam, diesel, or electrical) the measure for comparison is traction power in tons; for freight cars and trucks, loading capacity in tons; for passenger cars, subway cars, and buses, the number of seats.

It goes without saying that the choice of the "stereotype" plays a paramount role in measuring obsolescence. Unfortunately, no indication can be found in Soviet literature as to how this stereotype is chosen. Is it the most efficient machine of a certain type or use, or the typical, most often utilized machine in a certain sphere of production? The latter seems to be the more probable choice.

For revaluation of complex machines or a system of coordinated machines the guidelines left open two possibilities: One is a separate revaluation of component parts according to prices given by the handbooks and their summation; the other—a more integrated approach—the revaluation of the complex machine as an entity using the price handbook's quotation with corresponding adjustments, in case some components deviate from the components of the stereotype. When possible, the second, "integrated" method of revaluation is recommended for complex machines. However, for lines of automatic machines the replacement value has to be obtained by adding the values of machine tools, electric motors, transmissions, and other devices, as well as the cost of assembly and adjustment (naladka) of the line.

REVALUATION OF BUILDINGS, STRUCTURES, AND TRANSMISSIONS

The heterogeneous character of buildings and structures did not allow the application of a direct method of determining their replacement values as it was used for machinery and equipment. As already mentioned, buildings and structures are revalued on the basis of "consolidated indicators" (ukrupnennye izmeriteli); i.e., replacement values of basic, measurable elements of buildings and structures, such as the value of 1 cubic meter of the volume of a given type of building, or 1 square meter of its area.

Like handbook prices for equipment, the values of consolidated indicators are inclusive of all the cost components entering into the price of the indicator. So, for example, the cost of 1 cubic meter of cubature of a given type of building includes in addition to the cost of the construction proper, the cost of sanitary and light installations, etc., the cost of technical preparations (blueprints, cost of temporary structures raised on the construction site), as well as the overhead of the building companies.

Prices of building materials and transportation tariffs were those of July 1, 1955, and the cost of labor and overhead expenditures were determined by estimates (normy) promulgated January 1, 1956. Changes in prices which took place after January 1, 1956 were disregarded.

Considering the territorial differentiation of wages of construction workers and differences in prices of building materials, electricity, etc., the whole territory of the Soviet Union was divided into 10 territorial zones and 4 climatic zones. The 10th territorial zone comprises regions to the north of the Arctic Circle and in this zone all the factor prices are raised by 20 percent as compared with an adjoining region.[7]

The four climatic zones were introduced in order to take into consideration differences in construction due to climatic conditions. Considering that the overwhelming number of buildings and structures are located in the climatic zone No. 2, the guidebooks usually give estimates for this zone only and adjustment coefficients for other zones. For some

---

[7] The 10 territorial zones comprise the following oblasti:

Zone I: Belorussian S.S.R., Latvian S.S.R., Lithuanian S.S.R., Moldavian S.S.R., Estonian S.S.R.; Kalmyk A.S.S.R., Mari A.S.S.R., Mordvinian A.S.S.R., Tatar A.S.S.R., Udmurt A.S.S.R., Chuvash A.S.S.R.; Astrakhan, Belgorod, Bryansk, Voronezh, Vladimir, Gorki, Ivanovo, Kalinin, Kaluga, Kaliningrad, Kirov, Kostroma, Kuibyshev, Kursk, Leningrad, Lipetsk, Moscow, Novgorod, Orlov, Penza, Pskov, Ryazan, Saratov, Smolensk, Stalingrad, Tambov, Tula, Ulyanovsk, Yaroslavl oblasti.

Zone II: Azerbaidzhan S.S.R., Armenian S.S.R., Georgian S.S.R., Kazakh S.S.R., Ukrainian S.S.R.; Bashkir A.S.S.R., Dagestan A.S.S.R., Kabardino-Balkarian A.S.S.R., North Ossetian A.S.S.R., and Chechen-Ingush A.S.S.R.; Altai krai Krasnodarsk krai, and Stavropolsk krai; Vologda, Kemerovsk, Kurgansk, Novosibirsk, Omsk, Orenburg, Perm', Rostov, Sverdlovsk, Tomsk, Tiumen (south of the 60th parallel), and Cheliabinsk oblasti.

Zone III: Buryat-Mongol A.S.S.R., Irkutsk oblast' (south of the 60th parallel), Krasnoyarsk krai (south of the 60th parallel), Tuva autonomous oblast.

Zone IV: Kirgiz S.S.R., Tadzhik S.S.R., Turkmen S.S.R., Uzbek S.S.R., Karelian A.S.S.R., Komi A.S.S.R. (to the south of the Arctic Circle), Krasnoyarsk krai (to the north of the 60th parallel), Arkhangelsk (without the Nenetsk national region) and Murmansk oblasti.

Zone V: Amursk oblast', Primorskii krai, Khabarovsk krai (to the south of the 55th parallel), Tiumensk oblast' (north of the 60th parallel), Chita oblast'.

Zone VI: Khabarovsk krai (to the north of the 55th parallel), Evenkiisk national region including Turuchansk "rayon," Irkutsk oblast' (to the north of the 60th parallel).

Zone VII: Yakutsk A.S.S.R. (to the south of the Arctic Circle).

Zone VIII: Kamchatka oblast' (to the south of the 55th parallel), Magadanskaia oblast' (to the south of the Arctic Circle).

Zone IX: Kamchatka oblast' (to the north of the 55th parallel), Sakhalin oblast' (excluding the Kuril Islands).

Zone X: Yakutsk A.S.S.R. (to the north of the Arctic Circle), the northern parts of Krasnoyarski krai, Magadansk oblast', Tiumensk oblast'; the Kuril Islands and the Nenetsk national region.

regions which are subject to earthquakes and where special arrangements are made to increase stability of buildings, additional "seismic" coefficients are applied.

The main *principium divisionis* in classification of buildings is their "durability" (kapital'nost), a characteristic closely connected with the basic material used in the construction of the building. All buildings used for productive purposes are divided from the point of view of their durability into four categories, residential buildings into five categories. (See annex.) For specific types of buildings as, for example, residential dwellings, adjustment coefficients are introduced for the size of the apartments, heights of rooms, interior improvements, etc.

All together the State Committee on Construction Affairs (Gosstroi) compiled 36 guidebooks and a general introduction in which the basic methodological principles are stated. Specific guidebooks pertain to sectors of the economy or branches of industry. Thus, guidebook No. 1 covers buildings and structures in ferrous metallurgy; No. 2, in nonferrous metallurgy; No. 3, in coal industry; No. 4, in oil industry, and so on. Guidebook No. 18 explains consolidated indicators applicable to buildings and structures found in different branches and guidebook No. 28 to residential houses, hotels, and dormitories.

The main task of the appraisers (inventory commissions) is to find in the corresponding guidebook the stereotype building or structure which comes as close as possible to the revaluated building and to apply the given values and adjustment coefficients. To facilitate this task some general rules were introduced in reference to certain types of buildings and structures found in specific branches as well to certain categories of residential houses.

For buildings and structures in the coal industry two guidebooks were compiled: No. 3–I for underground structures and 3–II for surface buildings and structures. In contrast to other branches, the underground structures of the coal industry are divided only in six territorial zones and for coal mines located outside these zones corresponding coefficients are given. For surface structures consolidated indicators are introduced according to the material of which they are built, value per 1 ton of steel structures, per 1 cubic meter of concrete or wood, etc.

Guidebook No. 4 presents estimates for buildings and structures in the oil industry. As a rule estimates are given for total complexes. However, if some components of complex installations had been modernized or rebuilt, the guidebook recommended revaluation of each part separately and for this purpose it quoted their prices.

Guidebook No. 5 gives prices and estimates for buildings and structures in the electrical power industry. For thermal stations the building are revalued according to general rules. More complicated are estimates for hydrostations. Here separate estimates are made for each part of the complex construction: value per 1 cubic meter of earthworks, per 1 cubic meter of concrete works in the dam, etc.

To illustrate the methods and procedures used for revaluation of buildings and structures for productive purposes we quote from a Soviet source the following examples (Vestnik Statistiki, No. 7, 1959):

Example No. 1: Revalue a cotton-goods factory located in the Ivanovo oblast'. Building has three stories, an attic, concrete foundation, brick walls, floors of reinforced concrete, a sprinkling installation. Ivanovo is located in the first

territorial zone and the second climatic zone. Price handbook No. 14 indicates that the building in question belongs to the second group of "kapital'nost" and that the value of one cubic meter of cubature of such a building equals 69 rubles plus 3.7 rubles for sprinkling installation, together 72.7 rb. This value is given for the corresponding territorial and climatic zones. Considering that the cubature of the building is 80,000 m^3 the replacement value is derived as 72.7·80,000 equals 5,816 thousand rubles.

Example No. 2: Crane stockade in a factory in the city of Norilsk. Lifting capacity of the crane equals 20 tons. Stockade has 3 spans, 16 meters long, 8 meters high, area equals 3,300 m^2.

Norilsk is located in the 10th territorial zone and first climatic zone. The replacement value is derived by multiplying 210 rubles (value of 1 square meter of stockade in the adjacent sixth territorial zone and second climatic zone) by 1.2 (coefficient for territorial location) by 1.14 (coefficient for transition from the second to the first climatic zone) and by 3,300 (area of the stockade). The replacement value amounts to 948,000 rubles.

Example No. 3: Assembly shop of a machine building plant in Krasnoyarsk. Foundation and columns of reinforced concrete, brick walls, roofing-plates of reinforced roof iron, flooring—partly tiles, partly (400 m^2) metal plates. Cubature equals 140,000 m^3. Crane spans comprise 60 percent of the total area.

Krasnoyarsk is located in the third territorial zone and first climatic zone. The replacement value is derived by multiplying 55 rubles (value of 1 m^3 of volume of such building in the third territorial zone) by 1.08 (adjustment coefficient for transfer from the second to the first climatic zone) times 140,000 (equals cubature in m^3) plus 200 rubles (increase in value of floor covered by metal plates) times 400 (area of metal floor.) Total equals 8,396 thousand rubles.

Example No. 4: Vertical shaft of coal mine, located in Vorkuta, Komi, A.S.S.R. Depth equals 120 meters; diameter of cross section equals 5 meters; area of cross section equals 19.6 m^2. Walls of shaft reinforced by concrete 0.4 m thick. Hardness of rock in which the shaft is sunk is unknown. Coking coal is extracted.

The corresponding values as given for the Donbass coal region are 890 rubles of 1 m^3 cut in rock, hardness mark 6–4, and 990 rubles, mark 10–8. Price handbook No. 3 provides that in case the hardness of rock is unknown, 90 percent of it is assumed to belong to mark 6–4 and 10 percent to 10–8. Adjusting the values given for the Donbass region, the replacement value of the Vorkuta coal shaft is derived by the following computation: (890·0.9+990·0.1)·1.04·1.36·19.6·120 equals 2,994 thousand rubles where 890 rb. equals estimate of 1 m^3 cut in rock mark 6–4, 990 rb. the same in mark 10–8; 0.9 and 0.1, the corresponding percentage shares; 1.04 equals adjustment coefficient for mines extracting coking coal; 1.36 equals coefficient for location; 19.6 equals area of cross section in m^2; and 120 equals depth of shaft.

THE DETERMINATION OF WEAR AND TEAR

After the replacement value of a given fixed asset had been established and compared to its original value, the next step of the capital stock census consisted in determining the degree of physical wear and tear. This is measured as the percentage of replacement value represented by wear and tear, and in money terms as the corresponding reduction of this value. Here again, as in the case of determining the replacement value, the census takers did not rely on the book data as given in the current accounting systems. Norms of lifespans for fixed assets as set by regulations concerning depreciation rates were utterly disregarded or used only in exceptional cases. The basic method applied for determination of the degree of physical wear and tear consisted in a thorough physical inspection by experts of a given object and the determination in quantitatively measurable terms the effect of physical forces (rusting, corrosion, etc.) on the inventoried object. The census organizers were aware that such emphasis on expertise leaves too much of a free hand to the experts. In order to formalize the decisions of the experts, the organizers of the census compiled detailed lists of objective characteristics the presence or

absence of which should provide a more objective basis for the decision of the experts. For the same purpose the organizers of the census drew a sharp distinction between degrees of wear and tear proper and obsolescence. The latter was taken care of directly; in the process of revaluation the former had to be determined through a thorough physical inspection.

A committee of experts (engineers, builders, technicians) inspected components or elements of a given asset, estimated in percentages the degree of wear and tear of each part, and by applying specific, guidebook weights, computed a weighted average ratio of wear and tear for the asset as a whole.

In order to avoid arbitrariness in the work of the experts, detailed instructions were elaborated which, on one hand, indicated what should be inspected, and on the other, enumerated the typical symptoms, the absence or presence of which should be considered in order to arrive at a definite judgment. (See annex VIII.)

The following examples illustrate the method of determining the degree of physical wear and tear for specific equipment, buildings and structures:

TABLE 2.—*Equipment: Peat harvester, mark UMPF–4*

Construction parts	Weights given by guidebooks in percent	Value of part according to price book	Percent of wear and tear determined by inspection	Reduction of value
Caterpillar and frame	45	13.410	25	3.352
Transmission	15	4.470	20	.894
Bucket elevator	20	5.960	10	.596
Bunker with mobile bottom	20	5.960	15	.894
Total	100	29.800	19	5.736

Dividing 5,736 by 29,800 and multiplying by 100 we obtain the weighted percentage share of wear and tear as equal to 19 percent.

TABLE 3.—*Structure: Water tower*

Components	Weights given by guidebooks in percent (1)	Percentage of wear and tear as determined by inspection (2)	Col. (2) times (1) (3)
Foundation	9	5	45
Walls	49	20	980
Floors	2	25	50
Windows (proemy)	2	25	50
Floor foundations	4	20	80
Plastering works	2	30	60
Sanitary installations	10	25	250
Water tank	14	15	210
Others	8	10	80
Water tower	100		1,805

It follows that the degree of wear and tear of the water tower equals 1,805 divided by 100, or 18 percent of the replacement value of the water tower. (The last two examples quoted from V. Ostroumov, and V. Gorelik, ibid., p. 54 ff.)

For the determination of wear and tear of buildings the instructions recommend utilization of the tables concerning the inventory taking of municipal property issued April 27, 1930 (Instructions of the Central Administrations of Municipalities of the People's Commissariat of Internal Affairs of the RSFSR). These instructions provide ranges (from 0 to 10 percent, 11 to 20 percent, 21 to 30 percent, 31 to 40 percent, 41 to 60 percent, 61 to 80 percent) in accordance with the detection of some typical defects or deterioration due to physical wear and tear of basic components (foundations, walls, roofing, etc.) of a given building. (See annex VIII.)

For assets which cannot be directly inspected, as, for example, underground piping, degree of wear and tear is determined by comparing the elapsed service life with the expected one, or with the "norms" of service life. The following general formula was applied:

$$\text{Wear and tear in percent} = \frac{\text{Years of elapsed service life}}{\text{Years of prescribed service}} \cdot 100$$

In case the elapsed service life, in years, in close to (or exceeds) the normative span of service which would result in a very high percentage (or a negative one) of wear and tear, a different method is provided. The technical inspection first determines the additional number of years in which the given asset or some components may still be in operation, and the following formula is applied:

$$\text{Wear and tear in percent} = \frac{\text{Years of actual service life}}{\text{Years of actual service life plus estimated additional years of service}} \cdot 100$$

In case the actual service life is unknown (the exact date when the asset was installed or put in operation) the degree of wear and tear may be found on the basis of the normative years of service and the anticipated, remaining life span:

$$\text{Wear and tear in percent} = \frac{\text{normative years of service}}{\text{normative years of service plus anticipated additional years of service}} \cdot 100$$

In all the methods applied above the determination of norms of service life is of crucial importance. In the practice of Soviet accounting such norms were introduced in order to determine depreciation rates. Two types of such rates can be discerned: differentiated rates in accordance with the anticipated life span of certain kinds of fixed assets, and average rates for specific branches of industry. In the last two decades, the average rates prevailed and they show little change throughout the years, as can be seen from the table below:

TABLE 4.—*Average depreciation rates in selected branches of industry*
[In percent of the initial, book value of fixed funds]

	1938	1950	1955
Ferrous metallurgy	5.6	4.8	4.7
Coal industry	5.6	4.2	4.2
Oil industry	5.6	6.5	5.6
Electric energy	5.6	5.3	4.5
Chemical industry	5.6	4.5	----
Machine tool industry	5.5	5.6	5.7
Heavy machine building	5.5	5.5	5.5

Source: V. A. Vorotilov, op. cit., p. 76 ff.

Compared to the depreciation rates accepted in the American industry the Soviet rates are low. P. Bunich [8] found that the average lifespan of industrial fixed assets in the Soviet Union computed on the basis of the accepted depreciation rates amounts to 37 years, which is 27.5 percent higher than that in American industry.

Therefore, for the purpose of the capital stock census the average rates of depreciation accepted before were of little use.[9] For the purpose of the census a new and very detailed list of lifespans for different kinds and types of fixed assets was compiled and incorporated in the instruction and guidebooks.

From the point of view of the duration of their service life, Soviet fixed assets may be reclassified in the following main groups:

(1) Perennial structures with very low rates of wear and tear, which are submitted to capital repairs (overhaul) at long time intervals (bridges, channels, dams, river regulations, etc.).

(2) Fixed assets periodically renewed through capital repairs of components parts except for the main body (buildings, many kinds of machines, rolling stock, etc.).

(3) Machine and equipment, parts of which, except for the main body, are periodically replaced (looms, tractors, etc.).

(4) Fixed assets which are periodically renewed (restored) in their entity (railroad tracks, some transmission facilities).

(5) Assets, the reproduction of which depends on natural conditions such as cattle, orchards, tea plantations, etc.

(6) Land improvements, ameliorations, irrigations, drainage works, etc.

(Source: V. Ostroumov, V. Gorelik, ibid., p. 52 ff.)

For all fixed assets, the lifespan is established on the assumption that their utilization took place under normal conditions. In cases of more-than-average exploitation of an asset, or when the assets are subjected to natural calamities and so on, the degree of wear and tear is determined by technical inspection, extent of repairs, or other available technical documentation.

DOCUMENTS PERTAINING TO THE CAPITAL STOCK CENSUS

Detailed instructions prescribed the uniform procedure for filling out the blanks and forms concerning the capital stock census. These reporting documents can be divided into three main groups. The

[8] P. Bunich: Amortizatsia osnovnykh fondov v promyschlennosti, Gosfinizdat, 1957, pp. 115–117.

[9] Due to the fact that the relatively high cost of capital repairs is subtracted from the depreciation of fixed assets, it is admitted by Soviet economists that, in general, the degree of wear and tear is underestimated (see Finansy S.S.S.R. No. 8, 1959, p. 68).

first group comprises inventory lists (opisi). These are the primary sources for processing of obtained data. Inventory lists were prepared for the following types of assets: (1) buildings, (2) structures and transmissions, (3) machinery, equipment, and rolling stock, (4) fixed assets excluded from revaluation but included in the determination of the degree of physical wear and tear (e.g., adult draught animals), and (5) fixed assets exempt from revaluation and determination of wear and tear.

The headings in all the inventory lists are identical. They include: name of the enterprise or organization, names of the chairman and members of the inventory commission, date when inventory and revaluation started and when it was completed.

The inventory list for buildings includes the following rubrics:

A. Ordinal number.
B. Inventory card number.
C. Use of building (for productive purposes, housing, trade, cultural, etc.) and its location.
D. Year in which the building was built or reconstructed.
E. Short technical description of the building.
1. Cubature of the building (in cubic meters—outside dimensions).
2. Total area (in square meters), of which:
3. Total area of dwellings (in square meters), of which—
4. Area of living quarters (in square meters).
5. Original value of the building (in thousand rubles).
6. Number of the guidebook on the basis of which replacement value was computed.
7. Number of the table in the guidebook used for revaluation.
8. Replacement value of 1 cubic meter of cubature according to the quoted table in the guidebook.
9. Replacement value of the building (in thousand rubles; col. (1) times col. (8)).

THE RESULTS OF REVALUATION

10. Increase in value (replacement value over original value).
11. Decrease in value (original value over replacement value).

MEASUREMENT OF THE DEGREE OF WEAR AND TEAR

12. Wear and tear as percent of replacement value.
13. Wear and tear in money terms (in thousand rubles; col. (9) times col. (12) divided by 100).

For structures and transmissions the rubrics are similar to those for buildings with the exception that a specific rubric indicates the unit (cubic meter, square meter, linear meter, kilometer, etc.) on the basis of which the revaluation took place and another rubric indicating the replacement value of this unit.

The inventory list for machinery, equipment, and rolling stock includes the following rubrics:

A. Ordinal number.
B. Number of inventory card.
C. Description of inventoried object.
D. Year when produced or acquired.
E. Year when installed and, if modernized, when—
F. Type of mark of equipment.
G. Short technical description of the object.
H. Unit of measurement for determination of the replacement value.
1. Quantity of units of measurement.
2. Original value of object.

3. Number of quoted price book.
4. Page, or number of entry, or number of table in the price book quoted for the purpose of revaluation.
5. Replacement value on January 1, 1960 (in rubles).

RESULTS OF REVALUATION

6. Increase in value (replacement value over original value).
7. Decrease in value (original value over replacement value).

DETERMINATION OF WEAR AND TEAR

8. Degree of wear and tear as percent of replacement value.
9. Wear and tear in money terms (in rubles; col. (5) times col. (8) divided by 100).

Less detailed were the blanks for fixed assets which, although exempt from revaluation, were subjected to the determination of degree of wear and tear. The corresponding blanks included the following rubrics:

A. Ordinal number.
B. Number of inventory card (for animals—brand mark).
C. Denomination of inventoried objects.
D. Year of acquisition or planting (for draft animals, year of birth).
E. Short characteristic description of object.
F. Unit of measurement for establishing the revaluation value.
   (1) Quantity of units of measurement (size, area, length).
   (2) Initial value of objects (in rubles).
   (3) Degree of physical wear and tear in percentage of initial value.
   (4) Degree of physical wear and tear in money terms (in rubles).

Also short were inventory lists for objects not subjected to revaluation or determination of wear and tear. They consisted of the following rubrics:

A. Ordinal number.
B. Inventory number (for animals, brand mark).
C. Denomination of kind of fixed assets.
D. Year of acquisition; for animals, year of birth.
E. Short description of characteristics of object.
F. Unit of measurement on the basis of which the initial value was determined.
   (1) Quantity of units of measurement (size, area, length).
   (2) Initial value on January 1, 1960 (in rubles).

The above described inventory lists (opisi) remained in the files of the inventory commissions. On the basis of the data of the inventory lists reports (otchety) were filled out by the census commissions. All together 56 such report forms were compiled of which form No. 1 included a summary report (svodnyi otchet). Forms No. 2 to 8 referred to fixed assets which can be found in many branches of industry or sectors of the economy, and forms 9 to 56 referred to specific types and kinds of assets found in particular branches and sectors. In order to throw light on the classification of Soviet fixed assets, the titles of the 56 report forms are listed below (quoted from V. Gorelik and A. Monastyrskii: O sostavlenii otchetov po pereotsenke i opredelenii izonsa osnovnykh fondov, Vestnik Statistiki, No. 12, 1959, pp. 50–51).

Form No. 1: Summary report on results of revaluation and determination of wear and tear of fixed assets (see annex I).

Form No. 2: Buildings for productive, cultural, trade, and other purposes except residential (see annex II).

Form No. 3: Residential buildings (see annex III).

Form No. 4: Structures, transmissions, and means of transportation for general use found in many sectors of the economy (see annex IV).

Form No. 5: Metal-cutting machine tools, forging presses, casting and founding equipment, checking equipment, equipment for covering with paint or lacquer, metal, timber sawing and wood processing equipment of general use; automatic lines of machine tools in the machine building industry (see annex V).

Form No. 6: Energy and electrotechnical equipment; pumps and compressors; refrigerative installations; units generating hydrogen and oxygen; electrowelding and gas welding equipment; industrial X-ray installations.

Form No. 7: Machinery for construction, roadbuilding, crushing and pulverizing; equipment for weighting, lifting, and transporting.

Form No. 8: Automobiles, tractors, and structures belonging to the motor transportation system.

Form No. 9: Agricultural machinery, equipment, and structures.

Form No. 10: Specialized equipment, rolling stock, structures, and transmissions of urban passenger transportation (electric power only) as well as specialized equipment of municipal enterprises.

Form No. 11: Specialized equipment of the moving picture industry, film projection, movie studios, film reproduction, theatrical, scenic and photographic equipment (including equipment for production of movie and photo supplies).

Form No. 12: Electronic computers.

Form No. 13: Specialized equipment, instruments, and apparatus for medical purposes.

Form No. 14: Specialized equipment, structures, and transmissions utilized in trade and public catering.

Form No. 15: Specialized equipment, structures, and transmissions for extraction and enrichment of ferrous and nonferrous metallic ores (including extraction of mineral raw materials used in metallurgy).

Form No. 16: Specialized equipment, structures, and transmissions in the ferrous metallurgy industry (including secondary processing, production of metallurgic coke, and production of fireproof material).

Form No. 17: Specialized equipment, structures, and transmissions in the nonferrous metallurgy industry (including output of gold, platinum, and diamonds) as well as secondary processing of nonferrous metals.

Form No. 18: Specialized equipment, structures, and transmissions in the peat industry (including the production of peat briquets).

Form No. 19: Specialized equipment, structures, and transmissions in the oil industry (including main line oil pipes and oil tanks).

Form No. 20: Specialized equipment, structures, transmissions in the gas industry, including extraction of natural gas, production of artificial gas, underground gasification of coal, gas pipes, and gas networks.

Form No. 21: Specialized equipment, structures, transmissions in the electrotechnical industry (including cable production) and radiotechnical industry (including electrovacuum equipment).

Form No. 22: Specialized equipment, structures, transmissions for communication, radio, and television.

Form No. 23: Specialized equipment, structures, and transmissions of power stations and electric power net.

Form No. 24: Specialized equipment, structures, transmissions of the chemical industry (including extraction of chemical raw materials except for salt extraction and chemical wood processing).

Form No. 25: Specialized equipment, structures, transmissions of the chemical wood processing and the hydrolysis industry.

Form No. 26: Specialized equipment of the printing industry including the bookbinding industry.

Form No. 27: Specialized equipment, structures, and transmission of timber cutting and wood processing industry (including the match industry).

Form No. 28: Specialized equipment, structures, transmissions of the cellulose paper industry.

Form No. 29: Specialized equipment, structures, and transmissions of the industry of building materials.

Form No. 30: Specialized equipment of the glass, china, and faïence industry (including output of medical appliances, chemical and medical glass containers, and of glass fiber).

Form No. 31: Specialized equipment of the cotton goods industry including cotton ginning.
Form No. 32: Specialized equipment of the wool industry (including primary wool processing).
Form No. 33: Specialized equipment of the silk industry (including silk reeling).
Form No. 34: Specialized equipment of the flax and hemp and jute industry (including primary processing of fiber).
Form No. 35: Specialized equipment of the knitted goods industry, and of felt and felt products and artificial furs.
Form No. 36: Specialized equipment of the leather, fur, and shoe industries; leather products, harnesses, bristle products, and brushes.
Form No. 37: Specialized equipment, structures, and transmission of the fish industry (excluding fishing ships and the production of fishing nets).
Form No. 38: Specialized equipment, structures, and transmissions of the meat industry (including meat conserves) and the milk and milk products industry.
Form No. 39: Specialized equipment, structures, and transmissions of the flour and groats milling industry, factories of pressed forage, elevators, including grain elevators.
Form No. 40: Specialized equipment of bakeries, factories of confectioners, macaroni, and yeast.
Form No. 41: Specialized equipment, structures, and transmissions of the vegetable oil, fat, cosmetic, and perfume industry.
Form No. 42: Specialized equipment of the fruit and vegetable processing industry, including conserves, concentrates, food acids, coffee, etc.
Form No. 43: Specialized equipment, structures, and transmissions of the sugar, starch, and molasses industry.
Form No. 44: Specialized equipment, structures, and transmissions of the alcohol, vodka, liquor, wine, beer and soft drinks industries.
Form No. 45: Specialized equipment, structures, and transmissions of the tea, tobacco, and makhorka industries.
Form No. 46: Specialized equipment of all other industries not specified in the forms above.
Form No. 47: Specialized equipment, rolling stock, structures, and transmissions of the railroad transportation, including machines for construction as well as specialized equipment for signals and communication in the railroad transportation system.
Form No. 48: Specialized equipment, structures, and transmissions of air transportation (for civilian use only).
Form No. 49: Oceangoing ships, including those for control and technical purposes and for regulation of navigation.
Form No. 50: Ships belonging to the river transportation system.
Form No. 51: Fish-catching and fish-processing ships.
Form No. 52: Specialized port accommodations and structures; installations for navigation, including docks, repair shops, and dockyards.
Form No. 53: Stadiums and other sport structures and special sporting equipment.
Form No. 54: Rolling stock, specialized equipment, structures, and transmissions of the subway transportation system.
Form No. 55: Specialized equipment, structures, and transmissions of the salt extracting industry.
Form No. 56: Specialized equipment, structures, and transmissions of the coal and shale extracting industries as well as special equipment for geological prospecting.

As can be seen from the titles of the forms listed above, the census takers made a special effort to obtain detailed information on the so-called specialized equipment, i.e., machines used only in specific branches of industry or sectors of the economy. It seems doubtful whether the detailed instructions succeeded in preventing some overlapping of specialized equipment with equipment for general purposes registered in the forms 4 to 8.

In the process of filling out the blanks, special attention is drawn to the coding of specific kinds of fixed assets in order to facilitate the

mechanical processing of data. Only coding concerning types and kinds of fixed assets has to be accomplished by the census commissions, while codes for territorial distribution, administrative jurisdiction, distribution by sectors and branches are to be filled out by the organization to which the registered enterprise is subordinated. As already mentioned, fixed assets of an establishment which produces more than one product are classified according to the prevailing product.

In all the reporting blanks, with the exception of forms 2 and 3, the numerated columns are identical and have the same numeration. The reporting document consists mainly of seven columns with the following headings:

1. Original book value before revaluation as of January 1, 1960 (in thousand rubles).
2. Total replacement value after revaluation as of January 1, 1960 (in thousand rubles).
3. New fixed assets (built or acquired in the period from January 1, 1956 to January 1, 1960) revaluated according to book value.

RESULTS OF THE REVALUATION

4. Markup (+) excess of replacement value over book value.
5. Markdown (—) excess of book value over replacement value.
6. Degree of physical wear and tear, determined in the process of revaluation, in money terms (thousand rubles).
7. Degrees of physical wear and tear in percentage of the replacement value.

Forms 2 and 3 in addition to the above columns required information on volume and area of the registered buildings.

The instructions advise that all computed data should be rounded to the whole unit of measurement, as, for example, to thousand rubles, 1 kw, cubic or square meter, ton, etc. No fractions or digits should be put in the blanks and formulas.

A third distinct group of the general registration documents consists of blanks pertaining to summarized reports which are filled out by regional economic councils (sovnarkhozy), ministries and departments. Five forms belong in this category. They are as follows:

1. Form SP: "Summary report on results of revaluation and determination of wear and tear of fixed funds." It includes all fixed funds under the jurisdiction of a ministry, department, sovnarkhoz trust, etc. This form is compiled on the basis of forms No. 1 of subordinated enterprises and, in case of ministries and sovnarkhozes, on the basis of SP blanks of subordinated trusts and departments and forms No. 1 of establishments directly attached to the reporting agency.
2. Form SPO–1: "Summary report on results of revaluation and determination of wear and tear according to sectors of the economy or branches or kinds of industry." This form regroups the data by sectors of the economy and types of assets, or by branch and subbranch of industry and type of assets.
3. Form SPO–2: Summary report on results of revaluation and determination of wear and tear by sectors of the national economy (without the regrouping of assets by type).

These three summarizing blanks are constructed in such a way that they correspond to the three basic sections of the reporting form No. 1 (see annex). Data in form SP are taken from reporting form No. 1—summary part, SPO–1 from form 1, section II, and SPO–2 from form 1, section III.

4. Form SPO–3: "Summary report on results of revaluation and determination of wear and tear of fixed funds by branches of industry and kind of output." This form is filled out only by the Statistical Agencies of Union Republics on the basis of forms SPO–1 of subordinated administrative units and, in case some establishments are directly subordinated to the Republican administration, from

form No. 1, section II of the corresponding enterprises. This applies mainly to enterprises managed by committees of local Soviets (Ispolkomy Sovietov Deputatov Trudiashchichsia).

5. Form SPR: "Summary report on results of revaluation and determination of wear and tear of fixed funds by geographic distribution (territories)." Here oblast' is the main administrative unit. Form SPR is filled out by trust and oblast' departments. In case enterprises attached to a given trust are located in more than one oblast', the trust compiles forms SPR separately for each oblast'.

The main task of processing the obtained data and the preparation of summarized reports on specific aspects (type, branch, territory, administrative subordination) is put on the Union Republics Statistical Agencies. On the basis of the Union Republics summarized results of the registration, the Central Statistical Administration of the U.S.S.R. compiles data for whole territories and the total national economy.

CAPITAL REVALUATION IN THE COLLECTIVE FARMS

Two years after the general inventory and revaluation of fixed assets in the Soviet state and cooperative enterprises and organizations, a similar operation was carried out in the cooperative sector of the Soviet agriculture, in the collective farms (kolkhozes). In addition to 40,500 of kolkhozes this census covered some 5,000 of "interkolkhozien" enterprises, being the joint property and under the joint management of 2 or more kolkhozes.

Due to the poorer state of accounting and to some specific conditions in the Soviet cooperative agriculture, this census encountered special difficulties and required a most thorough preparation.

The main administrative body charged with the responsibility of carrying out the census was the district (rayon) executive committee (rayispolkom). In each rayon a special commission has to be organized, consisting of the chairman of the rayispolkom as the chairman of the commission, a representative of the local (rayon) inspectorate of the Central Statistical Administration and employees of local state farms and industrial enterprises who have already acquired some experience in carrying out the general inventory. (See A. Kochev: Kak organizovat' v kolkhozakh pereotsenku osnovnykh fondov. Vestnik Statistiki, No. 4, 1961, pp. 64 ff.)

The timetable in preparation and execution of the collective farms census was as follows:

(1) Before May 1, 1961, the primary inventory documentation and technical description of all fixed assets belonging to collective farms should be put in order and brought up to date.

(2) During April–May 1961 the rayon commissions should check the preparation work of the corresponding commissions in each collective farm and in interfarm organizations. During the same time all the farms should be provided with instructions, price handbooks, and necessary blanks and formularies.

(3) In June–July 1961 a sample revaluation and determination of wear and tear of different types of fixed assets should be carried out in each of the collective farms.

(4) From August to November 1961 the revaluation proper and the determination of the degree of wear and tear has to be completed.

(5) During the month of November the obtained data in the collective farms should be checked and verified by the supervising commission. Reports on revaluation and determination of wear and tear of a fixed assets by the collective farms should be sent to the rayispolkom not later than January 15, 1962.

(6) Checked and approved by the rayispolkom commissions, the reports of the kolkhozes should be sent to the Central Statistical Administration not later than January 25, 1962.

The basic methods and procedures applied in the collective farms census were similar to those applied in the 1960 general revaluation. But in one aspect the two censuses differ: In contrast to the evaluation of agricultural equipment in the state farms based on wholesale prices of July 1, 1955, the prices of equipment belonging to collective farms were higher on the level of February 1, 1961 (see Vestnik Statistiki, No. 5, 1961, p. 66). Thus, the principle of price indentity, i.e, the attaching of identical price tags to identical machines, was in this particular case discarded.

Smaller in scope than the general capital stock census, the collective farms inventory and revaluation was still a major statistical operation. All together some 45,000 collective farms and interfarm organizations were registered and the inventory included over 20 million inventory items (L. Volodarskii: Itogi pereotsenki osnovnykh fondov kolkhozov, Planovoe Khozaistvo, No. 11, 1962, p. 48).

REVALUATION OF EQUIPMENT AND MEANS OF TRANSPORTATION

The organizers of the census endeavored to simplify as far as possible the necessary computations in order to determine the replacement values of equipment belonging to collective farms. While in the 1960 census over 100 price handbooks were compiled for equipment alone, in the collective farm sector only 6 price handbooks were issued. They were as follows (see Vestnik Statistiki, No. 5, 1961, p. 65):

Price handbook No. 1: Agricultural machinery and equipment, means of transportation, lifting equipment, and balances.

Price handbook No. 2: Equipment for repairs and general industrial use (including machinery for construction, road building equipment, excavators, scrapers, bulldozers, graders, concrete mixers, etc.).

Price handbook No. 3: Energy and electrotechnical equipment.

Price handbook No. 4: Equipment for processing of agricultural products belonging to subsidiary enterprises attached to collective farms or interfarm organizations.

Price handbook No. 5: Equipment of telephone stations, cultural, medical, and other centers servicing the collective farms.

Price handbook No. 6: Ships in fishermen's collective farms (motorized and nonmotorized).

The price handbooks were compiled in such a way as to reduce the additional computation to a minimum in order to determine the replacement value. As in the 1960 census, the prices quoted directly in the price handbooks are all inclusive. So, for example, when a given machine is installed on a given foundation the replacement value of the foundation is included in the price of the machine. However, in case the basic technical characteristics of a given machine diverge from the parameters of a stereotype (the closest similar machine as described in price handbook), some price adjustment should be made in accordance with the "basic technical indicators" (osnovnye tecknicheskie pokazateli). These quantitatively determined differences in capacity performance, etc., vary for different kinds of machines. So, for example, for tractors the basic indicator is considered to be the traction power in HP; for plows and combines, the width in meters; for winnowers, output in tons per hour; for vans, cubature in tons; for trucks, loading capacity in tons, etc.

REVALUATION OF BUILDINGS AND STRUCTURES

The determination of replacement values for buildings and structures in the collective farms sector was a simplified version of the method applied in the 1960 census. The four instruction books compiled by the Gosstroi of the U.S.S.R. were as follows:

Handbook No. 1: Generalized indicators of values for buildings and structures for productive purposes (including buildings of auxiliary enterprises, water supply and sewerage works, roads and bridges).

Handbook No. 2: Generalized indicators of values of residential buildings, for cultural and administrative purposes.

Handbook No. 3: Generalized indicators of values of buildings and structures in the rural electrification and communication system.

Handbook No. 4: Generalized indicators of values of waterworks.

In contrast to the generalized indicators for buildings and structures in the 1960 census, where generalized indicators were differentiated according to 10 territorial zones, the values of indicators in the collective farms census were differentiated for 20 zones. In the 20th zone, located behind the Arctic Circle, the replacement values of buildings and structures are 20 percent higher than in the adjacent zone to the south.

Similar to the 1960 census, the main attribute (characteristic quality) by which the buildings in the collective farms are classified is "kapital'nost," i.e., the totality of constructive elements built of specific material going into the structure of the building. Altogether, five such groups of buildings are discerned analogously to the 1960 inventory and revaluation. The handbooks do not provide values for all five groups of buildings. In order to facilitate the derivation of replacement values of similar buildings belonging to different groups of "kapital'nost," a table was compiled giving the adjustment coefficients for transfer from one group of "kapital'nost" to another. This table is reproduced below:

TABLE 5.—*Adjustment coefficients*

Group of "kapital'nost" according to handbooks	Adjustment coefficients for transfer to another group of "kapital'nost"				
	Group 1	Group 2	Group 3	Group 4	Group 5
1	1.00	0.93	0.86	0.80	0.74
2	1.08	1.00	.93	.86	.80
3	1.16	1.08	1.00	.93	.86
4	1.25	1.16	1.08	1.00	.93
5	1.35	1.25	1.16	1.08	1.00

Source: M. Freidlin, Opredelenie vosstanovitel'noi stoimosti zdanii i sooruzhenii, Vestnik Statistiki, No. 5, 1961, p. 66.

The handbooks furnish also corrections (adjustment coefficients) to the given values of generalized indicators which should be applied when some specified facilities or accommodations are lacking. So, for example, for a residential building belonging to the fifth group of "kapital'nost," the value of 1 m^3 of cubature is reduced by 8 percent for the lack of central heating, by 1.4 percent for the lack of water supply, by 2.8 percent for the lack of service facilities, by 0.4 percent for the lack of a radio, and by 0.5 percent for the lack of a telephone line.

THE DETERMINATION OF THE DEGREE OF PHYSICAL WEAR AND TEAR

For measuring of wear and tear in the collective farms census, the same two methods were applied as in the 1960 census: physical inspection by experts, on one hand, and by comparing years of actual service with "normative" years of service life, on the other. The former method was preferred by the census organizers. "It is recommended," writes V. Gorelik (Opredelenie Fizicheskogo iznosa osnovnykh fondov kolkhozov, Vestnik Statistiki, No. 6, 1961, p. 61), "to determine wear and tear of machines and equipment by norms of service life only in cases when the collective farm has no possibility of being measured through an inspection of the technical state of the given equipment in kind." In the case of complicated machines and, especially, in technical inspection of buildings and structures, separate measurement of each component is recommended, and the degree of wear and tear of the whole object is derived as a weighted average of the sum of components. For this purpose the handbooks provide the specific weights of the inspected object. So, for example, the constructive elements of a typical residential building have the following weights:

[In percent]

Foundation	7
Walls and partitions	26
Floors	5
Roof	7
Floor coverage	9
Windows	8
Finish	10
Interior technical-sanitary and electrotechnical installations	21
Other works	7
Total	100

Source: Vestnik Statistiki, No. 6, 1961, p. 57.

In order to provide more objective frame of reference for the judgment of experts and technicians, it is recommended that use be made of auxiliary tables compiled for the 1960 census under the title: "Signs for the determination of percentage of wear and tear in components of buildings and elements of their accommodations." (See annex VIII.) This table specifies the typical symptoms of deterioration, corrosiveness, and other signs of wear and tear as objective criteria for the decision of experts.

For objects the direct technical inspection of which is not possible, a comparison is recommended between the actual and normative years of service. However, when the years of actual service are close to the normative ones, the probable additional years of service should be determined by expert decision, and the percentage share of wear and tear is derived by dividing actual years of service by actual plus additional years.

Among categories of livestock only draft animals are subject to the determination of wear and tear. This is measured by comparing the working period of a given animal with its predicted working age minus the price of the animal sold for slaughter at its retirement age. The following illustration explains the procedure. In order to determine the degree of wear and tear of a horse after 4 years of work and a 12-year average working age, we have first to find the price of

this horse when it will be sold for slaughter as a percentage of its actual, book value. The weight of the horse 300 kg., the procurement price of horsemeat slaughter weight equals 0.35 rubles per kg., the book value equals 250 rb. The retirement value of the horse as a percentage of the book value equals

$$\frac{0.35 \cdot 300}{250} \cdot 100 = 42 \text{ percent.}$$

From this we derive the percentage of wear and tear:

$$\frac{4}{12} \cdot (100 - 42) = 19 \text{ percent.}^{10}$$

AN APPRAISAL

From the point of view of scope, thoroughness of preparation, administration, number of participants, and extent of program, the Soviet general inventory and revaluation of fixed assets was an outstanding enterprise. The plenitude of data yielded by the censuses allows investigation of any aspect of the capital stock, such as volume, structure, age, serviceability, geographic distribution, or administrative attachment. The census also brought order and consistency, and to some extent simplification, into the current accounting on the book data on capital stock, and the results of the census will certainly contribute to more accurate methods of measuring Soviet capital and investment efficiency. However outstanding from an organizational point of view, the Soviet censuses of wealth raise some doubts insofar as the underlying basic methodological ideas are concerned.

The conceptual framework and methods applied—an outgrowth of a long list of partial and experimental censuses carried out in the past—show some peculiarities strictly connected with the overall character of the centrally planned and centrally operated Soviet economy.

The strong emphasis put on "physical," technical problems in contrast to economic consideration, common in the bureaucratically administered Soviet economy, was reflected in the concepts applied in the censuses of wealth. This found its expression not only in the principle of price identity, equal replacement values for identical assets, but, what is more striking, the price variations for certain groups of equipment were strictly in proportion to the corresponding technical performances of revalued assets. Economically speaking, if a grain combine is one-third as productive as a combine of a modern type, this is not sufficient reason to assume that its price is also two-thirds lower.

It seems that the reliance of Soviet economists on physical, material, and technical aspects of fixed assets in the revaluation process is somewhere connected with the deficiencies of the overall system of Soviet price relatives, especially in the realm of means of production.

Connected with the physico-technical approach is the concept of "stereotype," i.e., some typical machine or equipment the price and technical performance of which serves as a basis for measuring obsolescence of a similar but less advanced machine. The technical characteristics of a less advanced machine may be compared to a typical machine prevailing in the corresponding industry, or to the most modern and most efficient machine available. (In the latter case it may happen, that the overwhelming part of equipment installed in a given

[10] V. Gorelik: Opredelenie Fizicheskogo iznosa osnovnykh fondov kolkhozov, Vestnik Statistiki, No. 6, 1961, p. 54.

industry is "obsolete.") As already mentioned, no definite answer can be found in Soviet literature as to how the stereotype is chosen. But whatever comparison scale is applied—the average technological level or the best available techniques—obsolescence cannot be treated as a pure byproduct of technological progress, it cannot be devoid of its economic content, cut off from its interrelations with capital-output and capital-labor ratios prevailing in specific branches of industry or sectors of the economy as well as in the economy as a whole.

The same overemphasis put on the physical aspects of inventoried fixed assets led the census takers to rely strongly on technical inspection for the determination of wear and tear, discarding basically the elaborate lists of "normative" service life already used for determination of depreciation rates. It is debatable whether impressions of experts and technicians were more substantial, objective, and accurate than the previously accepted norms of service life.

It is hard to avoid the impression that to some extent the strong reliance on physical and technical aspects of registered fixed assets defeated the objectives of the censuses. By excluding land and natural resources from the census, the census takers discarded also the problem of rent and quasi-rent. But in order to assess accurately and compare the degrees of utilization of available capital stock in, for example, some State or collective farms, the rent due to location or fertility cannot be ignored.

In the years 1963 and 1964 the Soviet authorities are planning a far-reaching comprehensive revision of the entire price system established July 1, 1955. A considerable increase is foreseen in the prices of basic materials (coal, ores, electricity, etc.). Such increases will influence also the prices of machinery and equipment. It is commonly accepted by Soviet economists that in the overall structure of price relatives, prices of machinery are "underestimated." Nevertheless, in spite of the deficiencies of the existing price structure, Soviet authorities decided to carry out the general revaluation of fixed assets in 1955 prices. The awareness that the price relatives will be revised in the near future induced the census takers to equate price differentials with differences in technical characteristics or performances.

It is worth noting that a comparison of replacement values yielded by the 1960 revaluation with the original values of Soviet fixed assets shows that while the replacement values for buildings and structures (including transmissions) are correspondingly 22 and 27 percent higher than the original values, the opposite is true for machinery and equipment (the replacement value for power equipment is 9 percent; that of productive machines, 10 percent; and for means of transportation, 8 percent, lower than the original values. (See A. Beliakov, Nekotorye itogi pereotsenki osnovnykh fondov S.S.S.R., Vestnik Statistiki, No. 10, 1960, p. 6) This is explainable by differences in price movements of groups of fixed assets in the two decades preceding the 1960 census. The larger part of buildings and structures was built in the prewar period when prices and wages were considerably lower than the postwar prices and obsolescence of relatively old machines apparently did not offset the difference in price level. The pending Soviet price reform will certainly cause some changes in the structure of Soviet fixed assets, which will hinder the extrapolation of data obtained through 1960 and 1962 capital stock censuses.

ANNEX I

Central Statistical Administration at the Council of Ministers of the U.S.S.R.

SUMMARY REPORT ON THE RESULTS OF REVALUATION AND DETERMINATION OF WEAR AND TEAR OF FIXED FUNDS AS OF JAN. 1, 1960

1. Name of enterprise, organization (economy) _____
2. Ministry, department, Sovnarkhoz, Executive Committee of krai, oblast', city, or rayon of the Soviet of representatives, or cooperative organization to which the registered enterprise is attached _____
3. Sector of the economy _____
4. Branch of industry _____
5. Kind of production _____
6. Address of the enterprise, organization: Republic _____ oblast' (krai) _____, city _____, rayon _____

I. All fixed funds of the enterprise (organization):

Types of fixed funds:

Buildings _____
Structures and transmissions _____
Power equipment _____
of which automatic _____
Measurement and control devices and laboratory equipment _____
of which automatic _____
Means of transportation _____
Tools _____
Productive and household implements _____
Livestock, draft and productive, other animals, poultry, apiaries _____
of which draft animals _____
Perennial plantings _____
Land amelioration and ponds (except structures) _____
Other fixed funds _____

Total of section I _____

Column headings

Original, book value of fixed funds on Jan. 1, 1960, before revaluation (thousand rubles)	Replacement value of fixed funds after revaluation on Jan. 1, 1960 (thousand rubles)		Results of revaluation in money terms (thousand rubles)		Actual wear and tear of fixed funds determined during revaluation	
	Total	Of which new funds (book value)	Markup (plus)	Markdown (minus)	In money terms (thousand rubles)	In percentage of replacement value
(1)	(2)	(3)	(4)	(5)	(6)	(7)

II. Distribution of fixed funds indicated in section I into productive funds of main activity and funds in other than main activity:

A. Productive funds of main activity:

Buildings
Structures and transmissions
Power equipment
Of which automatic
Operating equipment
Of which automatic
Measurement and control devices
Laboratory equipment
Of which automatic
Means of transportation
Tools
Implements, productive and household
Livestock, draft and productive, poultry, apiaries
Of which draft animals
Perennial plantings
Land amelioration and ponds (except structures)
Other fixed funds

Total in group A

B. Fixed funds in other than main activity

Total in group B

Grand total for section II (A plus B)

Column headings

Original, book value of fixed funds on Jan. 1, 1960, before revaluation (thousand rubles)	Replacement value of fixed funds after revaluation, on Jan. 1, 1960 (thousand rubles)	Results of revaluation in money terms (thousand rubles)		Actual wear and tear of fixed funds determined during revaluation	
		Markup (plus)	Markdown (minus)	In money terms (thousand rubles)	In percentage of replacement value
(1)	(2)	(3)	(4)	(5)	(6)

III. Distribution of fixed funds indicated in section I according to sectors of the economy:

Sectors:	
Industry	
Construction	
Agriculture	
Forestry	
Transportation	
Communication	
Procurements	
Material—technical supplies and sales	
Trade and public catering	
Housing	
Municipal economy and services	
Public health, physical education, social insurance	
Education	
Science	
Art	
Other sectors of the economy	
Total	
Reference:	
Replacement value of fixed funds disclosed during revaluation	
Value of funds not available according to the balance	
Value of wear and tear according to the balance on Jan. 1, 1960	
Actual expenses on capital repairs (complete and unfinished) for the year 1959	

(Column headings the same as in part II)

Manager of the enterprise (signature)

Chief bookkeeper (signature)

ANNEX II

Central Statistical Administration attached to the Council of Ministers of the U.S.S.R.

REPORT ON THE RESULTS OF REVALUATION AND DETERMINATION OF WEAR AND TEAR OF BUILDINGS FOR PRODUCTIVE, CULTURAL, TRADE, AND OTHER USES (EXCEPT RESIDENTIAL HOUSING)

1. Name of enterprise, organization (economy)
2. Ministry, department, economic regional council, executive committee of the krai, oblast', city or rayon of the Soviet of Deputies of working people, or cooperative organization to which the registered enterprises is attached
3. Sector of the economy
4. Branch of industry
5. Kind of production
6. Address of enterprise, organization: Republic
oblast' (krai) _____, city _____, rayon _____

Denomination of types of building:

I. Buildings for productive purposes (plants, shops, workshops):
- Brick buildings, extra solid (with frame of reinforced concrete or metal) _____
- Brick buildings, ordinary structure without frame _____
- Brick buildings, lighter construction _____
- Wooden buildings, hewed, log and other light construction _____

Total of section I _____

II. Service and other directly nonproductive buildings indirectly serving industry, construction, transportation, etc., except buildings registered in section I and III of this form:
- Brick buildings, extra solid (with frame of reinforced concrete or metal) _____
- Brick buildings, ordinary structure, without frame _____
- Brick buildings, lighter construction _____
- Wooden buildings, hewed, log and other light construction _____

Total of section II _____

III Buildings for cultural, trade, and other nonproductive purposes except buildings registered in sections I and II of this form):
- Brick buildings, extra solid (with frame of reinforced concrete or metal) _____
- Brick buildings, ordinary structure, without frame _____
- Brick buildings, lighter construction _____
- Wooden buildings, hewed, log and of other light construction _____

Total of section III _____

Grand total of sections I, II, III _____

Column headings

Number of revaluated buildings (units)	Total cubature of buildings in cubic meters	Total area of buildings (in square meters)	Original book value of buildings, before revaluation, as of Jan. 1, 1960 (thousand rubles)	Replacement value of buildings, after revaluation as of Jan. 1, 1960 (thousand rubles)	Results of revaluation in money		Actual wear and tear determined during revaluation	
					Markup (plus)	Markdown (minus)	In money (thousand rubles)	In percent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

ANNEX III

Form No. 3

Central Statistical Administration attached to the Council of Ministers of the U.S.S.R.

REPORT ON THE RESULTS OF REVALUATION AND DETERMINATION OF WEAR AND TEAR OF RESIDENTIAL BUILDINGS

1. Name of enterprise, organization (economy) _____
2. Ministry, department, economic regional council, executive committee of the krai, oblast', city or rayon of the Soviet of Deputies of working people, or cooperative organization to which the registered enterprise is attached _____
3. Sector of the economy _____
4. Branch of industry _____
5. Kind of production _____
6. Address of enterprise organization: Republic _____ oblast' (krai) _____, city _____, rayon _____

Column headings

Denomination of type of building	(1) Number of revaluated buildings (units)	(2) Total cubature of buildings (cubic meters)	(3) Total area of buildings (square meters)	(4)	(5) Original book value of buildings before revaluation as of Jan. 1, 1960 (thousand rubles)	(6) Replacement value of buildings after revaluation as of Jan. 1, 1960 (thousand rubles)	(7) Results of revaluation in money (thousand rubles)		(8) (9) Actual wear and tear of buildings determined during revaluation	
			Total	Living floor space			Markup (plus)	Markdown (minus)	In money (thousand rubles)	In percent
Brick, extra solid buildings (stone or concrete foundation, brick or concrete block walls, reinforced concrete flooring)										
Brick, usual construction buildings										
Brick, of lighter construction buildings										
Wooden houses, hewn, panels										
Prefabricated and outhouses										
Wooden, reed and other houses of light construction										
Total										

ANNEX IV

Form No. 4

Central Statistical Administration attached to the Council of Ministers of the U.S.S.R.

REPORT ON THE RESULTS OF REVALUATION AND DETERMINATION OF WEAR AND TEAR OF STRUCTURES AND TRANSMISSIONS

1. Name of enterprise, organization (economy) _____
2. Ministry, department, economic regional council, executive committee of the krai, oblast', city or rayon of the Soviet of Deputies of working people, or cooperative organization to which the registered enterprise is attached _____
3. Sector of the economy _____
4. Branch of industry _____
5. Kind of production _____
6. Address of enterprise, organization: Republic _____ oblast' (krai) _____, city _____, rayon _____

Column headings

Denomination of types of structures and transmissions	Unit of measurement	Quantity of units	Original value of structures and transmissions before revaluation according to the book value on Jan. 1, 1960 (thousand rubles)	Replacement value of structures and transmissions after revaluation on Jan. 1, 1960 (thousand rubles)	Results of revaluation in money terms (thousand rubles)		Actual wear and tear of structures and transmissions determined during revaluation	
					Markup (plus)	Markdown (minus)	In money terms (thousand rubles)	In percent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

ANNEX V

Form No. 5

Central Statistical Administration attached to the Council of Ministers of the U.S.S.R.

REPORT ON THE RESULTS OF REVALUATION AND DETERMINATION OF WEAR AND TEAR OF EQUIPMENT

1. Name of enterprise, organization (economy) _____.
2. Ministry, department, economic regional council, executive committee of the krai, oblast', city or rayon of the Soviet of Deputies of working people, or cooperative organization to which the registered enterprise is attached _____
3. Sector of the economy _____
4. Branch of industry _____
5. Kind of production _____
6. Address of the enterprise, organization: Republic _____, oblast' (krai) _____, city _____, rayon _____

Column headings

Denomination of kind of equipment	Quantity (units)	Original value of equipment before revaluation according to the book value on Jan. 1, 1960 (thousand rubles)	Replacement value of equipment after revaluation on January 1, 1960 (thousand rubles)	Results of revaluation in money terms (thousand rubles)		Actual wear and tear of equipment determined during revaluation	
				Markup (plus)	Markdown (minus)	In money terms	In percent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

ANNEX VI

Form No. 6

Central Statistical Administration attached to the Council of Ministers of the U.S.S.R.

REPORT ON THE RESULTS OF REVALUATION AND DETERMINATION OF WEAR AND TEAR ON MEANS OF TRANSPORTATION

1. Name of enterprise, organization (economy)_____
2. Ministry, department, regional economic council, executive committee of the krai, oblast', city, or rayon of the Soviet of Deputies of working people, or cooperative organization to which the registered enterprise is attached____
_____
3. Sector of the economy_____
4. Branch of industry _____
5. Kind of production _____
6. Address of the enterprise, organization: Republic _____, oblast' (krai) _____, city _____, rayon _____

Column headings

Denomination of kinds of means of transportation	Unit of measurement	Quantity (units)	Original value of means of transportation before revaluation according to the book value on Jan. 1, 1960 (thousand rubles)	Replacement value of means of transportation after revaluation on Jan. 1, 1960 (thousand rubles)	Results of revaluation in money terms (thousand rubles)		Actual wear and tear of means of transportation determined during revaluation	
					Markup (plus)	Markdown (minus)	In money terms	In percent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

ANNEX VII

Soviet Industrial Classification

I. Ferrous metallurgy:
   1. Extraction of ferrous ores.
   2. Production of pig iron, steel, and rolled products.
   3. Production of electric ferroalloys.
   4. Secondary processing of ferrous metals.
   5. Production of metallurgical coke.
   6. Output of fireproof material.
   7. Extraction of nonmetallic raw material for the ferrous metallurgical industry.
   8. Output of metal products for industrial uses.

II. Nonferrous metallurgy:
   1. Extraction of nonferrous ores.
   2. Nonferrous metallurgy.

III. Fuel industry and output of products from coal, oil, and shales:
   1. Coal Industry:
      (*a*) Coal extraction.
      (*b*) Coal enrichment.
      (*c*) Output of coal briquettes.
   2. Crude oil extraction.
   3. Oil products.
   4. Gas industry:
      (*a*) Extraction of natural gas.
      (*b*) Output of artifical gas.
      (*c*) Underground coal gasification.
      (*d*) Petrol production from gas.
   5. Peat industry:
      (*a*) Peat extraction.
      (*b*) Output of peat briquettes.
   6. Oil shales industry.
   7. Other branches of the fuel industry.

IV. Output of electrical and heat energy:
   1. Power stations.
   2. Electrical and thermal nets.
   3. Detached boilershops.

V. Machine-building and metal products:
   A. Machine building:
      1. Energy-generating machine building.
      2. Electrotechnical machines:
         (*a*) Output of electrotechnical equipment for industrial use.
         (*b*) Production of cables.
         (*c*) Output of electrical appliances for personal use.
      3. Radiotechnical industry:
         (*a*) Output of radio equipment for industrial use.
         (*b*) Output of radio equipment for personal use.
      4. Machine tools and instruments:
         (*a*) Metal-cutting and wood-processing machine tools.
         (*b*) Pressing and forging equipment.
         (*c*) Casting and founding equipment.
         (*d*) Output of instruments.
      5. Output of implements:
         (*a*) Production of calculating machines.
         (*b*) Production of other implements for industrial use.
         (*c*) Production of implements for personal use.
      6. Production of boring equipment and equipment for metallurgy; ore, oil, and gas extraction; oil processing; and the peat industry.
      7. Production of pumps, compressors, refrigeration equipment and equipment for the chemical industry.
      8. Output of equipment for timber and paper industry.
      9. Output of machinery and equipment for the light industry.
      10. Output of equipment for the food industry.
      11. Output of equipment for the printing industry.
      12. Output of lifting and transporting machinery.

SOVIET INDUSTRIAL CLASSIFICATION—Continued

V. Machine-building and metal products—Continued
  A. Machine building—Continued
    13. Roadbuilding machinery and output of equipment for the industry of building materials:
      (a) Output of equipment for construction and roadbuilding.
      (b) Output of equipment for the industry of building materials.
    14. Output of means of transportation, except the automobile industry:
      (a) Equipment for railroad transportation.
      (b) Shipbuilding.
      (c) Production of trolley buses.
      (d) Carts and sledge production.
    15. The automobile industry.
    16. Output of tractors and agricultural machinery:
      (a) Output of tractors.
      (b) Output of agricultural machines.
    17. Production of roll bearings.
    18. Production of medical equipment, instruments, and apparatuses.
    19. Other branches of the machine-building industry:
      (a) For industrial uses.
      (b) For nonindustrial uses.
  B. Output of metal products:
    1. Output of sanitary-technical equipment.
    2. Output of other metal products for industrial uses.
    3. Output of metal products for mass consumption.
  C. Output of metal constructions.
  D. Output of repair shops:
    1. Special repair shops for metal-cutting machine tools and forging and pressing equipment.
    2. Special repair shops for industrial and building equipment.
    3. Special repair shops for railroad rolling stock and means of communication.
    4. Repair of ships.
    5. Repair of trucks.
    6. Repair of passenger cars.
    7. Repair of tractors and agricultural machines.
    8. Repair of tramways, subways cars, and trolley buses.
    9. Repair of equipment and metal products of mass consumption.
VI. Output of abrasive products, and products of mica and graphite:
  1. Production of abrasive products.
  2. Output of mica and graphite products.
VII. Chemical industry:
  1. Extraction of chemical raw materials (excluding salt extraction):
    (a) Extraction of phosphates, apatites and potassium salts.
    (b) Extraction of other chemical raw materials.
  2. Heavy chemistry.
  3. Production of aniline dyes.
  4. Production of plastics.
  5. Production of artificial fibers.
  6. Production of synthetic rubber.
  7. Production of organic synthetic and other chemical products.
  8. Photochemical supplies.
  9. Production of paints and varnishes.
  10. Production of pharmaceutical products.
  11. Chemical wood processing and wood hydrolysis:
    (a) Chemical wood processing.
    (b) Wood hydrolysis.

SOVIET INDUSTRIAL CLASSIFICATION—Continued

VII. Chemical industry—Continued
- 12. Production of tanning materials.
- 13. Rubber and asbestos products:
  - (a) Output of rubber products (except rubber footwear and other rubber consumer goods).
  - (b) Output of automobile tires.
  - (c) Output of rubber footwear.
  - (d) Output of rubber toys and other products of mass consumption.
  - (e) Output of asbestos products.

VIII. Timber-cutting, paper- and wood-processing industry:
- 1. Timber cutting.
- 2. Wood products (including the match industry):
  - (a) Wood-sawing industry.
  - (b) Plywood industry.
  - (c) Production of prefabricated houses.
  - (d) Output of wood products for the building industry.
  - (e) Production of wooden tare.
  - (f) Output of other wood products for industrial uses.
  - (g) Production of furniture; production of new furniture.
  - (h) Furniture repairs and restorations.
  - (i) Output of wooden kitchen utensils and other products of mass consumption.
  - (j) Match industry.
- 3. Paper industry.

IX. Building materials industry:
- 1. Cement industry.
- 2. Output of lime, gypsum, and allied products.
- 3. Output of materials for walls and tiles:
  - (a) Output of bricks and tiles.
  - (b) Output of wall blocks.
- 4. Output of concrete and reinforced concrete constructions and details.
- 5. Output of gypsum products for the building industry.
- 6. Production of asbestos-cement products and of slate.
- 7. Production of roofing materials.
- 8. Output of building ceramics.
- 9. Output of insulating products.
- 10. Output of linoleum and allied products.
- 11. Output of ceramical acidproof products.
- 12. Output of nonmetallic building materials and of light filling materials.
- 13. Other branches of the building material industry, nonspecified otherwise.

X. Glass, china, and faïence industry:
- 1. Glass industry:
  - (a) Output of glass for building and technical uses.
  - (b) Output of glass products for medical and chemicolaboratory uses.
  - (c) Output of electrotechnical and electrovacuum glass products.
  - (d) Output of glass tare.
  - (e) Output of glass fiber.
  - (f) Output of houseware glass.
- 2. China and faïence industry:
  - (a) China and faïence products for construction and technical use.
  - (b) China products for medical uses.
  - (c) Houseware china.
  - (d) Houseware ceramic products.

SOVIET INDUSTRIAL CLASSIFICATION—Continued

XI. Light industry:
1. Textile industry:
(a) Cotton-ginning industry.
(b) Primary processing of flax.
(c) Primary processing of other bast fiber.
(d) Pool-washing industry.
(e) Silk-reeling industry.
(f) Cotton goods industry:
Production of cotton fabrics except specialized factories of technical goods.
Production of cotton technical goods.
Detached cotton-spinning, spinning and looming, and looming plants.
(g) Output of linen industry:
Output of linen fabrics except specialized factories of technical linen goods.
Output of linen technical and packing material.
Detached flax-scratching and flax-looming factories.
(h) Wool industry:
Output of wool fabrics except specialized factories of woolen technical goods.
Output of woolen technical fabrics and products.
Detached spinning, spinning and looming, and looming factories of woolen goods.
(i) Silk industry:
Output of silk fabrics.
Detached silk-reeling, silk-spinning, and silk-looming factories.
(j) Hemp and jute products.
(k) Production of fishing nets.
(l) Production of textile dry goods.
(m) Output of knitted goods:
Production of knitted goods.
Repairs of knitted goods.
(n) Production of artificial fur.
(o) Felt and felt products.
2. Sewing industry:
Production of garments.
Repairs of garments.
3. Leather, fur, and shoe industry:
(a) Output of leather.
(b) Output of artificial leather.
(c) Harness industry.
(d) Output of travel accessories and other leather products.
(e) Fur industry.
(f) Shoe industry:
New shoe production.
Repairs of shoes.
(g) Bristle products and the brush industry.
4. Other branches of the light industry.

SOVIET INDUSTRIAL CLASSIFICATION—Continued

XII. The food industry:
1. Fish industry:
   (a) Fish industry except fish conserves.
   (b) Fish canned food.
2. Meat industry:
   (a) Meat products except meat conserves.
   (b) Output of meat conserves.
3. Butter, cheese, and milk products:
   (a) Butter, cheese, and milk products except canned milk.
   (b) Output of canned milk.
4. Sugar industry.
5. Flour and groats industry:
   (a) Flour milling.
   (b) Groats production.
6. Output of bakeries.
7. Output of confectioneries.
8. Output of the macaroni industry.
9. Vegetable oil and fat industry.
10. Fruit and vegetable products:
   (a) Fruit and vegetable products, except preserves.
   (b) Output of fruit and vegetable preserves.
11. Alcohol industry.
12. Liqueur and vodka industry.
13. Wine production.
14. Beer production.
15. Yeast production.
16. Output of soft beverages.
17. Starch and molasses industry.
18. Tea industry:
   (a) Primary tea processing.
   (b) Tea packing industry.
19. Salt industry.
20. Tobacco and makhorka industry:
   (a) Primary processing of tobacco.
   (b) Production of tobacco and makhorka products.
21. Products of perfumery and cosmetics.
22. Other branches of the food industry.

XIII. Other branches of industry:
1. Extraction of nonmetallic ores.
2. Output of objects for cultural use:
   (a) Printed matters.
   (b) Film products.
   (c) Output of musical instruments.
   (d) Office accessories and visual aids.
   (e) Objects d'art and jewelries.
   (f) Toy production.
3. Water supplies.
4. Fodder production.
5. Button production.
6. Other branches of industry, not specified otherwise.

ANNEX VIII

Signs (Indications) for the Determination of Percentage of Wear and Tear in Components of Buildings and Elements of Their Accommodations

Foundations, brick walls, roofs, partitions, windows, sidewalks, heating systems, sewage works, etc.

State of component or element	Range of percent of wear and tear	Signs, symptoms, indications
Good	0–10	Description of signs (symptoms) corresponding to each state of wear and tear.
Better than satisfactory	11–20	
Satisfactory	21–30	
Less than satisfactory	31–40	
Unsatisfactory	41–60	
Dilapidated	61–80	
Unfit for habitation	81–100	

Note.—Annexes I and VI and VIII were translated from P. Bunich, Pereotsenka osnovnykh fondov, Gospolitizdat, 1959; annex VII translated from V. Ostroumov, V. Gorelik, Organizatsia raboty po pereotsenke osnovnykh fondov, Gosfinizdat, 1959.