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Modernism Outbound.
Architectures and Landscapes of Agrarianism
ed. by Axel Fisher, Aleksa Korolija & Cristina Pallini

Modernisme de plein air.
Architectures et paysages de l'agrarisme
sous la dir. de Axel Fisher, Aleksa Korolija & Cristina Pallini

Abstract Soviet experiences played an important part in the broader international debate on rural planning throughout the early decades of the twentieth century. In this respect, the competition for the Green City of Moscow and the project for new forms of human habitat in the Urals by M. Ginzburg and the OSA group (Sverdlovsk, Magnitogorsk and Chelyabinsk, 1927–32) — much too often labelled as "utopian" by architectural historians — deserve due reconsideration (Meriggi, 2009).

Based on research begun with MA (Kravchenko, 2019; Meriggi, 2019) and PhD students (Batunova, 2017), this paper focuses on Verblyud, Gigant and other collective villages of the Salsk steppes, taking us to the origins of collectivization and epitomizing 1920s and 1930s Soviet planning theory and practice.

Underpinning aspects include, firstly, the land: its population and settlement patterns before and during the modernization process. Secondly, the actual extensions of each production unit and the ratio between number of farmers and arable land. Finally, we cannot but venture a tentative understanding of the hierarchy of new rural settlements — some acting as sovkhoz headquarters, others as smaller kolkhozy and communes.

What follows is an attempt to piece together a heterogeneous set of information with the help of historical maps, building on a methodology in use by the author since 2000 for studying Soviet avant-garde projects performed by iteratively cross-checking bibliographic sources, visual documentation, cartographic selection, interpretation, and elaboration. Historical maps became a tool to contextualize the projects' actual impact on the places concerned. In the case of the Salsk steppes, the key research output is a map showing the evolution of the main settlements from the early 1920s until the late 1930s. Two sources have guided our work: the economic geographer Nikolay Baranskij (1956a), and Eisenstein's documentary film *Staroe i novoe* (*Old and New*), depicting the situation ex ante, the political terms of collectivization and its protagonists.

In addition, this contribution is mainly based on Russian sources, maps, journals, books and reports dating back to the 1920s and 1930s, as well as recent scholarly works.

This contribution expands the research carried out at Politecnico di Milano on sovkhoz-heritage sites near Zernograd (lit. "city of grain"), the former Verblyud (lit. "camel"), whose populations, like that of many other medium size towns in the Rostov Region have both been shrinking (Meriggi, 2019).

This paper examines four rural areas and settlements along the Rostov-Salsk railway line: the Tselinskij rayon (Tselina District, former Zapadno-Konnozavodcheskiy rayon), 1922–6; the Stalin kolkhoz (originally the Sejatel' Commune), 1930s to 1950s; the Gigant *zernosovkhoz* no. 1 (Gigant State Grain Farm), 1928; and the *Uchebno-opytnnyj zernosovkhoz* no. 2 (Educational-Experimental State Grain Farm, originally named Verblyud), 1929. It argues that, from the early 1920s to the late 1950s, the Salsk District became a testing ground for early Soviet rural planning and architecture.

Key words USSR, rural settlements, collectivization, architecture, constructivism

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Maurizio Meriggi

Old and New. Delving into the Origins of Collectivization

Introduction:
Agrarian constructivism on display

The wooden grain silos and the avant-garde colour scheme[1] of the buildings of the Educational-Experimental State Grain Farm no. 2 near the Verblyud railway station **(Figs. 1, 2)** bear witness to the USSR's rural modernization in the 1920s and early 1930s. Their architectural expression hovered between traditional and avant-garde, as did the pavilions of the 1923 Moscow Pan-Russian Agricultural and Handicraft Exhibition, held at the end of the Russian Civil War (1917–23) and six years after the October Revolution. Russian rural stereotypes blended with avant-garde solutions in a narrative of wooden structures anticipating a possible balance between modernity and folkloric traditions (Astaf'eva-Dlugach, 1991: 108–17). The few available photographs of the *zernosovkhozy* (state grain farms) built at the outset of the first of the Soviet Five-Year Plans (1928–91) show that their modernist façades were crowned by traditional pitched roofs. This solution, conceived by P.A. Golosov,[2] a member of the constructivist *Obshestvo of Sovremennikh Arkhitektorov* (OSA, Society of Contemporary Architects[3]), was in total dissonance with the flat-roof dogma of mainstream modernism. The contrast was even more striking in the grain silos – a taller version of the *zernosovkhoz*, also featuring pitched roofs – a landmark far removed from the coeval clean cylinders to be found in America (Cohen, 2020: 219–20).

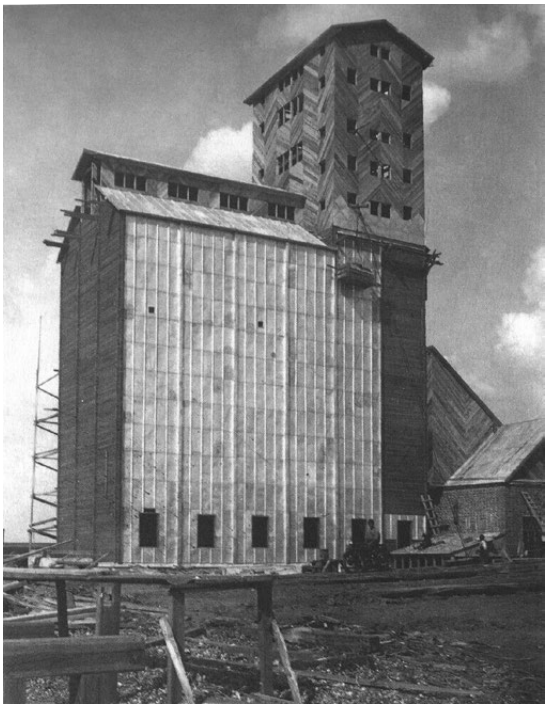
Incidentally, these modern rural stereotypes resurfaced in the sovkhoz scenography designed by A. Burov[4] (Khazanova, 1973) for *General'naya liniya* (*The General Line*), a film directed by S.M. Eisenstein from 1926 to 1929 (Eisenstein, 1926) and retitled *Staroe i novoe* (*Old and New*) in its final version. Part

1 **The author of this colour scheme was Hinnerk Scheper (1897–1957), a German artist and professor of "colour" at the Bauhaus, who was invited by the Soviet government, for the Malyarstroy Trust, for a colour plan consultancy for numerous buildings under construction in the USSR in 1930. Scheper's works in the USSR at the time included the colour plan of the Narkomfin building by M. Ginzburg of 1929–30. See: Scheper (1930, 2007).**

2 **Pantelemon Aleksandrovich Golosov (1882–1945), brother of better known Ilya.**

3 **Founded in 1925 by M.Ja. Ginzburg, A.A. Vesnin and A. Gan, the OSA was the most relevant association of constructivist architects, whose activity spanned 1925 to 1930. From 1926 to 1930, OSA published the journal *SA Sovremennaja Arkhitektura* (Contemporary Architecture), in which most of the projects and articles on new rural settlement were presented.**

4 **A member of OSA, and of *SA*'s editorial board, Andrey K. Burov (1900–57) was Le Corbusier's personal interpreter in the USSR during his visit to the *Tsentrosoyuz* building (headquarters of the Central Union of Consumer Cooperatives) when it was under construction in the late 1920s and early 1930s. For his work in *Old and New* see: Khazanova (1973), Rzhekhina *et al.* (1984: 24–7).**



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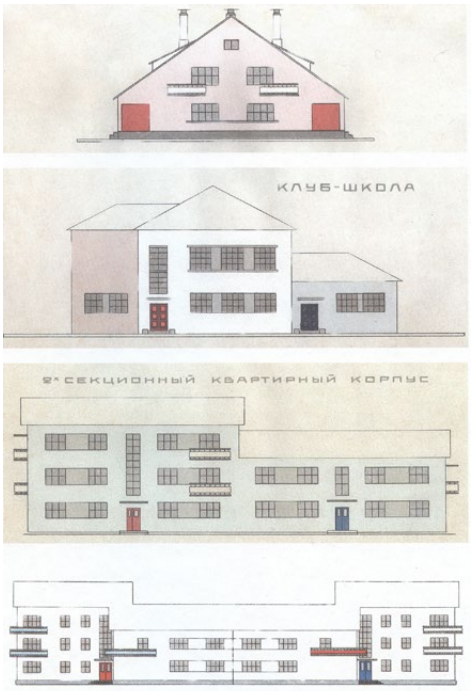

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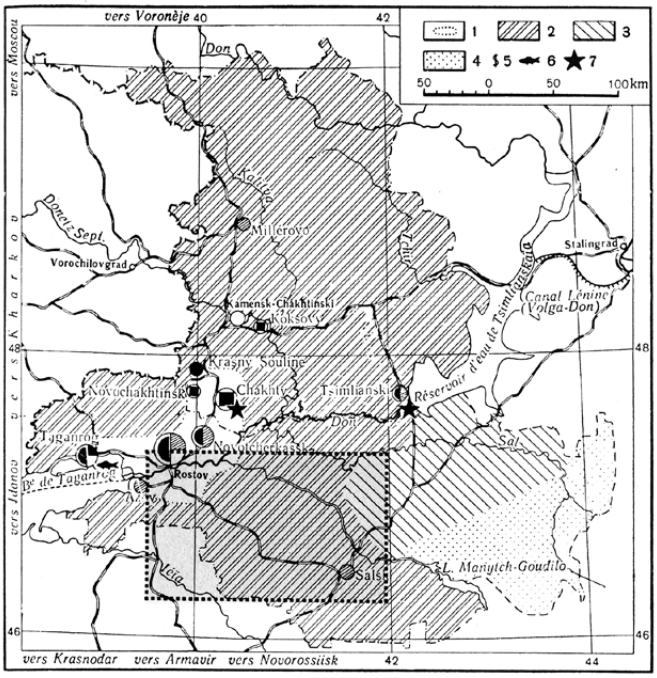
Fig. 1
Agrarian constructivism: grain storage silos in the Educational-Experimental State Grain Farm no. 2, today's Zernograd), 1929–30. Courtesy of MBUK ZR – Zernograd Museum of History and Local History.

Fig. 2
P.A. Golosov, *Agrarian Constructivism: coloured plate by H. Scheper showing (from top to bottom) the façades of the cottages, workers' club and school, apartment building, and hostel building in the Educational-Experimental State Grain Farm no. 2* (authorship of the workers' club and school is not confirmed), 1930. Source: Scheper (1930).

Fig. 3
N. Baranskij, *Industrial and agricultural centres in the Kamensk and Rostov Regions*. Key to symbols: **1.** suburban areas; **2.** wheat, sunflower and breeding of dairy and beef cattle; **3.** livestock raising, wool production and small areas sown to wheat; **4.** sheep; **5.** viticulture; **6.** fishing; **7.** large power plants. Area highlighted (by the author) with square-dotted line: Salsk steppes. Source: Baranskij (1956).



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of this narrative documentary[5] shows the Salsk steppes. The outdoor village scenes were shot in Rostov-on-Don, in the Mugan steppes south of Baku, and in Northern Caucasus.

The final scene showed columns of Krasnyy Putilovets tractors[6] operating on the Gigant State Farm, symbolically driving towards socialism in a collectivized countryside. Eisenstein's film stages the clash between tradition and modernity in rural Russia, whose social and political background entailed a conflict between Slavophiles and Westernizers (Kepley, 1974).

The Verblyud Educational-Experimental State Grain Farm no. 2 and the Gigant State Grain Farm no. 1 were just two of the nearly 1,000 agricultural settlements established in the USSR during the First Five-Year Plan (Khan-Magomedov, 1983: 284). Covered by the technical literature of the time (Eramishancev, 1929, 1930; Strumilin, 1930) and books on Soviet rural architecture (Kosenkova, 2018), both are repeatedly mentioned in handbooks of Soviet architecture (Bylinkin *et al.*, 1985) and studies of Soviet Five-Year Plans (Baranskij, 1956a; Carr and Davies, 1969), and recent works on avant-garde architecture and planning in the Rostov Region (Tokarev, 2016). Moreover, the reclamation of the Salsk steppes is documented by local works of the time (Abrosimov and Koval', 1939) and recent research on rural villages founded by Dukhobor and Molokan refugees[7] from Caucasus, Canada, and the USA (Semenov, 2001).

Agricultural modernization in the Salsk steppes in Soviet Five-Year Plans

According to Baranskij,[8] the Salsk steppes **(Fig. 3)** during the Czarist era fed sheep and horses; later, due to insufficient rainfall, production shifted to spring wheat and barley. Things changed after the Revolution: tree windbreaks and water reservoirs combined with deep ploughing, abundant fertilizers, and appropriate crop rotation allowed kolkhozy and sovkhozy[9] to cultivate large tracts of land, achieving wheat production of 30 quintals per hectare in the Stalin kolkhoz (Baranskij, 1956a: 202–4). Marxist principles of economic geography framed the transformation of nature as part of comprehensive economic development.

In 1931, the large Rostselmash farm machinery factory of Rostov-on-Don (1926–31) produced the first Stalinets harvesters, in addition to various other types of agricultural machinery, some formerly imported. By 1940, the yearly production skyrocketed to 50,000 harvesters, heralding the union of agriculture and industry. Baranskij noted that the Rostselmash factory's production exceeded by far any other in the sector in Czarist Russia, including that of the Putilovsky factory in Saint Petersburg. The Don and Kuban steppes

5 Eisenstein produced his agricultural film between May 1926 and autumn 1929, three crucial years marking the shift from the New Economic Policy (NEP, 1921–28) to the Five-Year Plans, thereby also a new policy in rural modernization. Kepley (1974) reconstructed in detail this socio-political and cultural context. The first version of the film, approved by Sovkino production in February 1929 (Eisenstein, 1929a), differs in title and conclusion from the final version of Autumn 1929 (Eisenstein, 1929b).

6 A Russian production of the Fordson model (Cohen, 2020). The sovkhoz also had Caterpillar tractors (Abrosimov and Koval', 1939).

7 Two schismatic groups of the Russian Orthodox Church.

8 A Marxist geographer and academic, Nikolay N. Baranskij (1881–1963) founded the Soviet school of regional economy as a branch of economic geography. In addition, he also perfected the methods of economic cartography, as documented by the atlas *Ekonomicheskaia geografiia; ekonomicheskaia kartografiia* (Baranskij, 1956b).

9 [Editor's note] In Socialist agrarian thought, sovkhozy (state farms) were considered the highest form of socialization of the means of production. The term kolkhoz, instead, encompassed, from 1917 to 1930, different forms of collective or cooperative production: the agricultural commune (collectivist farm), the agricultural *artel'* (cooperative farm), and the *Tovarichestva po sovmestnoy obrabotke zemli* (TSOZ, Cooperative Land Cultivation Partnerships, i.e. a looser form of cooperative farm). In 1930, Stalin identified the agricultural artel' as the party line for collective farms and, in 1935, the it was institutionalized as the only acceptable collective farm: existing TOZs and agricultural communes were transformed into artels, and the use of the term kolkhoz now coincided with the artel' form. Kolkhozy were considered an inferior and transitory form of socialist farm and were expected to evolve into fully-fledged sovkhozy.

and the neighbouring Ukraine and Volga regions absorbed Rostselmash's production, putting steel, wood, coal, and oil industries at the service of agriculture (ibid.). Baranskij praised the beneficial effects of industrialized agriculture. Under the First Five-Year Plan, Northern Caucasus and Ukraine produced huge surpluses of wheat, sunflowers, tobacco, fruit, vegetables, meat, wool, butter, as well as a strong industry rich in energy sources and various raw materials (ibid.: 200–1). This development model entailed the colonization of scarcely populated steppes via the establishment of new rural settlements — kolkhozy and sovkhozy — **(Fig. 4)**, land reclamation using tree windbreaks (later linear forests), rural mechanization (which produced food surpluses for new industrial centres), and large industrial hubs producing agricultural machinery to speed up reclamation.

From The General Line to Old and New

Eisenstein wrote the first script of *The General Line* with P.A. Aleksandrov in 1926 (Eisenstein, 1926), choosing the village among other possible highly topical issues in rural collectivization: the rural Komsomol,[10] cultural construction, the movement of rural correspondents to local newspapers, cooperation, the new con caption of the family, godlessness, the women's movement, stratification, dispossession, etc.

Eisenstein circumscribed his task to the "general line" of the fourteenth Congress of the Communist Party of the Soviet Union addressing rural collectivization: an ideal opportunity to produce a monumental fresco with "agricultural peasant material" (Eisenstein, 1928b). In 1928, however, he had to complete *October* for the tenth anniversary of the Revolution. When he resumed work on *The General Line*, the reality of fast-paced collectivization[11] had eclipsed his fiction.

Thus, when finalizing the film in February 1929, Eisenstein changed the film's ending and its title. He condensed his impressions in a 4 June letter to the French film critic Léon Moussinac:

… and then we were once again sitting astride our tripods and on course once more across the 'Slavic steppes,' as they say in France. I have just made a remarkable trip across the Northern Caucasus and the Ukraine. And I saw with my own eyes what is meant by 'building socialism'. Nothing could be more moving or more heroic! The vast areas cultivated by the new collectives [sovkhozy, a/n] (founded this year). The immense factories under construction. I went through places where three years ago nothing existed but infinite plains, and now people are putting up enormous industrial buildings (already half completed). Still not roofed, these factories are already beginning to produce. It's absolutely overwhelming. Almost impossible to describe. When you make propaganda yourself, you involuntarily stop believing what you're propagating. Every cardinal is an atheist. And then one day you suddenly see in its pure reality everything you've been saying, propagating, and writing … (Moussinac, 1970: 34)

"*General'naya liniya*", Lenin proclaimed, stressed the importance of a voluntary transition towards collectivization: in some cases, work organization by local communities proved more efficient than that of many centralized institutions (Eisenstein, 1926). In 1929, when collectivization had become a reality, Eisenstein's replacement title, *Staroe i novoe* (another quotation of Lenin, translating as *Old and New*), shifted the focus to large-scale industrialization. His replacement ending was the spectacular scene shot in the spring of 1929: *traktornaya columna* (tractor columns) and the subtitle: "Forward … forward … towards socialism" (Eisenstein, 1929b). **(Fig. 5)**

The plot revolves around Marfa, a poor, young peasant in a village ruined by drought and greedy *kulaks*.[12] Marfa gets hold of a milk skimmer and a bull, and fights

10 **All-Union Leninist Young Communist League.**
11 **Under the First Five-Year Plan begun on 1 October 1928.**
12 ***Kulaks* were the rich farmers, owners of medium size agricultural units, cattle, and tools, persecuted by the Soviet government after the start of the Five-Year Plans.**

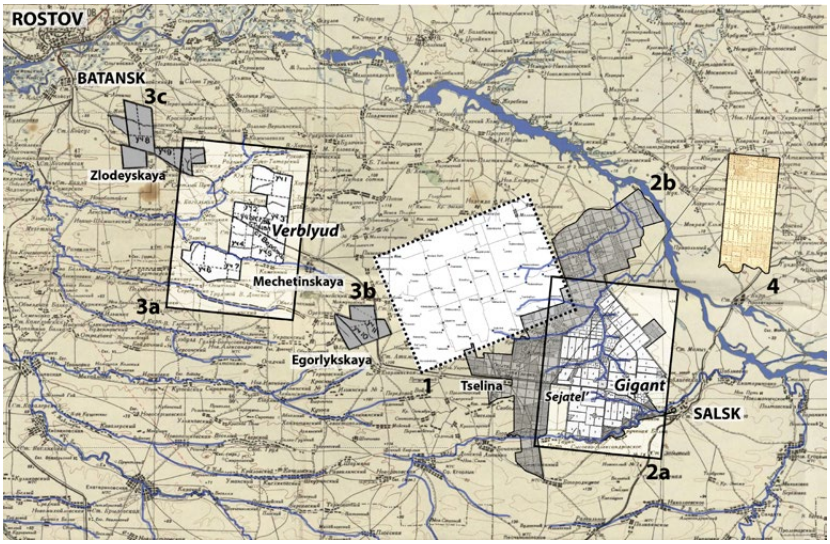

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Fig. 4
Maurizio Meriggi, *Salsk steppes rural development in the 1920s and 1930s*, 2022. Key to symbols: **1.** Tselina District, land colonized by Molokan and Dukhobor refugees, 1922–23; **2a.** territory of the Gigant sovkhoz in 1934–37 (48,671 ha); **2b.** territory belonging to Gigant sovkhoz prior to 1934 (total extension 127,078 ha); **3a.** territory of the Verblyud sovkhoz (today's Zernograd); **3b**, **3c.** territories of the Verblyud sovkhoz's two branch settlements in 1929; **4.** territory of the Sejatel' Commune, established by Russian immigrants from the USA in 1923–25, renamed Stalin kolkhoz in the 1930s. The three large rectangles represent areas of 30×40 km. Sources: Base map: General Staff of the Red Army (1938); 1: Kalmakoff (1999–2013b); 2a, 2b: Abrosimov and Koval' (1939); 3a, 3b, 3c: Anfilof'yev (1938); 4: Apal'kov (1951).

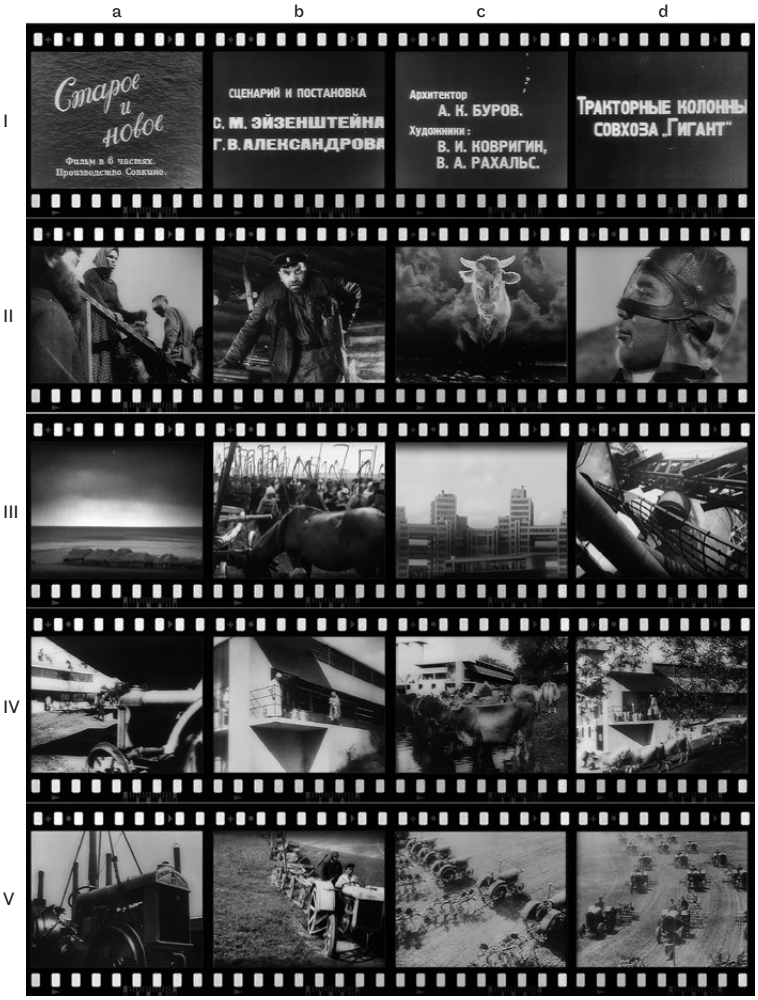

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Fig. 5
S.M. Eisenstein, *Frames from the film Old and New (Staroe i Novoe)*, 1929. **Ia.** "Old and New, film in 6 acts"; **Ib.** "written and directed by S.M. Eisenstein and G.V. Aleksandrov"; **Ic.** "architectural setting by Andrey Burov; scenography by V.I. Kovrigin, V.A. Rakhal"; Id. tractor columns of the Gigant sovkhoz; **IIa.** the young peasant, Marfa; **IIb.** the agronomist; **IIc.** the bull Fomka; **IId.** the tractor driver; **IIIa.** poor peasant village; **IIIb.** men-driven (mowing) and animal-driven (ploughing) agricultural works; **IIIc.** Soviet headquarters (Gosprom in Kharkiv); **IIId.** industrial plant; **IVa.** to **IVd.** sovkhoz (scenography by A. Burov); **Va.** tractor production; **Vb.** Marfa and tractor driver carrying away the Old ox carts; **Vc**, **Vd.** Gigant sovkhoz's tractor brigades' final push towards socialism.

bureaucracy to obtain a tractor, finally winning over villagers and leading a milk artel'. The happy ending for Marfa and the tractor driver epitomizes the blending of modern and traditional Russian rural lifestyles, whose dichotomies Eisenstein tried to harmonize: Westernizer and Slavophile, city and country, state and peasant.

Collective farms brought together the old institution of the peasant commune and the modern methods of Soviet rationalism (Kepley, 1974: 50). Depicting rural modernization in the Salsk steppes of the 1920s, Eisenstein's protagonists include the Agronomist (heralding the scientific organization of agriculture), the Bull (combining animal traction and fertility – the Old), and the Tractor (epitomizing mechanization – the New). In addition to traditional Russian rural linear villages and the sovkhoz scenography designed by A. Burov, filming locations included Leningrad's Putilovsky tractor factory, representing industrialization, and Kharkiv's famous Gosprom building (State Industry Building or Palace of Industry) designed by Sergei S. Serafimov,[13] representing the Soviet administrative apparatus.

The Old: Refugee villages of the Zapadno-Konnozavodchevskiy rayon

Wildness / Patriarchy / Secular backwardness / Millions of small-scale peasant farms / left as a legacy. OLD SYSTEM. (Eisenstein, 1929b)

These words refer to the village scenography of *Staroe i novoe*, which was built in the Mugan steppes,[14] which, like the Salsk steppes, are home to *chernozem*,[15] ravines, and creeks. The scenography reproduced a typical Slavic roadside village made of wooden *izbas*, representing a traditional Russian rural community, the *obshchina*, where communally held agricultural land was periodically redistributed from the 1861 emancipation reform onwards (Conte, 1986).

Before the Revolution, cattle breeders inhabited the eastern part of the Salsk steppes, between the Manych and Egorlyk Rivers. Their few settlements – Egorlykskaya, Sredne Egorlykskoe, Lopanka, Voroncovskoe[16] – lined the Caucasus foothills along the Egorlyk River. In 1915, the Batayskaya-Torgovaya railway from Rostov-on-Don intersected the Tikhoreckaya-Tsaritsyn[17] line (1895–99) at Torgovaya. After the Revolution, in 1924, the area fell within the Zapadno-Konnozavodcheskiy rayon (Western Horse-breeding District),[18] covering the territory of the Salsky okrug (Salsky Main District) and part of the former Velikoknyazhevsky rayon of the Rostov Region, with the district executive committee at Tselina station on the Batayskaya-Torgovaya railway. After 1922, communities from surrounding areas and Russian refugees from Southern Caucasus, Armenia, and Georgia were assigned chernozem lands. These were Dukhobor and Molokan refugees confined during the second half of the nineteenth century to the southern periphery of the Czarist Empire, which they

13 At the time of its completion (1925–28), the Gosprom was the world's largest building.
14 Located south of Baku in Azerbaijan.
15 Chernozem is a black-coloured soil whose chemical characteristics make it very fertile.
16 Later the city of Salsk. See Caucasian Military Topographic Dep. (1877).
17 Today Volgograd.
18 A statistical report (Narodnyy..., 1926) reported the area of the Zapadno-Konnozavodcheskiy rayon as 4,137 km² with 1,841 farmsteads.

had to leave in 1922.[19] Their resettlement,[20] widely documented in local sources, generated nearly fifty villages in the western portion of Zapadno-Konnozavodcheskiy rayon north of Tselina railway station. In the absence of technical documents, their planning and distinguishing layout may be conjectured from maps and satellite images. **(Figs. 6-8)** Maps published in 1926 and 1936 (Caucasian Military Topographic Dep., 1926; General Staff of the Red Army, 1936) show a rather regular pattern of settlement, which seems to exclude any spontaneous building processes. All villages were built at major road intersections and shared the same linear layout. The twelve Dukhobor villages were aligned north-south along the so-called *Vereginskaya liniya*[21] (Veriginsky Line) to the west (Kalmakoff, 1999–2013b), whereas the eighteen Molokan villages were located along the so-called *Petrovskaya liniya* (Petrovskoy Line) in the eastern part of the area, in a similar pattern. According to the 1926 census,[22] which registered the population of each obshchina, artel' and commune, these villages were administered by two *selsoviet* (local rural councils): the Union of Molokan Communities (*Ob"yedineniye molokanskikh obshchin*) and the Union of Dukhobor Communities (*Ob"edinenie dukhoborskikh obshchin*). Their total extension covered nearly 884 km² with a population density of 17.45 inhabitants per km².

A conjectural map of the 1922–24 field allotment[23] shows that Dukhobor and Molokan settlements were laid out according to a 4.25×5.20 km grid along the natural slope, intercepting small creeks and ravines flowing south-west to north-east into the Manych River (*Balka Mokraya Kugul'ta*; Wet Kugul'ta Basin). The grid sets the typical module of each village, which extended over a 22.1 km² surface. Accordingly, the Dukhobor villages stretched across a total surface of 24,310 ha and shared the typical Slavic linear layout. **(Figs. 7-8)**

This layout is best exemplified by the case of the Dukhobor village of Petrovka (not to be confused with the homonymous Molokan village in the area), whose linear strip subdivided into seventy-two modules of 65 m wide by nearly 220 m long. The resulting plot of 1.43 ha (0.0143 km²) included the main single-family izba and some ancillary structures (often a smaller izba and farm service buildings), a kitchen garden and the field proper. The village developed along the main road, lined by four rows of eighteen farm units each on opposite sides. Another two sections of seven units each lined a parallel road. The six central modules and along the short transversal roads defined the area

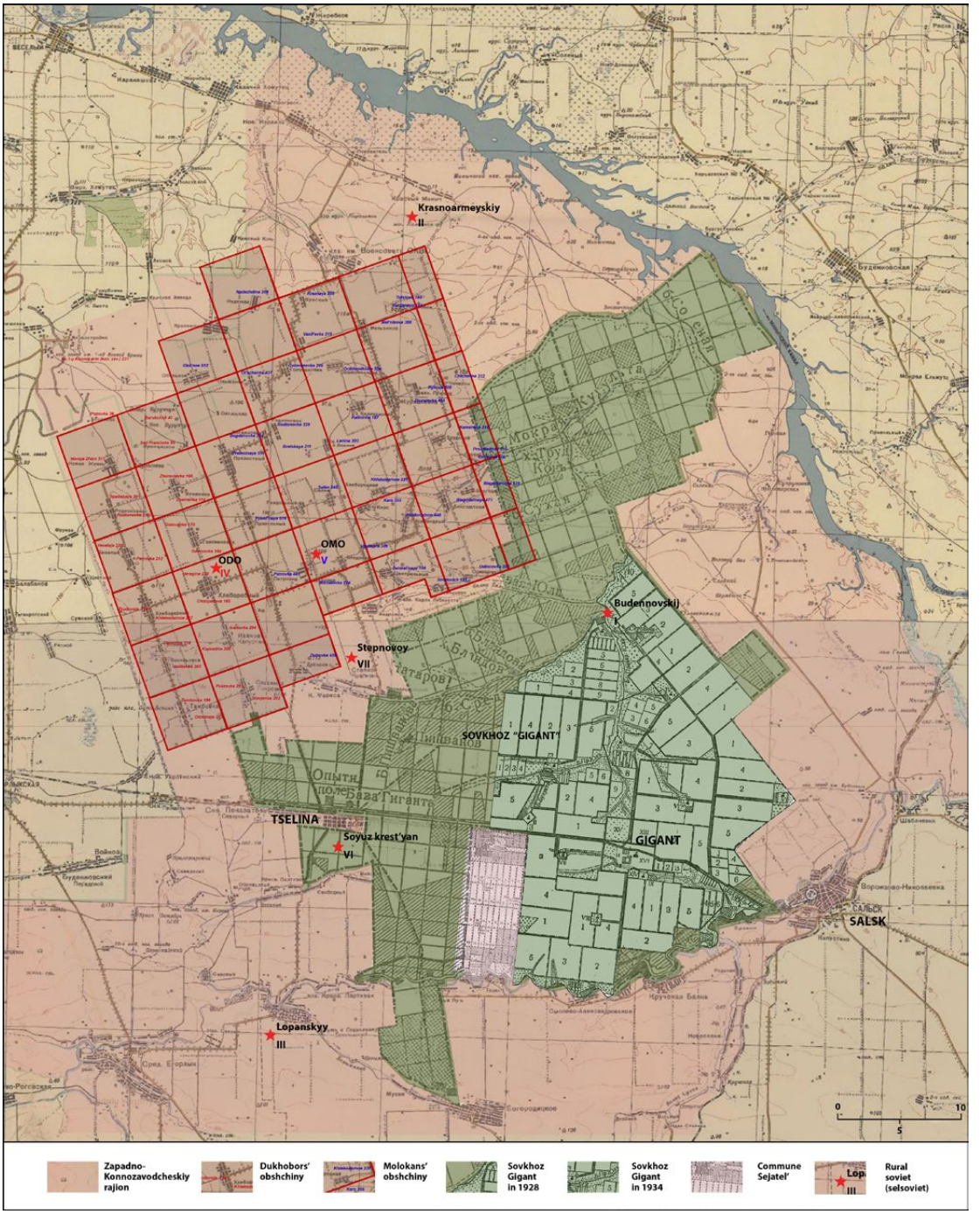
19 **The Czarist regime persecuted these Russian Orthodox schismatic groups. Sharing land ownership, the Dukhobors firmly refused to kill, thus they refused to serve in the army. Their diaspora lived in Georgia and Armenia in Southern Caucasus, as well as in Canada and the USA. Comparable to Spiritual Christians, Molokans lived mainly in Southern Russia and Caucasus in well-organized closed communities. They left Transcaucasia after the Treaty of Kars (1921–22). Molokans of the Tselinskij District came from Kars in Western Armenia, bringing with them old village names, i.e. Kars and Vladikars. According to Semenov (2001: 28), Transcaucasian Molokans and Dukhobors moved voluntarily to Caucasus after 1878, resettling in agreement with local authorities. This was the case in the Kars area, where, by the late nineteenth and early twentieth centuries, Russians numbered 11,000, of whom 6,500 were Molokans and over 3,000 were Dukhobors. In 1923, 4,500 Dukhobors emigrated to the Salsk steppes (Semenov, 2001: 71). According to Kalmakoff (1999–2013a), in 1921–23, 4,000 Dukhobors were allowed to resettle on 25,000 acres in the Tselina District, where they planted wheat, raised extensive livestock. The 25,000 acres figure is probably a mistake in the unit of measurement since the official units in use in the USSR were hectares and square kilometres. Both Molokan and Dukhobor communities were organized in obshchiny.**

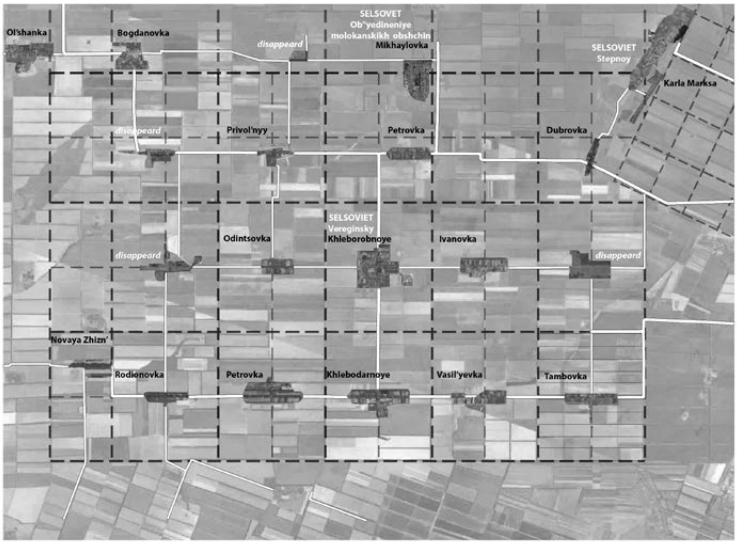
20 **See Kalmakoff's (1999–2013b) map.**

21 **Petr V. Veregin (1859–1924) was the leader of the Dukhobors.**

22 **According to the *Settled results of the 1926 census* (*3-skoe Kraevoe Statisticheskoe Upravlenie*, 1929), the Zapadno-Konnozavodcheskiy rayon consisted of 7 selsoviety: I. Budennovsky (3,458 inhabitants); II. Krasnoarmeyskiy (3,094); III. Lopanskyy (5,284); IV. *Ob"edinenie dukhoborskikh obshchin* (4,501); V. *Ob"edinenie molokaskikh obshchin* (10,927); VI. Soyuz krest'yan (6,408); VII. Stepnoy (1,860). The total population of the *rayon* in 1926 was therefore 35,622. Abrosimov and Koval' (1939: 16) report nine inhabitants per km² after 1926, for a total of 37,233, a number close to that of the 1926 census. The same source reports the population density of the Salsky District, which, including cities with industry, was 12.8 inhabitants per km².**

23 **Based on General Staff of the Red Army (1936).**


Krasnoarmeyskiy
II
OMO
V
ODO
IV
Budennovskij
I
Stepnovoy
VII
SOVKHOZ "GIGANT"
TSELINA
Soyuz krest'yan
VI
GIGANT
SALSK
Lopanskyy
III
0
10
5
Zapadno-Konnozavodcheskiy rajion
Dukhobors' obshchiny
Molokans' obshchiny
Sovkhoz Gigant in 1928
Sovkhoz Gigant in 1934
Commune Sejatel'
Rural soviet (selsoviet)



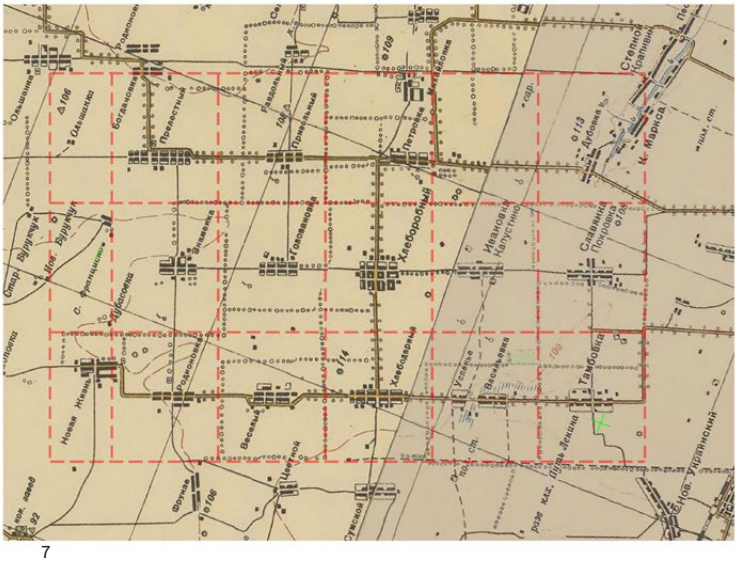


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Fig. 6
Maurizio Meriggi, *Obshchiny and Sovkhoz*, 2022. Key to symbols: pale red and red grid: lands colonized by Molokan and Dukhobor refugees in 1922–23, allotment grid; green and light green: territory of the Gigant sovkhoz; light pink: territory of Sejatel' Commune; red stars: location of selsoviet offices. Source of base map: General Staff of the Red Army (1936).

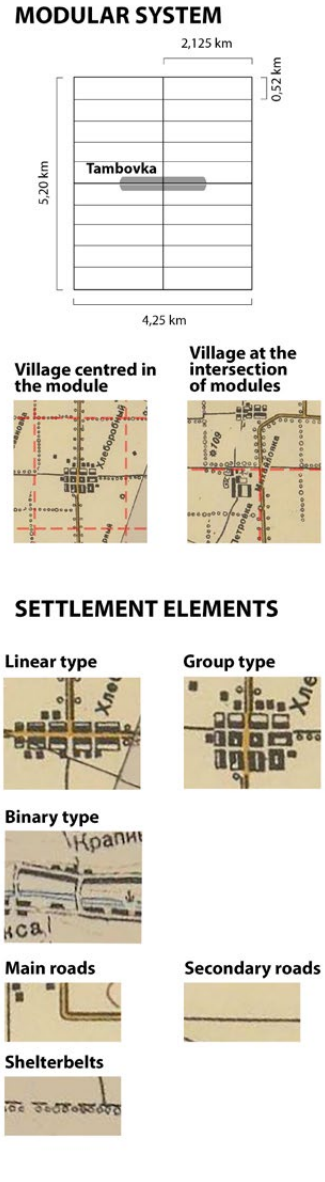


Fig. 7
Maurizio Meriggi, *Modular system and morphology of village layouts and allotments assigned to Molokan and Dukhobor refugees in 1922–23*, 2022. Sources of base maps: top: General Staff of the Red Army (1936); bottom: image © 2021 Maxar Technologies.

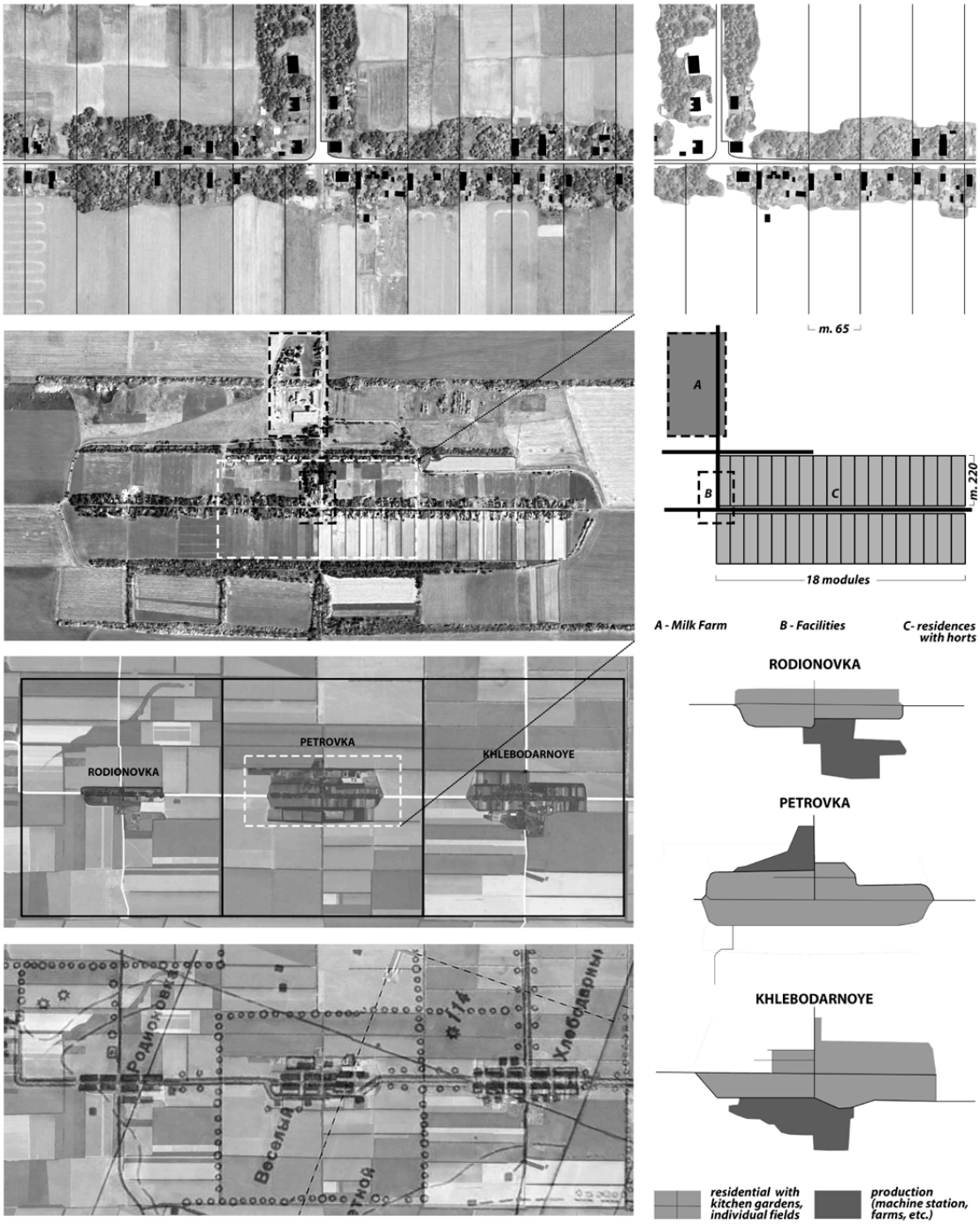


Fig. 8
Maurizio Meriggi, *Slavic linear village type: cases of Dukhobors' refugee villages Rodionovka, Petrovka, Khlebodarnoye in the Tselina District*, 2022. Sources of base maps: General Staff of the Red Army (1936) overlaid to satellite view, image © 2021 Maxar Technologies.

for public buildings and facilities. Altogether, the village consisted of eighty farm units, each with its own field and kitchen garden, with an average occupancy of five to six members, which allows us to approximate a total of 440 inhabitants (eighty multiplied by 5.5). This figure is confirmed by the 1926 census which reports that the village was composed of two obshchiny, Petrovka (212 people) and Veselaya (220 people), totalling 432 inhabitants. The nearby villages of Rodonovka and Khlebodarnoe, similar in size, also consisted of two obshchiny of *c.*200 people each, totalling 420 and 413 inhabitants respectively. **(Table 1)**

Table 1
Land use of Petrovka, a Molokan village (Meriggi, 2022; based on Figures 7 and 8)

PETROVKA VILLAGE	
Total area (km²)	22.1
Residential area with kitchen gardens and individual fields (km²)	1.0296
Collective cultivable land (km²)	21.074
Number of family units	80
Share of collective cultivable land assigned to each family unit (ha)	26.338
Average size of household subsidiary plots (ha)	1.287

As clarified by Baranskij (1956a), before the Revolution this area and the surrounding steppes were used for livestock farming and horse breeding. The subsequent development of agriculture in the early 1920s generated a diversification into three types of rural units (Abrosimov and Koval', 1939: 22–1): large sheep, cattle, and horse farms in the north-east, dairy farms in the west, and cattle and grain farms in the south, such as the Sejatel' Commune and sovkhoz no. 5. The number of sheep increased and pig breeding began to take off after the Russian Civil War. The main crops included wheat, rye and maize, as well as potatoes, beets and herbs, all three of which were completely new to the region, reflecting an intensification of agriculture beginning in 1923–24. We can infer that villages in Dukhobor and Molokan selsoviets in the western part of the rayon were dairy farms that also produced wheat, rye, maize, potatoes, beets and herbs. Moreover, ten hectares being the maximum amount of land that a family could cultivate with traditional farming techniques, equivalent to less than half of the 26.338 ha assigned to each family, suggesting that the rest was intended for pasture and hence dairy production. Indeed, Eisenstein's film shows ploughing with oxen, manual mowing and harvesting, highlighting how the subsequent introduction of the tractor only occurs when rural communities adopted new, collective, organizational forms. The street view photographs of these settlements available on the online Yandex platform show how they still consists of identical single floor izbas accessed on the long side via the kitchen garden. Interestingly, Dukhobor communities who emigrated to Canada in the nineteenth century built the same kind of linear villages.[24]

Old becoming New: obshchina into artel', commune and kolkhoz

Eisenstein's propagandistic documentary shows how, in the mid-1920s, thanks to Soviet rural policy, the traditional social structure of the obshchina was already changing into a milk production cooperative (artel'). The agricultural artel' and other forms of collective/cooperative communities (see note 9) rapidly spread in the Zapadno-Konnozavodcheskiy rayon. In fact, as early as 1927, "before mass collectivization, the district had a great number of collective farms [which, in] 1928, unified 552 peasant farms …, and an additional 1,060 in 1929, … apart from the Sejatel' Commune" (Abrosimov and Koval', 1939: 23; **Table 2**).

24 This traditional model of linear village, at times including a modernized version of Russian izbas with pitched roof and rear kitchen garden – whether single or two family, one or two-storey – continued to be adopted in the 1930s and in the 1950s (Bylinkin *et al.* 1985: 166–71, 218–24).

Table 2
Evolution of collective farms by form in the *Zapadno-Konnozavodcheskiy rayon*, 1927–29 (Abrosimov and Koval', 1939)

FORM OF COLLECTIVE FARM	1927	1928	1929
Communes	4	4	5
Agricultural artel'	2	2	4
Cooperative land cultivation partnerships (TSOZ)	12	30	33

Both Dukhobor and Molokan *obshchny*, however, long before collectivization, collectively shared ownership of the land and organized their work in a more cooperative way than any other Russian village community. During the period of mass collectivization, Dukhobors and Molokans were hired to work on collective farms (such as Bolshevik, Chapaev, Lenin, Budyonny, etc.). Educated brigades formed new social structures, overlapping religious principles and community organization (Zernina, 2017). In parallel, other collectivization experiments took place in the area. Following Lenin's call, a group of Russian returnees from the USA received 5,000 ha of land and, in 1922, established the Sejatel' (lit. "sower") Commune. **(Fig. 9)** Four communes appeared in the area before 1926 (Caucasian Military Topographic Dep., 1926): two in the Stepnoy Selsoviet — K. Marx and K. Liebknecht — and the other two — North Sejatel' and South Sejatel' — in the Soyuz krest'yan Selsoviet at Tselina.

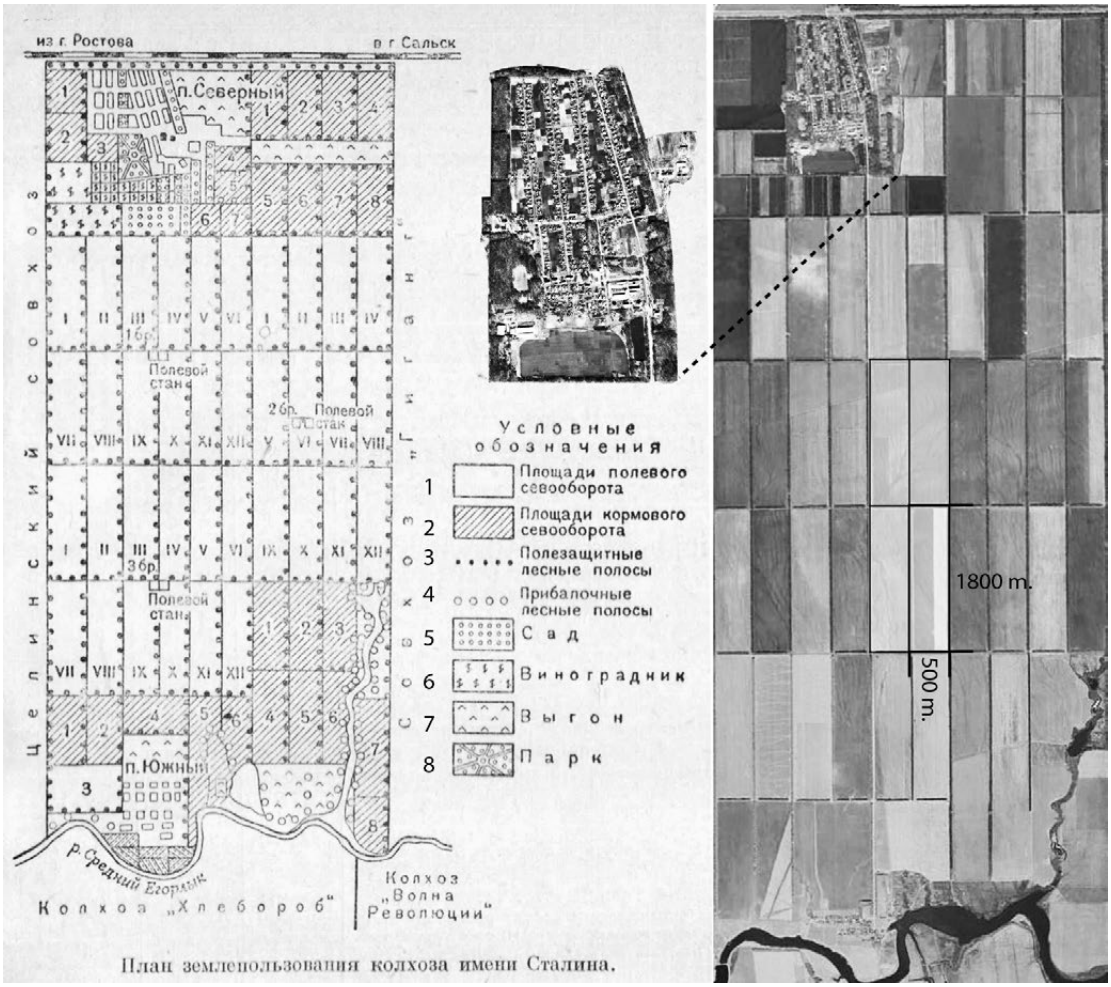
Only the extensive collectivization launched after 1928 allowed peasant farms to shift from cattle breeding (which did not require mechanization) to an economy based mainly on wheat cultivation, and from primitive cultivation techniques to more advanced methods based on the use of machines. Obshchiny villages gradually transformed into various forms of collective farms. Only the north-west part of the Budennovsky Selsoviet maintained the original economy based on sheep, beef cattle and horse breeding (Abrosimov and Koval', 1939: 23–4). After 1929, the Zapadno-Konnozavodcheskiy rayon was radically reorganized. Kalmakoff (1999–2013a) reports that, by 1933, Dukhobor villages were collectivized, and, by the 1950s, formed eleven villages. These, by the 1960s, would eventually be consolidated into two large collective farms, namely the Twenty-Second Party Congress kolkhoz and the Lenin kolkhoz. But it was the establishment of grain state farms that this reorganization became tangible.

What was New: the sovkhoz as a symbol of modernization

The buildings that I used to see in the West, such as country villas and mansions, serve, in the country of workers and peasants, agricultural needs. How much nicer is it to see healthy cows and Yorkshire pigs instead of the bourgeois clientele moving between these buildings. (Le Corbusier, 1928)[25]

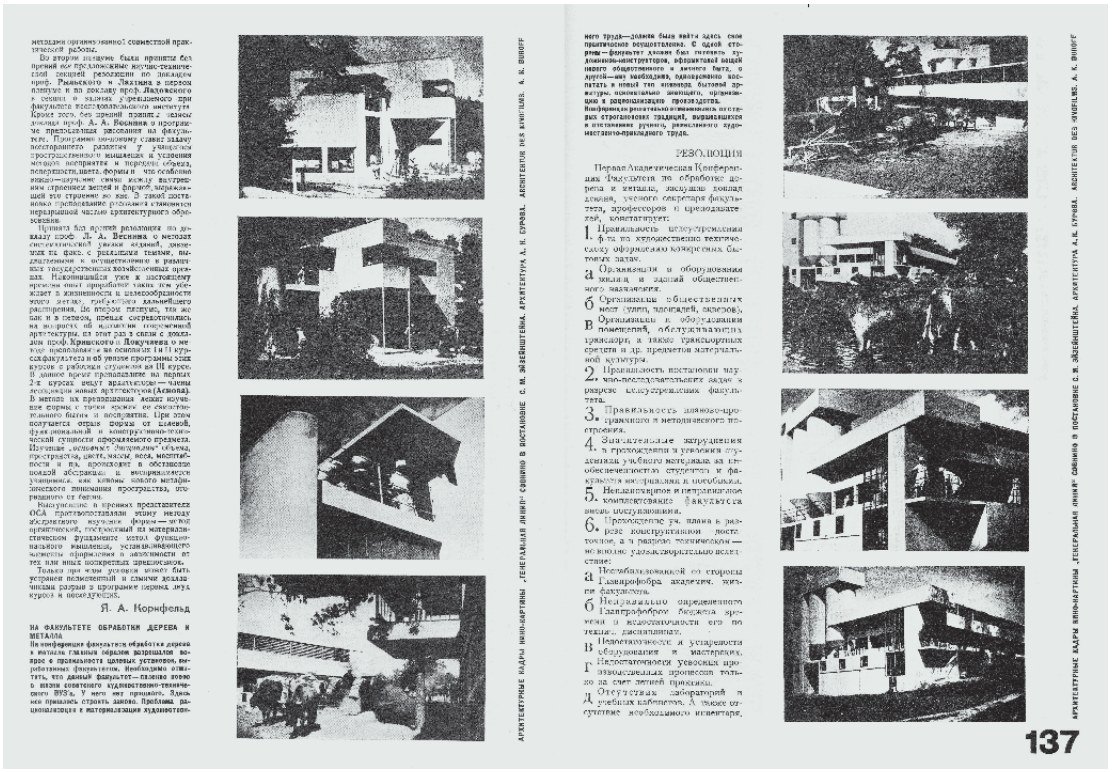
Le Corbusier is here commenting on Burov's sovkhoz scenography for *Old and New* **(Fig. 10)**, which he was able to watch in production (Khazanova, 1973; Cohen, 1995). *Sovremennaya Arkhitektura* published this scenography (Burov, 1926b); though not a real building, it symbolized a possible modernity, entailing rural modernization and mechanization. Burov himself wrote that he had avoided decorative effects, to focus the viewer's attention instead on the new life and methods of industrialized agriculture, synthesized by a new architecture achieved with new materials and construction techniques (Burov, 1926a: 470). In fact, mechanization of food production and new ways of feeding animals rendered the old stables obsolete, requiring new structures with metal fittings, mechanized feeding and cleaning devices that met higher hygiene standards (conveyor belts, transporters, flyovers, mechanized weighing, product processing and storage) — hence the need for new architectural forms. The arrival of a Krasnyy Putilovets tractor in the sovkhoz heralded rural mechanization.
Eisenstein himself, on 16 October 1928, admitted that the sovkhoz scenography

25 **Author's translation.**



План землепользования колхоза имени Сталина.

Fig. 9
Imeni Stalin kolkhoz (collective farm named after Stalin), former Sejatel' Commune, elaboration by Maurizio Meriggi, 2022. Land use plan (left), late 1930s–1950s; satellite view (right) with the fields' and protective forest strips' 500×1,800 m module highlighted and detail of settlement (centre) where the traditional Russian rural village's linear structure is recognizable. Key to symbols (land use map, from top to bottom): **1.** fields for crop rotation; **2.** fields for fodder crop rotation; **3.** protective forest belts; **4.** soil conservation forest strips along gullies; **5.** garden; **6.** vineyards; **7.** pastures; **8.** park. Sources of base maps: Apal'kov (1951); image © 2021 Maxar Technologies.



методами организованной совместной практической работы.

Во втором полугодии были приняты без прений все предложенные научно-технической секцией резолюции по докладам проф. Рыжкого и Лядинга и первая половина и по докладу проф. Ладовского о задачах учреждённого при факультете экспериментального института. Кроме того, без прений приняты тезисы доклада проф. А. А. Веснина о программе преподавания дисциплин на факультете. Программа наиболее ставит задачу последовательного развития у учащихся пространственного мышления и усвоения методов построения и порядка объема, поверхности, цвета, формы и, что особенно ценно—изучение связи между внутренним строением вещей и формой, окружающей или строимой ими. В такой постановке преподавание дисциплин становится неразрывной частью архитектурного образования.

Принята без прений резолюция по докладу проф. Л. А. Веснина о методах систематической работы кафедр, двигающая их факт. с реальными темами, выдвигаемыми к осуществлению и решаемыми государственными хозяйственными органами. Намечающийся уже и настоящему времени опыт проработки таким путем ускоряет в жизненности и целесообразности этого метода, требующего дальнейшего расширения. На втором пленуме, так же как и в первом, прения сосредоточились на вопросе об идеологии современной архитектуры, из-за этот раз в связи с докладом проф. Кринского о Ле Корбюзье и по методу преподавания на основных I и II курсах факультета и об учебных программах этих курсов с рабочими студентов на III курсе. В данное время преподавание на первых 2-х курсах ведут архитекторы — члены ассоциации новых архитекторов (Асноа). В методах их преподавания можно изучение формы с таких время по существующего бытия и последнего. При этом получается отрыв формы от внешней, функциональной и конструктивно-технической сущности промышленного предмета. Изучение „основных дисциплин" объема, пространства, цвета, массы, веса, монтированности и пр. происходит в обстановке полной абстракции и, неизбежности усиливает, как конечно многое метафизического понимания пространства, отрицающего от бытия.

Высказанные в прениях представители ОСА противопоставили ряду методов абстрактного изучения форм — четкой организации, построенной на материалистическом фундаменте метод функционального мышления, устанавливающего зависимость пространства и окружающего от тех или иных конкретных предпосылок.

Только при этом условии может быть устранен нелепейший и сложно вредящий разрыв в программе первых двух курсов и последующих.

Я. А. Корнфельд

НА ФАКУЛЬТЕТЕ ОБРАБОТКИ ДЕРЕВА И МЕТАЛЛА

На конференции факультета обработки дерева и металла главным образом возражали вопрос о промышленности цеховых установок, перебрасываемых факультетом. Необходимо отметить, что данный факультет—первое новое в жизни советского художественно-технического ВУЗа. У него нет прошлого. Здесь приходилось строить заново. Проблема рационализации и материализации художественного труда—должна была найти здесь свое практическое осуществление. С одной стороны—факультет должен был готовить художников-конструкторов, оформителей вещей нового общественного и личного быта, с другой—они наблюдали, одновременно воспитать в новый тип инженера бытовой архитектуры, основательно знающего, организацию и рационализацию производства.

Конференция решительно отмежевалась от всех строгановских традиций, вырвавшихся и остановивших ручного, ремесленного художественно-прикладного труда.

РЕЗОЛЮЦИЯ

Первая Академическая Конференция Факультета по обработке дерева и металла, заслушав доклад декана, ученого секретаря факультета, профессоров и преподавателей, констатирует:

1. Правильность целеустремления ф-та на художественно-техническую оформлению конкретных системных задач.

а Организации и оборудования заводов и зданий общественного назначения.

б Организации общественных мест (залов, площадей, скверов),

в Организации и оборудования помещений, обслуживающих транспорт, а также транспортных средств и др. предметов материальной культуры.

2. Правильность постановки научно-исследовательских задач в разрезе целеустремления факультета.

3. Правильность планово-программного и методического построения.

4. Значительные затруднения в преподавании и условиях обучения учебного материала из-за обеспеченности студентов и библиотеки материалами и пособиями.

5. Неплановичное и неправильное комплектование Факультета вновь поступающими.

6. Противоречие уч. плана в разрезе конструктивной достоверности, а в равной технологии—полное разъединительное исключение:

а Неспособленной со стороны Ленпрофобра академич. жизни факультета.

б Неправильно определенного Ленпрофобром бюджета времени в недостаточности его по техник. дисциплинам.

в Недостаточности и устарелости оборудования в мастерских.

г Недостаточности учебных производственных процессов только за счет летней практики.

д Отсутствия лабораторий и учебных кабинетов. А также отсутствие необходимого инвентаря,

АРХИТЕКТУРНЫЕ КАДРЫ ВЛИЯЮТ КАРТИНЫ „ГЕНЕРАЛЬНАЯ ЛИНИЯ" СЕМИНА В ПОСТАНОВКЕ С. М. ЭЙЗЕНШТЕЙНА. АРХИТЕКТУРА А. К. БУРОВА. АРХИТЕКТОВ ВЕХ КУЧЕЛЬБЕ. А. К. БУРОВ

Fig. 10
Facing pages of Sovremennaya Arkhitektura presenting A. Burov's sovkhoz building for the scenography of S.M. Eisenstein's movie Old and New, 1926–27. Source: Burov (1926b).

impressed even the technicians engaged in rural modernization, so much so that the *Zernocentr* (Grain Centre) called upon Andrey Burov to design the *Zernovoy fabrik,* a huge sovkhoz near Rostov, "in image and likeness" of the film set (Khazanova, 1973: 468).

The central settlements (*central'naya usadba*) of both the Gigant and Verblyud zernosovkhozy in the Salsk steppes were built from 1929 to 1931, including collective housing and facilities, which echoed the constructivist lines of Burov's scenography but were designed by Moscow's Teplobeton company, with P.A. Golosov acting as a consultant (Kazus, 2009). This project's innovative aspects stood in providing an architectural expression for the new rural settlements **(Fig. 11)**, in the framework of a broader land reorganization, which was to transform the soviet countryside.

Gigant in between constructivism and tradition

The Gigant zernosovkhoz, established in 1928,[26] originally stretched across 127,078 ha **(Fig. 12)**, with its central settlement at Tselina (Abrosimov and Koval', 1939: 6, 32–4). In 1929, this territory, which included the Budennovsky, Stepnoy and Soyuz krest'yan selsoviets, had two *bazy* (*bases*) for tractor columns: one in Tselina, and the other in the northern lands, totalling 592 tractors of different brands, 270 tractor-driven seed drills, 2,656 spike-tooth harrows and 374 disc harrows, in addition to smaller agricultural machinery of various kinds.[27]

The new central settlements, built from 1929 to 1931 near the Trubeckaya railway station (170 km from Rostov and 19 km from Salsk) and later named Gigant,[28] were equipped with a *Mashinno-traktornaya stantsiya* (Machine Tractor Stations, or MTSs[29]) with an initial allocation of 300 tractors. In 1932, the sovkhoz expanded to encompass 239,000 ha, and two years later, in 1934, the land was subdivided into three different sovkhozy, of which Gigant covered 48,671 ha. Initially, in 1929, the sovkhoz employed 771 permanent farmers and 1,600 seasonal workers from the surrounding communes, kolkhoz, and agricultural artel', and organized training courses for 800 tractor drivers (Strumilin, 1930). The population of Gigant in 1938 amounted to 6,600 inhabitants of whom 4,655 were concentrated in the central settlement and the remaining 1,945 lived in eight *usadba otdeleniya* (secondary settlements). The latter reproduced the traditional linear village pattern with a population of 200 to 220 inhabitants each, whereas the central nucleus was a *rabochikh poselok* (workers' settlement), where an *Institut Agrotekhnikum*, a vocational secondary school for farmers, provided training courses for tractor drivers, among other training activities (Abrosimov and Koval', 1939: 33).

The original 1928 scheme envisaged the central settlement[30] **(Fig. 13)** as being made up of five parallel functional strips – logistics, production, facilities, housing, and leisure – connected by three perpendicular axes extending from the two production units of the MTS. The two outermost axes extended southwards to two bridges across the river to reach the dairy plant and the southern portion of the sovkhoz. The central axis extended northwards across the railway to the Rostov-on-Don/Salsk road, which reached the logistical area of the railway yard including the grain silos. The *proizvodstvennyj sector* (production sector) corresponded

26 In 1926, the site of the great Gigant sovkhoz corresponded to sovkhoz no. 5 in a village already named Gigant in 1915, when the Tselina railway station was established along the line from Rostov to Salsk.

27 The kolkhoz began operating gradually; in 1929, less than half of its extension could be ploughed. From this information we can infer a tractor per hectare ratio of nearly 1/65.5 ha (56,500 ha/862 tractors).

28 In 1930, the Zapadno-Konnozavodcheskiy rayon was renamed Gigantovsky and its administrative centre was moved to the central settlement at the Trubeckaya railway station; in 1931, it was abolished, and its territory became part of the Salsky District.

29 From 1929 onwards, machine tractor stations replaced the more temporary tractor columns (Carr and Davis, 1969).

30 The actual settlement differs in the disposition of collective residential buildings.

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a

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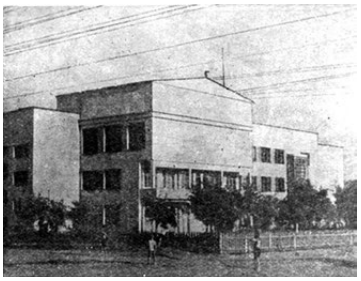

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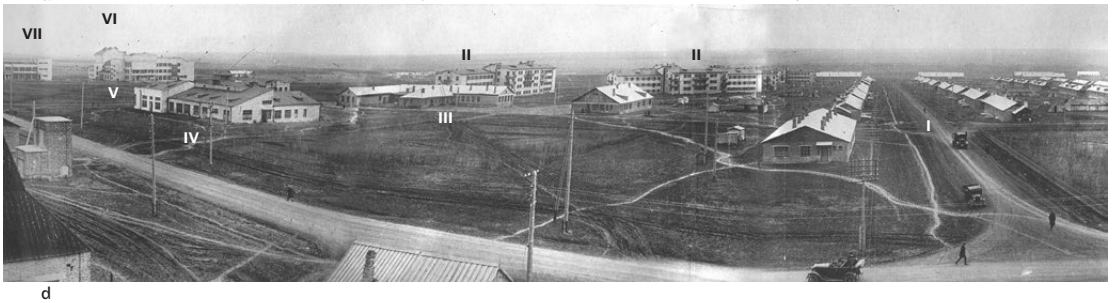

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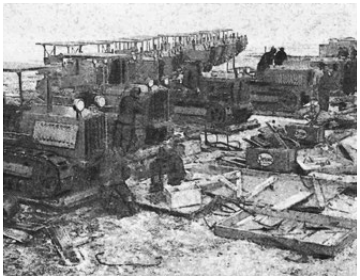

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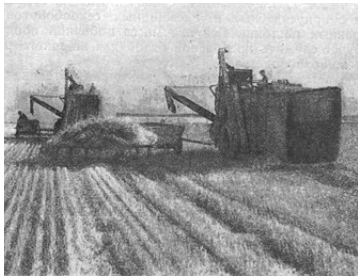

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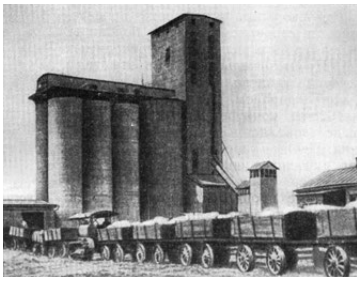

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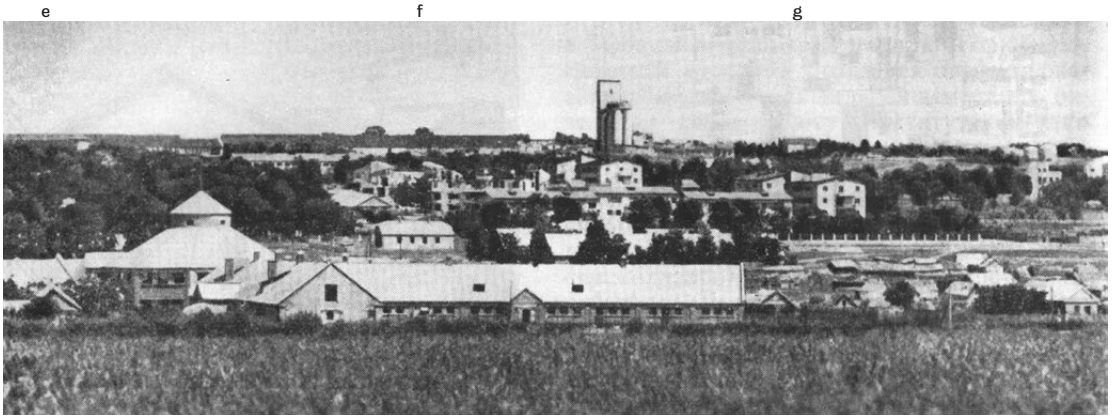

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Fig. 11
Views of the Gigant sovkhoz: **a.** department store; **b.** school; **c.** workers' club; **d.** view from the production area (north) showing: **I.** residential area with terrace houses; **II.** *Agrotekhnikum*; **III.** agricultural training college, originally a hostel designed by P. Golosov in 1928, and the sovkhoz administration; **IV.** communal kitchen; **V.** department store; **VI.** (in the background) workers' club; and **VII.** school; **e.** Caterpillar tractor in the fields; **f.** combined harvester; **g.** grain storage silos at Tselina railway station; **h.** 950s view from the fields with milk factory in foreground and grain storage silos in background. Sources: a, b, h: Baranov (1975: 138, 139); c, e, f, g: Abrosimov and Koval' (1939: 34, 165, 200); d: courtesy of Federal State Budget Institution of Culture Shchusev State Museum of Architecture.

to the MTS, and included garages, a repair workshop, and a fire brigade. Another diagonal axis stemmed from the passenger railway station and reached the central square around which all public buildings were aggregated: the sovkhoz administration, the *Fabrika kukhnya* (communal kitchen), the *Universal'nyy magazin* (department store), the workers' club and the school. A green buffer zone separated productive from residential units, which also included some multistorey communal buildings, terraces of single-storey houses of a traditional type, and the Agrotekhnicum student dorm designed by P.A. Golosov and replicated in Verblyud. The leisure and resort area organized along the river embankments and the ponds near the dairy plant.

The two experimental zernosovkhozy, Gigant and Verblyud, stood out from other rural settlements realized in the 1920s and 1930s due to their constructivist design, marking a clear break with traditional layouts and architecture made up of linear terraces and izbas. Yet the central settlement diluted constructivist architecture into traditional elements and building types. The school, the department store, the workers' club, and the dorm in Gigant **(Fig. 11a–c)** resemble other buildings of the same type built in the industrial towns of the USSR during the First Five-Year Plan. The residential units instead were a simplified version of the houses in linear Slavic villages. **(Fig. 11d)** This becomes clear when comparing the new housing units with those of Dukhobor villages. The dorm and the other collective apartment buildings designed by P.A. Golosov at Gigant and Verblyud **(Figs. 16, 17)** featured the same volumetric composition; both buildings had a flat roof and terrace with areas covered with thin concrete slabs, just like those based on the contemporary designs by Ilya Golosov for the industrial city of Ivanovo-Voznesensk in central Russia. During the implementation, however, pitched roofs replaced flat roofs. The search for a balance between tradition and innovation, the latter expressed in stylistic-decorative aspects conferring character to the buildings, is even clearer in the colour scheme of the facades designed by P.A. Golosov. **(Fig. 2)**

In 1926, *Sovremennaya Arkhitektura* published the results of a "Flat-roof questionnaire" which reported the opinions of some Modern movement figures including Erich Mendelsohn, Ludwig Hilberseimer, Richard Döcker, Otto Haesler, Karl Schneider, Bruno Taut, Joseph Hoffman, Peter Behrens, Josef Frank, Johannes B. van Loghem, Jacobus J.P. Oud, and Le Corbusier (Markov, 1926).

The fact that, from 1926 to 1930, no pitched roof had appeared in *Sovremennaya Arkhitektura* demonstrates the importance of the theme for those who wanted to mark a turning point. Derogation from this principle may perhaps indicate a sort of ruralization of urban models. The adoption of pitched roofs, so common in Russian rural architecture, in constructivist sovkhoz buildings probably addressed the need to differentiate industrialized agricultural settlements from industrial towns.[31] Thus, the late-1950s' skyline of Gigant's central settlement synthesized the new rural landscape, embedding traditional and modern architectural elements such as silos and the dairy farm. **(Fig. 11h)** After nearly thirty years, the effects of reclamation promoted by sovkhoz colonization made themselves felt: the barren land of the 1930s had given way to a green landscape with masses of trees.

Verblyud: The educational town and its US experts

Against the same steppe background, Gigant's and Verblyud's central settlements had a rather different character. The Verblyud sovkhoz spanned over 50,000 ha: 30,000 near the central settlement at Verblyud railway station and 20,000 corresponding to the Zlodeyskaya and Egorlykskaya railway stations[32] (Eramishancev, 1930: 12; **Fig. 4**). Verblyud was established as an *Uchebno-opytnnyj zernosovkhoz* (Educational-Experimental

31 Author's hypothesis.

32 Lement Harris (1904–2002), a US expert working in the Salsk steppes as a tractor driving instructor, reported that, in 1928, H. Ware organized a base of US tractors (possibly Caterpillar) at *Egorlykskaya*, part of the Verblyud *sovkhoz* (Harris, 1986: 66).

State Grain Farm) in line with plans by the Harold Ware,[33] who was enrolled in 1928 as a consultant of Zernotrest (All Union Trust of Grain Sovkhozy, 1928–32) to set up a network of scientifically managed farms in Northern Caucasus and Kazakhstan. In his capacity as Verblyud's deputy director of production and training, from 1929 to 1932, Ware invited US experts to work as advisers and trainers of Russian staff, or as teachers in the first agricultural-engineering university in the USSR, the *Institut inzhenerov-mekhanikov socialisticheskogo zemledeliya* (Institute for Mechanical Engineers of Socially Owned Farms),[34] established for an initial 1,000 students in Verblyud in 1930.

The US experts were assigned six cottages (Tokarev, 2017: 45; **Fig. 15b**) which were designed as a kind of semi-detached Russian izba.[35] Vasilij Eramishancev,[36] who designed Verblyud along with other state grain farms, explained that Verblyud had a special character, not only due to its "rationally organized mechanized economy", but also because it trained skilled workers and executives for other standard state farms such as tractor drivers, machine operators and mechanical engineers. State farms were implemented and managed in accordance with a broader programme, thereby acting as cultural, training, and scientific centres (Eramishancev, 1930: 11).

The initial construction programme of Verblyud foresaw 1,200 residents, an institute for 200 students and an agro-technical laboratory. Courses for 500 students were launched as early as spring 1930 and, by the end of that year, upgraded into a university training for 1,000 machine engineers of socialist agriculture. To meet these new requirements, the settlement expanded to 4,000 inhabitants (ibid.) and in 1939 accommodated 8,800 people.

The plan of the Verblyud's central settlement **(Fig. 14)** expressed its scientific character along the axis stretching from the railway station to the Culture Park. This narrative sequence included the Institute for Mechanical Engineers of Socially Owned Farms (home to a dedicated laboratory, the MTS workshop, and the sovkhoz administration), the square of collective facilities (communal kitchen, workers' club and school, and department store), the square of the Palace of Culture, and the the Culture Park (with adjacent schools and a hospital).

Unlike Gigant's central settlement, the sectors of the town were not parallel to the railway but laid out according to a forty-five-degree rotation, to optimize the buildings' exposure to sunlight and wind. The central settlement's layout, as well its buildings, were designed by the Teplobeton company, which, in 1928, planned Gigant's central settlement and, in 1930, the experimental-educational sovkhoz of Karabalyk in Kazakhstan (Eramishancev, 1930: 13).

All these settlements were variations of the same prototype **(Fig. 18)**, combining the same standard buildings: the communal kitchen, the hospital, the schools, the mechanical laboratory, student dorms, and others. Their layouts also typically presented a central area composed of collective residential buildings surrounded by green areas, facilities, and cultural buildings lined up around one or more squares forming a network of open public spaces. The Institute for Mechanical Engineers of Socially Owned Farms and its laboratories differed from the rest due to their strong constructivist architectural character. In comparison with those of Gigant, the residential buildings of Verblyud are more varied, responding to a

33 An US agronomist and manager, member of the US Communist Party, Harold M. Ware (1889–1935) worked in the Soviet Union, in Perm in the Urals, in the early 1920s. In 1926–28, he organized the *Russian Reconstruction Farms*, a joint Soviet-American venture supporting training and experimental farms. Ware was also plenipotentiary representative in the USSR of major US producers of agricultural machinery. Moving back to the USA in 1932, Ware became a Soviet agent and died in a car accident in 1935 (Carr and Davis, 1969; Harris, 1986; Fitzgerald, 2003; Nikulin, 2010).

34 Today Azov-Black Sea State Engineering Institute of the Don State Agrarian University (Taranov and Zaydiner, 2012: 7).

35 These cottages resemble those of the Sokol Cooperative Settlement in Moscow by N.V. Markovnikov, 1923.

36 In 1927, Vasilij Ivanovich Eramishancev (1875–1958) worked in the Supreme Council of the National Economy and was engaged in the design of workers' settlements for Zernotrest in Northern Caucasus and Kazakhstan. See: Kazus' (2009: 189, 488); Eramishancev (1929; 1930).

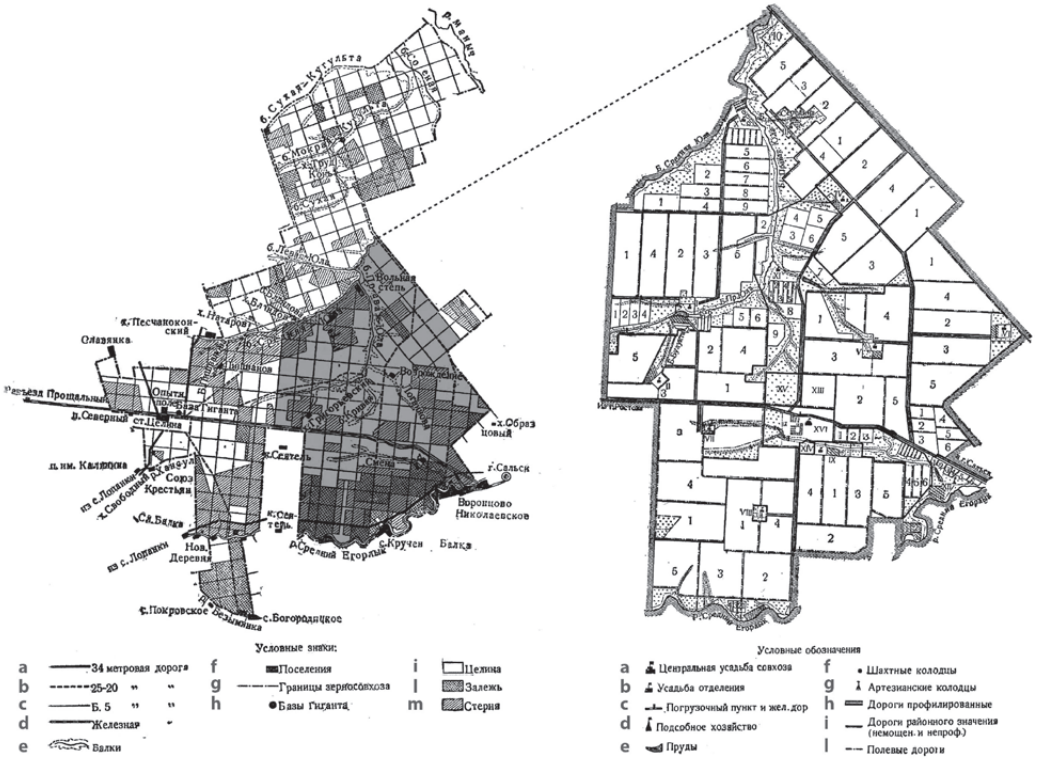

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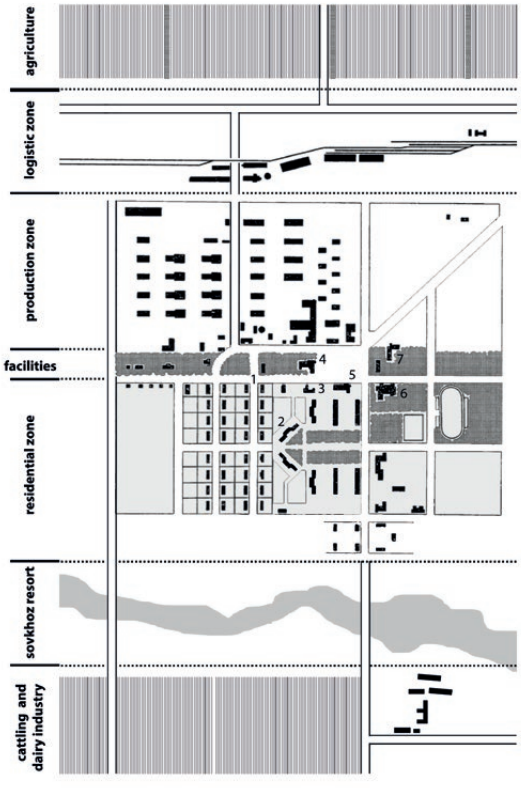
Fig. 12
Territory of the Gigant sovkhoz. (Left) Map of sovkhoz territory in 1928–33 (total extension 127,078 ha) with, highlighted in dark tone, the sector of the Gigant sovkhoz in 1934 (key to symbols: **a.** 34-m-wide road; **b.** 20–25-m-wide road; **c.** 5-m-wide road; **d.** railway line; **e.** gullies; **f.** settlements; **g.** sovkhoz boundary; **h.** bases (tractor columns); **i.** Tselina District territory; **l.** Zalezh District territory; **m.** Sternya District territory. (Right) Farming organization of Gigant sovkhoz in 1934 (total extension 48,671 ha): **a.** central sovkhoz farm; **b.** farm branch; **c.** loading point and railway; **d.** ancillary activities; **e.** ponds; **f.** mine wells; **g.** artesian wells; **h.** profiled roads; **i.** local roads (unpaved and not profiled); **l.** field roads. Source: Abrosimov and Koval' (1939).

Fig. 13
Maurizio Meriggi, *Schematic map interpreting the compositional principles of the Gigant sovkhoz*, 2022. Settlement originally planned by architects V.I. Eramishancev, P.A. Golosov, N.M. Vavirovskij, F.N. Andreev, A.M. Krylov, 1928–early 1930s. Key to symbols: **1.** residential area with terrace houses; **2.** *Agrotekhnikum*; **3.** sovkhoz administration; **4.** communal kitchen; **5.** department store; **6.** workers' club; **7.** school. Sources of base map: Baranov (1975: 138); Tokarev (2016).



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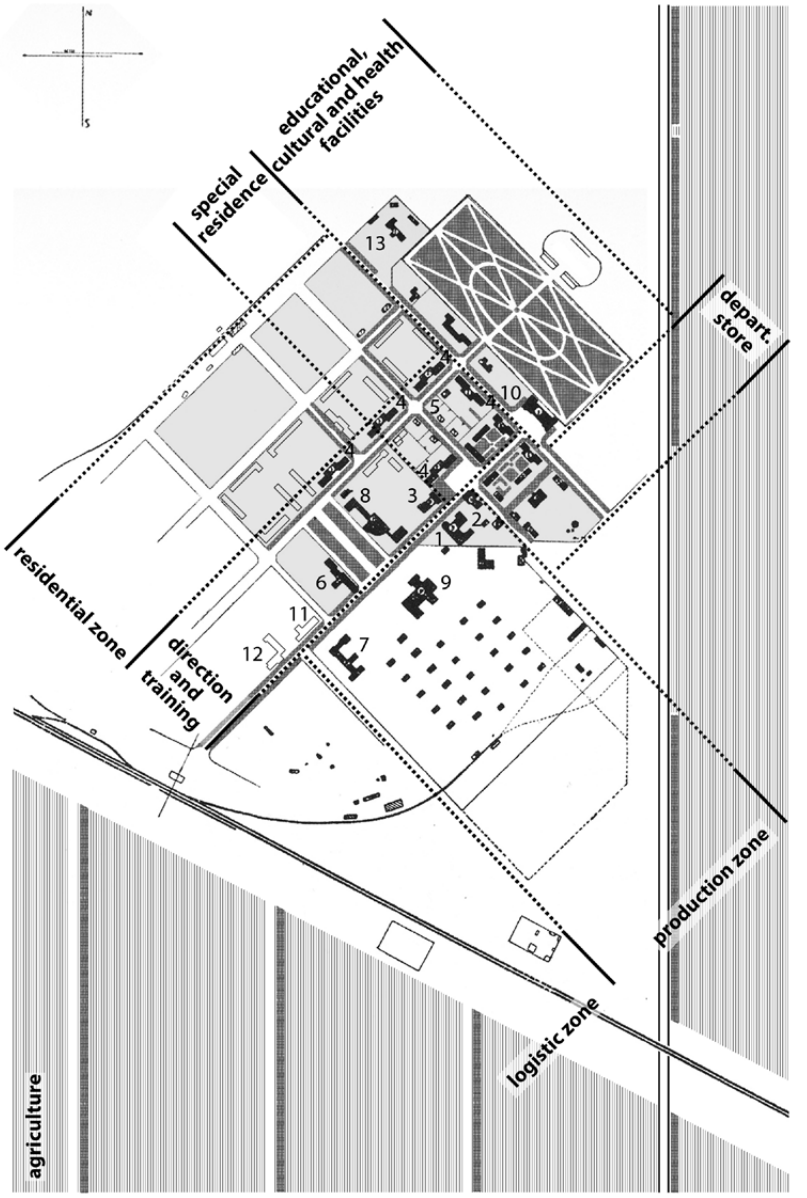

Fig. 14
Maurizio Meriggi, *Schematic map interpreting the compositional principles of the Verblyud sovkhoz*, 2022. Settlement originally planned by architects V.I. Eramishancev, P.A. Golosov, N.M. Vavirovskij, F.N. Andreev, A.M. Krylov, 1929–early 1930s. Key to symbols: **1.** communal kitchen; **2.** department store; **3.** workers' club and school; **4.** student hostel; **5.** cottages for foreign experts; **6.** agro-technical laboratory; **7.** repair shop; **8.** Institute for Mechanical Engineers of Socially Owned Farms; **9.** mechanical laboratory; **10.** cinema-theatre (later built as Palace of Culture); **11.** sovkhoz administration; **12.** hotel; **13.** schools and hospital. Sources of base map: Eramishancev (1930: 13); Baranov (1975: 140); Bylinkin *et al.* (1985: 78).

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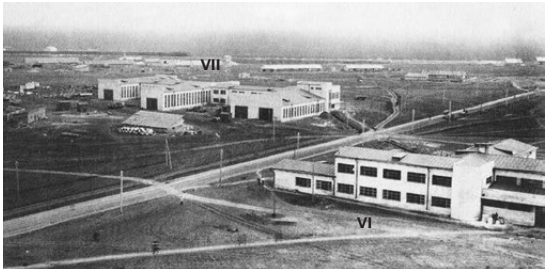
a



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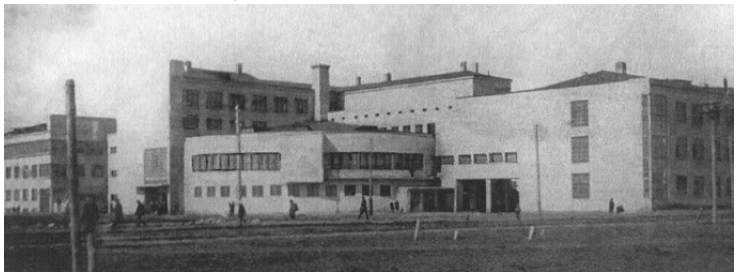

e

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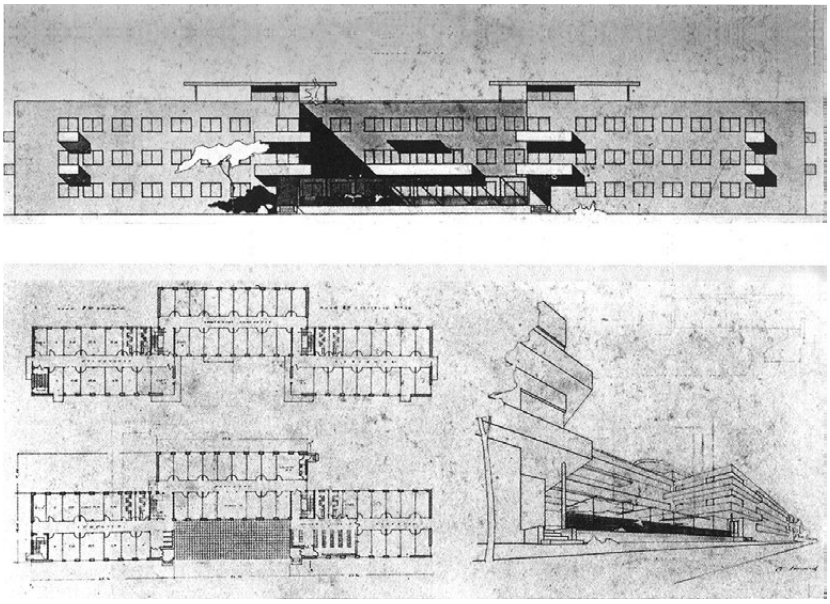
Fig. 15
Views of Verblyud sovkhoz:
a. view from south of central square with: **I.** communal kitchen; **II.** department Store; **III.** club-school; **IV.** student hostel; **V.** cottages for foreign experts; **b.** view of production area with: **VI.** agro-technical laboratory; **VII.** repair shop; **c.** close view of repair shop; **d,e.** views of Institute for Mechanical Engineers of Socially-Owned Farms; **f.** view of residential area with cottages for foreign experts designed by P.A. Golosov. Sources: a, c, f: courtesy of MBUK ZR – Zernograd Museum of History and Local History; b, d, e: Museum of the DGAU's Azov-Black Sea State Engineering Institute.



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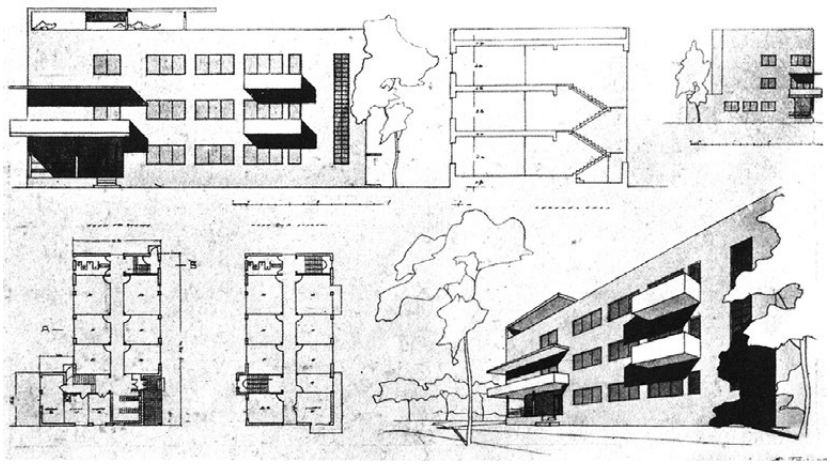

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Fig. 16
P.A. Golosov, *Projects for the Verblyud sovkhoz: Student hostel of the Institute for mechanical engineers of socially-owned farms*, 1929. Source: *Ezhegodnik Moskovskogo …* (1930: 53).

Fig. 17
P.A. Golosov, *Projects for the Verblyud sovkhoz: Hostel for small families and singles*, 1929. Source: *Ezhegodnik Moskovskogo …* (1930: 52).

more articulated social composition. They include a large student dorm, a small hostel for singles and small families, two-and three-room apartments and cottages for guest experts.

The Salsk steppes' agrogorod and the socialist city of the future

The Gigant and Verblyud sovkhozy and their central settlements were designed and built from 1929 to 1931. Among the earliest examples of this kind of settlement, they could offer a vivid image of socialism under construction, as noticed by Eisenstein during the last shootings of *Old and New* (Moussinac, 1970). All this, between 1929–32, paralleled key political decisions concerning collectivization and the most relevant architectural competitions and theoretical debates on the socialist settlement.[37]

In late-1920s Soviet literature there was no univocal term to indicate the new kind of settlement addressing the collectivization imposed by the First Five-Year plan on rural areas. In the framework of debates on the socialist city revolving around the contradictions between city and countryside, different terms came to the fore: *agrogorod* (agricultural city), *agrarnyy gorod* (agrarian city), *agrokombinat* (agricultural complex) or *agropromyshlennyy kombinat* (agricultural-industrial complex). The usage of these different terms refers, indeed, to different visions of planning the socialist settlement. Among the many ideas already analysed (Khazanova, 1980; Khan-Magomedov, 1987; Ceccarelli, 1970; Canella and Meriggi, 2007) we shall consider those that focused on the design of the countryside (Verezubov, 1930; Sabsovich, 1929, 1930; Strumilin, 1930; Zelenko, 1929; Barsh *et al.*, 1930).[38]

One of the distinguishing terms of this debate concerned the planning unit's appropriate scale and its respective number of inhabitants. In 1930, engineer I.I. Verezubov, who had dealt with rural planning since 1925 (Kazanova, 1980: 136–7), defined the agrogorod (agro-city) as a determined area of optimal size, organized solely to comply with its prevailing scope. Verezubov clarified that issues of scale should not lead to "local misunderstandings", adding that an average Soviet collective farming enterprise (i.e. a sovkhoz) covered several thousand hectares, and that kolkhozy, sovkhozy, and agricultural industrial compounds were all complex, all-inclusive constructions (Verezubov, 1930).

Accordingly, for Verezubov, an agro-city was an equally complex social organism fuelled by an economic activity in a specific territory, and assuming the role of a kind of "mining industry of agricultural products" (ibid.).

Overall, these technical conditions, particularly concerning energy supply, led Verezubov to define an optimal area ranging from 2,000 to 200,000 ha, leaving smaller units for highly intensive cultivations (i.e. horticulture) and larger ones for grain or mixed farming (Verezubov, 1930: 5–6[39]).

To exemplify the idea of agrogorod as a district complex (as distinguished from a single, isolated, settlement), Verezubov considered it an abridged materialization of the *Organizational and Production Plan*

37 **In December 1927, the fifteenth Congress of the Communist Party approved the resolutions for drawing up the First Five-Year Plan. On 30 June 1928, the Gigant State Grain Farm no. 1 was established with the arrival of the first tractor column. Three months later, on 1 October 1928, the First Five-Year Plan officially began. By December 1928, the plan for Gigant's central settlement was approved. In September 1929, the project for the central settlement of Verblyud was published (Eramishancev, 1929). On 14 October 1929, the film *Old and New* was shown for the first time. From October to December of the same year, the Communist Academy hosted a public debate on the socialist city. In October 1929, the first anti-urbanist project for the *Green City* competition was presented in Moscow. In parallel, OSA elaborated the *urbanist* design competition for the socialist city of Stalingrad. The design competition for the socialist city of Magnitogorsk ran from December 1929 to March 1930. In May 1930, the second project for the central settlement of Verblyud was published, along with the project for the Karabalyk Educational-Experimental State Grain Farm (Eramishancev, 1930).**

38 **We shall leave behind other important visions referring to new industrial cities, such as that of N. Miliutin, who wrote just few words on the design of new rural settlements.**

39 **This article for *Stroitel'stvo Moskvy* (Construction of Moscow) introduces a series of sovkhozy projects including Eramishancev's (Eramishancev, 1930).**

for the Social and Technical Reconstruction of the Economy of the Kashirsky Rayon in the Moscow Oblast, 100 km south from Moscow. This plan considered an area of 99,133 ha consisting of 187 settlements, including 8,356 farmsteads and nearly 50,000 people, most of whom worked in agriculture. Moments of socialization revolved around productive activities.[40] In addition, an MTS marked the district centre, together with the administrative centre hosting the workers' organizations (twenty-one farm enterprises). Finally, the collective management complex could be divided into two units: the production zone and the area gathering housing, cultural and tertiary (administration, communications, intellectual work, etc.) facilities.

The differences in performance between the agrogorod and an ordinary city were embodied in the fact that the latter took up hundreds or at most one to two thousand hectares, whereas the agro-city took up tens or hundreds of thousands of hectares. In addition, while agricultural activities marked the life of an agrogorod, in an ordinary city there were many more variables to take into account.

In the rural settlements of the Salsk steppes we can find all the elements mentioned by Verezubov. The two central settlements of the Gigant and Verblyud sovkhozy had their MTS and thousands of hectares of arable land. There was a constellation of smaller settlements, already existing before the Revolution (Batansk, Zlodeyskaya, Mechetinskaya, Egorlyskaya, Tselina, Trubeckaya), each with its own farming area. There was a group of new villages established by Transcaucasian refugees and later collectivized in kolkhozy, and the Sejatel' Commune founded by US immigrants in 1923–25.

Within this settlement framework, Verblyud played the role of a university town focused on agriculture, whose laboratories were to be found in the sovkhoz with its huge MTS.

In 1929, Alexander U. Zelenko[41] wrote an article about the construction of socialist cities and described the *agrarnyy gorod* as a settlement with its own distinct shape, differing from any industrial city, hinged as it was on technical and productive units: the power station, the MTS, the state and collective farms. Figures indicated that an energy production centre could feed an average catchment area of 50,000 to 60,000 ha. A kolkhoz or sovkhoz producing cereals would divide this supply of energy among a number of smaller production centres, ranging from eight to twelve.

In an agro-city, the grain strip was to require about 4,000 farmsteads (*dvorov*), with a population of *c.*20,000 people, unless it was a new settlement area with a state farm not yet densely populated. Population gradually would be concentrated around the nuclei of economic activities, or near the main centre, that is, the MTS. In general, the structure of an agro-city integrated a central square for public gatherings, from which streets would branch off in all directions, and residential blocks or quarters consisting of large apartment buildings, which would multiply with the arrival of new inhabitants. Public buildings near the main square included the house of the local soviet council, the House of Culture, schools, hospitals, post offices, etc. Further growth of any such setting would foster the collectivization of everyday life, perhaps even faster than in industrial cities (Zelenko, 1929: 27–8).

In the agro-city as described by Zelenko, we can easily recognize Gigant and Verblyud: the energy production centre for the early tractor columns, the extension of arable land corresponding roughly to the land actually worked on Gigant in 1929 (48,500 ha; Abrosimov and Koval', 1939: 32). Additional similarities concern the dimension of the Verblyud sovkhoz and its articulation into a "central settlement"

40 These included: a) collective ploughing; b) collective use of agricultural machinery; c) mowing and improvement of arable lands; d) seed farming; e) collective gardening; f) livestock breeding; g) gardening and berry cultivation; h) collective food storage; i) animal breeding.

41 Engineer and architect Alexander Ustinovich Zelenko (1871–1953) was also an educator and collaborated with Nikolai Ladovsky (1881–1941) on the latter's project for the *Linear City*.

surrounded by a system of secondary bases (*baza*). Furthermore, the general structure of the sovkhoz centre featured a huge central square with public buildings in the case of Gigant or a central system of squares in the case of Verblyud. The great difference between the reality and Zelenko's vision lay in population size: 20,000 inhabitants against the 6,600 inhabitants of Gigant and the 8,800 of Verblyud by the late 1930s. Only a few months before Zelenko's paper was published, remarking on the structural shift from a rural economy based on small units (obshchiny) to industrialized agriculture (sovkhoz), L.M. Sabsovich[42] observed that workers employed in these grandiose agricultural factories would necessarily be, above all, "machine workers" not so different from those working in industry:

We must end once and for all the "idiotism" of country life: agricultural machinery and the organization of agricultural production on a scientific basis will raise the cultural level of the agricultural worker … at this high cultural level, they will also have to adopt a different lifestyle. (Sabsovich, 1929: 36)

According to Sabsovich, the individual agricultural management would inevitably lose importance. Large agricultural factories, covering 50,000 to 100,000 ha or more, implied centralization. Thereby, larger centres were to replace existing villages and include houses, warehouses, garages, workshops, electrical substations, factories for the initial processing of raw materials, schools, and hospitals. In 1930, Sabsovich himself foresaw a network of agricultural-industrial complexes:

Already at the present time, we must create a reasonable plan for the division of each district into several territories, since each shall correspond in the future to a large scientifically organized agricultural enterprise. When creating this plan, you need to proceed not from one of the collective farms which are currently being organized, but rather from their rational unification, which should be conceived for the purpose of creating large, well-organized mechanized and scientifically delivered agricultural enterprises. In relation to this economic plan, the zoning of each district should define an appropriate placement of agricultural population in certain points. In such points, new agricultural cities should emerge … that, in principle, shall comprise each a population of about 50,000 to 60,000 people, similar to that of an industrial city … It is possible to create agricultural cities serving several adjacent large agricultural enterprises. (Sabsovich, 1930: 27–8)

Sabsovich exemplified his idea of the agricultural-industrial complex with a plan by the Stalingradstroya[43] for the city of Stalingrad **(Fig. 19)**, clustering five industrial cities with populations varying from 31,200 to 64,000 inhabitants, surrounded by three sovkhozy. This plan was to identify a new kind of settlement, an industrial socialist city where, instead of the chaotic alternation of housing and factory enterprises, residential compounds would be built near the industrial plants, surrounded by subsidiary agricultural enterprises or large collective or state farms (Sabsovich, 1930: 91).

In Sabsovich's argument we may recognize several aspects that characterize the central settlements of Gigant and Verblyud, each of which was organized like an industrial city, where MTSs replaced industrial complexes. The difference is in the scale. Taking the Stalingradstroya's project as a prototype, any industrial city was to include twenty huge residential complexes, each corresponding to a factory or MTS, and comprising communal dwellings and apartments with facilities of all kinds. **(Fig. 20)** It is striking that residential complexes of this kind, such as those designed by A. Vesnin for Stalingrad (500 × 600 m for 3,200 inhabitants), approximatively measure half of

42 The Soviet planner Leonid M. Sabsovich (?–1938) heralded the *urbanist* approach against the *de-urbanist* line supported by M.A. Okhitovic (see note 47) in the debates on the socialist city which began in the USSR in 1929 and continued throughout the 1930s.

43 State trust for the construction of socialist cities of the Stalingrad industrial region.

Gigant's, Verblyud's, or Karabalyk's central settlements (i.e., 60 ha not considering MTS areas), and accommodate comparable population densities. In other words, considering the relationship between housing and facilities, in the layout of the central settlements designed by the Teplobeton construction trust for the grain sovkhozy, we can identify a prototype of the residential complexes designed for Stalingrad.

However, the population of 50,000 to 60,000 inhabitants proposed by Sabsovich seems to be completely unrealistic given a sovkhoz of 50,000 to 100,000 ha. As we have seen, both the Gigant and Verblyud sovkhozy each had a dimension of nearly 50,000 ha — as suggested by Sabsovich — but with a population from 6,600 to 8,800 inhabitants respectively.

The ratio between inhabitants and land extension of the Gigant and Verblyud sovkhozy was also confirmed theoretically by economist S.G. Strumilin[44] (1930), who proposed eliminating the contradictions between city and countryside by keeping rural and urban settlements separate and organizing instead efficient mobility of working forces, just as Eisenstein's *Old and New* had shown.

Concluding remarks: Salsk steppes hovering between two visions of the socialist city

The establishment of sovkhozy in the Salsk steppes was contemporaneous with the well-known *urbanism* vs. *de-urbanism* debate[45]: each term expressed an alternative idea for the Soviet city of the Five-Year Plans system. Both *urbanists* and *de-urbanists* were members of the OSA (see note 3), enacting a sort of academic competition or, in Volchok's words (2009), a "cultural experiment" that addressed different temporal horizons — today, the near future, the future — and sharing the common task of colonizing the entire Soviet territory by way of a grid of new centres.

To solve the contradiction between the city and the countryside, to address peasant's alleged "idiotism" and backwardness considered to characterize the *Old* pre-revolutionary world, *urbanists* proposed a network of industrial and agricultural cities, like A. Vesnin's 1930 designs for Stalingrad and Kuznetsk in 1930 (Khan-Magomedov, 1987: 333), which corresponded to Sabsovich's vision of the socialist city. His opponent Mikhail A. Okhitovich[46] supported the project of a "new settlement for humanity" (quoting Lenin) able "to put an end to the separation between city and countryside" (quoting Marx and Engels)[47] by establishing linear settlement strips connecting production areas, both industrial complexes and MTSs. The planning and architecture of this form of socialist settlement may be exemplified by two projects for the 1929 *Green city of Moscow* competition and the 1930 *Magnitogor'e* competition.[48] **(Fig. 21)** The linear strips are organized with individual residential units and facilities, surrounded by nature, thereby requiring a transportation network to allow workers (whether employed in industry or mechanized agricultural enterprises, i.e. sovkhozy) to reach their workplaces (Barsh *et al.*, 1930).

By analysing in detail the composition of the linear strip **(Fig. 22)**, we understand that it consisted of 1-km segments of rows of individual dwellings, one attached to another, interspersed with bus stations and local facilities (for kindergarten classes, sport, clubs, shops, etc.). Each segment was crossed by a central road and divided into fifty-eight modules (twenty-nine on each side) with four individual dwellings about fifty metres from the road. Interestingly, the resulting density

44 Stanislav Gustavovich Strumilin (1877-1974), economist and statistician.

45 For a general overview of this debate, see: Kahn-Magomedov (1987: 271–340).

46 Mikhail Aleksandrovich Okhitovich (1896–1937), Bolshevik sociologist, town planner and Constructivist architectural theorist of *de-urbanism*.

47 Both quotations are used as titles of the boards presenting the *de-urbanist* project for the Magnitogorsk new town by the OSA group (Barsh *et al.*, 1930). This project, as well as other *de-urbanist* proposals by OSA, have been analysed in detail in: Meriggi (2007: 20–51). A wide anthology of articles from *Sovremennaya Arkhitektura* translated in Italian may be found in Canella and Meriggi (2007).

48 On these projects see also: Meriggi (2008).

of 232 inhabitants per linear kilometre corresponds to Dukhobor and Molokan linear villages, each having an obshchina of nearly 200 people per linear kilometre. These linear villages are built of forty farmsteads per kilometre, each including a single-family dwelling of the izba type.

In the unrealized project's explanatory notes for *Magnitogor'e* (which translates as "Magnitogorsk regional city"), the authors (ibid.) stress that, in comparison with urban communal dwellings, this solution provided better environmental conditions, cost less, and was more flexible in that it allowed for a single room unit on pilotis instead of the traditional wooden izba.

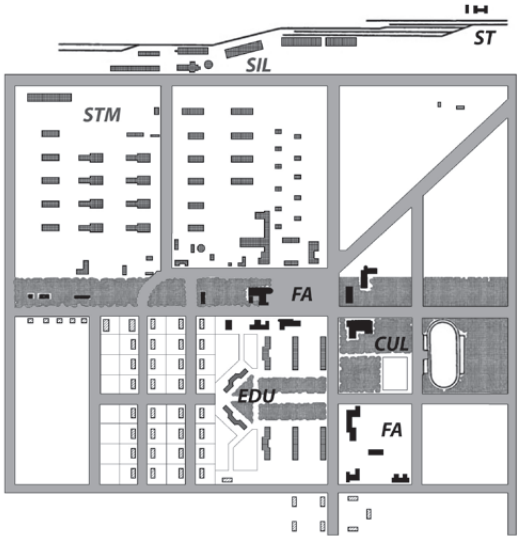
However, both izbas and single-dwelling units on pilotis entailed a construction process by montage, easily achievable thanks to the nearby timber factories envisaged in the general plan for the Musak in the Ural woodlands.

The expected population for the agricultural-industrial complex of Magnitogor'e was 31,200, distributed in eight main settlement strips, each nearly 25-km long. Considering the population surrounding the Magnitogor'e city region, the overall capacity of the 200-km linear settlement may retrospectively be estimated to have been 46,400. Magnitogor'e proper was to occupy an area of nearly 3,600 km² with a population density ranging from 8.6 to 12.8 inhabitants per km², figures quite comparable with those of Salsky District in 1926.[49]

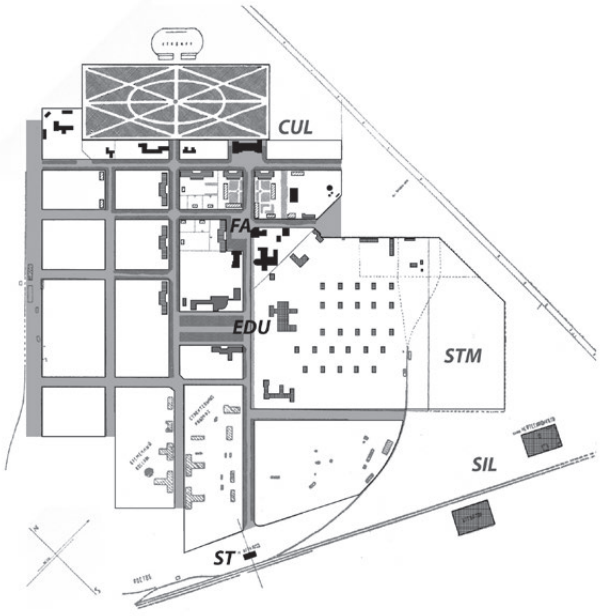
We may conclude that the Salsk steppes — transformed by the new linear villages in Zapadno-Konnozavodchevskiy rayon in the early 1920s and the foundation of the sovkhozy in the late 1920s — were a testing ground for alternative visions of the future socialist city by the main figures of Soviet avant-garde architecture. As such, the Salsk steppes became the site of a concrete model synthesizing *urbanist* and *de-urbanist* visions.

49 See note 22.

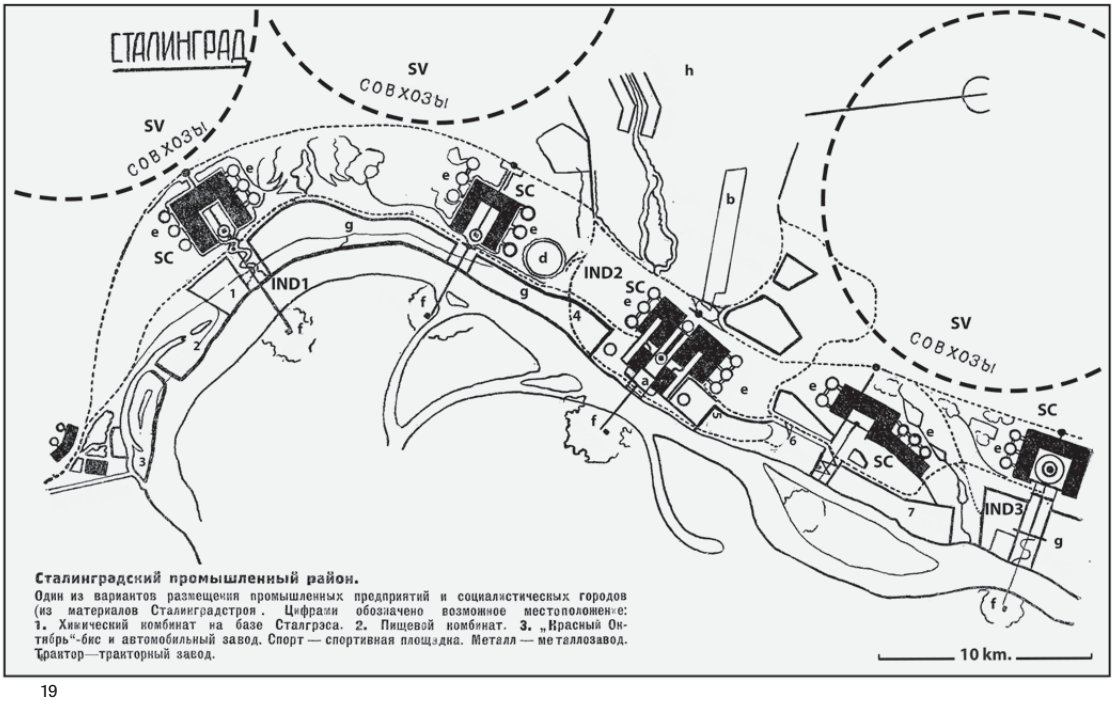
GIGANT - project 1928



VERBLYUD - project 1929



18



Сталинградский промышленный район.
Один из вариантов размещения промышленных предприятий и социалистических городов (из материалов Сталинградстроя. Цифрами обозначено возможное местоположение: 1. Химический комбинат на базе Сталгрэса. 2. Пищевой комбинат. 3. „Красный Октябрь"-бис и автомобильный завод. Спорт — спортивная площадка. Металл — металлозавод. Трактор—тракторный завод.

19

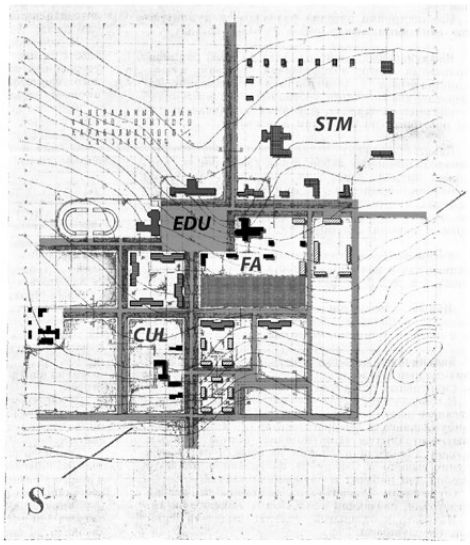


Fig. 18
Maurizio Meriggi, *Comparison of Teplobeton's 1928 to 1929 standard projects for the central settlements of experimental state grain farms,* 2022. Gigant (left): population forecasted in central settlement: 4,000. Key to symbols: **EDU** (educational institution): *Agrotekhnikum* (100 students). Verblyud (centre): population forecasted in central settlement: 4,000. Key to symbols: **EDU** (educational institution): Institute for Mechanical Engineers of Socially-Owned Farms (1,000 students). Karabalyk (right): population forecasted in central settlement: 2,000. Key to symbols: **EDU** (educational institution): *Agrotekhnikum* (600 students); **CUL** (cultural facilities): Palace of Culture; workers' club, park; **FA** (facilities): primary and secondary school; nursery; administrative centre; public canteen and kitchen; sauna-laundry; cooperative shop; hospital. **MTS** (machine tractor station): mechanical workshop; machine testing laboratory for tractors and trailed implements; shed for tractors, combines, convoy; garage for cars and trucks; **SIL** (silos): mechanized grain storage; supply warehouses; **RES** (residential types): student hostels, block houses with apartments of two and three rooms; single- and two-family houses; cottages.

Fig. 19
Stalingradstroya, *Stalingrad's industrial and agricultural district*, 1930. Elaboration by Maurizio Meriggi. Population forecasted in 1930: 217,000. Key to symbols: settlement: SC: socialist cities: **a.** cultural and administrative centre; **b.** Culture Park; **c.** residential districts; **d.** hospital; **e.** schools; **f.** sport; **g.** woods; **h.** holiday houses; industry: IND1: **1.** chemical factory; **2.** timber base; **3.** port and Volga-Don Canal; IND2: **4.** food factory; IND3 (woodlands): **5.** metallurgic factory; **6.** Krasnyy Oktyabr' factory (motors) and car factory; **7.** tractor factory. Agriculture: SV: sovkhozy. Source of base map: Sabsovich (1930).

Fig. 20
Two pages from Sabsovich's Socialist cities showing Stalingradstroya's schemes of a 'Socialist city'. (Left) A. and L. Vesnin, *Schematic plan of a socialist city* (5×2.5 km), variant with five-storey residential buildings. Key to symbols: **1.** residential complexes; **2.** central park where all public institutions are located; **3.** educational institutions ("citadels"); **4.** main roads. (Right) A. and L. Vesnin, *Project of residential complex* (500×600 m). Key to symbols: **1.** five-storey residential buildings for adult population, (rooms for individual and circle activities are located in the building's central part, on the second floor); **2.** building of collective facilities (public canteen, library, reading room, rooms for club activities, winter garden and others); **3.** gymnasium, swimming pool located in central square; **4.** houses for children of nursery age – connected with passages to adult residential buildings; **5.** houses for preschool children; **6.** square for sports; **7.** orangery.
The city's area is, that of a residential complex is. Source: Sabsovich (1930: 47, 94).

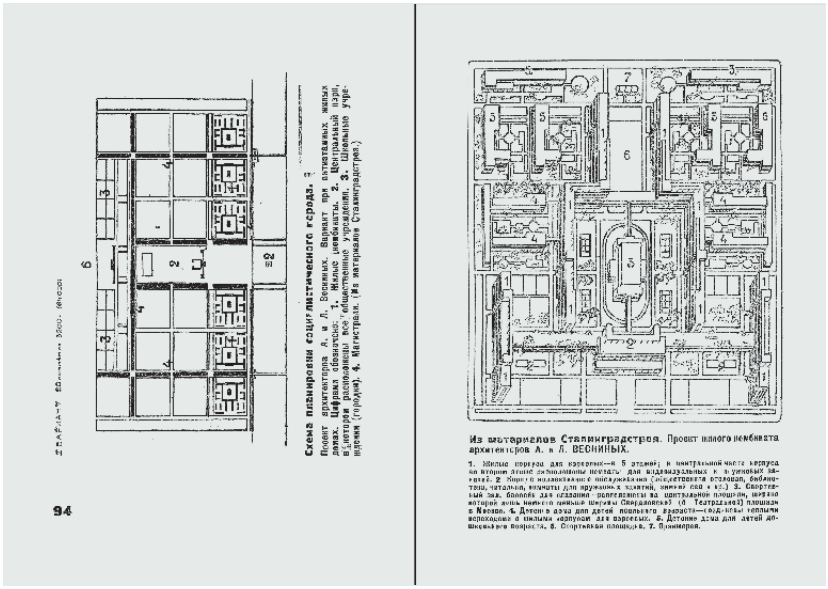


Fig. 21
OSA group (M. Barsh, V. Vladimirov, M. Okhitovich, N. Sokolov), *Magnitogor'e general plan of a* "Socialist settlement", 1930. Elaboration by Maurizio Meriggi, 2022. Population forecasted: 31,200. Key to symbols: settlement: **a.** administrative centre, dam and power plant, railway station; **b.** Culture Park; **c.** residential strips; **d.** *musak* (industrial settlement); industry: IND1: **1.** metallurgic and chemical factories; **2.** mine; **3.** food factories and mills; IND2: **4.** footwear and clothing industry; IND3 (woodlands): **5.** furniture and timber building factories; agriculture: S1: grain sovkhoz; **6.** machine tractor stations; S2: cattle-breeding sovkhoz; **7.** milk factory; HT: horticulture; HC: fruit cultivation. Source of base map: Barsh *et al.* (1930).

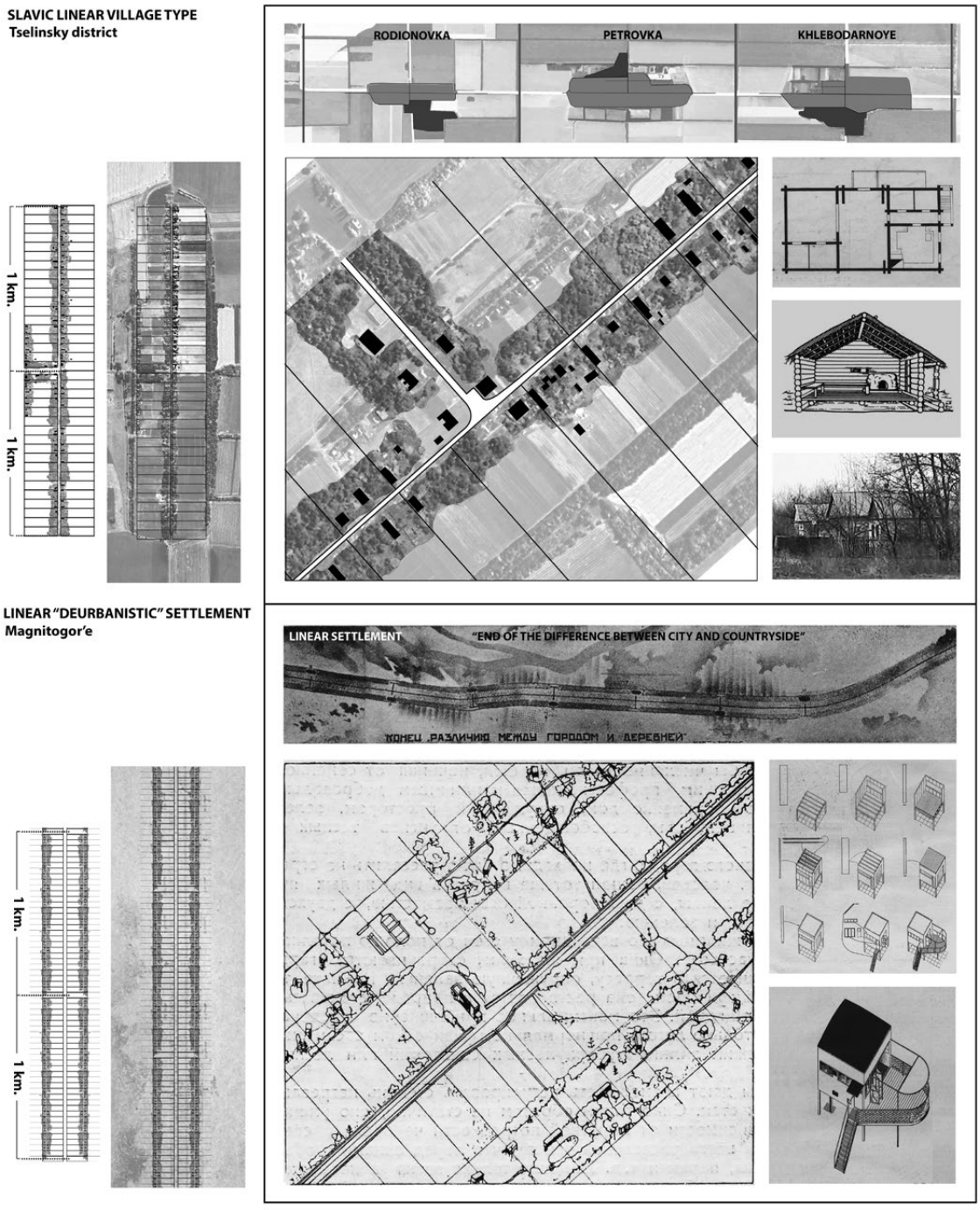


Fig. 22
Maurizio Meriggi, *Comparison of the Slavic linear village and the* de-urbanist *linear settlement strip*, 2022. (Top) Slavic linear village on the base of the sample of Rodionovka, Petrovka and Khlebodarnoye in the Tselina District: 80 modular lots for a total of 440 inhabitants corresponding to a linear density of 220 inhabitants per km. (Bottom) Linear de-urbanistic settlement on the base of the sample of the plan for Magnitogor'e: 58 residential lots per km with 4 individual houses per lot, corresponding to a linear density of 232 inhabitants per km. Sources of base maps: Barsh *et al.* (1930); Pilyavskiy *et al.* (1994); image © 2021 Maxar Technologies.

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Ateliers de Bigorre (editor), *Le village [The village]*, c.1925. Toy set in wooden box containing 89 pieces comprising buildings, bridge, trees, windmill aimed at the construction of a cubist-like stylized Bearnese village (France). Source: © Courtesy of The Drawing Matter Collection.

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