UDC 94(477)"1950/960":[338.45:661.12](091)

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INDUSTRIAL MODERNIZATION OF THE UKRAINIAN SSR AT THE MICRO LEVEL: THE DEVELOPMENT OF THE DARNYTSIA CHEMICAL–PHARMACEUTICAL PLANT IN THE 1950s – 1960s

Abstract: This paper examines industrial modernisation in the Ukrainian SSR through the case of the Darnytsia Chemical-Pharmaceutical Plant in the 1950s – 1960s. Based on annual financial reports, construction materials, and trade-union protocols from enterprise archives, it reconstructs the plant's transformation from a postwar branch of a research institute into a large pharmaceutical enterprise. The study argues that modernisation at the micro level was contradictory: growth in output, mechanisation, and product range coexisted with dependence on imported technology, chronic planning distortions, and difficult working conditions.

Keywords: Ukrainian SSR, industrial modernisation, pharmaceutical industry, Darnytsia Chemical-Pharmaceutical Plant, Soviet economy.

The history of the Soviet pharmaceutical industry is usually written at the macro level, through state policy, aggregate output, or the achievements and failures of the Soviet health-care system. Such a perspective is important, but it does not fully explain how modernisation functioned inside a specific enterprise. A microhistorical approach makes it possible to see the practical mechanisms of industrial growth, the limits of planning, and the social cost of production. The Darnytsia Chemical-Pharmaceutical Plant is especially suitable for such an analysis. Its trajectory combined postwar reconstruction, rapid growth in output, repeated changes in administrative subordination, and persistent everyday problems in the workshops. The main source base for this topic is Fund R-1125 of the State Archive of Kyiv, which contains annual financial reports, capital construction materials, technical documentation, correspondence, and trade-union protocols. These materials make it possible to compare the official language of success with evidence about shortages, bottlenecks, and labour tensions. They also make it possible to examine modernisation not as an abstract slogan, but as a process that unfolded in specific buildings, with specific equipment, and under the pressure of concrete production tasks (State Archive of Kyiv, R-1125).

The postwar growth of the Darnytsia enterprise was closely connected with the broader attempt to restore the medical infrastructure of the USSR and expand the production of basic medicines in the Ukrainian republic. In the late 1940s and early 1950s, the plant emerged from the network of the Ukrainian Institute of Experimental Endocrinology and gradually acquired the features of an independent factory. This process reflected the general priorities of Soviet medicine. The Soviet medical system combined ambitious social goals with severe organisational constraints, and its material base often lagged behind its declared tasks (Field, 2000: 51-65). In pharmaceuticals, this meant an emphasis on quantity, accessibility, and rapid recovery after the

war. Darnytsia's early specialisation in organotherapeutic, galenical, and other relatively simple medicines corresponded to this logic. The plant was expected to supply the republic with products that were socially necessary and technologically attainable within the limits of the postwar economy. In that sense, its development was not exceptional. Rather, it was a local embodiment of a broader Soviet strategy that aimed to expand medical provision quickly, even when technological capabilities remained restricted (Bohatyrova et al., 1999: 611-634).

At the same time, the institutional setting of this development was unstable. The pharmaceutical sector in the USSR passed through repeated reorganisations between the late Stalin period and the Khrushchev years. The boundaries between the Ministry of Health, the structures of the medical industry, and later the regional economic councils were repeatedly redrawn. Research, regulation, and production were often subordinated to different bureaucratic centres, which created delays and contradictions in decision-making. Recent scholarship on Soviet pharmaceutical regulation shows that the branch remained highly centralised in crucial matters, yet its administrative design changed often enough to undermine consistency and long-term planning (Vasilyev, Petrenko, Tayukina, 2021: E1894). The Darnytsia case demonstrates how this worked in practice. The enterprise did not develop in a stable institutional framework. It was shaped by a sequence of reforms that changed reporting lines, investment procedures, and the practical distribution of authority between central and republican structures. Such volatility did not stop growth altogether, but it made modernisation more uneven. The plant could receive new tasks and new investment, yet it still had to adapt to shifting rules of management, which complicated both technical renewal and the everyday organisation of production.

During the 1950s, the enterprise made a difficult transition from a vulnerable postwar production base to a more regular industrial operation. Annual reports show that workshops expanded, the assortment of medicines broadened, and the factory learned to fulfil plans more consistently than in the immediate postwar years (State Archive of Kyiv, R-1125, Des. 1, file: 101). Yet this did not mean that Darnytsia had already become a fully modern pharmaceutical plant. A large part of the production process still rested on manual labour, cramped premises, and an unstable supply of materials. In this respect, the plant followed a broader Soviet pattern. Conroy has shown that postwar pharmaceutical production in the USSR was marked by extensive growth, emergency methods, and chronic weaknesses in logistics and technical support (Conroy, 2004: 963-978). At Darnytsia, these weaknesses appeared in the gap between growing expectations and the real state of workshops. Production rose, but the technological base remained narrow. The enterprise expanded not because structural problems had been solved once and for all, but because managers and workers were compelled to squeeze more output from a limited material environment (State Archive of Kyiv, R-1125, Des. 1, file: 53). This was modernisation in a very specific Soviet sense: real movement forward, but without a clean break from earlier scarcity.

The structure of the assortment is especially revealing for understanding the level of modernisation reached in the 1950s. Darnytsia's output was still based to a large extent on organotherapeutic, galenical, and other relatively labour-intensive medicines that could be produced with limited technological sophistication (State Archive of Kyiv, R-1125, Des. 3, file: 11). This did not make them unimportant. On the contrary, such preparations remained essential for Soviet public health, especially in conditions of chronic scarcity and uneven regional supply. Yet their predominance also showed the technological ceiling under which the enterprise operated. The production of more complex chemical and synthetic medicines required a different equipment base, more stable supplies of intermediates, and stricter control over technological regimes. In this

respect, Darnytsia occupied an intermediate position between a postwar recovery workshop and a modern pharmaceutical factory. It was already more than a small auxiliary producer, but it had not yet fully escaped the material and technological constraints characteristic of the early Soviet pharmaceutical sector (Conroy, 2004: 970-978).

	1949	1952	1955	1958	1961	1964	1967
Production (million rubles)	0,4	1,3	1,9	2,6	5,1	9,6	11,1
Employees	95	250	287	295	371	465	1029
Productivity per one employee (thousands of rubles)	4,4	5,3	6,6	8,8	13,8	20,7	10,9
Average mouthy salary per employee (rubles)	58,5	55,9	54,7	57,9	67,2	79,5	88

Table 1: Statistical indicators of the Darnytsia Chemical-Pharmaceutical Plant in the 1950s-60s (taking into account the monetary reform of 1961)

The logic of planned production also produced a specific kind of success. Factory management reported the fulfilment and overfulfillment of quantitative indicators, and in formal terms, these results could be presented as evidence of progress. However, archival materials suggest that the real situation was more uneven. The rhythm of work depended on deliveries from other enterprises, the availability of raw materials, and the condition of outdated workshops (State Archive of Kyiv, R-1125, Des. 1, file: 101). Managers were under pressure to achieve gross output, whereas questions of assortment, product quality, and the long-term replacement of obsolete equipment often remained secondary. In other words, the plant could look successful in official summaries even when its internal functioning remained unstable. This contradiction between the fulfilment of the plan and the fragility of actual production was characteristic of the Soviet economy more broadly. It was especially visible in pharmaceuticals, where interruptions in packaging, bottlenecks in auxiliary materials, or delays in external supplies could undermine the practical value of reported achievements (Conroy, 2004: 978-985). The Darnytsia materials, therefore, show that modernisation should not be measured only by the growth of output. It also has to be judged by the regularity, reliability, and technological quality of production, and in these respects, the enterprise still faced serious limits in the 1950s and even later (State Archive of Kyiv, R-1125, Des. 1, file: 128).

These contradictions become even clearer when questions of quality, assortment, and packaging are considered. In a planned industry, the formal fulfilment of gross output could coexist with shortages in specific medicines, delays in shipment, and complaints from consumers or partner organisations. Pharmaceutical production was especially vulnerable because the value of the final product depended not only on quantity but also on sterility, dosage accuracy, shelf life, and proper packaging. Archival materials from Darnytsia show that packaging shortages, transport problems, and irregular deliveries could undermine the final result even after the medicine itself had been produced (State Archive of Kyiv, R-1125, Des. 1, file: 151). In other words, modernisation was not only a matter of building new workshops. It also required a much more reliable chain of supply, quality control, and distribution. The plant's experience demonstrates how the Soviet industrial system could generate output growth without fully resolving the infrastructural weaknesses that stood between production and effective delivery to consumers.

A more dynamic stage began in the early 1960s. Khrushchev's reforms and the growing official emphasis on living standards gave pharmaceutical production a more important place in Soviet economic policy. In the Ukrainian SSR, this led to new investments in the medical industry and to attempts to expand the output of medicines needed by a rapidly urbanising population (Bohatyrova et al., 1999: 634; Vasilyev, Petrenko, Tayukina, 2021: E1894). At Darnytsia, these changes translated into new workshops, reconstruction projects, and a more active introduction of packaging and ampoule equipment. By the mid-1960s, production had increased several times compared with the earlier period, and the assortment had widened substantially. According to the plant's reports, by 1965 the factory had launched 18 new medicines, while total output reached 11.2 million rubles, which was about 2.5 times the level of five years earlier (State Archive of Kyiv, R-1125, Des. 1, File 247). Such data indicate that modernization at the enterprise was not imaginary. The factory did become larger, more productive, and more diversified. Yet the very scale of this expansion also sharpened old contradictions.

Figure 1: Packing tablets and making ampoules at Darnytsia Chemical-Pharmaceutical Plant, 1961 (CSAEAU, Archival number: 3461)

The expansion of the 1960s, however, did not eliminate the structural dependence of the enterprise. Soviet pharmaceutical modernization remained closely tied to imported equipment and to selective borrowing from outside the USSR. The Soviet chemical and pharmaceutical engineering base could not fully satisfy the needs of the industry, especially in those segments that required precision machinery, reliable packaging technology, and more advanced production lines (Office of Technology Assessment, 1979: 208, 227). The Darnytsia plant followed the same pattern. Archival materials indicate the regular purchase and installation of imported or externally supplied machinery, including equipment produced in the Federal Republic of Germany, Japan, and other technologically advanced countries (State Archive of Kyiv, R-1125, Des. 1, File 230). This borrowing was productive. It allowed the enterprise to raise productivity, improve some production stages, and support export-oriented stability in certain lines. At the same time, it exposed the limits of Soviet self-sufficiency. The plant did not modernise through an autonomous technological breakthrough generated inside the Soviet system alone. Rather, it modernised through a combination of administrative mobilisation and carefully selected external technologies. This makes Darnytsia a revealing example of how Soviet industrial growth could be both genuine and dependent at the same time.

The Darnytsia case also had a clear spatial dimension. The plant developed on the left bank of Kyiv, in a district whose industrial role expanded significantly in the postwar decades. The transformation of the Darnytsia area was part of the broader reconfiguration of Kyiv's urban and industrial geography, in which new production zones, transport links, and residential districts emerged outside the historical core of the city (Stebletska, 2014: 71-73). In this sense, the growth of the pharmaceutical plant should be understood not only as a branch of history, but also as a fragment of postwar urban modernisation. The factory became one of the enterprises that tied industrial policy to the physical expansion of the capital. At the same time, the old site increasingly became a bottleneck. The need to reconstruct workshops, improve utility networks, and expand storage and auxiliary facilities indicates that the inherited spatial framework no longer matches the scale of production. This observation is important because it shows that modernisation at the micro level was inseparable from the built environment. The history of Darnytsia was shaped not only by ministries and plans, but also by the capacities and limits of the physical plant itself. In the broader context of Kyiv's medical industry, this made the enterprise part of a larger shift in the city's economic landscape (Illiashenko, 2016: 591-595).

By the late 1960s, this contradiction became even sharper. The modernisation of Darnytsia increased total capacity, but the inherited site and the accumulated logic of production still constrained further development. As the plant expanded, older buildings and communications increasingly acted as a bottleneck. This encouraged a shift toward forms of output that were cheaper, more labour-intensive, and easier to maintain within the limits of the available space and equipment. Such a tendency should not be read simply as a failure of modernisation. Rather, it shows that Soviet industrial development often proceeded through compromise. Enterprises adopted new machinery and increased production, but they also adapted their assortment to the material conditions that remained unresolved. The Darnytsia case, therefore, reveals modernisation not as a clean transition from "old" to "new," but as a layered process in which innovation and inherited constraints coexisted for a long time within the same factory space (State Archive of Kyiv, R-1125, Des. 1, File 247).

The social side of this process was no less important than the technological one. Trade-union records show that output growth did not remove the ordinary problems of life in the

workshops. Workers complained about poor ventilation, periodic failures in the water supply, sanitary shortcomings, and unsafe handling of chemicals. In hazardous production these were not minor inconveniences but direct threats to health. The plant relied heavily on female labor, which corresponded to a broader pattern in Soviet industry, where women formed a substantial part of the industrial labor force while remaining concentrated in relatively low-paid and demanding work (Engel, 2004). At Darnytsia, the predominance of women in many segments of production was combined with modest wages and significant staff turnover. Archival evidence from the mid-1960s shows that labor mobility remained high and that many workers left of their own accord, which suggests dissatisfaction with everyday conditions and the limited attractiveness of factory work despite the social importance of the branch (State Archive of Kyiv, R-1125, Des. 3, File 67). This is a crucial point for understanding modernization. Growth in output did not automatically mean a better working life. On the contrary, the expansion of industrial tasks often outpaced investment in labor protection, sanitation, and everyday welfare.

The trade-union materials are especially valuable because they complicate the triumphalist image projected by annual reports. They reveal that the factory administration and the workers often experienced the same process in different ways. For management, modernisation could be measured through new workshops, new machinery, and plan fulfilment. For workers, it was also measured through air quality, access to water, safety in handling substances, and the possibility of remaining at the enterprise without constant physical exhaustion. In this respect, the Darnytsia materials confirm a broader point made in the literature on Soviet pharmaceuticals: industrial growth often coexisted with weak attention to labour safety and with the expectation that workers would compensate for structural deficiencies through personal effort and discipline (Conroy, 2004: 978). The enterprise, therefore, modernised unevenly. Some production lines improved, and certain technical processes became more mechanised, but the everyday environment of labour changed much more slowly. The factory's modernisation was social as well as technological, and its social side remained incomplete. Looking at trade-union complaints alongside formal production data makes it possible to recover this tension and to show that the costs of industrial success were distributed downward, onto the people whose labour sustained the plant (State Archive of Kyiv, R-1125, Des. 3, File 67).

The case of the Darnytsia Chemical-Pharmaceutical Plant, therefore, clarifies the character of industrial modernisation in the Ukrainian SSR more broadly. Soviet modernisation at the republican level should not be reduced either to propaganda about uninterrupted progress or to a narrative of total failure. At the factory level, the state did create new production capacities, broaden the range of medicines, and support a transition from semi-handicraft methods to more mechanised production. At the same time, these gains were constrained by institutional volatility, planning distortions, technological dependence, and the social costs imposed on workers. The Darnytsia materials show that modernisation in the Ukrainian SSR was often cumulative rather than transformative. New capacities were added, old bottlenecks were partially overcome, and the enterprise became more productive, but the underlying weaknesses of the Soviet model did not disappear. Instead, they were carried into a new stage of growth. This is why the micro level matters so much. A single plant allows us to see how administrative ambition, technical borrowing, and labour pressure were woven together within one industrial trajectory.

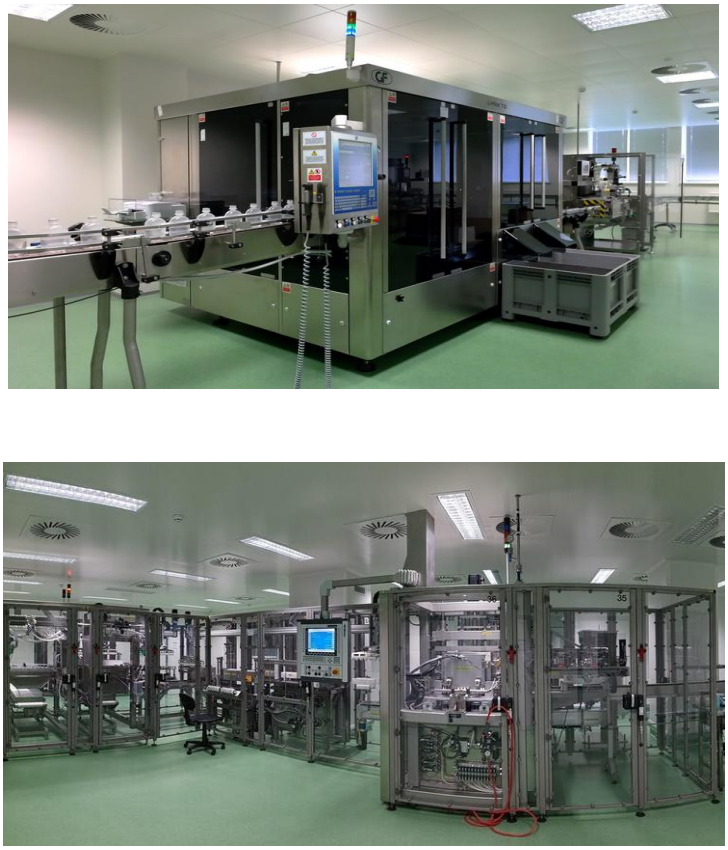

Figure 2. Modern infusion production workshop of the pharmaceutical company " Darnytsia" (Hatsenko, 2018)

Thus, the history of the Darnytsia Chemical-Pharmaceutical Plant in the 1950s-1960s demonstrates that industrial modernisation in the Ukrainian SSR was contradictory at its core. On the micro level, the plant moved from a fragile postwar enterprise to a major pharmaceutical producer. It expanded output, widened its assortment, and introduced more mechanised forms of production. At the same time, this success rested on an unstable institutional framework, uneven planning, dependence on imported machinery, and difficult labour conditions. The case of Darnytsia, therefore, makes it possible to see Soviet modernisation not as a linear story of progress, but as a mixed process in which expansion, dependence, and social tension developed simultaneously. For the history of the Ukrainian SSR, such a perspective is useful because it restores the complexity of industrial change and shows how republican modernisation was made and constrained at the level of a concrete enterprise.

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