Paper Cybernetics:
Notes on Comecon's *Dictionary of Civil Engineering in Twelve Languages* (1979)

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The primary medium of socialist internationalism was paper, that universal medium of all 20th century bureaucracies. All kinds of paper can be found in the archives of state-socialist institutions in charge of design and construction: invitations to openings of prestigious buildings on coated stock, Ozalid copies of blueprints, and fragile reports from construction sites around the world. Among the latter is a dossier documenting the design and construction of a silicate brick factory in the new town of Darkhan in Mongolia, a joint Polish-Mongolian project carried out in the second half of the 1960s. This dossier offers anything but a

glamorous view on socialist internationalism. It documents complaints about delayed machinery and materials, disagreements concerning salaries and staff housing, and confusion about the selection of Polish staff to be sent to Mongolia. Much of this confusion resulted from a rather technical issue: that of translating staff ranks used in Mongolia into Polish. One bureaucrat complained that the "[initial] staffing was based on the signed contract [with the Mongolian side] [...] [that] was incompatible with the Polish nomenclature."[1] What followed was a document that "corrected the nomenclature" by translating the original terms into those used in socialist Poland. The document also included the corresponding salary groups, making it evident that far from being of academic interest, these translations had economic and political consequences. They impacted not only the compensation to be paid by the Mongolians but also the chain of command on the construction site, thus directly defining what socialist collaboration meant in Darkhan.

Such matters were particularly important in Mongolia, which was the main recipient of socialist technical assistance during the Cold War that propelled its development "from feudalism to socialism, by-passing the stage of capitalism".[2] Following the Soviet intervention and the establishment of the Mongolian People's Republic (1924), the development of the country

was reliant on resources and expertise from Soviet Union, China (during the long 1950s), and Eastern European countries. This support accelerated after 1962, when Mongolia joined the Comecon (Council for Mutual Economic Assistance), the economic organisation led by the Soviet Union which included Soviet satellite states in Eastern Europe and was later extended to Cuba and Vietnam.[3] The institution that was increasingly in charge of the coordination of Comecon's technical assistance in architecture, planning, construction, and construction materials industries was the Permanent Commission for Construction (PCC), founded in East Berlin in 1958.[4]

In order to facilitate an inter-socialist division of labor in architecture, engineering, and construction, the PCC invested into the standardization of construction materials, products, and nomenclature of Comecon's member states. To the latter ambition testified the *Dictionary of Civil Engineering in Twelve Languages: Bulgarian, Czech, German, Hungarian, Mongolian, Polish, Rumanian, Russian, Serbo-Croatian, Spanish, English and French*.[5] Starting from 1979, too late to help out Polish engineers in Darkhan, the *Dictionary* was published in the languages of the Comecon countries as well as French and English. These latter two volumes were aimed less at Western European or North American audiences and more at the developing countries that had emancipated from Western European empires.

Figures 1 & 2.
Darkhan,
Mongolia. 2018.

From the late 1950s many of them accepted technical assistance from the Comecon, and the *Dictionary* would facilitate such exchanges.[6]

Designed to stimulate inter-socialist collaboration, the *Dictionary* was in itself an example thereof. It was published by the Central Institute of Scientific Information on Construction and Architecture (TsINIS) in Moscow, which answered to the USSR State Building Committee (Gosstroi) and was assisted by a long list of other Soviet institutions.[7] TsINIS also coordinated the work of building research institutes in other Eastern European countries which were in charge of volumes published in national languages. The power dynamics between the research institutes was mirrored in the structure of the *Dictionary*, with the Russian volume taking on the mediating role amongst the other volumes. It consisted of an alphabetic index that attributed a reference number to each Russian term. All other volumes consisted of a numerical index and an alphabetic index interlinked by means of the reference numbers from the Russian volume. This role of Russian as the "source language" was supported by the discourse of the "leading role" of the Soviet Union in architecture and construction, and it stemmed from the Soviet hegemony in the Comecon.[8] But it also reflected the basic reality of many of Comecon's construction sites, where engineers from opposite corners of the socialist world used Russian to communicate.

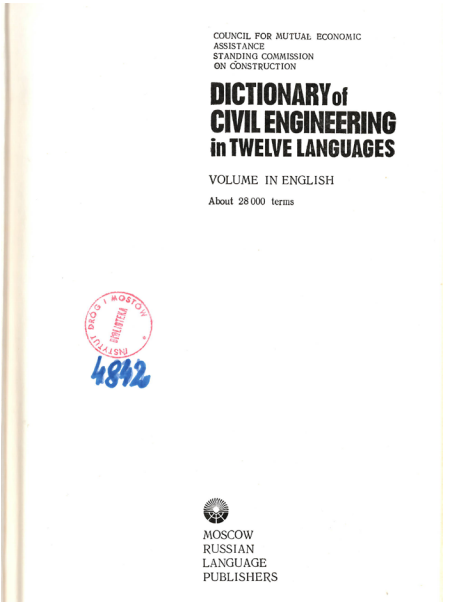

Figure 3. *Dictionary of Civil Engineering in Twelve Languages*, English volume front cover.

Such collaboration accelerated after the adaptation of Comecon's "Complex Program of Socialist Integration" (1971). "Complex" is one word among the 28,000 terms included to the *Dictionary*. As the preface to the English volume explains, in order to find the equivalent of this word in any of the 11 other languages, one needs first to find it in the alphabetic index of the dictionary.[9] On page 216, there are two entries: "complex" and "complex *attr.*," the latter distinguishing the adjective

from the homonymic noun. The numbers that followed were 11.1324 (for the noun) and 11.1355 (for the adjective). When translated into other languages and then back to English, the noun returns not only "complex," but also "ensemble," "team," "collective," and "crew." The adjective is additionally rendered as "combined" and "compressed." What emerges is a semantic map of the term "complex," often used by Eastern European bureaucrats to distinguish the integrated and collaborative character of architecture in socialist countries from its capitalist counterparts.

Evidently, such mapping was not the aim of the *Dictionary*. Rather, its aims included "securing the semantic equivalences of construction terms in many languages," "completing the current terminology," and "sanctioning new terms that are being created in the course of the scientific-technical development in construction."[10] All of this required unambiguous translations, and one way of dispelling ambiguity was a grammatical précis distinguishing between nouns, verbs, and adjectives. Another method was the "Thematic Labels", which were added at the beginning of each version of the *Dictionary*. They conveyed the variety of disciplinary knowledges that qualified the terms in the indices. In the English version, these qualifiers went from "acoustics" to "wood treatment", going through, among others, architecture, cartography, earthwork, economics, electrical engineering, geodesy,

geology, hydrology, “illumination engineering”, informatics, “locksmith’s work,” mathematics, physics, transport, “underground structures,” and “welding processes”.[11] Produced by editors in Moscow, this list offers a summative view on design and construction knowledges in socialist countries. It included stylistic vocabulary (“modernism,” “socialist realism”) but emphasised scientific and engineering disciplines and their promise of industrialisation and automation. At the same time, this promise was qualified by the prominence in the Thematic Lists of terms related to craftsmanship and manual labor.

A quick comparison between the Thematic Labels from the English volume with other volumes shows significant divergence. While the German version mirrored the Russian one with 68 entries, the English version included 61 entries and the Polish 136.[12] It is clear that, with the exception of the German version, the Labels were not translations of the Russian list. In other words, they were not translated by means of the *Dictionary* itself. Rather, they were compiled from scratch by the building research institutes in various socialist countries and reflected their design and construction industries, often differing in disciplinary traditions and professional points of reference. In spite of the ambition of the *Dictionary* to unify design and construction industries in the Comecon countries, it testified to their differentiation. What is more, the *Dictionary* diverged with itself by containing two

models of translation: word-for-word translation—on the basis of which the indexes were created—and a translation based on larger functional entities, as in the Thematic Labels.

Models of translations were very much debated in the framework of the Complex Program, which assigned resources to explore the possibilities of machine translation. Such a possibility was also on the minds of the commissioners of the *Dictionary* at the Permanent Commission for Construction, who claimed it to be a kernel of an envisaged electronic data management system.[13] The *Dictionary* was an exercise in cybernetic thinking: it combined a database of numerical and alphabetic indices with a "source code" of human readable instructions ready to be compiled into machine-readable code. In line with cybernetic thinking, the *Dictionary*'s editors presented it as adaptable and adjustable by means of feed-back loops. In this way, it fed into the attempts of the Complex Program to restructure socialist economies beyond the Fordist model which had informed socialist industrialisation since the interwar period.

The *Dictionary* documents both an attempt at this restructuring and its impossibility. A major obstacle was the very medium on which the *Dictionary* was printed. In spite of its promise of open-endedness and adjustability, each correction to the *Dictionary*, whether addition or subtraction, would require re-numbering of all entries. A renumbering of one volume would need to be

reflected in all others in order to preserve the equivalence between the entries. In other words, adding an entry to one of the volumes would require reprinting all 12 of them, resulting in an avalanche of paper which, given the economic crisis within socialist countries, was becoming a scarce commodity in the 1980s. This sense of the scarcity and preciousness of paper is reflected in Soviet "paper architecture," conveyed by dense drawings with handwritten commentary, sometimes resembling illustrated thesauri. Produced at the time when the various national versions of the *Dictionary* were leaving the printing presses, these drawings might be read as attempts to reconnect words and images after the system error of socialist paper cybernetics.

Notes

1 "Teczki kontraktowe Dział DH3-323/1173/6 - Fabryka Cegły Silikatowej Mongolia, sprawozdania," Archiwum Akt Nowych (Warsaw, Poland), 2-2309-0-382, 61.
2 Shagdaryn Bira, *Mongolia's Road to Socialism* (Ulaanbaatar: Montsame, 1981), 2.
3 Nikolay Erofeev, Łukasz Stanek, "Architectural Mobility in the Comecon: Integration, Adaptation, and Collaboration in Socialist Mongolia," in: *Between Solidarity and Business. Global Entanglements in Architecture and Planning in the Cold War Period*, ed. Christoph Bernhardt, Andreas Butter, Monika Motylińska, forthcoming by De Gruyter.
4 Gerhard Kraft, *Die Zusammenarbeit der Mitgliedsländer des RWG auf dem Gebiet der Investitionen* (Berlin: Akademie-Verlag, 1977).
5 *Dictionary of Civil Engineering in Twelve Languages* (Moscow: Russian Languages Publishers, 1979); *Dvanáctijazyčný stavební slovník* (Prague: SNTL, 1980); *Dicţionar pentru construcţii în douăsprezece limbi* (Bucarest: 1980); *Dvanadesetezičen stroitelen rečnik* (Sofia: Dărž. Izd. Technika, 1980); *Dvenadcatijazychnyj stroitel'nyj slovar'* (Moscow: Izd. Rus. Jazyk, 1981); *Zwölfsprachiges Wörterbuch Bauwesen* (Berlin (East): Bauakademie der DDR: 1981); *Dictionnaire du bâtiment et du genie civil en douze langues* (Moscow: Ed. "Langue Russe", 1982); *Dwunastojęzyczny słownik budownictwa* (Warsaw: Arkady, 1983); *Tizenkét nyelvű építési szótár* (Budapest: Akad. Kiadó, 1983). I was unable to locate the volumes in Mongolian, Serbo-Croatian, and Spanish.
6 Łukasz Stanek, *Architecture in Global Socialism: Eastern Europe, West Africa, and the Middle East in the Cold War* (Princeton NJ: Princeton University Press, 2020, in press).
7 *Dictionary*, 4-5.
8 Ibid., 8; Walter Sturm, Richard K. Stopel, *Technik-Wörterbuch: Bauwesen. Russisch-Deutsch* (Berlin (East): VEB Verlag Technik, 1973), 5.
9 *Dictionary*, 8-9.
10 Kraft, *Zusammenarbeit*, 88.
11 *Dictionary*, 10;
12 Ibid; *Wörterbuch*, 8-9; Słownik, 9-10.
13 Kraft, *Zusammenarbeit*, 88-9.