Pipes

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A visitor to cities in post-Soviet Russia cannot but be struck by the obtrusive presence of pipes. Thick silver heating pipes up to a metre in diameter emerge suddenly from the ground, in the midst of a park or walkway, often two in parallel. Heating pipes and slim yellow gas pipes may run discreetly along fences or buildings, but then leap over driveways and roads, the heating pipes often draped with shreds of insulation or metal wrapping. Hot water (or steam) flows from massive centralized boilers through these pipes, which pass indoors through bathrooms and kitchens on their way to upper storeys and wind through radiators that lack control mechanisms. Residents can adjust indoor temperature only by casting windows open or huddling in the kitchen with the stove-top and oven turned on.

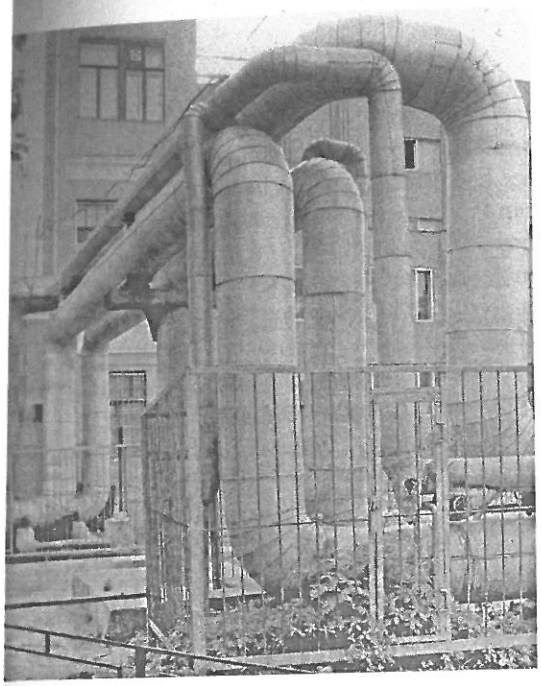
The impositions of indoor temperature and the omnipresence of pipes in the urban landscape can stand for the broader intransigence of pipes amid post-Soviet reform in Russia. Whether through urban services such as heat or through national gas production and distribution systems, pipes materially link geology, geography, industrial activity, human settlements, valuable resources and incredibly expensive but vital services to the Russian population in a network of common fate. Thus, if one wants to understand the human, political, economic and natural geography of Russia today – or, for that matter, the political economy of post-socialist reform – pipes are not a bad place to start.

The system of pipes in Russia was produced by the distinctive Soviet projects of economic coordination and social regulation. Soviet planners sought to organize rational adjustments among industrial firms, workers and the distribution of resources required to satisfy daily needs. The integration of national space through infrastructure and utility networks was an essential part of this project.

While there was some integration of national space (through railways and electricity) during the late Tsarist and early Soviet periods, daily life remained little touched. In the first Soviet decades, urban infrastructure was virtually absent in new industrial sites. Significant gains in balanced urbanization came only in the post-Second World War period. Universal social services (health and education) and protections (pensions) were instituted. Ramshackle houses and barracks were replaced by concrete apartment blocks, which were plugged universally and uniformly into national utility infrastructures. No system illustrates more vividly the new spatial and material relationships among infrastructure, human populations and natural resources than that of heat.

Soviet heating systems incorporated two great networks of pipes, both built largely in the last three decades of the Soviet period. First, a national network of gas pipes linked virtually all elements of industry and most urban heating systems with newly exploited Siberian gas deposits, as gas became the most important primary energy source in Russia and provided a critical source of hard currency from exports. Second, heat pipes plugged the apartment blocks that housed most Soviet citizens into massive centralized boiler complexes. The largest of these, the co-generating heat / electric complexes, each serve millions of residents in big cities, while entire small cities are served by single heat-only complexes.

The heating 'apparatus' – not just the material structure, but the entire biological, geological, technical and administrative ensemble – served to 'hard wire' spatial and



3 Heating pipes in Moscow.

institutional relationships between the natural and human worlds, linking a planned distribution of human settlements, climatic conditions (cold), natural resources (gas in remote deposits) and facilities for the production of a basic service (heat). The exigencies of climate and the disposition of natural resources were calibrated in human terms through technical norms that defined the heat requirements – and thus resource requirements – of human beings in given climatic conditions. Further, as the heating apparatus incorporated more and more of the Soviet population, humanism and heat were ever more tightly linked in the moral project of the Soviet state. To indulge an anthropological conceit: in Soviet Russia *anthropos*, as a subject of need, an object of regulation and a bearer of dignity, was a warm body in a cold country.

At one level, these developments were typical both inside and outside the socialist world. Networks of pipes, wires, cables and roads fixed interactions among human settlements, climate, natural resources and physical geography in many twentieth-century projects of national social and economic regulation.[1] But the Russian case was distinct. Nowhere else (not even in the rest of the former socialist bloc) was such a large percentage of a national population linked to a service as vital and as centralized as heat in Russia. Nowhere else did utility networks inscribe a distribution of population and production characterized by such a remarkable preponderance of small and geographically dispersed industrial cities. And nowhere else were these networks so rigidly fixed by an inflexible infrastructure that contained no mechanism for differentiated delivery or user control.

The fixities of the heating apparatus followed logically from the unbending certainties of Soviet social and economic regulation. For post-socialist reformers, however, these certainties and fixities appear as problematic sources of allocative inefficiency. In neo-liberal times, questions are raised that were foreign to Soviet administration. Can the State still treat heat as a social *sine qua non* – delivered without reference to cost – in what is now a quite poor country? Are there not better ways to manage Russia's unique gas resources (the domestic price of which remains a fraction of European prices) than to provide effective cross-subsidies to what have become non-viable cites and non-viable industries? Should inhabitants of such cities move somewhere richer . . . or warmer? Reformers insist, in any case, that the reassuring regularities of a system oriented to normatively defined 'need' must be balanced with the imperatives of allocative efficiency and fiscal balance.

Consequently, reform of the heating apparatus emerged as a crucial element in programmes for 'structural adjustment' in post-Soviet Russia.[2] Reformers propose the

creation of a real price mechanism by deregulating tariffs and permitting choice, calculative action and competition at every level in the system: the production and delivery of gas, the production and delivery of heat, and the consumption of heat by end-users. They propose, in short, that the heating apparatus be transformed by automatic adjustments resulting from the formally free action of producers, users and administrators. Normatively defined 'need' would be replaced by 'effective demand' as a central allocative mechanism.

These programmes for reform seem splendid in early summer, or during an economic boom, when cost recovery can rise with personal income and the burden of delivering heat seems less overwhelming. But the material characteristics of the heating apparatus itself, and its intimate entanglement with human needs, mean that in late autumn – or when terms of trade shift – reforms suddenly seem problematic. Because the system is technologically collective – it is impossible to regulate individual use or shut off individual households – the 'pain' of payment discipline is felt collectively, and is thus politically impossible to impose. And the stakes are very high. A shut-off can result (and has indeed resulted) in the destruction of much of a city heating system in 24 hours on a cold winter day. Because heating systems require massive commitments of resources, a transfer of the cost burden to 'users' – in the name of rationalization, fiscal prudence, individual discipline – might undermine the viability of entire cities, particularly the ubiquitous small, dispersed, mono-industrial cities in which 30 million Russians live. Because Russia is *really* cold, the policy on heat is a matter of life and death. As one observer put it, in other countries turning off heat 'might be unpleasant. But in Russia it could be [and has been] fatal'.[3] Finally, because the State can tap domestic energy supplies, it is extraordinarily difficult to forego the material possibility of providing heat. And indeed, despite the poverty of the population and despite the endemic failure of local governments to pay heat producers, shut-offs have been a rare exception.

The continued embeddedness of human need fulfilment in the concrete, inflexible materiality of pipes, boilers and apartment blocks helps us to understand the stuckness of resources and human beings in post-Soviet Russia around the heating apparatus. Thus far, in any case, there has been no great outflow of population from poorer areas, and a large proportion of national resources remains tied up with the spatial pattern of Soviet modernity. Structural adjustment has been forestalled, for now at least, by intransigent infrastructure.

Cities

Eric Sheppard and William S. Lynn

When we think of cosmopolitan cities, we think of places like London or Toronto. Contemporary globalization has opened up cities of all sizes to new and rapidly changing influences from the world at large, including a profound diversification of city populations. Urban landscapes are being transformed by their diversifying populations, whether temporarily, as when London's Caribbean population celebrates their distinct heritage in Notting Hill during Carnival week, or more permanently, as diverse groups of residents in cities such as Toronto seek to express and reinforce their