Science, Technology and Politics in the GDR

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In the Cold War struggle between East and West, technology was always considered central. It was understood as central both for building military strength and for constructing advanced, modern societies. With hindsight, the West can be said to have won this technological race (although there were exceptions). However, Western governments often feared that communist countries, with their centrally planned research and industrial complexes, would one day prove technologically superior. The recurring nightmare of the West was that the communist East might be able to mobilise much greater resources for future-oriented technological programmes and to pursue more consistent and truly strategic long-term planning in a way that seemed impossible in Western-style democracies with their frequent government shifts and their sensitivity to voters’ and shareholders’ short-term interests. In practice, however, the communist world could only very seldom celebrate important victories in the East–West technological race. The ‘Sputnik shocks’ proved rare, and other attempts to gain an advantage over the West tended to drown in a sea of costly failures.

Among the Central and East European countries, the German Democratic Republic (GDR) was one of the technologically most advanced. Two recent English-language books shed new light on this country’s technological past. In *Red Prometheus: Engineering and Dictatorship in East Germany*, the American historian and anthropologist Dolores L. Augustine presents a detailed analysis of the GDR as a technological power. It is a fascinating story, based on both interviews and abundant archival material. Its focus is on the formation of East Germany’s dream to become a world-leading technological power, but above all on how this dream was slowly and painfully shattered by the totalitarian state.
Most leading East German engineers—many of which had a Nazi past—held sceptical views of communist rule in Germany from the outset. But this scepticism did not prevent them from, at least initially, having high professional expectations of the GDR: they hoped that the combination of a rich German heritage in science and technology and an enthusiasm on the side of the Communist Party with respect to the key role of technology in building socialist society, would prove beneficial for their careers. East German leader Walter Ulbricht’s technological optimism was reflected in the generous resources allocated by the state to scientific and technological development. Important technology programmes were embarked upon particularly from the late 1950s, inspired by Soviet successes in nuclear power and space technology. And during the 1960s, Ulbricht launched liberal reforms to stimulate the innovative power of GDR scientists and engineers. A mighty symbol of the country’s technological dreams in the Ulbricht era was the futuristic TV tower in central East Berlin, which was completed in 1969.

But there were forces working against the East Germans. Both the Soviet Union and the West followed East Germany’s technological ambitions with a great deal of suspicion. The further development of an extensive East German nuclear programme and a promising aerospace industry was actively opposed by the Soviet comrades. The citizens of the GDR were still regarded by the Soviet Union more as ‘Germans’ than as ‘socialists’. This meant that East German technological efforts were largely isolated not only from the West, but also from the Soviet Union.

But above all, GDR engineers were counteracted in their ambitions by the socialist planned economy and the Ministry for State Security (MfS, or ‘Stasi’). Radical innovation is by definition about doing things differently, but such behaviour automatically gave rise to suspicion in a conformist state where all divergent behaviour was immediately registered by the Stasi as potentially counter-revolutionary. Moreover, to the world of the planned economy belonged the thesis that ideas about novel creations were to come from above or at least must be sanctioned at a high political level before engineers could start actual development, a tradition that proved disastrous for the impatiently waiting laboratories and factories in which the renewal was to take place in practice.

The failures were many and costly. Augustine shows how engineers and research managers thereby became scapegoats and how they were depicted as saboteurs, because it was difficult to find acceptable ways of questioning the system itself. But the failure of the GDR to live up to its high hopes also contributed to Walter Ulbricht being forced out of power in 1971. His successor, Erich Honecker, was not as enthusiastic about new technology as Ulbricht had been. When the new leadership eventually grasped the revolutionary power of microelectronics, the GDR was already on its way to ruin.

Under Honecker’s tough regime the full politicisation of the East German research and engineering community took place. In the absence of trust in engineers and their loyalty to the GDR and the Communist Party, the leadership increasingly sought full control over all activities taking place in laboratories and seminar rooms.

A major strength in Augustine’s work is her deep focus on the individuals behind the proud programmes and plans: the engineers and top researchers who in the typical case had been engaged in Hitler’s war machine and then, often after a few involuntary
years in the service of the Soviet Union, came to devote the rest of their careers to building the GDR’s technological strength. Despite their sincere ambitions to create something useful, they were in the end identified by the Stasi as dangerous elements to the state. Many of the best people fled to the West, others were removed from their positions as directors and professors. Some committed suicide. By analysing a wide variety of material from various archives, including the Stasi’s, Augustine provides a vivid picture of how the totalitarian regime penetrated ever more parts of these engineers’ lives in a way that became catastrophic and tragic not only for themselves as individuals, but also for the GDR’s industrial and technological development at large. Red Prometheus is, in this sense, a story of how a variety of talent, good intentions and development enthusiasm were wasted and broken down by an increasingly deteriorating societal system.

It is very useful to read Augustine’s book side by side with Kristie Macrakis’ Seduced by Secrets: Inside the Stasi’s Spy-Tech World. Macrakis complements Augustine’s analysis through an impressive account of how the GDR tried to use illegal espionage and smuggling activities as a way to catch up with the West technologically. The author has devoted more than a decade to researching the shadowy world of the GDR’s industrial espionage activities. She has not only gone through thousands of East German archival documents, but has also carried out in-depth interviews with a number of ex-spies, who in addition have supplied her with their own, previously secret, material.

The GDR, similarly to other East Bloc countries, earned a reputation of relying heavily on the illegal copying of foreign technology. However, as Macrakis points out, the original purpose of technical intelligence was different. Rather than seeking to copy foreign technologies, the GDR, as shown also by Augustine, had the ambition to become a technologically world-leading country itself. Industrial espionage was supposed to merely assist a little bit in that process. The GDR aimed to improve the imported technology and use its domestic creative power to forge ahead in the East–West competitive race.

In practice, however, industrial espionage had an increasingly important role in the GDR’s technological strategy. It was administered by the Stasi, for whom it was a key activity from the beginning. The main organisational entity responsible for it was the ‘Sector for Science and Technology’ (SWT), which was inspired by the KGB’s ‘Directorate T’ (which still exists in today’s Russia). The SWT took on its task with traditional German precision and organisational strictness, starting out by creating a detailed overview of all large West German technology-intensive firms, which were carefully classified and arranged into a system. They thereafter began to recruit suitable ‘personnel’ who consisted not only of the industrial spies themselves, but also of a wide network of individuals in charge of various ‘supporting’ functions.

The SWT developed from a minor group of 35 people in the mid-1950s to a highly bureaucratised structure towards the end of the GDR era, when nearly 500 people worked at the SWT’s headquarters and regional offices. These in turn directed thousands of spies and supportive field personnel. The SWT’s activity took as its point of departure the state’s economic planning. Representatives from industrial enterprises and research institutes were encouraged to come up with suggestions regarding technical documentation or hardware to be obtained from abroad. The Stasi then had
the task of accessing the material through its spy network. An important role was played by the Evaluation Unit, which became a key link between domestic GDR industry and the spies. The Evaluation Unit sorted the ‘wish-lists’ from industry and transformed the wishes into concrete spy missions. Afterwards it analysed the incoming material, ‘neutralised’ it so that it would be impossible to identify the source, and then sent the material to the industrial organisation that had ‘ordered’ it.

In addition to industrial espionage per se, Macrakis also uncovers the East German practices of high-tech smuggling. Apart from the SWT, there were other organisational entities engaged in this activity, such as the ‘KoKo’ unit that belonged under the Ministry of Foreign Trade. During the 1980s, however, it became increasingly difficult to pursue this shadowy trade, as the CIA launched its ‘Operation Exodus’, which aimed to radically reduce smuggling of Western high-tech equipment to the communist bloc. The operation was preceded by the defection of an SWT manager, Werner Stiller, to the West in 1979. Stiller brought with him a copious amount of documentation from the SWT’s headquarters, which for the first time made clear to the West how deeply East Germany had penetrated nearly every large high-tech company in West Germany, including many American subsidiaries.

Facing increasing difficulties to acquire West European and American technology, the East Germans during the 1980s turned to Asia. Among their favourite partners there were Toshiba (from Japan) and Samsung (from South Korea), which were important, particularly when East Germany sought ways of getting around NATO embargo policies. The GDR’s industrial espionage was increasingly globalised.

When domestic technological and industrial development stagnated, the GDR’s political leadership decided to further strengthen its reliance on industrial espionage and smuggling. Here the analysis provided by Macrakis is nicely complemented by Augustine’s account of how the growing dependence on espionage and smuggling influenced the activities of domestic enterprises and research institutes. Many GDR companies were very proud of their own competencies and abilities and wished to continue their developmental projects along their own lines. But as Augustine shows, the Stasi and the Communist Party forced them to abandon their own R&D projects in order to concentrate all efforts instead on copying Western technology that had been acquired through smuggling and espionage. In this way the spy-tech community eventually came to work against its own original purpose, which was to strengthen the GDR’s domestic industrial creativity. Successful espionage activity increasingly became a goal in itself and the Stasi increasingly lost contact with actual societal needs.

The second part of Macrakis’ book is devoted to the technical means of the Stasi’s espionage. The author argues that the GDR was more advanced in this field than previously thought. She investigates, in seven chapters, the Stasi’s use of communication technology, secret writing, cameras, eavesdropping equipment, smell science and experiments with radioactivity in the spy business. Of these, the chapter on secret writing is particularly intriguing, opening up a surprising world of advanced chemistry within the walls of the Stasi. The chapters on smell science and radioactivity also deserve credit as interesting attempts by East Germany to take the lead in radical new fields of spy-tech.
A shortcoming that Macrakis shares with Augustine is the lack of a deeper concluding chapter, particularly concerning a generalising discussion. Both books clearly have the potential to help us better understand the relations between science, technology and politics in a way that is also valid in the twenty-first century, particularly with respect to technological culture in authoritarian regimes. This question is now mostly left open, despite the explicit argument made in the introduction by Macrakis that the East German case can contribute to our understanding of industrial espionage more generally. All in all, however, both books make impressive and highly relevant contributions to a field of research that is likely to continue growing as historians explore Soviet-era archives.

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