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German Technological Resurgence

By the end of World War II, most of Germany's major cities, together with its industrial capacity, had been destroyed. Scientific research was crippled. Today, most of the scars of war have vanished. The cities and the industrial complexes have been rebuilt. The Deutsche mark is the world's strongest currency. Only 0.5 percent of Germans are unemployed, and there are nearly eight times as many vacant positions as there are jobless. Science is flourishing. During a period when U.S. expenditures on R & D have been static, German outlays have nearly doubled. At a time when the U.S. public is denigrating technology and has wearied of the effort to maintain world leadership in science, the Germans are moving confidently toward becoming No. 1 in science and technology.

In part, the recovery from World War II was due to assistance from the United States. More important was U.S. protection, which freed Germany from making huge arms expenditures. Perhaps most important have been the energy, foresight, and capacity for organized effort of the German people. In a recent tour of 11 major research establishments, I saw no one goofing off. In a comparable sample of U.S. establishments I would have seen scores of idlers. Most impressive, however, were repeated indications of excellent management, both at the institutional level and in the coordination of national efforts.

Scientific activity in Germany is supported by a number of mechanisms. A major source of funds is the Federal Ministry for Scientific Research. This organization has given considerable thought to priorities. High on its list is research likely to result in new technology 10 to 20 years hence. Two other favored programs are oceanography and nuclear studies.

An example of German resurgence resulting from good management is seen in the field of atomic energy. It was not until 1955 that the Germans were permitted to engage in large-scale civilian nuclear development. They quickly procured research and training reactors. German engineers and scientists trained in the United States and elsewhere were brought back to their native land. Special know-how was obtained through licensing agreements. After careful studies, a limited number of projects were chosen and then supported vigorously. Today the German civilian reactor program has caught up with the U.S. program in many respects and has surpassed it in nuclear propulsion of a merchant ship, the *Otto Hahn*. At the moment, the United States leads quantitatively in the field of water-moderated reactors for production of electric power. However, qualitatively our lead, if any, is narrow. Generating facilities with a capacity of 900 megawatts are on line; two 600-megawatt plants of German design are being constructed; and construction of a 1100-megawatt plant has been authorized. The three new installations are designed to compete economically with conventionally generated power. Nuclear power stations designed and built by German engineers for export are already a factor in world trade. In the extremely important effort to develop sodium-cooled breeder reactors, the Germans are moving rapidly. Some highly placed Americans think the United States is falling behind in this competition.

Germany does not compete well with us in some areas of technology—for example, that of computers. A country of moderate material resources and a population of about 60 million can scarcely be expected to do everything. Nevertheless, by temperament the German people are particularly suited to high technology, and they will enjoy an increasingly important and successful role.—PHILIP H. ABELSON