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1. General situation

In Germany education and cultural affairs are in the competence of the respective federal state, in principle. A special feature of the German research scene is the extensive sovereignty in cultural and educational matters of the 16 federal states. The respective ministers of culture and education, or the ministers of science, determine to a high degree the research scene in their federal state. They are responsible for foundation, supervision, budget and personnel. Development and new building of universities, however, is a community task of federal government and federal states.

The system of higher education in Germany includes about 280 universities, medical academies, theological faculties, technical colleges and conservatoires. The subjects offered are very diverse. While the large universities usually offer the entire range of natural sciences, medicine, social sciences, and humanities, the technical colleges show a definite specialization in individual fields. More than 31.000 professors are employed at these institutions. About 1.300.000 students are learning at universities, while the total number of students exceeds 1.700.000.

The German Research Council (Deutsche Forschungsgemeinschaft [DFG]) supports all branches of science by financial contributions to research projects with special attention to the advancement of young scientists. The DFG also supports scientific libraries, e.g. by its special collection field programme (Sondersammelgebietsprogramm).

2. History of the institutes of technology

In my paper I will confine myself now to university-level institutions. While the development of the universities is quite well known that of the institutes of technology (Technische Hochschulen [TH]) will be demonstrated in the following:

Institutes of technology (Technische Hochschulen = TH) are typical products of the 19th century, although their roots go back partly to the 18th century. They developed mostly from technical colleges and academies. These institutions changed to polytechnical schools under the influence of the Ecole Polytechnique, founded in 1795 at Paris. The polytechnical schools got the status of institutes of technology between 1864 and 1885, they were promoted by the rapid rise of industrialization. In Brunswick the origins of the institute date back the farthest: therefore it can be taken as an example:

Table 1: Evolution of Technical Universities: the example Braunschweig

1745	Founding of the Collegium Carolinum by Duke Carl I.
1835	Reorganization of the college into three departments: technical subjects, humanities and mercantile subjects
1862	Renaming of the Collegium Carolinum as "Polytechnische Schule" (Polytechnical School)
1878	Renaming of the Polytechnical School as "Herzogliche Technische Hochschule Carolo-Wilhelmina" (Ducal Institute of Technology Carolo-Wilhelmina)
1900	The right to confer doctoral degrees is granted
1933	"Gleichschaltung": due to the dismissals etc. in the early stages of the Nazi regime, the institute lost almost 20 % of its teaching staff
1945	In spite of 70 % destruction, the Carolo-Wilhelmina was the first German university to resume instruction after the war
1968	The Institute of Technology is renamed the Technical University, because the humanities are established again
1978	The Teacher Training College ("Pädagogische Hochschule") is incorporated
1993	9 faculties, approximately 424 professors and 17.000 students

At the turn of the century, in general the THs got the right to confer doctoral degrees. Since 1919 universities and institutes of technology have been cooperating in the conference of rectors, so the full university level was reached, having passed through several phases on the way.

Famous old institutes of technology are:

Rheinisch-Westfälische Technische Hochschule Aachen [RWTH Aachen]

Technische Universität Berlin [TU Berlin]

Technische Universität Braunschweig [TU Braunschweig]

Technische Universität Clausthal [TU Clausthal]

Technische Hochschule Darmstadt [TH Darmstadt]

Technische Universität Dresden [TU Dresden]

Bergakademie Freiberg [BA Freiberg]

Universität Hannover

Universität Karlsruhe (TH)

Technische Universität München [TU München]

Universität Stuttgart

3. The libraries of the THs in West Germany

For a long time their libraries limped behind the classic university libraries with low acquisition budgets and small number of staff. In the sixties and seventies most of the THs were enlarged to cover humanities and social sciences and renamed as technical universities or universities. The TH Berlin was renamed as soon as 1946. Some institutes of technology, like Aachen and Darmstadt, intentionally kept up the term TH, probably for contrast. In the sixties and seventies an evident extension of the libraries took place, which also has consequences on the enlargement of staff.

A comparison of the numbers of staff shows too that there is a stagnation, infact a slight downward movement since 1980, although student numbers have climbed up strongly. Now we are understaffed again. In spite of their small resources and the lots of readers, the technical university libraries are distinguished by their great efficiency.

Most of the technical university libraries have about 1.000.000 volumes, only a few own larger stocks. The TIB Hannover (Technische Informationsbibliothek) is of outstanding importance as the German Central Library for engineering/technology, chemistry, physics and mathematics. The TIB is financed by the federal government and the federal states.

In spite of their relatively small stock, the technical university libraries own interesting book collections of ancient technology, civil engineering, architecture etc. Grey literature, published by companies and societies, was collected only by these libraries.

In contrast to the new foundations, the library system of the old technical universities in Western Germany is double-tracked: central library and many libraries of the institutes and departments.

Between 1960 and 1980 the higher education system of the FRG was strongly expanded; numerous new universities were founded. It is interesting in this context, that 8 of the 9 new foundations in North Rhine-Westphalia got technical schools or faculties. The University Dortmund, founded in 1962, and the University Kaiserslautern in 1969 were established with a concentration on technical and scientific subjects. The Technical University Hamburg-Harburg was founded in 1978, at the end of the trend of expansion .

Technical universities and traditional universities became more and more similar to each other. In spite of this the priorities of the technical universities continue to be natural sciences and engineering, with a high degree of diversification.

4. The libraries of the THs in East Germany

The development in East Germany has been very different, the institutes of technology founded since 1952 are specialized to a very high degree. Examples are:

Chemnitz	(mechanical engineering)
Dresden	(traffic systems)
Ilmenau	(electrical engineering)
Leuna-Merseburg	(chemistry)
Magdeburg	(mechanical engineering)
Weimar	(architecture and civil engineering)

5. The libraries after the unification

What are now the consequences of unification for the technical universities and their libraries in Eastern Germany?

5.1. In the former GDR it was not possible to buy books and journals from western countries in sufficient amounts. Therefore, the libraries show great gaps in modern scientific literature. Since 1990 the acquisition has been strongly supported by West German institutions.

The university libraries of East Germany quickly got sufficient equipment, both software and hardware; now their equipment with PCs is better than in many libraries in the west. A German-German working group was concerned with the structure of libraries, training of librarians, library automation, networks etc.

5.2. Already at the beginning of 1990, only a few months after the "Wende" (change), an intensive cooperation started between certain libraries in east and west. For example a direct interlibrary loan service started between the neighbouring university libraries of Magdeburg and Brunswick. More than 25 % of the students of the Magdeburg Technical University temporarily used our library at Brunswick.

5.3. The staffing levels both of universities and libraries were luxurious. The reduction in staffing was economically necessary, but sometimes bitter and painful for the librarians. The "evaluation" of the staff members led to some changes in the management.

5.4. Many of these institutions were established as institutions at an educational level between technical college and university. Their high specialization and the small size of some institutions (only 1.000 or 2.000 students) led partly to a reorganization of the institutes of technology and colleges. Some of them were integrated in the neighbouring university, some of them were degraded to technical colleges. Some examples are the Technical Universities of Ilmenau and Chemnitz which continue to exist independently. At Magdeburg the Technical University, the Academy of Medicine and the Teacher Training College were fused, in 1993, to form the University of Magdeburg. In 1991 the federal state Brandenburg founded the Technical University Cottbus. On the other side, the TH Köthen will be closed as an independent institution and will be part of the Technical College Anhalt. Parts of the TH

Leuna-Merseburg will join the University Halle-Wittenberg, while others will be degraded to a section of the Technical College Anhalt.

5.5. Many university buildings are inadequate, especially in Eastern Germany. For the benefit of the new federal states, university and library building are reduced strongly in the western parts of Germany. So the conditions at the university libraries become more and more similar.

6. Outlook

Based on the federal structure in Germany there exist different library networks. The libraries of the new federal states in East Germany have been integrated into the existing networks. Lower Saxony, Saxony-Anhalt, and also Thuringia are working together in a new library network. Mecklenburg-Vorpommern is part of the North German library network; Berlin and Brandenburg are working together; Saxony and the Southwest network are cooperating. You can take this as an example of successful east-western-integration.

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