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The enterprise and its role in the production of qualifications: constitution and development of medium-level qualifications in Germany and France — a comparison

Institut für sozialwissenschaftliche Forschung:

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This report is a record of a meeting organized by CEDEFOP and ISF within the framework of a research project financed by the Federal Ministry of Education and Science on

"New paths for technical staff at intermediate level. Genesis of their development and the effects of new recruiting and training paths on the vocational initial and continuing training systems in Germany and France"

on 29/30.3.1990 in Berlin.

Subject of the meeting:

"The enterprise and its role in the production of qualifications: constitution and development of medium-level qualifications in Germany and France - a comparison"

The report amplifies a paper with the same title which served as an introduction to the meeting by adding some significant project findings which were presented at the meeting.

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Contents

		Page
I.	The question of the constitution of medium-level qualifications - a key for wide-ranging developments in the training system and employment structures	1
1.	Are in-company promotion and qualification processes being replaced by higher school education?	1
2.	A survey of new access paths to medium-level jobs based on a German-French comparison	2
3.	An international meeting organized by CEDEFOP and ISF on the constitution of medium-level qualifications in Germany and France	4
II.	Promotion or direct recruitment - traditions and innovations in training systems and company personnel policy in Germany and France	7
1.	A great need for "technicians" but how can they be acquired? - The common point of departure for different developments	8
2.	Development trends after the 60s: New training courses are created, national differences predominate	10
a)	Developments in the FRG	10
b)	Developments in France	12

3. How do the companies deal with these new qualifications? 14

a) Developments in the FRG 15

b) Developments in France 16

c) The diverging role of the enterprise in the constitution of medium-level qualifications 19

III. Interaction of educational system and company personnel policy in a dynamic perspective: some theses on the emergence of different development patterns in Germany and France 20

1. The explanation of different constellations: the concept of the historical emergence of national-specific development patterns and logics 20

2. The German and the French pattern of development - Theses 22

IV. National trends in the light of case studies of single companies - evidence and counter-evidence from four chemical firms 25

1. Why company case studies? Why chemical firms? 25

2. Data from company case studies - concrete, complementary and problem-based data on global trends 27

a) Important findings from the French case studies 28

b) Important findings from the German case studies 29

V. The vitality of promotion as the product of company interests - common aspects in different systems 31

1. The vitality of promotion - a feature to be explained 31

2. Promotion as a hinge linking staff categories - pre-condition for flexible division of labour and cooperation 32

3. Promotion as the regulator of staff flexibility 34

4. Promotion as the cause of the possible divergence and convergence of company and worker interests 35

Annex

Bibliography

I. The question of the constitution of medium-level qualifications - a key for wide-ranging developments in the training system and employment structures

1. Are in-company promotion and qualification processes being replaced by higher school education?

The fact that more and more higher and medium level jobs in industry are being occupied by employees who have acquired higher-level certificates in the general education system, is viewed as a practical trend; the traditional career paths of workers with a lower level of formal qualifications, above all wage-earners, are generally considered to be endangered. This explicitly or implicitly entails the assumption that the significance and relative weight of in-company qualification processes - both formal in-company initial and continuing training and informal on-the-job learning - are declining and being replaced by in-school learning processes. The role of the enterprise in the constitution of qualifications based on in-company selection, promotion and qualification processes, seems to be declining.

These assessments are based either on the assumption that the demand for more qualifications has risen so much that more and more academically trained staff are being required (the demand thesis), or that the expansion of the educational system and the growing supply of manpower with higher qualifications is inducing companies to change their personnel policy accordingly (the supply thesis). Irrespective of whether the demand or the supply thesis is the correct one,

the implications are the same: "access from below" has few future prospects, it is being displaced at all levels by direct recruitment ("side entry") from the higher-level training courses in the general system of education. This prediction, which is derived from the general trends in the Western industrialized countries, seems to be irrevocable. France, with its early and far-reaching expansion of higher school education, is seen as the pioneer in this field, but similar theses are also being formulated for the Federal Republic of Germany.

Such observations and forecasts are necessarily of an alarming nature because - if true - they point to grave medium and long term consequences: on the one hand, a growing gap between the different levels of qualification, above all between workers and technical staff or lower-level supervisory staff; on the other hand, the declining attraction of occupations and training at skilled worker level, as young well-qualified persons will orient their aspirations to higher-level training courses and this will endanger the vocational training system for workers, i.e. the dual system in the FRG.

2. A survey of new access paths to medium-level jobs based on a German-French comparison

These possible far-reaching consequences were the background for a study project conducted by ISF and sponsored by the Federal Ministry for Education and Science. The subject of the study is "New paths for technical staff at intermediate

level", i.e. new training and continuing training paths, new recruitment and career patterns, leading to jobs at the intermediate level between the skilled worker and the engineer. The aim of the project is firstly, to explain the causes for the emergence of these new channels which in the last few years have been the object of intensive experimentation in large and medium-sized enterprises in German industry; secondly, the project has the aim of assessing the medium and long-term repercussions of such new channels on the present (vocational) training system and its function mechanisms - particularly on the promotion prospects of skilled workers and the resultant effect on the training behaviour of young workers.

These are the objective of a study of exemplary new intermediate paths in German large and medium enterprises and the comparative analysis of intermediate paths in France where for the last two decades or so various in-school training facilities for technicians have been set up which give young people without job experience direct access to medium-level posts. The analysis of the French situation is intended to provide estimates of the impact, the spread and the longer-term effects of these trends which cannot (yet) be obtained with the same clarity in German firms.

In order to get sufficient concrete information on the situation and trends at the level of the individual enterprise too, intensive cooperation was established with a research association of five French institutes which is conducting a research study on innovations in the training policy of

French firms (1). The purpose of this cooperation is to enable an exchange of information from case studies - coordinated between the projects in terms of content and method - in comparable German and French companies in the chemical industry and the machinery manufacturing and telecommunications sectors.

3. An international meeting organized by CEDEFOP and ISF on the constitution of medium-level qualifications in Germany and France

The most significant findings of this study were the basis of a meeting organized in cooperation with CEDEFOP on "The enterprise and its role in the production of qualifications: constitution and development of medium-level qualifications in Germany and France - a comparison" and this report.

The contributions prepared by the authors for the meeting and for this report, which summarize the leading issues discussed at the meeting, also incorporate the results of earlier studies: data from research, expert discussions and French

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(1) This research association - under the direction of Philippe Méhaut from GREE (Groupe de Recherche sur l´Education et l´Emploi), Nancy - consists of the following institutes: CEREQ (Centre d´Etudes et de Recherches sur les Qualifications, Paris; IREP-D (Institut de Recherche Economique et de Planification), Grenoble; LASTREE (Laboratoire de Sociologie de Travail, de l´Education et de l´Emploi), Lille; IAE (Institut d´Administration des Enterprises), Grenoble. The project conducted by this research association "Production and utilization of training by the firm and in the firm" is sponsored by PIRTTEM - CNRS, the "Commissariat au Plan" and the Delegation for Vocational Training.

literature collected by I. Drexel in the course of a research stay in 1986 sponsored by the CNRS (Centre National de Recherche Scientifique) and the Robert Bosch Foundation (see Drexel 1988 and 1989); also, an analysis of the development of intermediate-level training courses in Germany and France prepared for a project of the Special Research Section 333 of the University of Munich in cooperation with P. Méhaut (Drexel/Méhaut 1989).

Both the meeting and this report - while examining the general question of "promotion or direct recruitment" - concentrate on a comparison of the constitution of medium-level qualifications: e.g. certain arrangements in school education, in-company training and continuing training plus learning in vertical mobility processes, the development of these arrangements in Germany and France in the last 20 years and the observed differences and common points. The focus is on the relationship between the development of medium-level training courses in the educational system and the use made of these courses in the personnel policy of the company.

This conceptual and methodical approach to the question of the constitution of medium-level qualifications and to an international comparative analysis contains some specific aspects: concentration on educational and personnel policy; the interpretation of "innovations" as indicators not only of the strong points of a specific national structure but also of its problems and the eventual changes in trends caused by this; the concentration of international comparison on "access routes" as the common denominator and - in a dynamic

historical perspective - on the successively emerging national-specific patterns of development. For lack of space this report will not go into these conceptual and methodical bases of comparison.

The report concentrates on

- a comparative presentation of the creation and development of training courses which lead to technicians´ posts; and a comparative analysis of the way these training courses are used by company personnel policy for promotion or direct recruitment (Chap II);

- a synthesis of the different developments in France and Germany over a longer period of time and their interpretation in terms of national-specific development patterns (Chap. III);

- an illustrative analysis of the "innovations" in training and staffing policy for technical staff at intermediate level in the chemical industry (example of two German and two French chemical firms); innovations which give a contour to national development patterns and can also indicate emerging "trend turns" (Chap. IV).

- explanations of the most striking finding of these analyses: the vitality of promotion (Chap. V).

II. Promotion or direct recruitment - traditions and innovations in training systems and company personnel policy in Germany and France (2)

First of all, it should be noted that the qualification of foremen (Meister) is mainly constituted through promotion in the firm.

What is more complicated - and more interesting - is the trend in the constitution of technicians, especially in the comparison between Germany and France: direct recruitment and promotion routes of different types were both to be found and in the course of time they were displaced or maintained, developed further or revived in new forms - in extremely different processes in France and Germany. These processes are the main focus of interest in the following where the development of different access routes to technicians´ posts - the link between the training system and the employment system - is analysed in terms of its dependence on the changes occurring in these processes.

However, both in the FRG and in France an assessment of the quantitative importance of technicians entails considerable problems with respect both to the technicians "generated" by the training system and the workers promoted to technician level in the firms. The hybrid form of the available statistical data for intermediate-level staff categories is in part a direct reflection of the actual situation: it shows the

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(2) This section is based on the analyses carried out in collaboration with P. Méhaut in a project of the Special Research Section 333 of the University of Munich (Drexel/Méhaut 1989).

lack of homogeneity, the haziness of a field in which new staff and social categories are gradually being shaped (3).

1. A great need for "technicians" but how can they be acquired? - The common point of departure for different developments

In the second half of the 50s and in the early 60s there was constant reference to the great need for technicians, both in Germany and in France. Very soon the question arose of how this need could be met. In both countries the potential of the traditional paths for obtaining intermediate technical staff did not seem to be very promising either in terms of their capacity to meet the qualitative needs for new qualifications, or in their ability to expand rapidly enough to supply the necessary number of technicians. This was because at that time in both countries the majority of the technicians were obtained through selection and promotion ("appointment") of the workers.

However, a distinction should be made here. German industry obtained its technicians not only through "appointment" but already in the pre-war years the School for Technicians (Fachschule für Techniker) was set up; it offered training courses - later recognized by the State - which were specifically geared to the promotion of workers to technician level.

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(3) For further details of the difficult data situation and the method approaches selected for this analysis see Drexel/Méhaut 1989.

For the pre-war years one should also include the higher technical schools ("engineering schools") which had emerged from a very heterogeneous conglomerate of technical schools which originally differed greatly in terms of duration, title, financial sources, content and access. All these routes had the common feature that they obtained their technicians almost exclusively from the reservoir of skilled workers in the occupational category concerned, which meant that their potential to cover the growing need was extremely limited.

In France, on the other hand, the great majority of the "techniciens" were obtained from the workers through appointment with some support from ad hoc further training. Two in-school training courses which were introduced in the early 50s and went beyond worker training, did not achieve much importance. In view of the relatively poorly developed initial training for workers in quantitative and qualitative terms, the pre-condition for the generation of intermediate-level staff was even more problematic than in the FRG.

Thus both countries had the same structural point of departure (although a bit varied in its external appearance) and faced the same problem: in order to cover the need for more technicians, should the traditional path of promoting (skilled) workers be continued? Should new training courses be designed to support and thus expand this promotion path? Or should higher training courses be introduced for young persons in the public education system so that they could reach higher positions through direct recruitment?

2. Development trends after the 60s: New training courses are created, national differences predominate

a) Developments in the FRG

In the post-war years in the FRG there were, as mentioned earlier, the technical schools rich in tradition, which generally required several years of job experience as a condition; they were not very highly developed in quantitative or qualitative terms. But in the 50s, in the wake of the economic boom and the shortage of engineers, and for other reasons too, technician training expanded in quantity and quality: it was lengthened, improved and made uniform, the job description of the technician was defined more precisely and attendance in the schools rose steadily. A further upsurge was expected when at the end of the 60s the engineering schools were upgraded to "Fachhochschulen" or Technical Colleges (i.e. included in the tertiary sector of education), and the Technician Schools seemed to be pre-destined to fill the predicted "engineering school deficit". The Technician Schools could make use of this situation to stabilize their content (doubling of training hours within 20 years, etc.) but could only use it to a limited extent for quantitative expansion, despite the fact that during the same period public financial support for attendance was very much improved. When the financial support was substantially reduced in the 70s, the result was a perceptible decline in the number of participants and a trend towards a relatively low level in the following years.

In other words, despite the constantly articulated need for technicians, the training of technicians did not expand as expected and above all, it could not be stabilized at the level it had reached. However, despite this, - and this is of special significance in comparison to France - no school courses for direct access to technician jobs were created. Proposals to do this were rejected with a reference to the importance of several years of job experience which was one of the conditions for technician training. A new training course - training in the Vocational Academy - which was set up in 1974 by some large companies and a Federal "Land" to overcome the "engineering school deficit", was strictly based on a dual concept: 3 years of training alternating between 6 months of training/briefing in the company and 6 months of instruction in a vocational academy (a school institution in this Federal "Land").

To sum up: The whole field of intermediate-level training courses has slowly drifted upwards and has become differentiated in the process. In the course of this development the original commonality of these qualification paths, to give qualitative support to the promotion of workers but to keep it within quantitative limits (because of the tremendous effort and cost involved) and to legitimize it, has partially disappeared; technician training has more or less retained these characteristics. Engineer training, on the other hand, with its transition to Technical Colleges has drifted out of the intermediate level and has become a means of direct recruitment or "side entry"; but only to a certain extent because the path to becoming an engineer via the Technical

College still contains perceptible features of promotion routes. On the one hand, the practical training in industry (which is a part of engineer training) with its initiation in the occupational category (and firm), still contains important elements of the promotion routes; the same applies to the training of engineers in the Vocational Academy with its dual principle. On the other hand, the engineering students in the Technical Colleges often get access to the college through the second line of education, i.e. they first complete an apprenticeship and then attend the necessary in-school training courses to get entry qualifications for the Technical College. In-school initial training for young persons wishing to become technicians was not created.

b) Developments in France

In France, which in the 50s had virtually no training courses leading to technician jobs, now has no less than four school courses which provide access to technicians´ posts: two training courses which lead to technician at baccalaureate level and conclude with the "Bac technique" (BTn) or the (recently introduced) "Bac professionel"; and two post-baccalaureate courses which consist of a 2-year training of higher-level technicians and terminate with the "Brevet de Technicien Supérieur" (BTS) or with the "Diplome Universitaire de Technologie" (DUT). All these courses are in-school technician training courses, they require a certain level of previous school education but no job experience, in other words, they are geared to direct recruitment or "side entry". There is no continuing training course specially

intended to support workers to get promotion to technician jobs. How did this situation arise?

After a higher secondary school training course was upgraded in 1959 to become an initial training course for higher-level technicians with the BTS as the final certificate and after it developed well in quantitative terms, a second training course for higher-level technicians was introduced in 1966 which terminated with the DUT: this consisted of a two-year post-baccalaureate training course in institutes affiliated to the university. Both these training courses - which are very similar to one another - contain a number of industrial and tertiary disciplines which lead to specific occupational categories.

In 1969 another in-school training course was introduced with the aim of bringing about a closer integration of general education and vocational training, it leads to the "Bac technique" or baccalaureate level; this was a sort of double qualification which in principle was equivalent to the normal higher secondary school but had a much lower status. Finally, in 1985, another training course was set up which, based on an in-school training of workers, leads to a vocational baccalaureate; it permits direct entry into working life but is also the qualification for university studies (4).

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(4) As this training course was only set up recently, no founded statements on how it will develop can be made yet; it will therefore not be included in the following.

No corresponding courses were introduced in the field of continuing training as a counterweight to all these innovations in initial training. Or, more precisely, a few traditional or newly created approaches could not be developed further, they either dwindled or were absorbed by in-school initial training courses; it was only in a few branches (above all the chemical industry) that more exacting continuing training courses for foremen were continued or were reactivated recently in large companies.

The final result of the development trends in the two countries is a very different configuration of training courses: on the one side, a socially consolidated training path which supports the promotion of workers, flanked by two training courses which permit the direct recruitment or "side entry" of engineers but with evident traces of promotion elements; on the other side, four in-school initial training courses aimed at direct recruitment to technician jobs.

3. How do the companies deal with these new qualifications?

How do companies react to this new supply from the training systems in their country? Do German firms - as the supply thesis would lead one to assume - use this technician training to replace promotion with the technician from the Technical School? Do French companies use the new training courses to replace promotion of workers through "side entry", i.e. direct recruitment?

Not at all. Or at least, not perceptibly.

a) Developments in the FRG

Developments in the FRG - and this should be stated at the outset - show that the period since the early 70s for which data is available (and probably the earlier years too) is characterized by a remarkable constancy of promotion through appointment of workers; there is a certain break in this trend only after 1982.

The total volume of intermediate-level jobs (indicated in the "Occupational category of technicians", No. 62 in the classification of occupations in the micro census) has risen steadily since 1970 from approx. 530,000 to approx. 790,000 in 1987 with a brief drop to 740,000 in 1985. If, for this segment of total employment - which not only includes medium level technical staff but also foremen (Meister) in industry - the maximum number of vocational training certificates held by the working population is established, it is possible (despite some problems of methodology) to take this data as an indicator for the share of promotions and direct recruitment in the allocation of staff.

The most important results: The percentage of persons with apprenticeship training or equivalent in-school training, i.e. the persons who were promoted through appointment, was always clearly above 50% up to 1982 and gradually dropped to 46% (1987). Persons with training in the technical schools for technicians, i.e. the training course specifically intended for these jobs, amounted to about one-third of the whole and this figure rose slowly throughout the whole period

to about 46% in 1987. Graduates of technical colleges or universities made up a constant small percentage of 6% to 8% (see Table 1 in the Annex).

Thus, the share of "side entry" or direct recruitment remained marginal throughout this whole period despite a growing number of graduates from the technical colleges and universities and unemployment among engineers for a part of the time. More than 90% of the access to intermediate level was through promotion. At the end of the period there was a tendency to replace the promotion of skilled workers with technical staff holding technical school certificates, i.e. a formalization of access, but this stayed within narrow limits.

The fact that promotion has remained the predominant mode of access is confirmed even if the posts of technician and engineer are taken together (see Table 2 in the Annex).

b) Developments in France

One could assume that French firms reacted to the four variants of new qualifications provided by the educational system by recruiting their intermediate staff directly at different levels. Also, the rather weak initial training of skilled workers and a personnel policy in French companies which apparently favours educational qualifications, seem to be additional factors supporting direct recruitment. This assumption is wrong, at least in this unequivocal form.

On the one hand, the promotion of workers through appointment to technician jobs continued to prevail to a remarkable extent. The share of workers with access to technician posts not only did not decline between 1959 and 1985, but it even increased by 4%; the chances for the individual worker to reach the level of technician rose from 0.5% to 1.3% (see Table 3 in the Annex).

On the other hand, the training course which terminated with the technical baccalaureate was only used to a limited, even declining extent as access to technician posts. Although the BTn was created because of the rising demand for technicians, companies posted workers with these qualifications in skilled worker jobs; a part of these skilled workers later advanced to the level of technician or foreman. For example, of all those who acquired the BTn in 1980 and entered working life immediately after training, 46% had jobs as skilled workers one year later and only 14% were in technician posts; and five years later 32% were still in skilled worker jobs and only 31% in jobs at technician level. Therefore it is clear that this training does not lead to direct recruitment but functions as a support for promotion (inter alia) to technician posts. This new function of a training course through down-grading contradicts the frequently expressed urgency of getting more technicians: on the one hand, such a policy will make BTn holders interested in attending further training courses and thus reduce the inflow of young workers; on the other hand, the detour via skilled worker jobs costs a great deal of time.

Only the recruitment by the companies of higher-level technicians (with BTS or DUT) shows the expected trends: the great majority of these persons take up a job directly after training, and on the average these jobs are at a higher level than those obtained by BTn holders. Nine months after completion of training in 1981 56% of these persons had jobs at technician level and only 9% were workers. This shows that the companies make considerable use of this training for higher-level technicians as a source of direct recruitment ("side entry").

However, young persons with BTS or DUT only get into this group of "techniciens" very slowly; the majority of these technicians reached this level through the traditional path of promotion or via the technician baccalaureate (see Table 4 in the Annex).

To sum up: the French firms only made selective use of the opportunities for direct recruitment offered by the training system and this was generally confined to higher-level technicians. Parallel to this, promotion from below continued to an unexpected degree, "underfed" to a certain extent by the employment of persons with the technician baccalaureate, sometimes even with higher technician training for lower level jobs. Thus, in France, the supply of technicians was not only massively increased but, at the same time, divided into two distinctly separate modes: parallel to the traditional solution of selective promotion of workers with higher training, there was the radical new mode of direct recruitment of persons with a higher-level training.

c) The diverging role of the enterprise in the constitution of medium-level qualifications

The outcome of such different developments is the - in a dual sense - diverging role of the firm in the constitution of medium-level qualifications.

In the FRG in-company learning processes clearly predominate in the form of in-company training in the dual system and informal qualification through on-the-job experience; a synthesis of in-school learning processes in the schools for technicians with in-company qualification processes, is to be found only in a part of the medium-level qualifications. In addition to this, there is the time factor, the fact that the in-company learning process comes first - an important determinant for the quality of the results - which is legally guaranteed by the obligation of acquiring several years of job experience before attending the technical school.

In France, on the other hand, such in-company qualification processes tend to be exclusive or they have relatively less weight (for higher-level technicians) than in-school qualification. In the case of all "techniciens" the in-company qualification processes always follow after vocational qualification in the school: both groups, the workers who advance to the intermediate level and those with the technical baccalaureate and higher-level technicians, first acquire vocational skills in the school before they get experience - filtered, guided and structured by this - in a company and learn from it.

Thus, in the last resort, it is the companies which determine whether promotion or direct recruitment will take place; they can link a training course to promotion or direct recruitment, it depends on how they absorb, use and assess the "products of the educational system". As we have seen, there are evident and significant differences between the FRG and France in the way in which these possibilities of influencing these constellations are used.

III. Interaction of educational system and company personnel policy in a dynamic perspective: some theses on the emergence of different development patterns in Germany and France

1. The explanation of different constellations: the concept of the historical emergence of national-specific development patterns and logics

How is it possible that - given the very similar situations in the pre-war period - such different constellations arose? Are they the product of diverging, intentional policies deliberately pursued over decades? Or are they the product of many single accidental developments? Both assumptions are equally improbable.

Every international comparison which attempts not only to identify the different structures and configurations of two countries but also to explain them, is confronted with the necessity of doing this in a dynamic perspective - a

necessity which is at the same time a problem for the social sciences: they cannot confine themselves to a historical description of different developments, nor can they explain existing differences simply by referring to different national cultures and/or traditions. On the contrary, they have to uncover more general structural relationships ("process structures"). But, what do such process structures consist of and how can they be identified in the multiplicity of single developments which lead to varying configurations?

In an attempt to solve this problem, the concept of the successive emergence and stabilization of national-specific development patterns with an internal development logic will be outlined in the following and substantiated with facts relevant to this report. The assumption is that - based on individual changes which are at first indeed accidental and the resultant reactive secondary and tertiary (adjustment) changes - typical patterns of the development of the educational system, company personnel policy and their interaction successively emerge which, in the course of time, become consolidated. They gain more weight and impetus and above all, internal coherence. This internal coherence in the nature of the changes and their sequence, makes it possible to speak of different national-specific "development logics".

This type of concept has far-reaching implications particularly with regard to the forecasting of future developments: it contains the assumption that a given development pattern will, very probably, reproduce itself in the future too, and will also extend into future developments. This

concept, however, does not necessarily mean an assumption of irreversibility; if the inherent problems or even the contradictions of some developments in the educational system and company personnel policy are not excluded, it is quite conceivable that problem potential will increase and - as a result - bring about the reversibility of a long-lasting development pattern ("trend turn").

In the following this concept will be applied to some - very briefly outlined - theses for an explanation of the diverging developments for access to technician posts in Germany and France which have become evident in the global analysis (Chap. II).

2. The German and the French pattern of development - Theses

Thesis 1: Gradual adaptation from below versus repeated innovations from above:
The process of the successive improvement in small steps of existing training courses from below which characterizes the development in Germany is offset in France by the constantly new creation of new, mostly higher-level training courses.

Thesis 2: Slow changes in qualification with the same title versus a growing number of different diplomas and qualifications:
A gradual and continuous change of qualification content with an unchanged qualification title (Meister, technician) in the FRG as against a multiplication of examinations in France, a

growing number of certificates and qualifications and their increasing lack of clarity.

Thesis 3: Non-problematic integration of young workers with traditional types of qualification versus problematic implementation of new types of qualification:
The potentially non-problematic integration of young workers with small and gradual changes in qualification (FRG) as against problems of implementing and stabilizing the new technicians in the French companies.

Thesis 4: Continuity versus rupture
The different modes of changing the educational system and provision of qualifications outlined in Theses 1 to 3, are used for the explanation of the thesis defended sometimes in French literature of "Continuity versus rupture", according to which in Germany the current staff and workers are retained and "somehow" adapted, whereas in France staff categories and individual workers tend to be replaced.

Thesis 5: The company versus government policy as the central agent of the change process:
The relatively significant weight of the companies and, to a certain extent, also the trade unions in the FRG is offset in France by the much greater role of the State. This means that - in addition to the primary interest of creating qualifications - several different secondary interests arise in the solution of problems, in particular different interests in the use and structure of promotion: the companies have to satisfy at least partly the wish of their employees for

promotion, government bodies have to respond to the pressure exerted by some groups of the population who wish to get chances of promotion for their children, by providing at least some opportunities for advancement through education.

Thesis 6: Promotion through continuing training versus promotion through a school career:
In close connection with this, there is a combination of intra-generative in-company promotion with continuing training (FRG), as against the combination of inter-generative promotion with higher-level in-school initial training in France.

Thesis 7: The company versus the school as the key location for the constitution of medium-level qualifications:
A development in Germany which, despite all changes, maintains and safeguards the principle of duality (with much weight being attached to in-company qualification processes), stands in contrast to a development in France which puts the emphasis on school qualifications, on the improvement of in-school learning content and inter-school transition, and either does not incorporate in-company qualification processes at all or only with great difficulty.

Thesis 8: Mutual reinforcement versus competition between initial training and continuing training:
A development in the FRG which successively strengthens initial training at worker level but also provides opportunities for the intermediate level to acquire continuing

training is offset in France by a development which narrows the margin for continuing training by steadily creating new initial training courses and thus discourages the emergence of structured and stable continuing training facilities and undermines existing traditions.

The assumption of this concept is that there is an internal coherence between the elements of these different development patterns outlined in these theses; however, these diverging "development logics" cannot be presented at length here.

IV. National trends in the light of case studies of single companies - evidence and counter-evidence from four chemical firms

1. Why company case studies? Why chemical firms?

(1) What is concealed behind the global trends outlined above in the form of concrete conditions and problem situations in the individual firm? How are existing promotion paths maintained or modified and with what results? How are new paths integrated in company staffing policy (in France), what problems arise in this context - "peaceful coexistence or conflict"? - and what problem solutions are developed?

These questions and related issues lead to the question of the continuity and stability of present development trends in the future: only when the implementation of new staffing policies, their integration in and with traditional patterns

have been achieved without constant problems, can the developments of the recent past be extrapolated into the future as trends.

The company case studies conducted in the two countries make it possible (inter alia) to examine these questions in more detail. In this perspective we are analysing "innovations" in the training and personnel policy of some selected companies; because innovations point to in-firm problems or opposite interests, i.e. they are indicators of possible future ruptures in trends. From this perspective, the results of the illustrative analysis of innovations in two French and two German chemical firms will be presented in the following.

(2) Why the chemical industry which - in contrast to the machinery manufacturing sector with its high percentage of skilled workers - is certainly not the typical sector to illustrate the German vocational training system?

Our answer is, precisely for this reason. If one assumes the existence of an "effet sociétal" or, less ambitious, the existence of national characteristics in the training and employment structures, and if one also assumes - and this is necessary in the logic of this assumption - that these characteristics are not determined only by the differing weight of specific sectors in the respective societies, then an "effet sociétal" should be clearly perceptible precisely in those sectors which are not the central ones in the national system of vocational training. In other words, if the German chemical industry whose personnel structures are

widely influenced by workers with on-the-job training, by seniority rules and so-called internal markets, etc., is closer to the typical French situation than the machinery sector, then the chemical industry should be studied in order to identify a possible "effet sociétal".

Obviously, company case studies from the chemical industry should not be a substitute but a complement to the analysis of differences between the German and French situations which was dominated by the machinery sector up to now. The parallel existence and interconnection of different sector logics in individual societies and their national logics is a separate field of research.

2. Data from company case studies - concrete, complementary and problem-based data on global trends

The data from the company case studies generally confirms and substantiates the global analysis of access to intermediate-level posts (Chap. II). However, it reveals additional factors and new developments which are not visible in the global trends but which - since they are not bound to completely company-specific conditions - could become effective on a broader scale and could in the medium term modify the identified global trends. In the following some selected, particularly interesting factors which emerged from the case studies, will be presented in a synthesized form.

a) Important findings from the French case studies (5)

(1) The implementation of the direct recruitment of higher-level technicians is evidently not a process devoid of problems or risks. The "renewal" of technicians by recruiting young persons with BTS or DUT is an iterative process, either because of the contradictory interests of the companies or because of counter reactions to the employment of higher-level technicians, or because they try to avoid such problems right from the start. This iterative nature of the implementation does not rule out the possibility that higher level technicians may no longer be required in a few - or even in many - firms.

(2) A revitalization of promotion can be introduced not only by re-structuring the technician baccalaureate to make it a springboard for worker promotion but also by introducing different forms of tying worker promotion to an effective continuing training ("formalization of access requirements").

(3) Tying promotion to continuing training will certainly make workers more interested in continuing training but, as a rule, younger and higher-qualified workers will have a relative advantage and the older workers who actually deserve

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(5) These results are the product of our analysis of extensive material from two company case studies (carried out by M. Bel, J.P. Géhin, P. Mouy and E. Serfaty) and from the paper presented at the meeting by M. Bel and J.P. Géhin (Bel/Géhin 1990).

promotion will be marginalized. Traditions of seniority which have developed from the past will become de-stabilized. It is an open question whether this re-structuring process will have the function of bringing about a one-time rejuvenation and higher qualification process on the basis of which seniority rules can be built up once again, or whether it will lead to a final dissolution of seniority rules altogether. The latter would, in the long term, mean a considerable facilitation of direct recruitment at different levels.

(4) Some of these forms of revitalization of promotion are undertaken as a counter-move to the implementation of direct recruitment; this means that promotion will be subject to competition from and replacement by direct recruitment, but it can also be reactivated as a result of this process - this can, however, only occur under certain, mainly political, conditions (counter-reactions of the workers affected by competition for promotion posts, etc.).

(5) Continuing training activities and related career processes are sometimes of a highly individualized nature. But the varying use made of inter-company and public elements is a striking feature. It is not improbable that these approaches can be developed into socially uniform and regulated further training courses in the future.

b) Important findings from the German case studies

(1) As expected, the characteristic feature of the German firms is the lack of direct recruitment. This may even be a

deliberate company policy to counteract the advance of persons with academic education, as shown by the example of the creation of a very demanding and expensive continuing training course for laboratory assistants leading to the job of laboratory head.

(2) As expected, the growing existence of a tie between promotion and continuing training ("formalization") was confirmed. A surprising finding, not visible in the global data, was the emergence of certain effects resulting from the formalization of access requirements, especially to jobs as foremen (Meister): a dynamic rush towards continuing training which became accelerated in the course of time and the resultant over-qualification and promotion queue. If no (satisfactory) solution is found for these problems, they could considerably endanger the attractiveness and vitality of the path to (trained) "Meister" in future.

(3) The companies seek solutions, e.g. they shift the excess qualification of "Meister" (foremen) to the adjacent field by putting a part of the surplus foremen in technician posts for some time. This solution can, however, endanger one of the classical figures at the intermediate level - the technician with a State-approved Technician´s Certificate. Because his future also depends on the probability of promotion and the resultant continuing training activities.

The mechanism - typical for German firms - of mobilizing workers for continuing training through promotion incentives together with comparatively stable measures to reward further

training and above all, a certificate which guarantees recognition in all companies - and the "anticipatory continuing training" triggered by this mechanism - reveal their strong points here but also their specific risks: the workers' interest in continuing training could, under some circumstances, turn out to be a veil masking de-stabilization processes and the erosion of some staff categories.

V. The vitality of promotion as the product of company interests - common aspects in different systems

1. The vitality of promotion - a feature to be explained

The following section concentrates on common features in different developments - a dimension which is not usually included in international comparisons but which we believe is particularly instructive.

The most striking common factor in the development trends is without doubt the remarkable vitality of promotion which reveals itself in different ways: either in the form of a continuation of traditional promotion paths (appointment in both countries, further training in Germany for technicians and "Meister"); or in the form of a revitalization of promotion on a new basis (the first employment of persons with BTn or even BTS and DUT at skilled worker level with subsequent promotion); or in the form of incorporating promotion elements in direct recruitment (in-company training periods in German engineer training).

The durability of promotion observed up to now is certainly also due to the fact that in both countries the increase in the number of technician jobs preceded the corresponding extension of medium-level training courses, so that companies had to use promotion of the workers as a "stop-gap solution". However, this only explains the continuity of promotion to a certain extent: industry could probably have introduced the corresponding expansion of these training courses at a much earlier date. Furthermore, the survival of promotion is to be found in supply situations which seem to contradict it.

The vitality of promotion therefore requires a multiple explanation. There must be very powerful interests underlying promotion as a means of potential staff allocation. Three such general interests of the company in promotion are outlined briefly - as possible explanations based on earlier studies (Drexel 1980a, 1980b, 1982, 1988 and 1989).

2. Promotion as a hinge linking staff categories - precondition for flexible division of labour and cooperation

The qualification demands of a qualification and hierarchical level can never completely cover the qualifications of the level directly below; each qualification level has specific and irreducible qualification factors. This makes promotion tremendously important: promotion makes dual qualifications available at the next level. It shapes workers who through their occupational biography incorporate the qualifications of this level and the qualifications of the level below.

Thus, the promoted persons are like a hinge which links the individual parts of a company´s workforce. Or, to use a metaphor which describes the dynamic elements of this process better: they are interfaces which connect the potentials of the different workforce categories in a "network".

This not only implies qualifications in the narrow sense of the term, i.e. knowledge and skills, but also "getting on with one another" in the technical and social context, i.e. the question of a common language in a very broad sense of the term. Because this is the foundation of cooperation between qualification and hierarchical levels, above and beyond the official division of tasks and lines of responsibility which regulate cooperation and thus channel and restrict it at the same time. Flexible division of labour and cooperation firstly entails a complex of common (overlapping) skills and their classification in a common language and secondly, - for this - a minimum amount of social proximity: common experience within and outside the occupational activity and/or integration in common goals, common identities and standards. The thesis is that all the individual members of two adjacent staff categories do not have to have this common experience or common elements of integration; they can be provided by the individuals who have been promoted and who thus form the interfaces in the network of different staff categories.

This is naturally of great importance in the intermediate level of technical staff where cooperation has to be ensured between the two major workforce categories: the qualified worker (skilled worker) on the one hand, and the scientifi-

cally qualified technical man (engineer) on the other. In no other place is it so important to be the agent connecting the work of different workforce categories and the concepts governing them, to explain, translate and interpret their different constraints and logics, to interpolate and reduce them on the basis of experience, in brief to reconstitute a part of what has been lost through the division of tasks and responsibilities.

Explicit or implicit knowledge of the significance of "networking" processes acquired through occupational experience is certainly present in many companies and is one of the main explanations for the continuity of promotion.

3. Promotion as the regulator of staff flexibility

The process of allocating staff to certain posts through promotion gives the company a flexibility potential in several ways: it can expand the promotion paths into multiple stages or reduce them to a few steps and thus either lengthen or condense the flow of staff movements. It can use promotion in a restrictive or expansive way and thus create narrow or broad streams of promotion. It can accelerate the promotion flows during a certain period and decelerate them at other times and thus flexibly expand or reduce staff volumes at different levels.

The company can also, by making certain qualifications the pre-condition for promotion, mobilize the "own initiative" of the staff to acquire them. If the company leaves the

initiative of qualification to the staff, it is free to slow down or accelerate the remuneration for these qualification activities depending on the current need for qualifications. The company can also initiate and maintain mechanisms for "anticipatory qualification" through its promotion patterns; it can create a stock of qualifications which can be used flexibly at the lower level or be called at the top just as flexibly when required.

4. Promotion as the cause of the possible divergence and convergence of company and worker interests

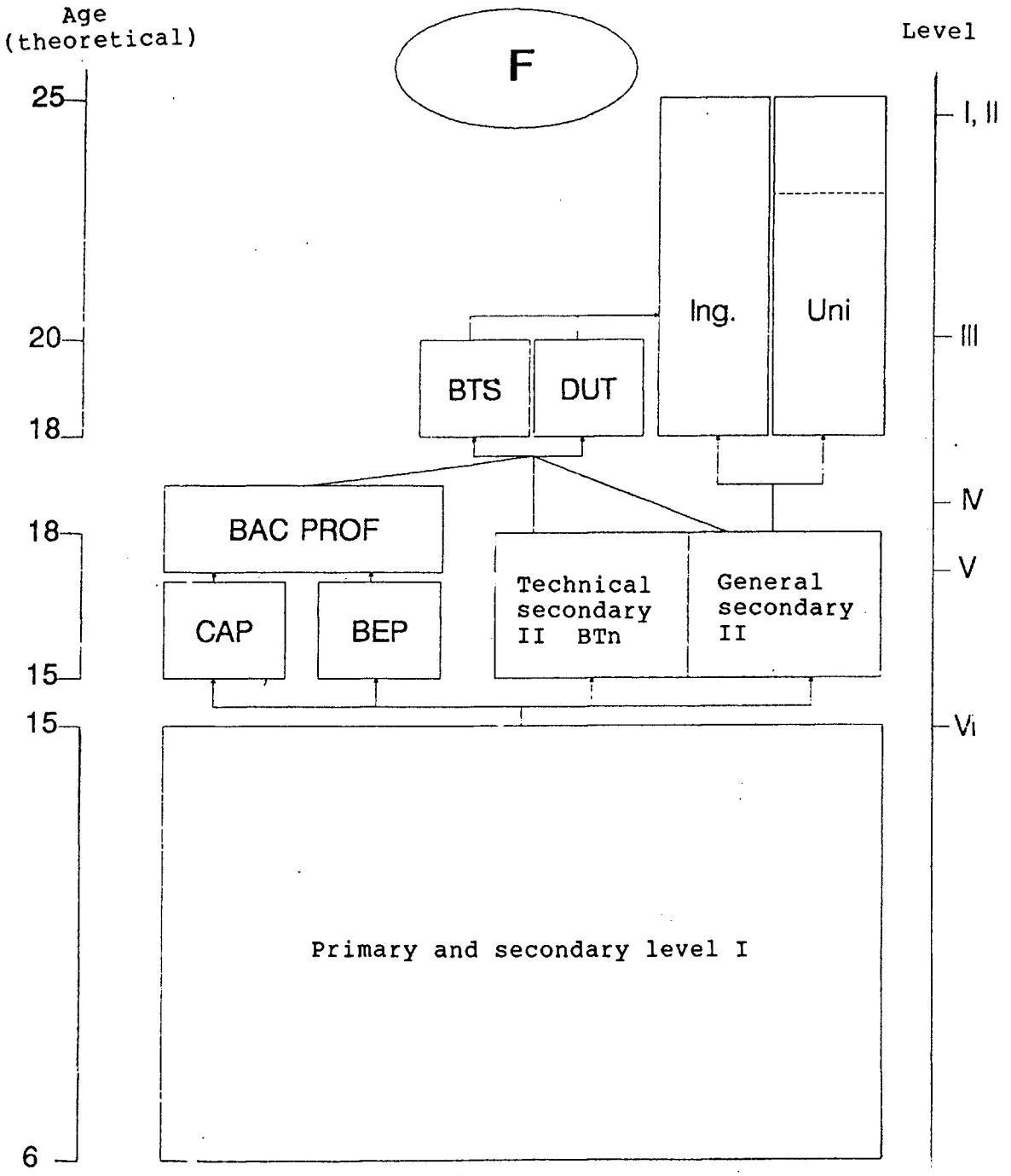
Workers have contradictory interests with regard to promotion: the possibilities of the workers as a whole and their representative bodies to organize joint action and uniform behaviour and thus to enforce collective interests, are subject to more or less invisible constraints through promotion prospects and incentives. In the preliminary phase of possible but not certain promotions the companies can gain political potential for the acceptance of their interests. Because the mere possibility of promotion in a firm channels the workers´ wishes for an improvement of their working and living conditions towards individual goals: the thought of possible promotions mobilizes the thoughts, plans and energies of the workers, it guides their behaviour and directs it towards loyalty vis-à-vis the firm, towards "proving themselves" and competition with other workers. The workers´ representatives can lose political potential for action and enforcement of their interests through this.

As individuals the workers have legitimate, even necessary individual interests in a change and an improvement of their work situation - interests which can often only be achieved by promotion. In the context of these individual interests promotion paths in the company can represent compromises between company and worker interests, or even be a point of reference for a specific convergence of these interests.

Without doubt, this fact of a (partial) compromise between company and worker interests is one of the explanations for the vitality or the revitalization of promotion at the intermediate level of technical staff.

A N N E X : F I G U R E S A N D T A B L E S

FIGURE 1: BASIC STRUCTURE OF THE FRENCH EDUCATIONAL SYSTEM



Notes on F:

CAP = Certificat d´Aptitude Professionnelle (Vocational training qualification)

BEP = Brevet d´Etudes Professionnelles (Vocational training certificate)

BAC PROF = Baccalauréat Professionnel (Vocational baccalaureate)

BTn = Baccalaureat Technologique (Technical baccalaureate)

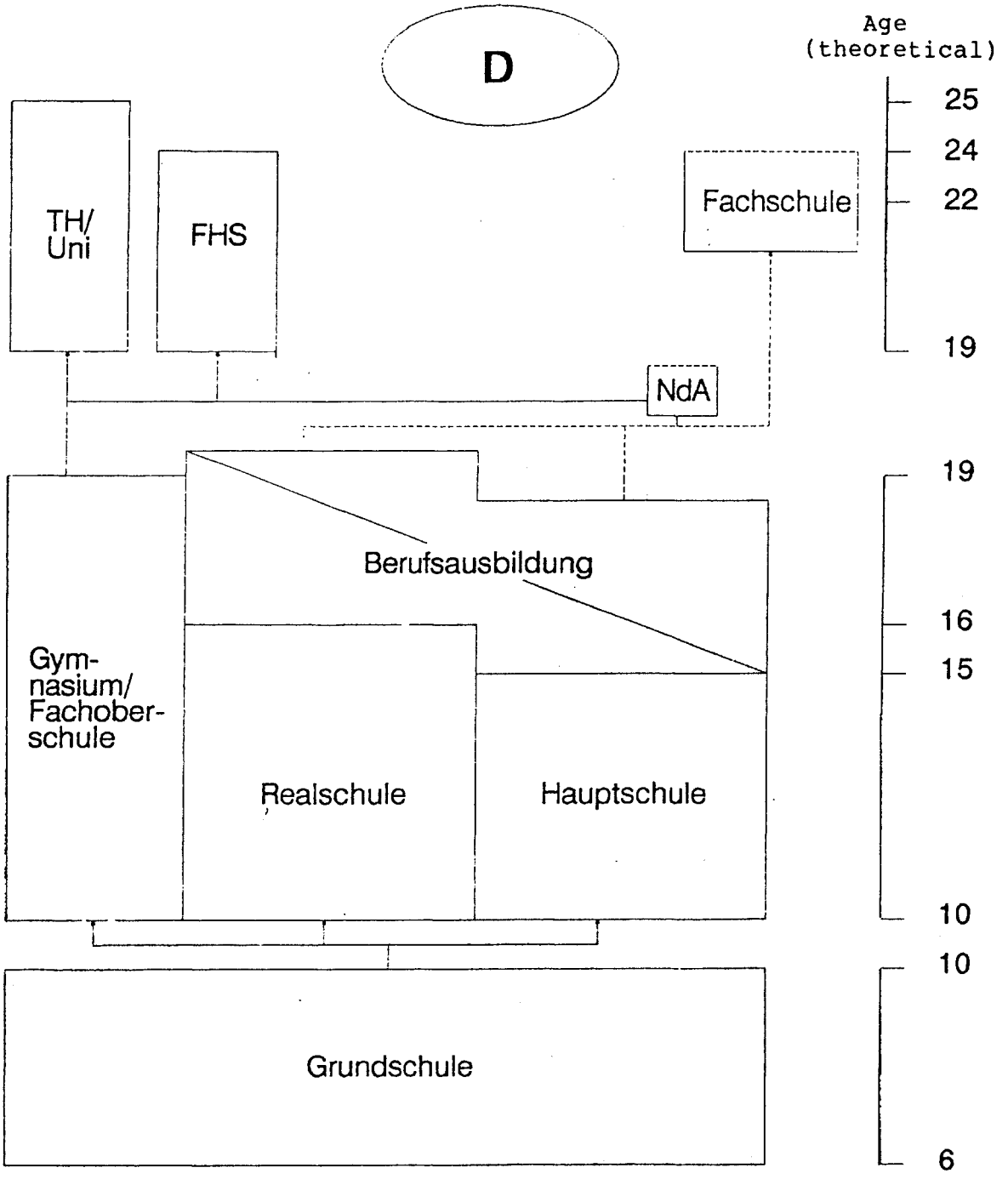
BTS = Brevet de Technicien Supérieur (Higher technician/ Technicians´ Certificate)

DUT = Diplome Universitaire de Technologie (Graduate technician/ Technicians´ Diploma)

Ing. = Engineering school

Uni. = University

FIGURE 2: BASIC STRUCTURE OF THE GERMAN EDUCATIONAL SYSTEM



Notes on D:

TH/Uni	=	Technical University / University
FHS	=	Technical College
NdA	=	University entrance qualification (Abitur) acquired later
Fachschule	=	Technical School
Berufsausbildung	=	Vocational training
Gymnasium/Fachoberschule	=	Higher secondary / Higher technical school
Realschule	=	Secondary school
Hauptschule	=	Extended primary school
Grundschule	=	Primary school

Table 1: The development of access paths to "technicians'" posts by promotion and direct recruitment

Year	(1) Workforce total Tsd.	(2) Workforce adjusted[1] total Tsd.	(3) Apprentices, Semi-skilled trainees, Trainees Tsd./% v.(2)	(4) Technical School Tsd./% v.(2)	(5) Technical College Tsd./% v.(2)	(6) University Tsd./% v.(2)	(7) Total Promotion (3) + (4) Tsd./% v.(2)	(8) Total Direct recr. (5) + (6) Tsd./% v.(2)
1975/76	691	622	350 56	233 37	31 5	8 1	583 94	39 6
1978	728	668	374 56	254 38	32 5	8 1	628 94	40 6
1980[2]	768	731	400 55	275 38	45 6	11 2	675 92	56 8
1982	792	733	398 54	285 39	38 5	12 2	683 93	50 7
1985	739	701	335 48	315 45	40 6	11 2	650 93	51 7
1987	790	745	346 46	339 46	45 6	15 2	685 92	60 8

Source: From: Drexel, I., Méhaut, Ph., Der Weg zum Techniker: Aufstieg oder Seiteinstieg? - Unterschiedliches und Gemeinsames in den Entwicklungen von Bildungssystem und betrieblicher Personalpolitik in Deutschland und Frankreich.

1 The figures in Col. (2) are adjusted to exclude those persons for whom there is no data on the highest certificate, as expierence shows these are mostly persons without vocational training (unskilled, semi-skilled workers); the adjusted figures therefore show an upward shift of the whole picture.

2 According to the Federal Statistical Office the figures for 1980 should be viewed with some caution as in this year the questions were somewhat different to those of the preceding and following years.

Table 2: The development of access paths to the global segment "technicians" and engineers[1] by promotion and direct recruitment

Year		(1) Workforce total Tsd.	(2) Workforce adjusted[2] total Tsd.	(3) Apprentices, Semi-skilled trainees Trainees Tsd.	(3) % v.(2)	(4) Technical School Tsd.	(4) % v.(2)	(5) Technical College Tsd.	(5) % v.(2)	(6) University Tsd.	(6) % v.(2)	(7) Total Promotion (3) + (4) Tsd.	(7) % v.(2)	(8) Total Direct recr. (5) + (6) Tsd.	(8) % v.(2)
1975/76	Total	981	885	387	43	274	31	173	21	51	5	661	75	224	25
	Eng.	290	263												
	Techn.	691	622												
1978	Total	1006	922	410	44	296	32	166	18	50	5	706	77	216	23
	Eng.	278	254												
	Techn.	728	668												
1980[3]	Total	1091	1051	438	42	319	30	231	22	63	6	757	72	294	28
	Eng.	323	320												
	Techn.	768	731												
1982	Total	1118	1038	438	42	328	32	202	19	70	7	766	74	272	26
	Eng.	326	305												
	Techn.	792	733												
1985	Total	1098	1052	365	35	347	33	245	23	95	9	712	68	340	31
	Eng.	359	351												
	Techn.	739	701												
1987	Total	1172	1117	376	34	363	32	270	24	108	10	739	66	378	34
	Eng.	382	372												
	Techn.	790	745												

Source: From: Drexel, I., Méhaut, Ph., Der Weg zum Techniker: Aufstieg oder Seiteinstieg? - Unterschiedliches und Gemeinsames in den Entwicklungen von Bildungssystem und betrieblicher Personalpolitik in Deutschland und Frankreich.

1 Engineers excluding architects and construction engineers.
2 The figures in Col. (2) are adjusted to exclude those persons for whom there is no data on the highest certificate.
3 According to the Federal Statistical Office the figures for 1980 should be viewed with some caution as in this year the questions were somewhat different to those of the preceding and following years.

Table 3: New appointments to technicians' posts

Appointments	Period 1959-64	1965-70	1972-77	1980-85
Total:	142.400	283.300	248.300	199.500
	100 %	100 %	100 %	100 %
of this, from the workers:	35.600	67.200	66.100	59.200
	25,0 %	27,0 %	26,6 %	29,7 %
of this, from lower management	12.600	23.100	19.600	10.500
	8,8 %	8,2 %	7,9 %	5,3 %

Source: from Drexel, I., Méhaut, Ph., Der Weg zum Techniker: Aufstieg oder Seiteinstieg? - Unterschiedliches und Gemeinsames in den Entwicklungen von Bildungssystem und betrieblicher Personalpolitik in Deutschland und Frankreich.

Table 4: Technicians by level 1982 and 1988 - share in %

Level	1982	1988
I, II	4,5	3,6
III	14,0	21,1
IV	26,6	27,3
V and below	54,9	48,0
Total	100,0 (709 tsd.)	100,0 (744 tsd.)

Source: Guillon, R., La place des techniciens dans le système d'emploi, in: CEREQ bref, sept. 1989, no.46.

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