UNITED STATES BUREAU OF EDUCATION
BULLETIN, 1913, NO. 9 - - - - - - - WHOLE NUMBER 516

CONSULAR REPORTS ON CONTINUATION-SCHOOLS IN PRUSSIA

WASHINGTON
GOVERNMENT PRINTING OFFICE
1913

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CONSULAR REPORTS ON CONTINUATION SCHOOLS IN PRUSSIA.

I. VOCATIONAL TRAINING IN MAGDEBURG.

By ERNEST L. IVES, *United States Vice Consul.*

Magdeburg: Capital of the Prussian Province of Saxony, located 88 miles southwest of Berlin. Center of German sugar industry; iron, chicory, tobacco, chocolate, cement, varnish, chemicals; important center of river commerce.

One of the great factors in the successful development of German commerce and industry is generally conceded to be her most excellent school system, which trains the youth for later responsible positions. Of recent years Germany has made great strides in vocational training, a feature of education which is at present largely discussed in the United States; hence the experience along these lines of the schools in the city of Magdeburg, Germany, may be of interest. Magdeburg is a prosperous industrial city of 287,000 inhabitants, and is typical of the most progressive of the German cities in education for commercial and industrial pursuits.

All children between the ages of 6 and 14 are required to attend school; and boys, after having completed these eight years of elementary training, in case they do not further pursue their education along literary or professional lines, must choose some occupation and are placed as apprentices in their chosen work. They are assisted by the school authorities in securing desirable positions, where they acquire practical experience, and are required to attend the *Fortbildungsschulen* (continuation schools) from four to six hours per week, for a period of at least three years. It is thus evident that with the development of these continuation schools, the compulsory supervision of the education of the boys extends to the seventeenth year of age. Statistics show that not more than 8 per cent of the boys continue their literary or professional education beyond the fourteenth year, hence the importance of these Fortbildungsschulen in the scheme of education can be somewhat appreciated.

These continuation schools are divided into trade and commercial schools, the former giving instruction according to the particular occupation. At the present time there are classes for bakers, butchers, barbers, waiters, painters, decorators, blacksmiths, tailors, cabinetmakers, and, in fact, for any occupation in which it would be

practicable for a boy to engage. Even if the boy does not aspire to a skilled occupation, but is satisfied to become a street cleaner, house servant, messenger, or to engage in any other form of unskilled labor, he is nevertheless required to spend three years in the continuation schools as prescribed by the city of Magdeburg.

For boys who wish to enter commercial pursuits, positions in the various business establishments of Magdeburg are secured, where they receive practical commercial education, which is supplemented for a period of three years by six hours per week of theoretical training in the Fortbildungsschulen. Accounting and bookkeeping, business correspondence, commercial geography, business law, and civil government are the most important subjects taught in these commercial schools. The boys are also graded into three different divisions in the same year's work according to their proficiency in scholarship; so that the brightest of the boys are enabled to cover more ground than the less efficient ones. Should a boy wish to continue still further his commercial education, he can either enter a private commercial school or enter a *Handels-Hochschule*, which corresponds to the grade of a college or university in the educational system in the United States.

II. PART-TIME SCHOOLS FOR INDUSTRIAL WORKERS IN PRUSSIA.

By RALPH C. BUSSER, *United States Consul, Erfurt.*

Erfurt: Very old city in Prussian Saxony, located midway between Gotha and Weimar. Population, 111,500. Extensive culture of flowers and vegetables. Manufacturing: Ladies' mantles, boots and shoes, machines, furniture, woolen goods, agricultural implements; brewing, bleaching, dyeing; railway works, Government rifle factory.

PART I. INDUSTRIAL CONTINUATION SCHOOLS.

GENERAL CHARACTER AND AIMS.

The course in the common schools (Volksschulen) of Prussia covers eight years, upon the completion of which the compulsory period of full-time schooling ends, and the pupil is permitted to enter the store, workshop, factory, or other regular employment. In Erfurt, however, as in many other Prussian cities, the compulsory education of the boys does not entirely cease upon graduation from the common schools, for they are required to attend the continuation school for three years; that is, usually between the ages of 14 and 17. The boys who have entered a business or mercantile career as store or office employees attend the commercial continuation school (kaufmännische Fortbildungsschule), and those who have taken up an industrial vocation, as trade apprentices, factory workers, or otherwise, attend the industrial continuation school (gewerbliche Fortbildungsschule).

The aim of the industrial continuation school, which is the institution under discussion, is to furnish the young apprentice or factory worker with scientific, business, and technical instruction which he needs in order to advance himself in his trade, whether as journeyman, master mechanic, foreman, manager of industrial operations, or independent contractor. The instruction in the industrial continuation school is not in any sense a substitute for apprenticeship, but is rather complementary to the training in the shop or factory by supplying the deficiencies of education by exclusively practical work. Another important object of the continuation school is to give the youth such instruction in language, government, civic affairs, industrial laws, business customs, trade practices, hygiene, sanitation, etc., as to fit him to be an efficient employer or self-dependent workman, an intelligent citizen, and a capable member of society.

For the industrially employed youths who have neither the time nor the money to attend a trade school the continuation school constitutes an exceedingly valuable and important means of obtaining

that knowledge which is needed in their trade in order to attain a remunerative position. The instruction offered by the continuation school is especially indispensable to the recruits among the skilled workers, in view of the increase and growing importance of the examinations for journeymen's and masters' certificates. Naturally, the industrial continuation school can reach its full development only in the large cities, where a special organization in ascending trade classes is possible. However, in the smaller cities good results are accomplished when related trades (for example, all the different workers in metal or in wood) are grouped in classes.

Aside from the practical object of teaching the young people the application of useful knowledge to the mechanical work of their respective trades, it has been the experience of German educators that certain psychological and pedagogical principles must be borne in mind if the desired educational results are to be attained. The natural boy feels that with his graduation from the common schools (Volksschulen) comes freedom from a burdensome and disliked compulsion. Therefore in returning him again to the school bench the authorities hold that he should not be compelled to continue those studies which he has already pursued without pleasure for eight years. Now that he has entered industrial life he naturally wishes to go forward, so that, if his interest is to be awakened, only those studies should be provided which he can be convinced will help him to advance in his chosen trade. The industrial continuation schools complete the common-school education by giving the youths who are obliged to start at once upon the task of earning a living the rudiments of a practical education which will be immediately useful to them in the active pursuit of their respective vocations.

ATTENDANCE AND TIME OF INSTRUCTION.

In 1910, Prussia had 1,818 industrial continuation schools (gewerbliche Fortbildungsschulen), with 321,226 students; 59 association schools (Vereinsschulen), with 5,831 students; and 285 guild schools (Innungsschulen), with 11,952 students. Of the industrial continuation schools, 1,749 (including 61 work schools) had compulsory attendance and 69 had optional attendance. The unskilled workers in the industrial continuation schools numbered, in 1910, 66,599; the remainder were trade or factory apprentices, as distinguished from mere operatives in factories or helpers in other industrial operations. In the 59 association schools, which are maintained by mechanics, apprentices, associations, etc., the attendance is optional.

Comparing the above statistics with those of previous years, it is apparent that the compulsory schools are gradually replacing the optional schools. The industrial continuation schools being part of

the public school system in each community the question of compulsory or optional attendance has heretofore been determined by the respective municipalities. The Prussian State Government, however, by conditioning its annual appropriations to the continuation schools on the establishment of compulsory attendance has succeeded in inducing most of the communities to adopt this rule.

After agitation for a number of years a draft of a national law has recently been submitted to the Prussian Legislature which makes three years' attendance at an industrial or commercial continuation school obligatory on the part of all boys under 18 years of age who are employed in industrial or commercial work in the particular community. The boys usually finish in the common schools at the age of 14 or 15, and, according to the new State law, their compulsory attendance at the continuation school will continue for three years, or until the end of their apprenticeship, but not beyond the eighteenth year. It is also provided in this new law that one can be released by the school authorities from the obligation to attend the public industrial continuation school by attendance during the required legal period and for an equal number of hours at a guild or other continuation school or trade school, provided that the instruction at such school has been recognized by the president of the respective Government district (Regierungs-Präsident) as an adequate substitute.

As a rule the annual period of instruction amounts to at least 240 hours, which generally extends over 40 weeks. The number of hours' instruction in the week averages about 6. This number, however, has been found insufficient for those trades which require extensive drawing or practical expert instruction. A reduction to 4 hours per week is allowable for classes which receive supplementary expert instruction for at least 2 hours per week at a guild or association school recognized by the State. For those who follow the season trades, such as masons, carpenters, painters, etc., the period of instruction may be diminished during the principal work season, if it be correspondingly increased in the off season; provided, however, that all the apprentices may be compelled to attend the equivalent instruction and that the proper teachers for imparting the same are available. The vacation in the continuation schools is regulated by industrial requirements and the practice in the common schools of the locality.

In the 2,032 industrial continuation schools of Prussia in 1910 there were 57,154 hours of instruction weekly, 21,701 of which were in the eastern Provinces and 35,453 in the western Provinces of Prussia. The time of instruction is shown in the table following, taken from the 1912 report of the Royal Prussian Department of National Industry.

Hours of instruction.

	Week days.		Sundays.
	7 a. m. to 8 p. m.	After 8 p. m.	
	Hours.	*Hours.*	*Hours.*
Eastern Provinces	16,669	3,028	2,004
Western Provinces	28,106	3,555	3,792
Total	44,775	6,583	5,796
Per cent	78	12	10

Thus it may be seen that in the whole Kingdom of Prussia 78 per cent of the instruction occurs in the daytime between 7 o'clock in the morning and 8 o'clock in the evening, 12 per cent after 8 o'clock in the evening, and 10 per cent on Sundays.

The official report above referred to also states that the tendency is for the morning and afternoon hours of instruction relatively to increase and the evening hours between 6 and 8 o'clock to decrease. Owing to the poor artificial light in some of the smaller continuation schools, the Sunday drawing instruction can not in all localities be dispensed with. Generally speaking, however, the number of Sunday hours and late evening hours (after 8 p. m.) of instruction has gradually been reduced in recent years, because the authorities have recognized the fact that the students at the end of a day or a week of toil in the factory or workshop are too fatigued to take up evening or Sunday work with the spirit and vigor essential to achieve good results. The listlessness and natural feeling of repulsion toward studies which rob them of well-earned rest and recreation also operate to impair seriously the value of Sunday and evening instruction. Therefore, in most of the German continuation schools, Sunday hours and evening instruction after 8 o'clock have been entirely abolished, and employers are compelled by law to permit the boys to be absent from the business, without reduction of pay, during those hours of instruction which may fall in the regular working period of the respective store, shop, mill, or factory.

In the industrial continuation schools of Erfurt the hours of instruction are divided as follows:

Total number of hours.		In mornings (7–12 o'clock).		In afternoons (until 6 o'clock).		In evenings (6–8 o'clock).	
			P. ct.		*P. ct.*		*P. ct.*
In summer	411	192	46.7	69	16.8	150	36.5
In winter	417	192	46.0	81	19.6	144	34.3

It is thus shown that 63.5 per cent of the instruction (261 hours) in the summer is given in the daytime, while in winter 65.6 per cent (273 hours) is given in the daytime.

The tuition in a public industrial continuation school is very small, usually about $1.50 per year for an apprentice and about $1 for a factory operative or other unskilled worker. It is paid by the master or employer. The main financial burden, however, is borne by the municipality, aided by State appropriations if the local authorities have established compulsory attendance.

SYSTEM AND COURSES OF INSTRUCTION.

In selecting the subjects of instruction in the Prussian industrial continuation schools the aim is to serve the civic, vocational, and economic interests of the students, and to cultivate in them the technical knowledge, artistic sense, and idealism that with the necessary mechanical skill and practical experience go to make the master craftsman. Therefore attention is given to such subject matter as concerns the civic, vocational, and industrial life into which the young people have entered, the principal studies being drawing, arithmetic, bookkeeping, business correspondence, affairs of the trade, government, and such subjects as possess particular value to local industry and affairs.

The course of instruction in the well-organized industrial continuation schools can be divided into four general parts as follows:

1. *Science of the trade* (*Fachkunde*) designed to broaden as much as possible the student's knowledge of his vocation and to educate him for intelligent, conscientious work. For classes which embrace single trades or groups of related trades, this expert or technical instruction includes elementary geometry, professional trade drawing, machine drawing, and the sketching of designs from prepared drawing cards; and also, if the expert teachers and other facilities are available, the handling of raw materials, tools, machines, and working models. In some large industrial continuation schools algebra, physics, chemistry, natural science, and mechanics are taught in elementary form. In the great majority of schools, however, these advanced subjects are omitted, because the very limited period of instruction must be devoted to more necessary studies.

2. *Business affairs* (*Geschäftskunde*), including studies which are of importance to the independent craftsman or mechanic, such as arithmetic and industrial bookkeeping; apprenticeship, material, and labor contracts; mercantile and credit relations; fire and life insurance; postal traffic, such as money orders, registration of mail, parcels post, and collections; railroad traffic, such as freight shipments, bills of lading, etc.; preparing notices and advertisements for the

newspaper; affairs of trade associations and guilds; industrial regulations relating to apprentices and journeymen; order and discipline in industrial operations; the hygienic requirements of the workshop, such as space, ventilation, light, heat, and sanitation; the cooperation and division of labor.

In the arithmetic course a study is made of checks, drafts, and bills of exchange; currency, weights, and measures; percentage, commission, rents, etc. The bookkeeping instruction is adapted to the trade or industry in which it will be used. In the classes for factory workers only that business instruction is given which is of importance to the permanently dependent worker.

3. *Civic affairs* (*Bürgerkunde*), including studies designed to teach the connection of the individual calling with the common life in the family, school, and workshop, in the community, State and Empire; to explain the genesis and system of important public institutions; to cultivate reverence for the constitution and public laws, loyalty to the home, fatherland, and temporal rulers; and to induce earnest and patriotic cooperation in the affairs of the town and nation. For example, the students are instructed as to the local municipality and its various departments, public hygiene and sanitation, taxation, protection and insurance of workers, the industrial and district court, the chief public authorities, and the most important facts about the Constitution and administration of State and Empire, about the Army, the Navy, and the colonies.

4. *Physical training and recreation facilities* (*Jugendpflege*). The obligatory studies under this division embrace elementary physiology and personal hygiene (such as care of the body, bathing, clothing, food, temperance, etc.), and rendering first aid to the injured. For the voluntary participation or use of the students, many continuation schools, especially in the larger cities of Germany, provide gymnasiums, swimming pools, playgrounds and other athletic facilities; and regular instruction is given in gymnastics, swimming, and field sports. While prizes are frequently offered and other measures taken to induce the students to participate in the gymnastic exercises, outdoor sports and games, and in the walking tours arranged by the teachers, the use of compulsion is discountenanced, upon the principle that force leads to opposition, and that those who unwillingly take part in athletics will receive little or no benefit therefrom. In addition to these facilities for voluntary physical training, the continuation schools frequently provide for the optional participation or attendance of the students other forms of education, culture, and entertainment, such as lectures, concerts, dramatic performances, singing classes, reading and game rooms, and excursions for visiting factories, industrial operations, etc., under the guidance of teachers.

In the following table is shown the number of hours of obligatory instruction for the members of each trade or calling represented in the industrial continuation schools of Erfurt:

Hours of obligatory instruction in certain vocations.

Vocations.	Scientific instruction.	Drawing.	Shop practice.	Total.
	Hours per wk.	*Hours per wk.*	*Hours per wk.*	*Hours per wk.*
Machinists	4	3		7
Locksmiths	4	3		7
Building mechanics (masons, carpenters, roofers, etc.)	4	3		7
Woodworkers	4	3		7
Bookbinders and printers:				
Expert class		2	2	4
Other classes	4	3		7
Brass workers	4	2		6
Plumbers	4	2	1	7
Saddlers, upholsterers, and decorators	4	2		6
Shoemakers	4	2		6
Painters	4	3		7
Tailors	4	2		6
Barbers	4		2	6
Bakers	4		1	5
Cooks and waiters:				
Expert class			2	2
Other classes	4			4
Butchers	4			4
Unskilled workers	4			4

From the above table it will be noticed that the apprentices in related trades are grouped together in the same class; for example, the different kinds of building mechanics are instructed in the same class; another class is composed of the craftsmen concerned in the making up of books; and another class includes the workers in leather, upholsterers, and interior decorators. Usually the apprentices who need no instruction in drawing, like barbers, bakers, and waiters, receive special shop instruction by an expert direct from the trade.

SCHOOL WORKSHOPS.

It is the consensus of opinion among the industrial associations and guilds in Prussia to whom the question was recently submitted at a national convention, that it would be unwise, as a general rule, to attempt to make the school workshop (Lehrwerkstatt) take the place of the private apprenticeship system. A similar view is held by representative industrial employers, as lately expressed through the German committee for technical school affairs. They are opposed to the organization of school workshops as apprentice trade schools, except when in consequence of peculiar local conditions the industry itself is not in a position to provide the necessary training of the learners. Such schools, for example, are the Prussian trade schools for the "small iron" industry in Schmalkalden, Siegen, Iserlohn, and Remscheid, whose efficiency is recognized by the industry. Other disadvantages of the general substitution of school workshops for

ordinary apprenticeship are: The tremendous expense to the State of providing adequately equipped shops (estimated at $100 to $125 per year for each student); the corresponding cost to the parents of supporting the boys during the period of instruction, now to a large extent borne by the masters; and the economical loss to trade and industry that would result from the absence of apprenticeship labor.

Therefore, the establishment of school workshops as part of the industrial continuation school system is based upon the principle merely of supplementing, not replacing, the practical training of the apprentice in the master's workshop or factory. The trades for which industrial continuation schools most frequently provide workshops with instruction by experts are shoemaking, tailoring, printing, bookbinding, painting, plumbing, cabinetmaking, paper hanging, decorating, barbering, fancy baking, waiting, and cooking.

As a rule, the introduction of workshop instruction as part of the curriculum of the continuation school is dependent upon the approval of the industrial circle or class concerned. The shop instruction must always be given by an expert and can supplement the required drawing instruction—for example, in the classes for shoemakers, tailors, printers, and paper hangers—or wholly take its place, as in the classes for waiters, confectioners, and barbers. Where the workshops of State or municipal schools for mechanics or other public trade schools are available and the local conditions permit, their equipment can also be made use of by the industrial continuation schools. Sometimes there is cooperation in the workshop instruction between the continuation school and the guild or association school in the same locality. Where no workshop instruction can be given in a continuation school, a limited cooperation between theory and practice is possible by having the student work out in the shop of his master the practical drawings which he has made in the school.

TRAINING OF TEACHERS.

In establishing the industrial continuation schools in Germany, much difficulty was experienced in getting properly trained teachers. It frequently happened that teachers from the common schools, with the required pedagogical ability, did not have the necessary technical or expert training in industrial branches, like mechanical drawing and applied mathematics. On the other hand, the artisans, mechanics, engineers, architects, etc., selected to give the expert or practical instruction often did not possess any knowledge of the proper methods of teaching.

To overcome these difficulties, special courses (Ausbildungskurse) of some weeks' duration for the training of teachers have been organized. The principal studies taught are drawing, industrial art, book-

keeping, and practical mathematics. Many of the teachers, in order to prepare themselves thoroughly for the theoretical or technical instruction of apprentices in the continuation school, have spent a few weeks or months in practical study or work in the particular industry represented in the class they expect to teach. Thus, the teacher of the shoemaker class in the Erfurt continuation school, while not a shoemaker himself, has made such a special study of the theory and art of shoemaking and has kept in such close touch with the practical side of the trade, that he is peculiarly equipped to give to the members of his class that kind of instruction in drawing and other technical subjects that will be of practical use to them in the pursuit of their vocation. Furthermore, it is sometimes required that the teacher of drawing or other technical course spend a year or more in an industrial art school or in the appropriate special trade school, in order to get the necessary practical knowledge of the course he is to teach. On the other hand, the expert craftsman who is to give the shop or practical instruction, in addition to a number of years of experience in the industry, may be required to have a diploma from a trade school, and perhaps some training in pedagogy.

EXHIBITIONS AND PRICES.

Once or twice each year the industrial continuation schools in many cities hold local or provincial exhibitions (Schulausstellungen) of the drawings and other work of the students. The main objects are to stimulate competition among the students for the prizes which are frequently offered, and to show the public, especially the manufacturers and tradesmen, what is done in the schools which are so closely bound up with the industrial welfare of the nation. The opportunity to see the various specimens of work produced under the instruction of specially trained teachers and of leading experts direct from the trades is of great value not only to the students themselves, who can thus recognize the defects of their individual work, but to the journeymen and master artisans who wish to keep abreast of the progress in theory, technique, and art in their respective trades. For the distribution of prizes, a fund is usually created by contributions of the State and municipality, by the donations of guilds, industrial associations, and private benefactors. In Erfurt, for instance, 133 students of the industrial continuation school were rewarded during the past year with prizes, chiefly consisting of technical books, working tools, cases of mathematical instruments, and small sums of money.

PART II. MECHANICS' SCHOOLS FOR EVENING INSTRUCTION.

With special discussion of class for shoemakers in Erfurt.

CHARACTER AND AIM.

Besides the common schools (Volksschulen), commercial continuation schools (kaufmännische Fortbildungsschulen), and the industrial continuation schools (gewerbliche Fortbildungsschulen), the public-school system of a Prussian industrial city includes, in addition to or in combination with an industrial art school, Sunday and evening trade classes for carpenters, masons, joiners, and cabinetmakers, machinists, plumbers, locksmiths, blacksmiths, gunsmiths, and other smiths, painters and varnishers, shoemakers, gardeners, woodworkers, coopers and wheelwrights, bookbinders, printers, lithographers, saddlers, upholsterers, paperhangers and decorators, glaziers, engravers, photographers, draftsmen, electricians, and other mechanics.

The day or full courses at an industrial art school (kunstgewerbe schule) are not intended for persons employed during the day, but rather for the learners or artisans of artistic crafts who can afford to spend a year or two in technical studies and school-shop practice. On the other hand, the weekday, evening, and Sunday courses, although frequently conducted in the same rooms, by the same instructors, and with the same equipment, constitute a distinct department of the industrial art school. This department, designated in many German cities as the mechanics school, is intended primarily for the technical and artistic instruction of mechanics who have already learned their trades and are employed during the day.

This institution, although not a special trade school, is of great advantage to those who follow any trade in which science or art can be utilized, for the object of the industrial art and mechanics schools is to enable an artisan or mechanic to study the scientific principles and art rules of the industry to which he belongs and to cultivate the sense of harmony and ideas of grace and beauty which can be combined with utility, so that his work may be scientifically planned, expertly designed, economically and skillfully executed, and artistically as well as mechanically adapted to the utilitarian purpose intended.

As Erfurt is a typical German industrial city, with a progressive school system, the evening and Sunday instruction for mechanics employed during the day can be intelligently explained by taking up the institution in this city. The consolidated Mechanics' and Industrial Art School (Handwerker- und Kuntsgewerbe-Schule) was established in Erfurt to train mechanics, journeymen, and master workmen to design or make patterns or models of the products of their trades, to conduct a workshop or business of their own, and to

project, undertake, and manage any contract or enterprise connected with their respective trades. In other words, this school is not primarily intended for beginners or apprentices, but rather for those who have already learned their trades but wish to develop or acquire greater manipulative skill, theoretical and expert knowledge, and artistic ability, together with competency for the business as well as for the technical management of industrial undertakings. For instance, the principal aim of the Shoemaker Class (Schuhmacher-Fachschule), which is the only one representing this trade in Thuringia, is to impart technical and theoretical knowledge of the shoemaking trade, for the manipulative skill is supposed to be acquired in the workshops where the students are employed as journeymen. Some of the teaching, however, is in handwork and manipulative processes, but this will be hereinafter discussed under the heading "Courses of instruction."

ORGANIZATION AND ARRANGEMENT.

The Mechanics' and Industrial Art School of Erfurt was opened in 1898 in accordance with an agreement between the Kingdom of Prussia and the city of Erfurt, providing for the establishment under State supervision of a municipal higher trade school for the professional and artistic education of master workmen, foremen, managers of technical and artistic departments, pattern makers, designers, draftsmen, and modelers for the different branches of industrial art and for the fine or highly skilled trades. The shoemaker class of the above school is organized chiefly for the benefit of the journeymen in the workshops, and not for the workers in shoe factories. As the latter are either mere operatives or masters of but one branch or specialty of the shoemaking industry, they could put to little or no practical use most of the many-sided instruction given in a trade school intended primarily for the shoemakers who make shoes to measure. While the shoe-factory worker is not excluded from the trade class by any hard and fast regulation, he is practically barred out by the circumstance that only a limited number of students can be taken care of, and the preference is always given to the journeymen shoemakers. The instructor is a practical shoemaker—a master workman who conducts a business of his own during the day. Two rooms are used by this class. The larger room is given up to drawing, blackboard illustration, measuring, cutting, sewing, etc., and the smaller room, for modeling and other special work by several of the students at a time. The other trade classes in the mechanics' school are similarly organized, with corresponding facilities for drawing, modeling, and shop practice, and the instruction is likewise given by experts direct from the respective trades.

ATTENDANCE AND TIME OF INSTRUCTION.

The school year is divided into two terms—the summer half year and the winter half year. No definite time can be set as to the duration of attendance at the school, as this depends upon the aim of the student as well as his capacity, industry, and preparation. Expert training for service as a foreman and master workman requires about one to three half years or terms; a full or day course in one of the industrial art branches, from two to five years, according to the trade and ultimate aim of the student. Industrial art studies are taught during the morning hours of each week day from 7 to 12 o'clock in summer and from 8 to 12 o'clock in winter; the afternoon and evening hours are from 2 to 5, 5 to 7, and 7 to 9, or 6.30 to 9.30 o'clock on five week days. The industrial art courses require usually 20 to 30 hours' attendance per week, and the courses for mechanics employed during the day demand 8 to 12 hours per week during week-day evenings and Sunday mornings. In the shoemaker class, for instance, instruction is given 8 hours per week, viz, 2 hours on each of four evenings between 7 and 9 o'clock.

In the Mechanics' and Industrial Art School of Erfurt the attendance during the summer term of 1910 numbered 73 day scholars and 269 evening scholars; during the winter term of 1910–11 the day scholars numbered 96 and the evening scholars 284. The average age of the students was 21 years.

The following table shows the number of students from each trade or calling in the above school, respectively:

Ages of the students.

Ages of students.	Summer term.		Winter term.	
	Industrial art school.	Mechanics' school.	Industrial art school.	Mechanics' school.
	Students.	*Students.*	*Students.*	*Students.*
Under 18 years	10	103	24	116
18 to 20 years	22	94	35	86
21 to 25 years	23	28	23	37
26 to 30 years	9	20	6	19
31 to 35 years	5	12	4	11
Over 35 years	4	12	4	15
Total	73	269	96	284
Grand total	342		380	

Number of students in the various occupations.

Occupations.	Winter term.	
	Industrial art school.	Mechanics' school.
	Students.	*Students.*
Sculptors and modelers	8	13
Coopers and wheelwrights		2
Bookbinders, printers, and typesetters		2
Decorators, paperhangers, saddlers, upholsterers, and embroiderers	1	2
Gardeners		24
Glaziers and glass painters		2
Goldsmiths and engravers	1	8
Plumbers, installers, and brass workers	1	1
Locksmiths	2	11
Lithographers, engravers, and graphic drawers	6	16
Painters and varnishers	28	21
Machinists and turners	5	61
Draftsmen (mechanical)	2	21
Building, safe, bicycle, and gun machinists		16
Masons and carpenters	5	12
Watchmakers, electricians, and gunstockmakers	1	9
Photographers		3
Blacksmiths		1
Shoemakers		9
Cabinetmakers and joiners for house and furniture work	11	25
Various other trades	1	15
Ladies	18	
Teachers	2	2
Drawing-teacher candidates	3	
Without vocation	2	3
Total	96	284

Of the 96 students in the Industrial Art School, 82 took a full course and 14 a part-time course.

COURSES OF INSTRUCTION.

The object of the Mechanics' School is to provide, for weekday, evening, and Sunday morning attendance, practical courses for artisans and other skilled workers who require advanced expert instruction which they can not get either in the industrial continuation school (which they attended during their apprenticeship) or in the industries where they are employed. The studies are designed to fulfill the different industrial requirements and to give proper consideration to the wishes of individual students. Individual instruction is given in mechanical and professional trade drawing, modeling, painting, sketching, etc., thus enabling the preparatory work and capacity of each student to be taken into consideration, and his school work mapped out so that he can go through with all practicable speed and not be held back by stragglers. On the other hand, class instruction, in accordance with the requirements of each trade or each group of related trades, is given in the industrial art branches, arithmetic, geometry, bookkeeping, etc. At the end of each half-year, each student complying with the requirements is entitled to a certificate showing the studies pursued and the work accomplished by him.

The instruction in the Mechanics' School at Erfurt, which is typical of that in other industrial cities, embraces the following courses:

1. Free-hand drawing from forms of nature and art.
2. Free-hand drawing and painting from utensils, plants, preparations, shells, etc.
3. Free-hand drawing and painting from living plants, animals, figures, and action.
4. Circle drawing, projection drawing from problems and trade models.
5. Geometry, science of shadows, perspective.
6. Mechanical drawing for machinists and toolsmiths, turners, millwrights, joiners, and brass workers.
7. Mechanical drawing for locksmiths, blacksmiths, opticians, watchmakers, gun-stock makers, draftsmen, and plumbers.
8. Mechanical drawing for building and furniture joiners, cabinetmakers, glaziers, turners, paperhangers, leather workers, saddlers, upholsterers, lacemakers, wheelwrights, and coopers.
9. Mechanical drawing for goldsmiths, silversmiths, engravers, sculptors, bookbinders, etc.
10. Mechanical drawing for masons, carpenters, and stonecutters.
11. Mechanical drawing for plan draftsmen and landscape gardeners, including the necessary instruction in surveying.
12. Mechanical drawing for decorators, lithographers, photographers; practice in drawing and etching upon stone; the making of proof impressions.
13. Mechanical drawing for typographers, with practice in cutting of clay plates and book ornamentation in lead and linoleum; practice in setting up of letterheads, capital letters, advertisements, etc.; ornamental writing, drawing, and cutting of initials.
14. Technical instruction with workshop practice for shoemakers.
15. Workshop practice in the trade and art of a smith.
16. Modeling, molding, embossing, and carving for all the trades concerned.
17. History of art.
18. Elementary geometry, higher geometry, and algebra.
19. Industrial bookkeeping and computation.
20. Master-workman classes for industrial art trades, as may be demanded from time to time.

The plan of instruction in the shoemaker section of the Mechanics' School is as follows:

1. Science of the foot (Fusskunde).
2. Taking the measure (Massnehmen).
3. Preparing the last (Leistenvorrichten).
4. Drawing according to measure (Zeichnen nach Mass); making model (Modellfertigen).
5. Calculation; cutting out; working the leather (Walken).
6. Cutting out and preparing the uppers (Zuschneiden u. Vorrichten der Schäfte).
7. Machine stitching, etc. (Steffen auf Zylinder-Säulen- und Flacksteffenmaschine).
8. Sole work (Bodenarbeiten).
9. Computing prices of finished work.
10. Bookkeeping.

For the benefit of the writer when he visited the shoemaker class, the teacher, a practical shoemaker, conducted several of the students through the theoretical process of making a shoe; and it was interesting to observe the thoroughness and practical nature of the instruc-

tion. The chief purpose of the course is to teach the journeyman scientific shoemaking and to prepare him for the examinations without which no one can use the title of "Schuhmachermeister" or master shoemaker, which means so much in Germany. This examination can not be taken until the journeyman reaches the age of 24, and upon qualifying as "meister" he is then entitled to conduct an independent business of his own, with the privilege of taking apprentices.

Under "Science of the foot" (Fusskunde) is studied the shape of feet, the foot afflictions, such as corns, malformations, etc., and the methods of fitting such crippled or afflicted feet so as to accommodate the shoe to the same or to correct if possible an abnormal condition. The instruction in drawing is along practical lines connected with shoemaking in its various branches, and as an auxiliary course the students are taught to make plaster Paris models of normal and abnormal feet.

The classrooms are supplied with a number of full sets of the best and latest tools, as well as the machines found in a modern shoemaking shop (not factory). As the instruction is primarily for fitting-shoemakers (Mass-Schuhmacher), as distinguished from factory shoemakers, the school is not equipped with any of the machines used in the shoe factory. The larger shoemaker trade school in Hanover is said to be equipped with the latter.

ADMINISTRATION AND SUPPORT.

The administration of the Mechanics' and Industrial Art School of Erfurt is in the hands of a board of trustees (Kuratorium) consisting of the chief mayor (Oberbuergermeister) as chairman, the deputy mayor (Buergermeister), the superintendent of city schools (Stadtschulrat), the city architect (Stadtbaurat), and seven others, four of whom are city councilmen and one the director of the school. Among the trustees are two master masons, one master builder, one furniture manufacturer, and one proprietor of a publishing and printing house. In order to see that certain standards in organization, entrance requirements, curriculum, and grade of work established under the Prussian school system are maintained, the State or royal school authorities exercise rights of supervision and inspection. The State appropriation to the school is of course conditional upon compliance with the requirements imposed by its authorities.

As the building occupied by the above school is owned by the city of Erfurt, such expenses as furniture, lighting, heating, and janitor services are of course assumed by the municipality. Of the total amount of other expenses, the chief of which are salaries of instructors, about one-tenth is covered by the tuition fees paid by the students; of the remaining nine-tenths, about one-third is supplied

by the State appropriation, and two-thirds by the municipality. A certain number of needy and deserving students receive scholarships or remission of all or part tuition, the same being provided for by donations from societies, guilds, and private individuals, or charged up to the public funds. Sometimes the income of a trade school is enlarged by the sale of products manufactured by the students during the school hours.

In the Industrial Art School the tuition is, half-yearly, 20 marks ($4.76) for less than 30 hours of instruction per week; 30 marks ($7.14) for 30 hours or more per week. Foreigners must pay five times the above amount. Scholars from places in Germany outside of Erfurt pay 30 marks ($7.14) half-yearly tuition and must supply their own drawing instruments and materials, modeling tools, painting utensils, notebooks, etc. The larger tools and working materials are supplied by the school.

In the Mechanics' School the tuition is, half yearly, 4 marks ($0.95) for four or fewer hours of instruction per week, 5 marks ($1.19) for five, 6 marks ($1.43) for six hours per week, etc.; that is, 1 mark ($0.24) half-yearly for each hour per week. Thus, the students in the shoemaker section, who have eight hours per week, pay 8 marks ($1.90) each half year. A remission or reduction of the tuition fee to a needy student is not allowed unless he has been regular in his attendance.

While the "Schulgeld" or tuition fees paid by the students may seem like a trifling sum in comparison with the total amount of expenses, there are certain sound reasons for, and important advantages to the students from, the exaction of tuition fees. As the trade schools are special schools in which all are not equally interested, and the benefits of which come largely to a particular class of people or to a locality, it is generally considered in Germany as just to require some payment from those who receive the privileges of such an institution. Among the advantages to the student is the likelihood that he will be impressed with the value of what he is getting when he pays something, thus encouraging regularity in attendance and serious effort to make the most of the instruction.

IN THE CITY CONTINUATION AND TRADE-SCHOOL OF BRUNSWICK.

By TALBOT J. ALBERT, *United States Consul.*

Brunswick: Located 37 miles southeast of Hanover and 53 miles northwest of Magdeburg, on the Berlin Railway. Population, 143,400. Manufactures: Boilers, gasometers, pianos, chemicals, beer, sausages. Leading center of the book trade.

There is an excellent trade school in Brunswick called "Städtische Fortbildungs- und Gewerboschule." It is a municipal institution. There were during the five years ended Easter, 1911, 880 scholars, including 50 females and 27 males from other schools, and 686 apprentices. The pupils were from 54 different trades or industries.

There have been recently added to the Sunday and the evening courses two new branches of instruction, namely, instruction in post office and railroad operation and trade jurisprudence. These courses were intended principally for assistants or apprentices.

The school has been the recipient of numerous presents from manufacturers of raw material, mechanical instruments, samples, photographs, etc., useful in instruction and showing the development of different trades.

IV. THE CONTINUATION SCHOOLS OF BARMEN.

By GEORGE EUGENE EAGER, *United States Consul.*

Barmen: City in the Prussian Rhein Province, district of Dusseldorf. Population, 169,200. Important manufacturing center; chief city of Germany in ribbon weaving; threads, laces, cotton and cloth goods, carpets, silks, machinery, buttons (latter industry employs 15,000 persons).

In Germany education is compulsory; and all children, male and female, are obliged to enter school at the age of 6 and continue to attend regularly until they have reached the age of 14. The bureau in charge of this matter keeps careful watch over all children, and parents who fail promptly to send their children to school at the proper time are punished by fines. For the poor there are Freischulen, where tuition and books are furnished free of cost. The fees in the Volksschulen amount to 20 marks ($4.76) a year.

The Fortbildungsschulen (continuation schools) are for the purpose of assisting boys who take up a trade and begin an apprenticeship in some factory, store, shop, or outdoor work. This work in Rheinland and Westphalia was begun in a small way in 1875 at Altenessen. At first, attendance was voluntary, with a yearly fee of 6 marks, but attendance was small, and manufacturers and employees considered it a loss of time and money. Workmen looked askance at the movement and kept their apprentices away from the school, not one-third of them attending.

Because of this attitude, attendance was made compulsory in 1899 for all apprentices, through the minister for industry and commerce, at Berlin. Since that time the progress of the school has been rapid and satisfactory. In 1908 the city government appointed a special board to manage the continuation school, and this change was perfected between the years 1908 and 1911.

The school not only reviews the work already done in the Volksschule, but gives theoretical instruction in different kinds of work, a feature which gives it the character of a special school for trades. At the same time, the pupils are taught good citizenship, love of country, and self-sacrifice for the public good.

The continuation school in Barmen has an attendance of 3,751 pupils, divided into 131 classes, as follows:

34 classes for textile trades.
5 for lace-making trades.
16 for machine-tool making.
3 for art forging.
3 for plumbing, electric installation, etc.
4 for furniture and weaving-loom making.

2 for house carpentry.
3 for house painting and decorating.
2 for shoemaking, saddlery, upholstery, and tailoring.
1 for gardening.
2 for typesetting and book printing.
3 for bookbinding and boxmaking.
2 for lithography and engraving.
4 for baking and candymaking.
1 for butchers.
1 for barbers and wigmakers.
39 for messengers and helpers.
2 primary classes.
4 classes for weak-minded.

FACULTY.

Besides the director of the school, there are 18 upper masters, 5 of whom are from the trades, and 53 teachers, as follows: 31 teachers and 2 rectors from the Volksschule, 1 drawing teacher, 5 teachers from the Arts and Crafts School, 3 teachers and 1 assistant from the Prussian textiles school, 1 architect, 1 painter, 1 landscape gardener, 1 shoemaker, 1 tailor, 1 confectioner, 2 barbers and wigmakers, 1 butcher, and 1 veterinarian.

The teachers have been specially prepared for teaching their different branches, and in addition to their daily instruction they give occasional lectures on different subjects.

HOURS OF STUDY.

The sessions of 736 hours in winter and 758 hours in summer are divided as follows:

Between—		In summer.	In winter.
7 and 1 (forenoons)	hours	416	402
2 and 6 (afternoons)	do	172	192
6 and 8 (evenings)	do	148	164

Work after 8 p. m. or on Sundays is not permitted. Vacations are the same as those of other schools except that the holiday vacation is postponed for 3 weeks on account of the heavy business at that season.

The courses of study ordinarily cover 3 years. Special trade classes for practical work are held for plumbers, electricians, shoemakers, saddlers, upholsterers, decorators, tailors, bakers, confectioners, and modelers.

All pupils receive 4 hours' instruction each week in trade and civic relations, composition, arithmetic, and bookkeeping. Besides this, the textile workers and lacemakers receive 2 hours in drafting, analysis, and designing of patterns; the plumbers, carpenters, shoemakers, saddlers, typesetters, belt makers, letterers, engravers, and gardeners, 2 hours of practical drafting; the tinners and painters, 3 hours of practical drawing; the electricians and machinists, 2 hours

of drafting and 1 of physics; the builders, lithographers, engravers on wood, metal, and stone, 4 hours of practical drawing; the tailors, 4 hours' drawing, with practical cutting and fitting; dentists, 2 hours' modeling; confectioners, 2 hours in decorating and garnishing; bakers and butchers, 2 hours in practical study of the trade; barbers and hair dressers, 2 hours in practical work at shaving, haircutting, hair dressing, and wigmaking.

For the practical work in the different trades each teacher, who is himself a master, has a complete collection of the materials used, the necessary tools and machines, and models of work in his trade. The study of drafting is not done with the intention of becoming professional draftsmen, but so that the apprentice will be able to read and work intelligently from a drawing. Practical designs are made and often are worked out at the factory in which the apprentice is employed. At the end of the course school exhibitions are held, at which the handiwork of the pupils is shown.

At the beginning of the year a building formerly used as a city hospital was rebuilt and conveniently arranged to accommodate the continuation school, and the recitation rooms were provided with the necessary equipment for work and demonstration of each trade. There is also a lecture room with apparatus for projecting motion-pictures, and machines for the textile weaving and lace making. There is also a library of good and useful literature which is open to pupils. Athletic games are encouraged and are practiced during each recess.

TUITION.

The cost of tuition is 10 marks ($2.38) per year for the six hours a week, payable semiannually. This charge must be paid by the pupil's employer. In case the pupil has no position, his next employer is responsible for the amount. The employer is also obliged to allow the apprentice to attend the school at the proper time.

The results are excellent, and the manufacturers and masters have learned that the instruction well repays the small sacrifice of time and money.

CONTINUATION SCHOOLS FOR WOMEN.

These schools have proved so effective for boys that the authorities in some cities have already begun to provide similar institutions for girls. In Berlin over 7,000 girls are receiving like instruction, and it is only a question of a short time when such schools will be compulsory for all girl employees.

The carefully kept records of births, deaths, and marriages, and of the comings and goings of every citizen, male and female, make it possible easily to control school attendance and military service. There is no possible escape from these duties so long as the person

remains within the Empire. Every spring and autumn, before the opening of the term, the principal in each school in the city sends to the director of the continuation school a report of every boy who is ready for the transfer. This report gives the name of the boy, his residence, and name of father and mother. It is the boy's duty to report to the continuation school and enroll himself as a scholar or give satisfactory proof that he will attend some other school. If he reports that he is to attend another school, either local or in another city, it is the duty of the director to obtain afterwards from that school a certificate that the boy is in attendance. This system is carried out during the entire three-year period during which the boy is required to attend.

V. PART-TIME SHOE SCHOOLS IN BRESLAU.

By FRANK G. POTTS, *American Vice and Deputy Consul.*

Breslau: Second city in Prussia. Population, 511,900. Situated on the Oder, close to Austrian and Russian frontiers. Industries: Machinery and tools, railroad equipment, furniture, gold and silver work, carpets, cloths and cottons, paper, musical instruments, glass, china. Important trade center: Coal, sugar, cereals, spirits, petroleum, lumber.

Breslau has the most modern and efficient continuation schools in Germany, according to statements made by the director of the local system. The attendance in all the departments was about 11,000 last year (1911). Beginning with April of this year, the compulsory-attendance feature has been extended to include female employees of mercantile establishments. Next April a law will become effective requiring attendance on the part of female helpers in hairdressing, tailoring, and millinery establishments and photograph galleries. The budget for this year amounts to 490,570 marks ($116,756).

The shoemakers' apprentices, to the number of 176, are instructed in special classes, attention being paid to the materials with which they work and the problems connected with their profession, but the ordinary shoe-factory employees are classed with delivery boys and other unskilled workers, and receive only very general instruction in the elements of civics, economics, hygiene, and bookkeeping. The former are required to attend 6 hours per week and the latter 4 hours. The school year consists of 37 weeks for the apprentices and 40 weeks for the factory workers. The difference in the length of the terms is due to the fact that the apprentices are released from school ahead of time just before the holiday seasons, when there is always an unusual amount of work to be done and the masters can not well dispense with their services. The period of compulsory attendance is 3 years, extending from the fourteenth to the seventeenth year. (In many other cities the period is 4 years.) From 15 to 20 per cent of the factory workers are under 17 years of age.

In addition to the regular courses there are separate classes for backward youths. The number of pupils in each of these classes is limited to 20. The teachers say that this plan of eliminating the retarding element from the regular classes is conducive to general efficiency in instruction.

The following translation from the introduction to the curriculum for unskilled workers, with whom, as stated above, the shoe-factory employees are unfortunately classed, gives a summary of the matters handled in the course and elucidates the principles involved:

> Young people are to be considered from the standpoint of their social class as workers; but they are also men and future citizens. From these three aspects the subject matter

must be arranged to fill the needs of the pupils. On the physical side man requires food, clothing, and shelter; the spiritual life demands instruction and education. The means of satisfying these necessities we find in work which produces goods or brings them into circulation. The exhausted forces are again restored by recreation. For the peaceful enjoyment of life and work we require security and order in the family life, the community life, and the body politic. Accordingly, the instruction material is divided among the three school years as follows: Lower class—food, clothing, shelter, instruction, and education; intermediate class—production of goods (work and recreation) and commerce; upper class—security and order in the life of the family, the community, and the State.

The course for shoemakers' apprentices includes the above-mentioned subjects, as well as professional and technical instruction. The apprentice system in Germany is still holding its own against the encroachments of corporate industry, and the number of shoe-factory workers is not yet sufficient to make technical training for them imperative. Under present conditions the factory owner has the right to send young workers to the continuation school as apprentices, but that would mean two hours' time taken from their regular work, and the employer is not willing to make the sacrifice.

Compulsory attendance on the continuation schools, like many other innovations, met with a great deal of opposition at first on the part of the masters, who were inclined to believe that such attendance was a waste of time. Opposition from this source has almost entirely subsided now, and the great majority of the masters are heartily in favor of the plan. They have discovered that their apprentices derive real benefit from the school and become more efficient workers as a result of the training there. It appears, however, from inquiries made of the two largest shoe manufacturers here that the factory owners are not in sympathy with the system. They claim that the instruction given is too general and does not tend to improve the quality of their labor. They prefer manipulative skill to all-round mental development. On the other hand, the school authorities say that the average manufacturer is principally interested in keeping his machines running, so that he may maintain his weekly output and produce a fair quality of goods. He is not likely to look far into the future and consider that the few hours spent in the continuation school may make for a larger output and a better product in the long run. This, of course, should not be understood as an arraignment of capitalistic enterprise. Specialized labor is the logical outcome of modern conditions, and no progressive State would consider it desirable to return to the older industrial methods. However, it is incumbent upon the State to provide for the operative such training as will tend to counteract the narrowing tendencies of specialization and make him a more intelligent factor in production. All well-directed efforts in this direction will necessarily redound to the advantage of both employer and employed. Some farsighted manufacturers have

long realized this fact and lent their aid to the establishment of vocation schools. When these schools have adapted themselves more fully to present conditions and are in a position to address themselves more directly to the factory worker, they can assuredly count upon the support of the industrial interests.

Every effort is made to arrange the school hours in such a way that the master or employer may be put to as little inconvenience as possible. Shoe-factory workers attend twice a week from 7 to 9 o'clock in the evening. The factories shut down at 6 o'clock, and there is, therefore, no interference with the regular work of the plants.

A teacher in the local continuation school who has charge of the shoemakers' apprentices offered the following suggestions, when asked to give his opinion as to the kind of courses best adapted to the requirements of the American shoe industry, with its large-scale production:

COURSES FOR SHOE INDUSTRY.

Eight hours per week.	Hours.	Six hours per week.	Hours.
Technical drawing	2	Technical drawing	2
Technical instruction	1	Technical instruction	1
Civics, hygiene, etc	1	Civics, hygiene, etc	1
Computation	2	Computation	1
Shopwork (with machines)	2	Shopwork (with machines)	1

This teacher believes that technical drawing is an indispensable feature of the work and that at least two hours should be assigned to it. He also believes that the whole six hours should be given consecutively on some forenoon during the week from 7 to 1 o'clock. It is not at all desirable that classes be held on Sunday or on Saturday afternoon. Employers should be forbidden by law to deduct any part of the wage for the time spent in school. While no machines are used in the local school, they would be a necessary adjunct of a well-equipped American institution of this kind.

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