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SOME SUGGESTIVE FEATURES OF THE SWISS SCHOOL SYSTEM

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OF SOUTH CAROLINA



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LETTER OF TRANSMITTAL

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, November 9, 1913.

SIR: The demand grows constantly more urgent for the closer adaptation of our schools to the needs of the communities in which they are located and by which they are supported. Some countries have succeeded in this better than others. Among those that have succeeded best are the Swiss Cantons. Believing that a careful study of the methods by which they accomplish this adaptation would be useful to us in the United States, I detailed Mr. W. K. Tate, who at that time held a temporary appointment as collector and compiler of statistics in the Bureau of Education, to go to Switzerland and make a careful study of this particular phase of the systems of education in some of the Cantons. Mr. Tate sailed on September 24, 1912, and returned on December 10, 1912. His expert knowledge of school work and the hearty cooperation of Swiss school officials enabled him to make a fairly thorough study of this subject in the brief time at his disposal.

The accompanying manuscript contains the results of this study. I recommend that it be published as a bulletin of this bureau.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

The SECRETARY OF THE INTERIOR.

FOREWORD.

Although Switzerland is slightly more than half the size of South Carolina, it is composed of 25 Cantons, each with a government as independent as one of our States and with complete control of its school system. The differences in administration and organization which exist between the various Cantons are fully as great as those which may be found between any 25 States of the United States. To speak of the Swiss school system would, therefore, be about as indefinite as to refer to the American school system. My observations were confined mainly to the Cantons of Berne, Geneva, and Zurich, with short excursions into Basel, Schaffhausen, and Thurgau. In these studies it was my intention to obtain a general conception of the spirit with which the Swiss people are pursuing their educational tasks, rather than to master the more formal details of school administration. It is readily realized that the latter task would require a volume much larger than the annual report of the United States Commissioner of Education. A rather complete presentation of the administrative side of the Swiss school system may be found in the file of Yearbooks of the Swiss School System (Orell Fussli, Zurich), especially in the issues for 1908 and 1909. References to administration in this report will be incidental. My chief interest and principal observations were centered in the types of schools, courses of study, and in the classroom work which it was my privilege to inspect rather closely during a period of two months. It was not the object of my studies to compare the widely varying school efficiency of the several Cantons, nor to discover defects, which are sure to exist in any human institution. It is not my purpose to compare the Swiss school system with our own in an effort to determine relative merits. Each has its points of strength and its elements of weakness. There is no educational complacency in Switzerland, but everywhere there is a demand for reform and a striving for improvement. In the search for new ideals the Swiss teacher frequently looks to America and endeavors to utilize our experience. It shall be my purpose in the circumscribed limits of this report to emphasize those elements of Swiss educational effort which seem most suggestive to us in America.

On my visits of inspection I was met with a cordial welcome in every classroom which I entered, and to make due recognition of the courtesies which were extended to me by the Swiss school officials and

teachers would be to call the roll of all whom I met. The democratic cordiality and the fraternal hospitality of their welcome will always lend a charm of sentiment to the recollections of my sojourn in their beautiful country.

I wish also to express my gratitude to the American representatives who were always ready and willing to lend their assistance in the prosecution of my work. My especial thanks are due to Mr. W. W. Smith, chargé d'affaires, of the American legation, Berne; Mr. George Heimrod, American consul at Berne; Mr. Leo Frankenthal, vice consul at Berne; Mr. F. B. Keene, consul at Geneva; and Mr. W. H. McBride, vice consul at Zurich.

Grateful acknowledgments are due to Mr. W. C. Ryan, jr., of the Bureau of Education, and to Prof. O. L. Keith, of the University of South Carolina, for substantial assistance with the translations.

W. K. T.

THE SWISS SCHOOL SYSTEM.

I.—EDUCATIONAL IDEALS.

FEW NATURAL RESOURCES.

Switzerland is a country with few natural resources except its scenery, its water power, and its people. The transcendent beauty of its landscape results from a topography which renders agriculture difficult. The soil yields its harvest only when the ingenuity, the skill, and the industry of man have subdued the asperities of a natural environment as perverse as it is beautiful. Agriculture in a level, fertile, virgin land consists largely in appropriating the spontaneous gifts of friendly nature. In such a region man's work is relatively a small item in the total result, and the worker sometimes takes second place with nature in the subconscious valuation with which society takes stock of its resources.

THE PEOPLE THE CHIEF ASSET.

Farming on the Alpine slopes of Switzerland is another matter. Here man, the conqueror of unfriendly forces, is the chief asset and is esteemed accordingly. In a country where coal and iron are cheap and plentiful, where cotton, lumber, and other raw materials are easily obtained, where manufacturing interests are shielded from competition and the stream of commerce flows unimpeded through a continent, the efficiency of the individual plays a relatively minor part in the industrial life. In Switzerland where there is neither coal, iron, nor petroleum, where forests have been depleted, where raw materials must be imported from other lands, where neighboring powers are jealous competitors, and tariff barriers dam the natural flow of commerce within narrow boundaries, the very existence of industry and even of the national life itself demand in every worker the greatest skill and efficiency which can be secured. Here the welfare of the individual worker becomes a chief public concern.

GOVERNMENT A SYSTEM OF COOPERATION FOR THE COMMON GOOD.

The Government of Switzerland is organized to further the interests and conserve the welfare of the ordinary man. The Government owns the railroads, and these are operated with marked efficiency and economy. A railway accident is practically unknown. The telegraph lines, the telephone system, and the express business

are also operated by the Government. A telegram or a long-distance telephone message may be sent anywhere in Switzerland for 10 cents or less. The Cantons have perfected a system of mortgage banks from which a farmer who wishes to acquire land or improve his farm may secure funds at 4 per cent, to be returned in small annual installments extending sometimes over a period of 40 years. This credit system has made 90 per cent of the Swiss farmers landowners. The cities own and operate all public utilities, usually including a municipal theater and an employment bureau. There are everywhere well-organized departments for looking after the poor and the unfortunate. The principle that the national resources belong to all the people, and that the Government exists for the purpose of developing and utilizing these resources for the general welfare, is universally accepted. Such a government would be called paternalistic by many Americans. It is really fraternalistic. It has not been imposed from above, but has been devised by the people themselves for the conservation of the general welfare. It is really a great cooperative machine. The responsibility of the citizen for the Government is very direct and personal. All laws passed by Parliament or by the Cantonal assemblies are subject to a popular referendum. It is impossible for a man to be elected as a representative of the people through an appeal to some popular prejudice or passion and then to use his power to make laws for the furtherance of his own personal interests or those of his clients. His legislative acts must all be submitted to popular approval or disapproval. The fact of the referendum emphasizes the importance of the individual citizen and awakens a lively desire to have all the people educated and intelligent. If left in ignorance, they may at any time nullify an important measure which they do not understand.

THE DOMINANT EDUCATIONAL IDEAL.

The conservation and utilization of every resource, and especially of every human asset, is the dominant educational ideal of Switzerland. The school is the instrument by which a democracy trains its members for efficiency and patriotic service. Any need which the State perceives to exist in its citizenship or in its national life is immediately supplied through some form of school. It is considered the duty of society to see that no child or man is wasted, but that he is prepared to live most efficiently the life which will have most meaning to himself and the greatest service to the social whole.

EQUALITY IN VARIETY AND ADAPTATION.

To the Swiss nation democracy in education consists, not in placing before people of diverse and unequal capacities the same sort of education and then inviting each to seize a pretended "equal chance."

which in reality he is unable to appropriate, but in offering to each man an opportunity to develop that ability which he possesses, in a school adapted to his needs and to the demands of society.

The American ideal of education which we are modifying but slowly is a single ladder with one end in the kindergarten and the other extending through the university. This ladder we consider that each has an opportunity to climb. We honor and reward the man who succeeds, but those who fail are allowed to drop off unnoted, and must climb upward by any difficult and devious path which they may devise, or must remain submerged. Ours is a fine system for the man who reaches the top. In the Swiss ideal there are many ladders reaching to many ends and the object of chief solicitude is the man who finds climbing difficult. This ideal does not develop the superman, but insures that high general average which is the basis of a true democracy.

CARE FOR MAN LOWEST DOWN.

The national consideration for the man lowest down exhibits itself in a multitude of ways. The primary school building is usually the best schoolhouse in the city. One of the very finest buildings which I saw was situated in a section inhabited largely by cotton-mill operatives. On the whole, the best teaching I observed was in the primary school, and some of the very best teachers in Switzerland are assigned to classes of subnormal children. The poor children attending school are provided with a lunch, consisting usually of bread and milk, at half past 10 o'clock. Clothing and shoes are provided for those who would otherwise suffer. There is free medical inspection and free treatment of children whose parents are unable to give them proper attention.

The larger schools maintain vacation colonies, where delicate school children are sent to recuperate during the holidays. Attached to the primary school is the Kinderhort, or guardian school, where children whose parents are at work in the factories and do not return home until 6 o'clock are detained under the care of the teacher. They are given a lunch and kept busy at play, manual training, gardening, or in the preparation of the next day's lessons.

MAKE ROOM AT THE BOTTOM BY MOVING UP.

Even the higher education does not forget the less favored. On my visits to the various technical schools I frequently made inquiries as to what became of the students after graduation. I found that 60 per cent of the graduates of the School for Silk Weavers in Zurich come to America. At the Biel Technical School the secretary

showed me a list of his graduates containing information from which it was seen that a very large per cent of them were working in France, Germany, America, or some other foreign country. The same thing was true in the School for Industrial Arts at Geneva. Finally I said to the director of one of these schools: "I believe that in my State, in America, if it were shown that 75 per cent of the graduates of an institution took positions in a foreign country or in another State, that institution would find difficulty in securing an appropriation for maintenance." Such an idea had evidently never occurred to him. He replied: "It is different with us. These are our boys and girls; we are proud when they succeed anywhere in the world. Besides, our country is small and our population is increasing rapidly. If we do not educate our best young people so that they may occupy the higher places at home and abroad, they will be compelled to fill the lower places here, and the less capable will be ground down in hopeless poverty."

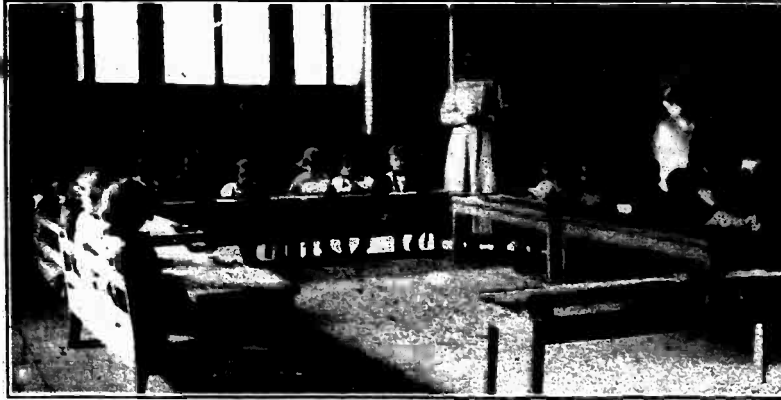
These vital relations between the people and their schools have given to the school and to the teaching profession a popular dignity and importance which are unknown in America.

II.—THE SPIRIT OF THE CLASSROOM.

SPIRIT OF PESTALOZZI DOMINANT.

When I think of the Swiss schools the first image which comes into my mind is the monument to Pestalozzi at Yverdon. A picture of this monument was hanging in every schoolroom which I visited in Switzerland. It had been placed there by the Swiss Confederation as a tribute to the simple teacher whose life meant so much to Switzerland and its educational system. Not only did I find the picture of Pestalozzi in the schoolroom, but in most instances his spirit was there also. This spirit manifested itself in the almost ideal relations which usually existed between teachers and pupils.

I soon found that the word "teacher" has few terrors to the child in Berne. I arrived in the city during the last week of the fall vacation. For four days I did not have an opportunity to visit the schools, and I spent the time exploring the city and endeavoring to get a clearer idea of the life of the people. The children were everywhere. I talked with them and watched them at their play. I soon discovered that any timidity which they might have had in the presence of a stranger and foreigner was dissipated when I told them that I was a "teacher from America." With this introduction, they immediately took me into their confidence.



A. AN INFANT SCHOOL IN GENEVA.



B. A FIRST GRADE, BERNE.

Note the solid wooden double desk and the absence of blackboard.



C. CLASSES IN OPEN AIR GYMNASIUMS, PRIMARY SCHOOL, BERNE.



A. GYMNASIUM CLASS IN SECONDARY SCHOOL FOR GIRLS, BERNE.
Every school has its gymnasium.



B. MANUAL TRAINING IN BOYS' SECONDARY SCHOOL, BERNE.

RELATION OF TEACHER AND PUPILS.

In the schools themselves I found nothing of the military strictness which prevails in some parts of Europe. The first primary school which I visited had perhaps 25 teachers and 800 pupils. When the bell rang there was no forming of lines or marching through the halls. The pupils simply went into the buildings in a body, passed through the corridors and up the stairs to their classrooms. The teacher was already in the room, and as the pupils entered, one and all passed by his desk and gave him a cordial greeting and a handshake. All through the day there was a simplicity and sincerity about their relations which was refreshing. When the pupils passed out at the close of the day, they again shook the teacher's hand as they bade him good-by, and extended the same cordiality to the visitor who happened to be present. On the playground or on the street the same cordial deference was exhibited.

While I met a few cross teachers who were evident misfits, the teacher's manner toward the pupils in the classroom usually gave evidence of a sincere love of children and an understanding of child nature. This one characteristic of the Swiss schools would be sufficient to explain most of the excellencies which I observed. It is the fundamental element in all good teaching. There are a number of causes which produce this happy state of affairs:

1. *Teaching a life work.*—The teachers of Switzerland have all deliberately chosen teaching as a life work. They have no ambition except to succeed in their chosen profession. There is no divided personality, part doing the task of the day and part looking away from that duty to some other profession or occupation for which they are using teaching as a stepping-stone. Each has gone through a period of definite special preparation for the task in hand.

2. *Love for children.*—The ideal of love for children as the first qualification has been placed vividly before prospective teachers in educational literature and in the teacher-training courses of the nation. The following extract taken from an article entitled "Pedagogical tendencies," in the Yearbook of 1908, is characteristic:

"But when I ask myself, Do you really love the children? * * * You do for them everything which you are able, you have the best wishes for each of them, but is that love? * * * Love? The word resounds in my soul with a hollow clang. I should like once to feel this indescribable, inexhaustible glow." So speaks Fleming in Otto Ernst's *Flachmann, the Teacher*, and then as he raises his hands toward the picture of Pestalozzi, he continues: "He, the great, the inspired Pestalozzi, could do that. His thought was crude and strange, his speech was confused, but out of the darkness of his thinking sings the nightingale of love, sweet, full, and inexhaustible. As long as I am schoolmaster I shall strive to find the secret way which leads to this great love."

The pedagogy and child study which I found in the normal schools was not the pedagogy of dissection, but it assumed that the best

and fullest knowledge of child nature is obtained when a whole teacher enters into friendly, sympathetic relations with a whole child.

3. *Long tenure of position.*—The shortest period for which a teacher is elected in a Canton visited is four years. In many Cantons he is elected for life, subject to recall on a popular referendum. It is no uncommon thing for a teacher to spend his life in one community. The fact of the long tenure of position enables him to become well acquainted with all the parents and to establish friendly relations with the children. He is also a citizen of the community for the whole year and, especially in the country villages, enters into the social life of the parents and children.

4. *Teacher promoted with class.*—Even in the city schools a teacher remains with one grade at least two or three years, being promoted each year with his class. After this period he again returns to the lower grade and brings up another section. The advantages of such a procedure are apparent. As one teacher expressed it, "This enables us to educate the child and not merely to instruct him."

5. *Excursions and play.*—The teacher frequently takes part in the recreational life of the children. It is the universal custom among the teachers of Switzerland to accompany their classes on all sorts of picnics and excursions. One frequently meets a teacher and her class visiting the Parliament House or museums in Berne or studying monuments of the city. They visit the playgrounds and make mountain excursions together. Often I have met them on these walks singing together the folk songs they had learned in school.

6. *Oral instruction; little home work.*—The method of instruction itself is calculated to establish close personal relations. Much of it is oral. It is rare to see a Swiss teacher with a book in his hand. The subject under discussion is developed by oral presentation and conversation between teacher and pupils. The children learn to study by studying with the teacher. The work is largely done in the classroom itself, and one sees little of the taskmaster who assigns work at school to be done at home and recited next day, a method which from its very nature causes a mental estrangement between teacher and pupil.

7. *National consideration for children.*—The attitude of the Swiss people is that of consideration for childhood. The physical as well as the mental needs of the child are considered. If a child comes to school hungry, his breakfast is frequently supplemented. If he lacks clothing, there is a method by which this may be obtained. Medical inspection, a free dental clinic, and free spectacles are common provisions of the school board. Through this welfare work many of the difficulties of school management are obviated, and the way is left clear for the establishment of cordial personal relations between teacher and pupil.

III.—A GENERAL VIEW OF THE SWISS SCHOOL SYSTEM.

The 25 Cantons of which Switzerland is composed exhibit differences about as great as may be found among the States of the United States. The Swiss Republic has three official languages—German, French, and Italian—and the people of the three sections are naturally influenced to a greater or less degree by the prevailing educational ideals of the countries whose language they speak. Some of the Cantons are almost wholly Protestant, while others are Roman Catholic; certain sections are mainly agricultural, while in others, manufacturing is the dominant interest. The percentage of arable land varies from 96 per cent in Solothurn, Appenzell, and Aargau to 44 per cent in Uri.

Even a superficial glance at these differences would indicate to us how varied the schools must be in their organization and content to meet the varying demands. In fact, there is nowhere uniformity, but everywhere the school has adapted itself to geographical and economic conditions. The Cantons, however, possess one thing in common—attendance on the elementary school is by law compulsory and without exception is enforced everywhere. Switzerland has had a compulsory attendance law for more than 80 years, and compulsory attendance is not only a law, but a universal fact. Illiteracy is, therefore, a negligible quantity. It is practically synonymous with idiocy.

THE INFLUENCE OF THE GENERAL GOVERNMENT ON THE SCHOOL SYSTEM.

The constitution of the Swiss Confederation, adopted in 1874, contains the following simple provision:

The Confederation is empowered, in addition to the existing polytechnical school, to establish a university and other higher institutions of learning, or to support such institutions. The Cantons shall provide adequate elementary instruction, which shall be solely under Cantonal control. School attendance shall be compulsory and, in the public schools, free.

The public schools may be attended by adherents of all confessions without infringement upon their freedom of faith or conscience. The Confederation will take the necessary steps to enforce these provisions in Cantons which neglect their obligations.

In 1902 the following amendment to the constitution was adopted:

Subventions to be determined by law may be granted to Cantons for assistance in the fulfillment of their obligations in the domain of elementary instruction. However, the organization, direction, and supervision of the elementary school system remains a matter for the Canton.

Federal assistance for the support of the public elementary school was first granted in 1903. The total population as determined by the Federal census was fixed as the basis for the distribution of Federal aid. The per capita unit was fixed at 60 centimes. However, in

consideration of the exceptional needs in nine mountain Cantons, additional subventions of 20 centimes per capita were granted in these Cantons. The Federal subvention for 1910 was 2,357,528 francs, or about, \$470,000. The Federal appropriation was used for the following purposes: Increase in teachers' salaries and teachers' pensions, 50 per cent; the training of teachers, 6 per cent; increase in teaching force, 2 per cent; feeding and clothing poor children, 8 per cent; books and supplies for children, 3 per cent; furniture and apparatus, 3½ per cent; education of subnormal children, 2½ per cent; building and repair of schoolhouses, 23 per cent; gymnasiums and playgrounds, 2 per cent. In Switzerland there is a growing sentiment in favor of increased Federal appropriations for the primary schools.

EXAMINATION OF RECRUITS.

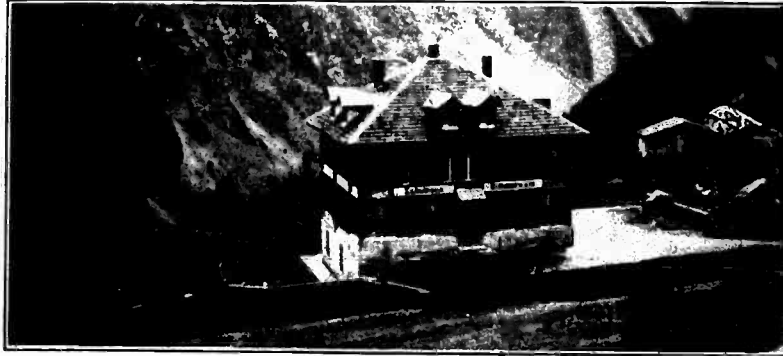
There is another practice that deserves special mention for its influence on the Swiss school system during the decades which have elapsed since the adoption of the constitution of 1874 and the reorganization of the military system in 1875. This is the examination of recruits. Every young man must serve for a few months in the army. Before entering the military service the recruit must submit to an examination which will test his knowledge of the elementary school subjects and especially of the facts of government necessary to the performance of his duties as a citizen. The results of these examinations are published annually, and there has arisen between the Cantons a worthy emulation and an ambition on the part of each to have its recruits stand as high as possible on the list. This emulation has served to improve greatly the various Cantonal school systems and has especially directed attention to the elementary school and to the continuation school. By it the school period of the elementary school has been extended in many Cantons and by many, also, the continuation school, or the preliminary school for recruits, has been made obligatory.

FEDERAL AID IN VOCATIONAL EDUCATION.

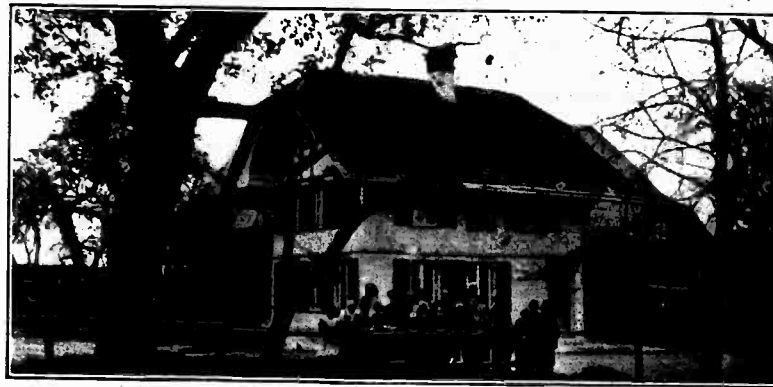
Vocational education in the Cantons has received special stimulus through four resolutions of Parliament:

- a. To encourage trade and industrial education, 1884.
- b. To encourage commercial education, 1891.
- c. To encourage agricultural education, 1893.
- d. To encourage household economics and vocational training of women, 1895.

Within the past two decades there has been under Federal stimulus a rapid and healthy development of these lines of work. During that period the Federal appropriation has increased from \$100,000



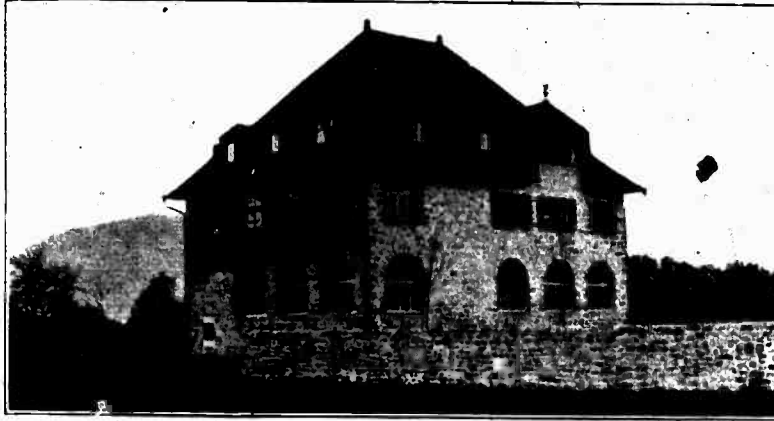
A. SCHOOLHOUSE AT GIMMELWALD, OPPOSITE THE JUNGFRAU.



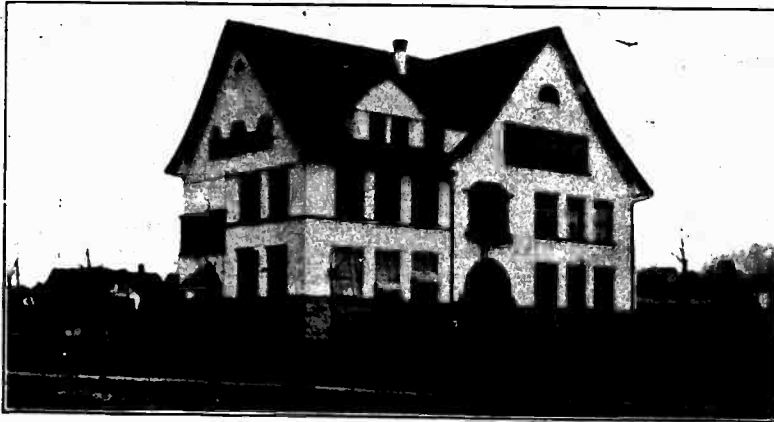
B. A ONE-TEACHER COUNTRY SCHOOL, SCHWANDEN, CANTON BERNE.
Teacher's home in second story.



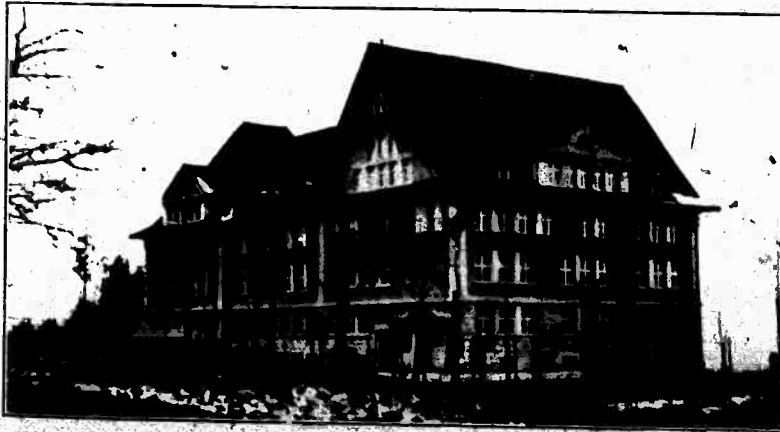
C. TWO-TEACHER COUNTRY SCHOOL, SEWIL, CANTON BERNE.
Teachers' home in second story.



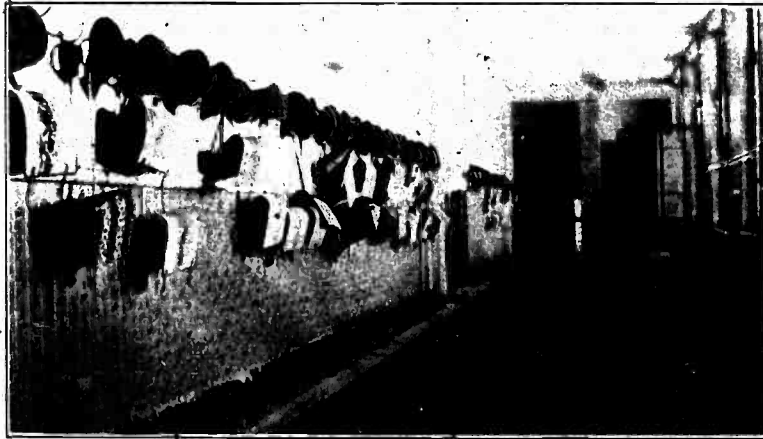
A. SCHOOL BUILDING IN A COUNTRY VILLAGE, AVULLY, IN THE RHONE VALLEY, CANTON GENEVA.



B. NEW SCHOOLHOUSE IN A COUNTRY VILLAGE NEAR ZÜRICH.

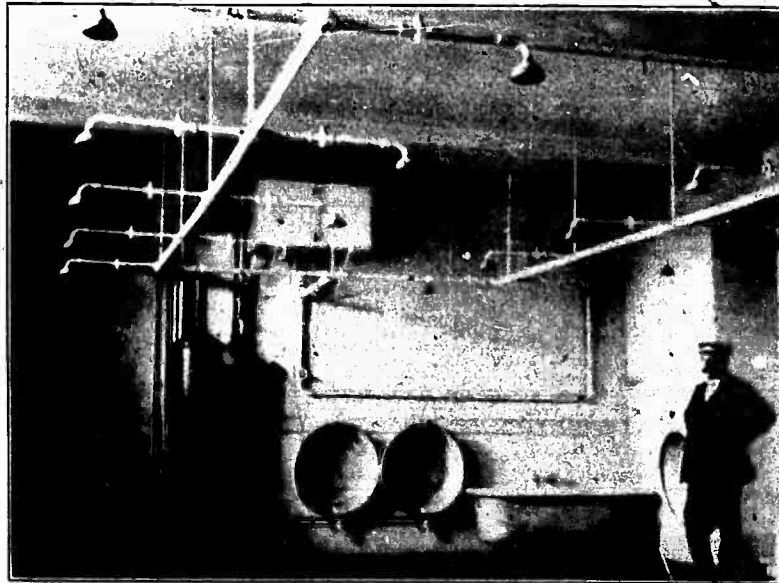


C. NEW SCHOOL, WINTERTHUR.



A. A HALLWAY IN THE SECONDARY SCHOOL FOR BOYS, BERNE.

On entering the building each boy takes off his shoes and puts on a pair of canvas gymnasium slippers. Note also the uniform caps.



B. A SECTION OF THE SHOWER-BATH ROOM, PRIMARY SCHOOL, GENEVA.

Nearly all city schools are provided with shower baths and their use is required unless the child is especially excused.

to \$600,000. Federal aid directed toward these ends is in general coupled with the stipulation that the Cantons, the communes, corporations, or private individuals shall also contribute to the undertaking. In general the Federal appropriation amounts to half the amount obtained from other sources. The Government, through experts, inspects the schools which receive Federal subventions, and thereby exerts a potent influence on their ideals and courses of instruction. In 1910 the Government, from these appropriations, aided 391 trade schools for men, 426 schools for housekeeping and trade schools for women, 20 agricultural and dairy schools, and 144 schools offering commercial training. The appropriations to these schools varied from \$5 to \$20,000. Hundreds of them received less than \$100.

MINOR ACTIVITIES.

The General Government has also exercised an important influence on the secondary and middle schools by decrees establishing prerequisites for admission to the medical profession and by the organization and admission requirements of the Federal Polytechnical School.

The Confederation assists in the maintenance of five permanent school exhibits which, in addition to illustrating to teachers current educational progress, also serve as public depositories of apparatus and illustrative material which is sent out to schools all over the nation.

Of minor though far-reaching importance has been the preparation by the Confederation of the Swiss wall map, and its free distribution to the schools. The secondary and middle schools are also indebted to Parliament for assistance rendered in the publication of the Swiss school atlas.

As a symbol of the common spirit which animates the schools of all Switzerland, the Government has presented to each schoolroom a picture of the Pestalozzi monument at Yverdon.

GENERAL CHARACTERISTICS OF THE CANTONAL SCHOOL SYSTEMS.

Cantons independent.—Subject only to the very general influence of the principles laid down in the constitution and worked out as indicated above, each of the 25 Cantons is absolutely free to develop a school system to suit its own ideals, needs, and financial ability. This freedom secures variety and close adaptation to conditions, but possesses disadvantages.

Disadvantages.—Each Canton naturally has an ambition to develop a system complete in itself, from bottom to top. In Cantons with small area and limited wealth the establishment of an independent system of higher schools has imposed a heavy burden on the financial resources of the State, which sometimes results in inadequate support

either of the higher or the elementary schools. The superfluity of higher institutions of learning may be surmised when we consider that, besides the Federal Polytechnical School at Zurich, there are seven Swiss universities, namely, Zurich, Berne, Basel, Geneva, Lausanne, Fribourg, and Neuenburg. These universities are attended by 10,000 students, of whom about 4,000 come from foreign countries. This superfluity of universities in the small domain of Switzerland not only makes impossible the establishment of the national university contemplated in the constitution, but the reduplication of effort will bring constantly increasing burdens to the Cantons in their endeavor to make these higher schools keep pace with modern progress and with competing European universities. The same statement might also be made, with perhaps less emphasis, concerning certain types of middle schools and trade schools. That the Swiss people are generous in their support of the schools and that they have responded to their growing needs may readily be seen from the following excerpt from the table of expenditures showing in round numbers the increase during the past two decades:

Expenditures for education.

| Year. | Canton. | Commune. | Confederation. | Buildings for higher institutions. | Total. |
|-----------|-------------|-------------|----------------|------------------------------------|-------------|
| 1890..... | \$2,638,000 | \$3,699,000 | \$232,000 | \$200,000 | \$6,749,000 |
| 1900..... | 4,840,000 | 5,154,000 | 518,000 | 200,000 | 10,712,000 |
| 1910..... | 7,720,000 | 8,440,000 | 1,340,000 | 380,000 | 17,680,000 |

CLASSIFICATION OF SCHOOLS.

The great variety exhibited by the school systems of the various Cantons makes it difficult to classify the Swiss schools under a single scheme. Dr. Huber, in the Yearbook for 1908, attempts a classification as follows:

- a. Schools for children under compulsory attendance age.
- b. Schools for children of compulsory attendance age.
- c. Schools for children who have passed the compulsory attendance age.

a. SCHOOLS FOR SMALL CHILDREN.

In Switzerland there are two types of schools for children between 3 and 7 years of age--the kindergarten and the infant school (*école enfantine*). Both these schools are, in general, conducted in accordance with the teaching of Froebel. While the kindergarten of German Switzerland excludes instruction in reading, writing, arithmetic, and the other formal school subjects from the program, these subjects form an essential part of the work in the *école enfantine* of French Switzerland. To the infant school the law expressly assigns the task

of preparing the children for the primary school. Indeed, while these schools are usually found in special buildings, they are an integral part of the primary school organization. They comprise four years, and the child enters during his fourth year. During his first two years the occupations are similar to those which may be found in the more formal American kindergarten. In the third year regular instruction in the elementary school subjects is begun, and by the end of the fourth year the children are reading a book about as difficult as the American second reader. This organization is due to French influence and is contrary to the prevailing ideas in German Cantons, where formal instruction is postponed until after the child is 6 years old. Such kindergartens as exist in the German Cantons are devoted to educative play and to true kindergarten work in the American sense of the term.

This difference in ideals for the schools for children under 6 years of age has largely determined their official and legal status. In the French Cantons the *École enfantine* is provided for by law, as a part of the obligatory school system. In the German Cantons the establishment of the kindergarten is the affair of the commune, frequently encouraged and assisted by societies and individuals. A notable exception to this rule is the Canton city of Basel which has established a complete system of public kindergartens.

b. THE OBLIGATORY SCHOOL.

The constitution of the Confederation makes it the duty of the Cantons—

- a. To provide for adequate elementary schools.
- b. To place these exclusively under the control of the Canton.
- c. To declare them free and obligatory.

The Federal law relating to the maintenance of the public obligatory elementary school includes under this term the complementary school and the obligatory continuation school:

Compulsory attendance.—In German Switzerland the elementary school comprises from six to eight and sometimes nine years of compulsory full-day attendance, often followed in the case of the shorter period by one to three years of attendance for a greatly reduced number of hours per week, at most two half days. The most prosperous and progressive Cantons have the longest period of compulsory attendance. The part-time schools are called in different Cantons by the various names, Repetition school (*Repetierschule*), Complementary school (*Ergänzungsschule*, *École complémentaire*), Review school (*Wiederholungsschule*), and Practice school (*Übungsschule*). There is at present a tendency to discontinue these two or three years of limited school attendance and substitute therefor an additional year of full-day attendance, or one or two years of full-day attendance during the winter term.

A study of the various Cantonal regulations reveals many interesting variations. In Canton Berne, for example, a commune may establish as a compulsory school period eight years of 40 weeks, or nine years of 34 weeks each. Pupils may be excused from the ninth year by passing a successful examination. In Canton Lucerne the complementary school is obligatory for boys only, but the girls must receive instead instruction in handiwork for one or two days per week during the winter months until they are 16 years of age. In several Cantons the obligatory period for boys is one year longer than that for girls. During the last three years of the obligatory period attendance is frequently required during the winter term only, and the older pupils are thus left free for farm work during the summer. In the country frequently the schools during the summer session are held in the morning only. The children must come at 7 o'clock and are dismissed at 11 o'clock for farm work. In one Canton pupils who have reached the fourteenth year may be excused from attendance on the day school and may substitute therefor attendance for two hours daily in the evening. In general, the communes are empowered to adopt any plan which will insure the prescribed number of hours per year. Every effort is made, especially in the country, to keep the schools open when they will interfere least with the demand for the labor of children on the farm. The teachers are employed for the entire year. In sections frequented by tourists the longest vacation is given in the summer. In agricultural sections there is a spring vacation in the planting season and a seven weeks' fall vacation for the harvest and preparation for winter. In this easy and universal adaptation of the school term to the needs of the people America has much to learn.

Girls' work school.—Especial mention must be made of the so-called work school for girls (Arbeitschule). In all the Cantons of Switzerland instruction in handiwork for girls has been made a subject of instruction in the common school. In all grades of the primary school it has attained so secure a place that it is practically obligatory in all Switzerland, even in the two Cantons which have not made such instruction obligatory under the law. During the past decade the revised program of studies includes household economics as an integral part of the instruction in these work schools.

Free textbooks and supplies.—As an accompaniment to compulsory attendance, the national constitution provides that instruction in the primary schools shall be free. During the recent decades there has been a steady increase in the number of Cantons which provide also free books and school materials for the children. Perhaps half the common schools in Switzerland now provide free the materials of instruction used by the individual pupils as well as by the school. This includes not merely books, but also the maps, paper, notebooks,

and writing and drawing materials. Many Cantons also provide free the necessary materials used in the work schools for girls mentioned above. In providing free books and supplies it is customary for the Canton as a whole to bear part of the expense and to leave part to the communes and school districts. The part borne by the Canton varies from 40 to 80 per cent of the whole.

The continuation school, obligatory and voluntary.—In the various Cantons the compulsory attendance on the public schools ceases with the fourteenth or fifteenth year. There is a widespread feeling, however, that the knowledge gained in the elementary schools must be extended, or at least reviewed, if it is to be retained for use in the practical life of the young man who is about to assume the duties of citizenship. In Switzerland all the Cantons without exception offer to the maturing youth between the close of the common-school period and his entrance to the practical and civic life the opportunity of reviewing and extending the knowledge gained in the elementary school course. This is accomplished by means of the so-called general continuation school (*Algemeine Fortbildungsschule*), which is variously organized in the different Cantons. As a rule, the Cantons allow an intermission of one or two years between the close of the elementary school period and the beginning of the continuation school. This allows the pupil to recover from his school weariness and to attain an added maturity which will enable him to assimilate more easily the practical instruction of the new school.

The expression "continuation school" (*Fortbildungsschule*) has become a technical term in Switzerland to indicate any school which is projected beyond the ordinary period of elementary school attendance and receives pupils who have passed the fifteenth and sixteenth year. The attendance is limited to the winter months and does not exceed from three to seven hours per week. In this limited time it is of course impossible to cover other than the most essential parts of the school curriculum, and these are presented with especial reference to the actual daily needs of the pupils. The course includes language, arithmetic, writing, and a combination study of the history, geography, and government of Switzerland (*Vaterlandskunde*). Where vocational considerations are given special weight, the continuation schools are more completely organized. Additional subjects and groups of subjects are introduced, and the term is extended to include the whole school year. There is now a strong tendency to substitute the more specialized trade continuation school for the earlier and more general type. The trade continuation schools will be considered at length in a succeeding chapter. Attendance on the continuation school is compulsory for boys in 17 Cantons for two or three winter courses of 60 to 90 hours per course. In 1910 there were enrolled in the general continuation schools of Switzerland 44,000

pupils, in the trade continuation schools 22,271 pupils, and in the commercial continuation schools 14,500 pupils.

Most of the Cantons have also established continuation school courses in household economics for girls. While these are purely voluntary, they are zealously attended. In fact, the most enthusiastic continuation class which the writer visited in Switzerland was a class in household economics composed of 30 factory girls in a small village near Winterthur. In 1910, 13,022 girls were enrolled in such schools.

A few of the Cantons have stated as the principal aim of their continuation schools the preparation of the prospective military recruits for the examination already mentioned. In 1910, 10,000 students were enrolled in these preparatory courses for recruits.

Owing to the varying requirements of the different Cantons, there is rather a wide variation in the period of obligatory school attendance in hours. The lowest is 3,860 in Canton Uri. The highest is over 9,000, while the average is more than 7,000.

C. THE NONOBLIGATORY SCHOOLS.

The secondary school.—The secondary school (Sekundarschule) bears a number of names in Switzerland. In general the term is applied to a school usually parallel with the higher classes in the primary school, which includes frequently an additional year or years and always a more extended course of study. The curriculum always embraces one or more modern foreign languages. It includes the subjects taught in the primary school, but ordinarily uses textbooks in which the subjects are presented at greater length and with more thoroughness than in those used in the primary school. The teachers in these schools have all had higher training than that required in the primary school and must have passed a special examination for a certificate. The compensation is higher and the teachers usually are assigned to special subjects rather than to special classes as in the primary school. The secondary school usually requires the payment of a small fee, while the primary school is absolutely free.

In the Canton city of Basel the name "secondary school" is applied merely to the four upper classes of the primary school. In Canton Geneva the term is also applied to the two upper classes of the obligatory school system.

In most of the Cantons pupils are transferred from the primary schools to the secondary schools on the basis of an examination. This examination is conducted by the school which they are entering, and the teachers in that school take the responsibility for the acceptance of the pupils. This plan of providing different types of schools to correspond to the ability of the pupils prevents retarda-

tion and repetition of classes. In most of the schools of Switzerland practically all the pupils are promoted at the end of each year.

Middle schools.—The term "middle school" is applied in general to an institution which continues beyond the eight or nine year period necessary to complete the primary and secondary schools, and prepares for admission into the universities or the technical schools. It also includes schools which, in addition to the continuation of instruction in general cultural subjects, place principal stress upon the vocational training of the pupils in technical, industrial, commercial, or agricultural directions. These last, as well as the vocational schools for women, will be discussed under the title "Vocational schools." As middle schools we may consider:

1. Institutions preparatory to the universities, such as the gymnasium with its preparatory department, the Realschulë, and the Kollege.
2. Institutions for the training of teachers.
3. High schools for girls.

During recent years there has been a great increase in the number of private schools of this character, many of which attract a large patronage from foreigners.

The universities.—The universities of Zurich, Berne, Basel, Geneva, and Lausanne include all the faculties. The universities of Fribourg and Neuenburg have no medical departments. An endeavor is making to have the General Government assist these universities more liberally through Federal appropriation.

Private and special schools.—Especial attention is given in all the Cantons to the education of poor, defective, subnormal, blind, and deaf children; and in the past few years especially many institutions have arisen which have these children as their special charge. In Switzerland there is also a multitude of private schools of all grades. In French Switzerland especially the organization of such schools is a principal industry. Their patronage is largely from foreigners and Swiss people from other Cantons.

One group of private schools deserves special mention—the home schools for boys—of which the majority have been organized within the past decade. The writer visited one of them at Castle Glarisegg on the Bodensee, in Canton Thurgau. These schools limit strictly the number of pupils which they will receive. The teachers and pupils live together in the school home throughout the year and thereby develop intimate personal relations which contribute greatly to the educative influence of the school. They aim to conserve the health and develop the individuality of the pupils by especial attention to manual training, gardening, sports, and the free activity of country life.

THE SCHOOLS OF BERNE.

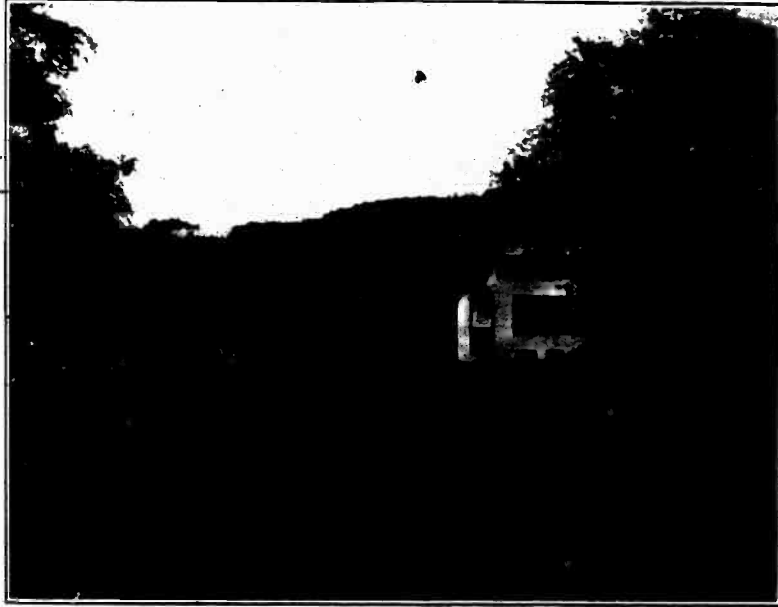
We may illustrate the general system by a description of the city schools of Berne.

On the 1st day of April, the beginning of the school year, boys and girls 6 years of age are admitted to the public primary school (*primarschule*). Some of these children were 6 years old before the 1st day of the preceding January. These *must* attend school. Others were 6 years old before the 1st of April. These *may* enter school at the request of their parents. Only 3 or 4 per cent of the children have attended one of the 10 kindergarten classes which exist under private patronage in the city of Berne.

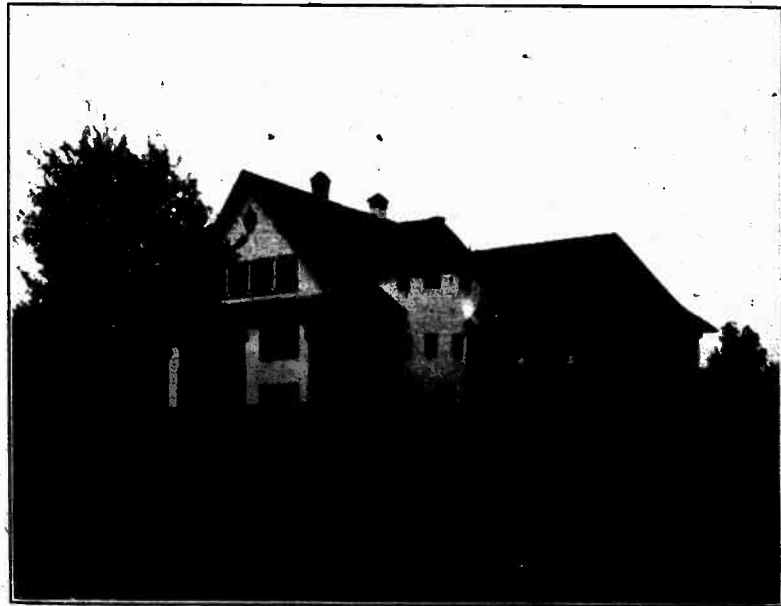
Primary schools.—The course of study of the primary school which they have entered extends over a period of nine years. For the first two years the children are taught by women. During this time each class has one teacher, who is promoted with her class and retains it for this period. During the succeeding years the pupils are taught by men, each of whom retains the same class for two or three years in the primary school. When the children have finished the work of the fourth year they have the privilege either of remaining in the primary school for the remaining five years of the compulsory period or of passing by examination to other kinds of schools. The boys may enter the boys' secondary school, and the girls may enter the girls' secondary school, or both boys and girls may enter the preparatory classes of the gymnasium. These schools require a small tuition fee. The course of study in the primary school is rounded and complete in itself and can be easily finished during the nine-year period by pupils of average or less than average ability and ambition. Practically all of the pupils who remain in this school are promoted each year.

Secondary schools.—The secondary schools, in which the sexes are separated in the city of Berne, are parallel with the five upper classes of the primary school, but offer a more difficult course of study, including at least one foreign modern language. The work in science, in mathematics, and in the other subjects is more thorough and comprehensive and many subjects are taught by special teachers, whereas in the primary school the class teacher has practically all branches. The secondary schools are provided with excellent laboratories and equipment. These schools are intended for boys and girls who do not expect to enter the university, but will enter commercial life, the Government service, or the Cantonal technical schools. To the girls' secondary school is attached a teachers' seminary and a commercial school, each with a three-year course of study.

Gymnasium.—The gymnasium consists of a four-year preparatory course, (*progymnasium*) to which the pupil is admitted by exami-

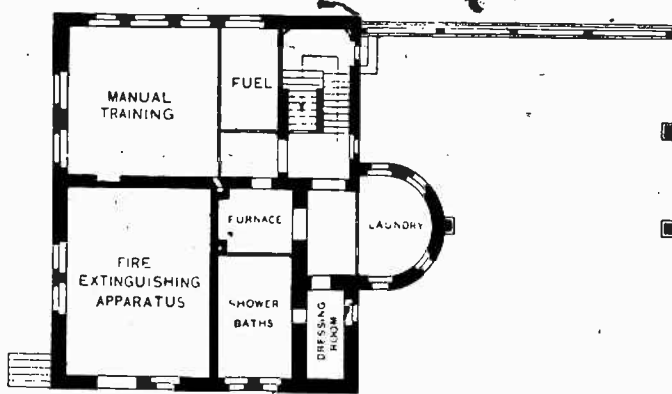


A. Rear view.

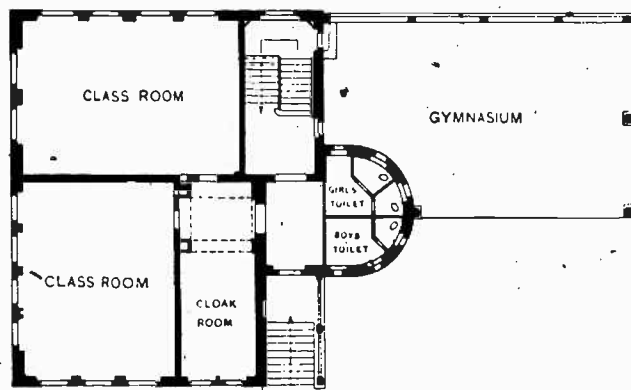


B. Front view.

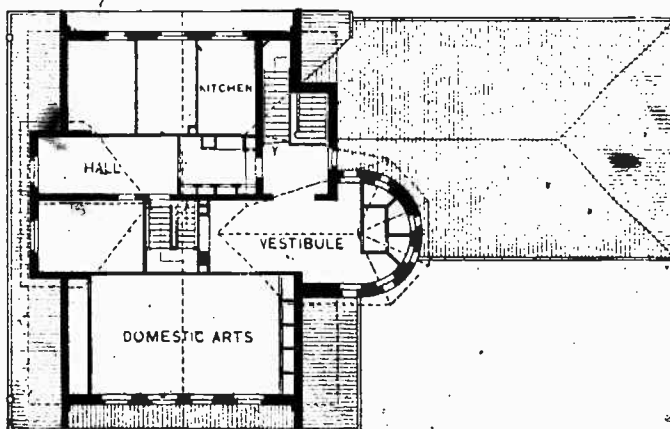
THE ZOLLIKERBERG SCHOOLHOUSE, NEAR ZURICH. STRIEFF & SCHINDLER,
ARCHITECTS.



BASEMENT



MAIN FLOOR



SECOND FLOOR

FLOOR PLANS OF THE ZOLLIKERBERG SCHOOLHOUSE, NEAR ZURICH.
STRIEFF & SCHINDLER, ARCHITECTS.

nation after four years in the primary school. At the end of the preparatory period he may enter the Realschule, or scientific department with a four-and-one-half-year course of study, the commercial department with a four-year course, or the literary department with a four-and-one-half-year course. Upon the completion of either of these courses and the passing of a State examination, the student may enter corresponding departments of the University of Berne or the Federal Polytechnical School at Zurich.

Admission to all these schools is determined by the ability of the pupil, and there is practically no retardation or repetition. A pupil who is desirous of entering the secondary school or progymnasium after four years in the primary school and fails to pass the examination may remain another year in the primary school and then try again for admission. Only two trials are permitted. Classes for subnormal children are organized for pupils who fall below the ability necessary to successful work in the primary school.

Elementary trade schools.—This organization by no means exhausts the educational activities of the city. If a boy has finished the required course in the primary or secondary school and wishes to enter the blacksmith trade, his parents enter into an agreement under which he is apprenticed to a master blacksmith. Under the terms of this agreement the master must allow the boy five or six hours per week for attendance upon the trade continuation school and the boy is compelled by law to attend this continuation school throughout the period of his apprenticeship. In this school he learns how to draw and to work from a drawing or blue prints. He also studies practical business correspondence, bookkeeping, arithmetic connected with his business, Swiss history, geography, and government. A boy or girl apprenticed to any other trade has a similar course adapted to his or her particular needs. If a boy enters mercantile life, he must for three years attend a continuation school organized by the Merchants' Association and recognized and aided by the Government. In this school he will perhaps study a modern language, bookkeeping, stenography and typewriting, business arithmetic, and civics. If he enters the Government service, he must attend a similar continuation school.

General continuation school.—If he enters no trade or business as an apprentice and does not attend a trade school, he must nevertheless between the ages of 16 and 18 attend for 60 hours per year a general continuation school in which he studies his mother tongue, bookkeeping, arithmetic, and the history, geography, and government of Switzerland.

Special trade schools.—Instead of entering an apprenticeship with a master, he may enter into an agreement with the city apprenticeship school to perfect himself as a machinist, cabinetmaker, ironworker, or plumber. The course of study for machinists is four

years, and for the other departments three years. During this period the boy receives a well-rounded, practical, and theoretical education in his trade. If he wishes a more thorough technical education, both theoretical and practical, he may enter the Cantonal Technical School at Burgdorf or at Biel. The technical school at Biel has a number of departments—a school for watchmakers, a school for machinists and electricians, a school for makers of small machines and instruments of precision, a school for builders, a school for artistic handiwork, such as engraving and modeling, and a school for railway and postal employees. These schools require an attendance for from six to eight semesters. If a boy wishes to be a farmer, he can attend the Cantonal agricultural school or the Cantonal dairy school, with a course varying from one to three years. A graduate of the gymnasium who wishes to complete a scientific technical education may attend the Federal Polytechnical School at Zurich, with a four-year course. The school ranks among the most noted technical schools of the world.

Vocational schools for girls.—For the girls there are special continuation schools for instruction in housekeeping. The *Frauenarbeitschule* offers courses in dressmaking, millinery, embroidery, and household economics, both for women who wish to enter upon these lines of work professionally and for those who wish shorter courses for use in the home.

One meets the student everywhere. In the afternoon scores of boys with their drawing instruments may be seen in the streets on their way to the trade continuation schools. In the evening the light from hundreds of classroom windows proclaims with silent eloquence the determination of a people to fit themselves for greater efficiency and service.

The total population of Berne in 1910 was about 700,000.

The enrollment in the principal schools of the city for the year 1911 was as follows:

| | Pupils. |
|-----------------------------|---------|
| Primary schools..... | 9,687 |
| Boys' secondary school..... | 1,049 |
| Girls' secondary school: | |
| Secondary department..... | 1,149 |
| Teachers' seminary..... | 145 |
| Commercial department..... | 142 |
| Gymnasium: | |
| Boys..... | 619 |
| Girls..... | 66 |
| Gymnasium: | |
| Literary department— | |
| Boys..... | 196 |
| Girls..... | 20 |
| Scientific department— | |
| Boys..... | 103 |
| Girls..... | 5 |

| Gymnasium—Continued. | |
|---------------------------------------|---------|
| Commercial department— | |
| | Pupils. |
| Boys..... | 128 |
| Girls..... | 1 |
| Trade continuation schools: | |
| Summer..... | 1,388 |
| Winter..... | 1,519 |
| Merchants' school..... | 906 |
| City apprenticeship school..... | 150 |
| Cooking and housekeeping courses..... | 430 |
| General continuation school..... | 425 |

IV.—THE TEACHER AND THE TEACHING PROFESSION.

To an American one of the most impressive things connected with the Swiss school system is the stability of the teaching profession. Three-fourths of the teachers are men, and practically all the teachers whom I met have engaged in the business as a life work. Teaching is rarely used as a stepping-stone to other professions. There is very little shifting of the teaching force from one place to another. I spent 10 days with a primary school inspector in Canton Berne. He had 240 teachers under his supervision; only 12 of them were teaching for the first year in the position which they held. It is no unusual thing for a teacher to spend a long life in one position.

ADMISSION TO THE TEACHING PROFESSION.

Admission to the teaching profession in Switzerland requires the completion of a course of special training. For the primary school this usually means graduation from the teachers' seminary. In recent years a few Cantons are admitting to the examination for certificates those who have completed a gymnasium course and two or more semesters at the university, where they have special work in pedagogy, accompanied by practical teaching in the practice schools. Admission to the teachers' seminary is conditioned on the completion of the eight or nine years' course offered in the common schools. The following extracts from the course of study of the Zurich Teachers' Seminary in Kuesnacht may be regarded as typical of these institutions:

PROGRAM OF STUDIES OF THE ZURICH TEACHERS' SEMINARY IN KUESNACHT.

[Translated from the prospectus.]

THE AIMS OF THE COURSE.

The students receive a thorough general scientific education adapted to the demands of modern life and corresponding to the course in the other middle schools of Canton Zurich, which prepare for high institutions of learning. It also includes a thorough theoretical and practical instruction designed to fit its pupils for the practice of the teaching profession.

THE SWISS SCHOOL SYSTEM.

Program and schedule of studies.

| Studies. | Hours per week. | | | | |
|--------------------------|-----------------|-----------|------------|-----------|--------|
| | I class. | II class. | III class. | IV class. | Total. |
| Pedagogy and method..... | | 1 | 4 | 5 | 10 |
| German..... | 6 | 5 | 5 | 4 | 20 |
| French..... | 4 | 4 | 3 | 3 | 14 |
| History..... | 3 | 2 | 3 | 3 | 11 |
| Religion..... | | 1 | 2 | 1 | 4 |
| Geography..... | 2 | 2 | 1 | 1 | 6 |
| Mathematics..... | 5 | 5 | 4 | 5 | 19 |
| Natural science..... | 4 | 5 | 4 | 5 | 18 |
| Singing..... | 3 | 3 | 3 | 3 | 12 |
| Violin or piano..... | 2 | 2 | 1 | 1 | 6 |
| Drawing..... | 3 | 3 | 3 | 3 | 12 |
| Pennmanship..... | 2 | 1 | | | 3 |
| Gymnasium..... | 2 | 2 | 2 | 2 | 8 |
| Total..... | 36 | 36 | 36 | 36 | 144 |

ELECTIVE COURSES.

| | | | | | |
|-------------------------|---|---|---|---|---|
| English or Italian..... | 1 | 2 | 2 | 1 | 6 |
| Piano or violin..... | 1 | 1 | 1 | 1 | 4 |

In this course of instruction religion is elective. In instrumental music pupils may take either piano or violin, and continuation courses are provided for teachers who come with previous musical training. Either English or Italian may be taken. The faculty decides whether or not the ability of the pupil warrants his taking elective courses.

GENERAL REMARKS ON THE COURSE.

Only the important essentials of each subject will be included in the examination. In every subject much more emphasis is placed on the thorough treatment of wisely selected topics than upon the acquisition of a multitude of details. It is assumed that the pupil has completed the course of study for the secondary school and this receives only an incidental review. In the organization of the subject matter the special needs of the pupil in his future profession should receive first consideration. After this should come the regard for the needs of practical life in general, and we should always have in mind the correlation of subjects for their mutual reinforcement.

Whenever the nature of the subject allows, especially in the domain of the elementary school, the method and treatment should be such that it may serve as a model for the future teacher. The instruction should, if possible, be based on concrete examples, and through the exchange of questions and answers should lead the pupil himself to discover the steps in the acquisition of knowledge.

Through the use of suitable individual textbooks and supplementary syllabi the teacher should spare the student much tiresome note-taking and time-consuming dictation.

In all subjects we should insist on good German and proper pronunciation, and should train our pupils in logical thought arrangement, not only in short answers but also in more extended discourse. An effective method of reaching this end is through brief lectures, from 5 to 10 minutes long, on subjects previously studied, after brief preparation and without notes. After the completion of a topic on any subject we should frequently require written exercises in the class, in which the pupil is asked to arrange the material according to a new or closely related point of view. Through the correction of these papers the teacher ascertains if the pupil has really grasped the subject, and the pupil has practice in the expression of thought

in the various domains of knowledge. Such work thus reinforces instruction in the mother tongue. In all subjects new ideas should be impressed by means of illustrations, which should be worked out together by pupils and teacher. When necessary the ideas should be still further amplified by class drill or home work.

• Good penmanship should be insisted upon in all written work. In every way we should encourage individual independent work by the pupils and a creative and not merely a receptive mental state. Careful instruction on the part of the teacher should by no means make unnecessary a vigorous mental effort on the part of the pupil. Memory work should be limited to the essentials. The pupil should leave the institution not only with a consciousness of well-earned knowledge but also with the ability and aspiration for further self-culture.

Through proper oversight care must be taken that the home work required of the pupil does not exceed a reasonable assignment.

PEDAGOGY AND METHOD.

Aim.

The history of pedagogy seeks to give the teacher enthusiasm for his life work by showing him how the great spirits of all nations and all ages have devoted themselves to practical teaching and to the theory of education. It traces the development of the common school, of school legislation, and of the methods which prevail to-day. It thus inspires respect for the leaders of former generations and fortifies the teacher both against a blind retention of the old and a blind adoption of the new.

Pedagogical psychology explains and broadens the knowledge of the pupil gained through personal experience and the experience of others.

General pedagogy systematizes the acquired truths.

Special methods show how the procedure in the various subjects is organized in accordance with these truths.

The pupil who leaves the seminary should know—

- a. His duties and rights under the school law and, above all, the task which the State commits to him.
- b. The ways and means to the accomplishment of this aim.
- c. The literature which he may use in his further preparation.
- d. Adequate skill in the practical conduct of the school.

Course of study.

Second Year (1 Hour).

Studies from the history of pedagogy. The rise of the common school in the Middle Ages. The reformers as educators. The Latin schools. The Jesuit schools. The common school of the sixteenth century. The realists (Bacon, Ratich, and Comenius). The common school of the seventeenth century.

Third Year (4 Hours).

a. *Studies from the history of pedagogy* (in summer 2 hours, in winter 1 hour). John Locke. The Pietists (Aug. H. Francke) as teachers. Rousseau. The Philanthropists (Basedow, Campe, Salzmann, Trapp, Plants, and Rochow). The common school of the eighteenth century (Pestalozzi, Froebel, Herbart). The development of the Swiss school system in the nineteenth century (Girard, Fellenberg, Wehrli, Scherr, Wettstein).

b. *Psychology* (1 hour). The intellect. Perception and representation. Changes in consciousness. Laws of association and reproduction. The memory. Imagination, ideas, judgment, and reasoning.

c. *Methods* (in summer 1-hour, in winter 2 hours). General method. The determination of the aim of the common school. The selection of subject matter and the

formation of the course of study. Methods of teaching. Formal steps in instruction. Textbooks. The teacher.

d. *Practice work.* Visiting the practice school by the entire class for purposes of orientation.

Fourth Year (5 Hours).

a. *Psychology* (2 hours). Feeling. The classification of the feelings. Self-respect and sense of honor. The intellectual, esthetic, sympathetic, ethical, and religious emotions. The intensity of feeling. The passing and blending of emotions. Moods; temperaments. The will. The evolution of the will (involuntary movements, reflex movements, instinct, imitative movements, expressive movements, impulse, desire, the passions). The power of habit. Character.

b. *General pedagogy.* The purposes of education. The necessity and possibility of education. The limits of education. Physical education. Discipline. Instruction. The schoolhouse and the teacher.

c. *Method* (3 hours). Special methods in all the subjects of the common school with the exception of gymnastics.

d. *Practice teaching.* Numerous lesson plans by teacher and pupils. Frequent visits to the practice school and participation in its work by two pupils at a time for periods of a half week, and in special subjects for longer periods whenever possible.

METHODS IN PEDAGOGICAL INSTRUCTION.

Instruction in the pedagogical subjects should be in model form, based on a concrete example. It should lead to thought on the part of the pupil and to the application of what has been learned. In the history of pedagogy attention is given principally to those personalities and educational movements of the past 400 years which have most strongly influenced the common-school system. This involves a constant comparison between the past and the present. The laws of mental life should be developed in connection with the unfolding life of the child and the personal experience of the pupils as well as through the use of historical and literary material, and should receive practical application under the guidance of the teacher of methods. The greatest care should be devoted to the introduction of the pupil into the practical work. A brief sketch of the history of methods in the subject under consideration should be followed by the determination of the aim and the selection and organization of the subject matter and the choice of the method adapted to the work in hand. The teacher should embody the method of procedure in lesson plans with the various classes. Afterwards the students should make simple lesson plans, which are criticised by the author, by his fellow students, and by the teacher of methods. The student then presents in the practice school the lesson which has been planned in this manner. Two students at a time are assigned to the practice school for three days each. During their first visit the students give instruction to one class only, but later they give simultaneous instruction to two or three divisions and occasionally they have entire charge of the school for a few hours.¹

In so far as conditions allow, the students also have an opportunity to teach a subject for two or three weeks in one class of the practice school in order that they may observe the success of their work and may acquire a measure of freedom. After giving these lessons they return to their places in the seminary classes. In connection with the practice work, the students are referred to books containing lesson plans so that they may see how an experienced teacher would have proceeded in the same circumstances.

¹ The practice school of the Zurich Seminary is an ungraded (unstaffed) school, comprising eight years of work. It has about 80 pupils. The Cantonal law which stipulates this type of school contemplates especially the training of teachers for country and village schools, and assumes that it is easier to pass through experience of this kind into a graded school than to reverse the process.

SUMMARY OF COURSES IN OTHER SUBJECTS

German.

The course in German consists of German literature, rhetoric, and composition, and corresponds closely in method to the English course in our high schools.

French.

The course in French also corresponds closely to our best four-year courses in French in America, but naturally places greater stress on ability to speak the language. From the beginning French is used as the medium of instruction. The work begins with questions and answers about objects in the room and subjects connected with the pictures. Pictures are made the basis of further conversation.

History.

First Year (3 hours).

Greek history. Roman history. Medieval history to the time of Charlemagne.

Second Year (2 hours).

Medieval history.

Third Year (3 hours).

Modern history.

Fourth Year (3 hours).

History of Switzerland.

Geography.

First Year.

Geography of the most important parts of Europe, with special attention to Switzerland and its neighbors.

Second Year.

Geography of the rest of Europe and of the other grand divisions.

Third Year.

Physical and commercial geography.

Fourth Year.

Mathematical geography.

Mathematics.

First Year (5 hours).

a. Arithmetic: Computations, bookkeeping, mental arithmetic, ratio and proportion. b. General arithmetic: Operations with literal numbers. c. Algebra: Equations of the first degree with one unknown quantity. d. Plane geometry: Two books.

Second Year (5 hours).

a. Bookkeeping: Accounts, calculation of interest, use of interest tables. Double-entry bookkeeping. b. Arithmetic: Extraction of square and cube root, irrational numbers, etc. c. Algebra: Equations of the first degree with several unknown quantities. d. Plane geometry completed. e. Trigonometry.

Third Year (4½ hours).

a. Logarithms, arithmetical and geometrical progression, compound interest. b. Algebra: Theory and solution of equations of the second degree with one unknown quantity. c. Trigonometry. d. Solid geometry. e. Descriptive geometry.

Fourth Year (5 hours).

a. Permutations, probability, with its application to insurance. b. Coordinate geometry. c. Solid geometry; complete. d. Descriptive geometry.

In the work in mathematics no sharp lines are drawn between the divisions of the subject. An attempt is made to reduce the whole to a unity, so that the various subjects mutually reinforce each other.

Natural Science.

First Year (4 hours).

a. Botany. b. Practical botany with preparation of a herbarium and the use of a microscope. c. Botanical excursions. d. Zoology.

Second Year (5 hours).

a. Zoology and zoological excursions. b. Chemistry and mineralogy with practical laboratory work.

Third Year.

a. Geology involving a study of geological forces and the changes in the earth's surface. Historical geology. b. Organic chemistry. c. Physics.

Fourth Year.

a. Anthropology and school hygiene, with excursions and hygienic demonstrations. b. Physics with laboratory work.

In the preparation of the teacher much attention is given to the work in singing, instrumental music, in drawing, and in gymnastics. The ability of the Swiss teachers to teach singing and to lead in the organization of musical clubs has meant much for the social and esthetic life of Switzerland.

Courses in free-hand and geometrical drawing constitute the basis for the trade education of Switzerland.

CHURCH SEMINARIES.

In addition to the State teachers' seminaries, there are many schools for teachers under church auspices. The educational activities of the church are largely directed to this end, and the church seminary is a very important element in the preparation of the elementary teachers in Switzerland. These seminaries are pervaded by a decided atmosphere of piety, and it is their aim to train young men and young women as teachers who shall influence the moral and religious life of their pupils. The graduates of the church seminaries are especially sought in country districts. A visit to one of these schools confirmed me in the belief that a most profitable line of

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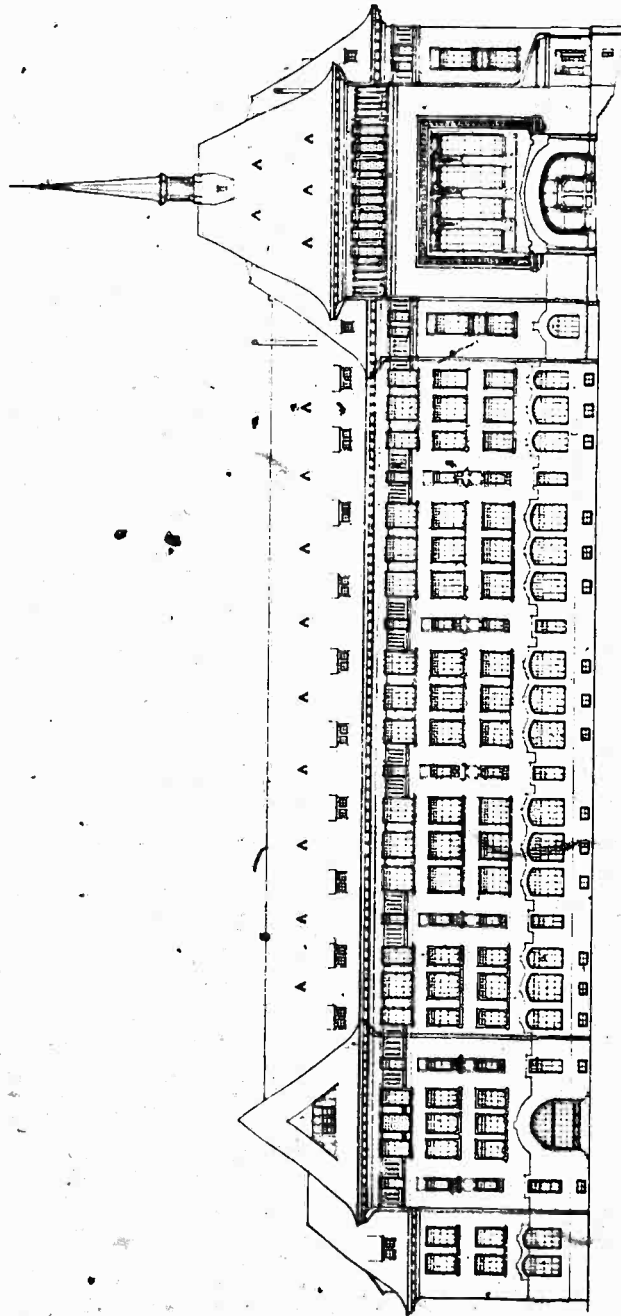


SECONDARY AND HIGHER SCHOOL FOR GIRLS, GENEVA. FRONT VIEW.

Georges Peloux and Max de Rham, architects.

BUREAU OF EDUCATION

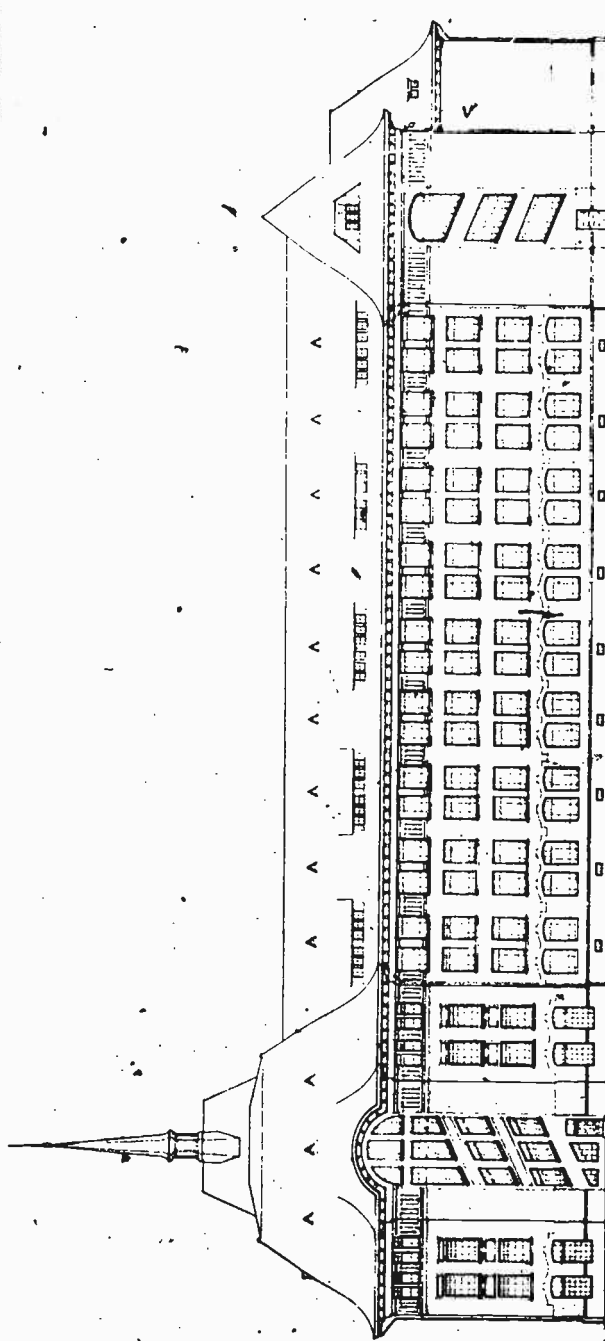
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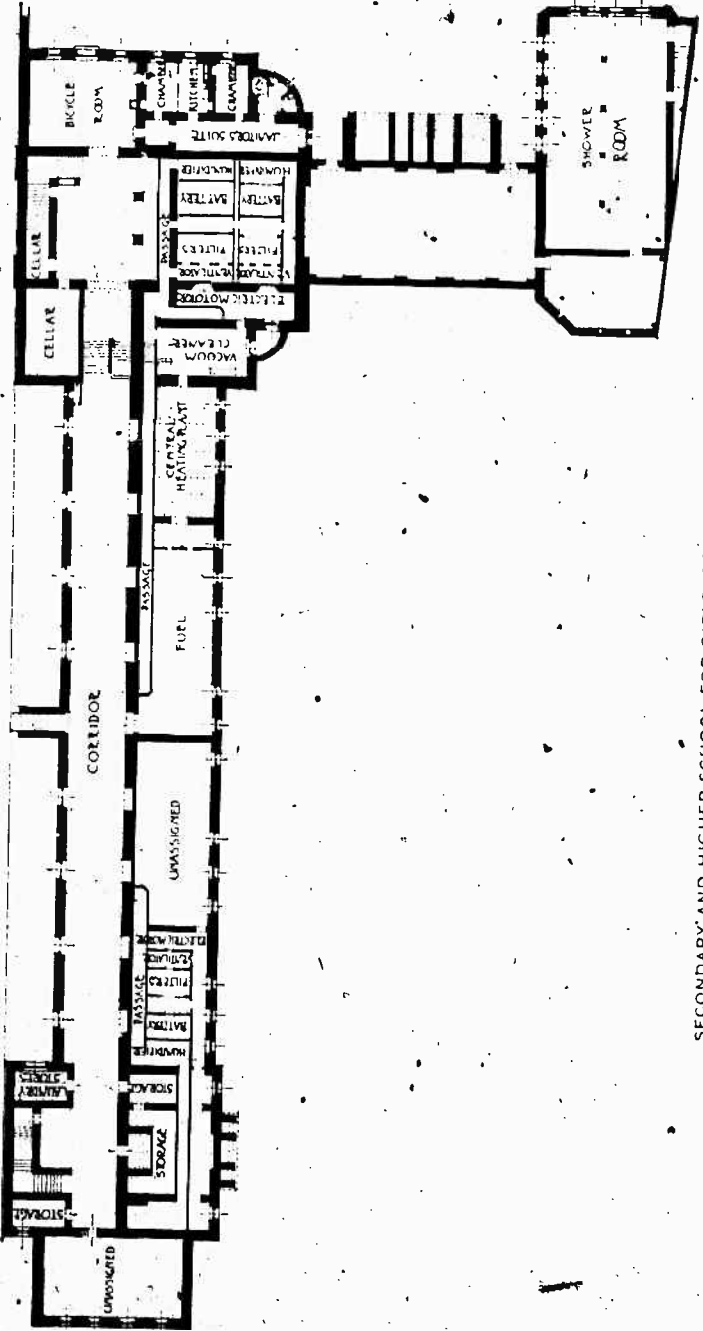
SECONDARY AND HIGHER SCHOOL FOR GIRLS, GENEVA. ELEVATION, CLASSROOM SIDE.

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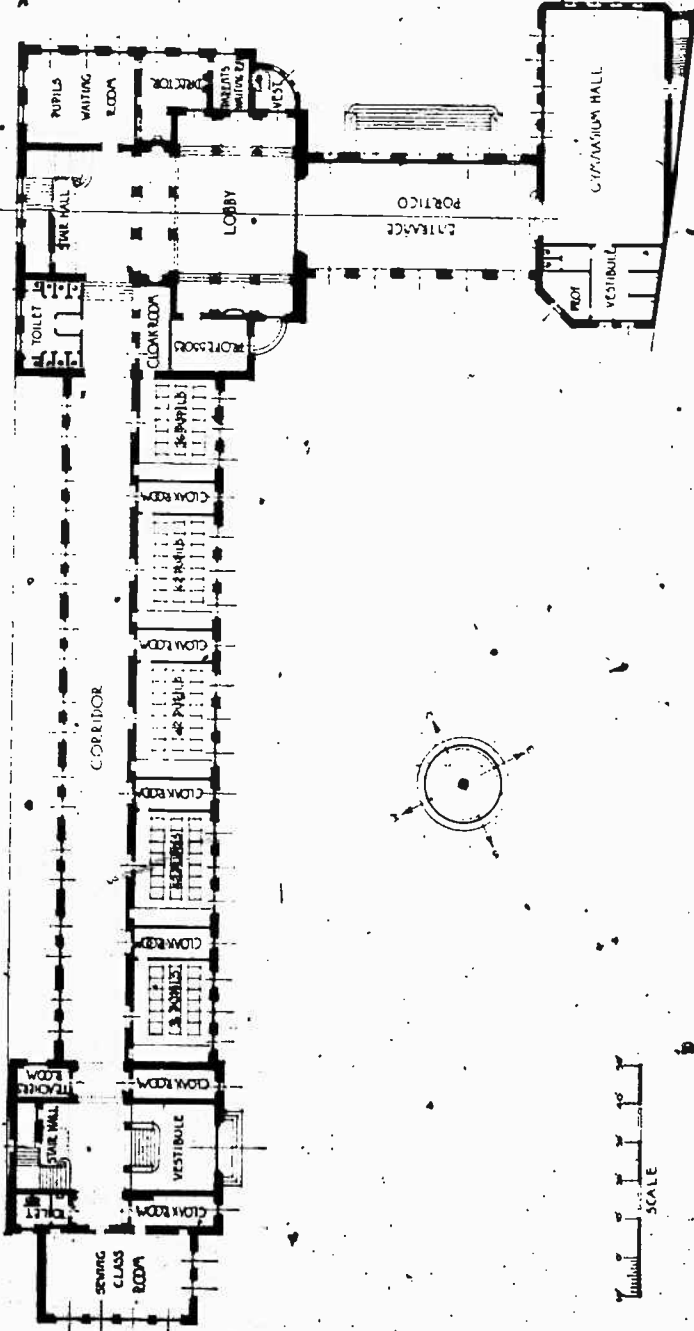
SECONDARY AND HIGHER SCHOOL FOR GIRLS, GENEVA. ELEVATION, PROMENADE SIDE.



SECONDARY AND HIGHER SCHOOL FOR GIRLS, GENEVA. BASEMENT PLAN.

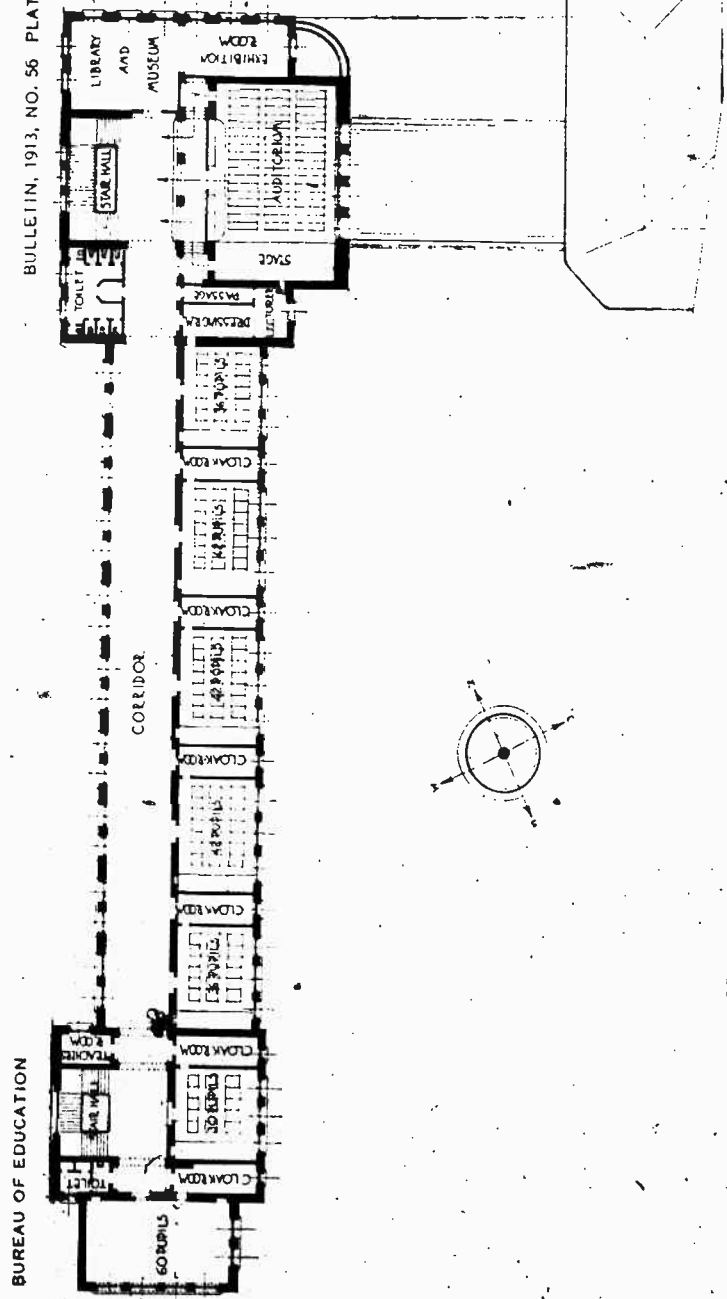
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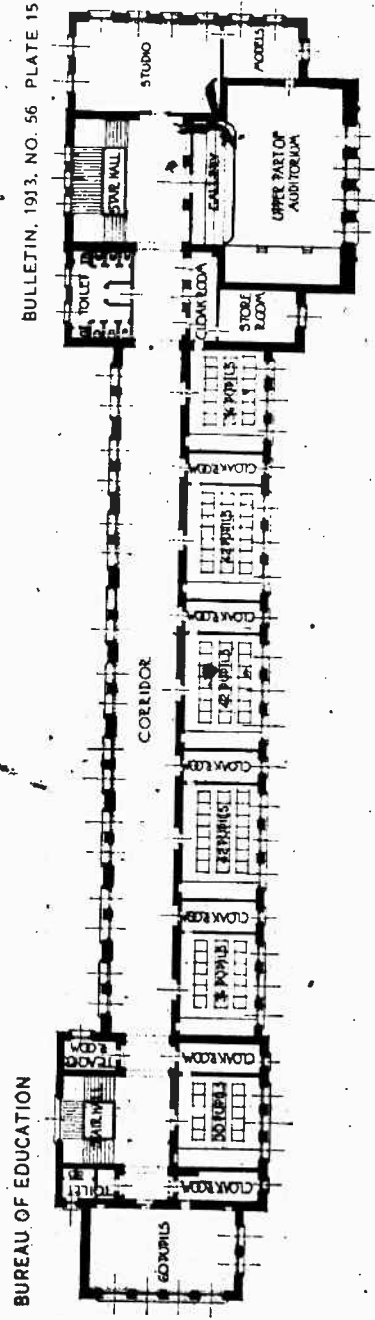
SECONDARY AND HIGHER SCHOOL FOR GIRLS, GENEVA. MAIN FLOOR PLAN.

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SECONDARY AND HIGHER SCHOOL FOR GIRLS, GENEVA. SECOND FLOOR PLAN.

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SECONDARY AND HIGHER SCHOOL FOR GIRLS, GENEVA. THIRD FLOOR PLAN.

effort for the church college in America lies in the specific preparation of teachers, who, in addition to a thorough academic and professional course and a period of practice in the model school, will have the moral earnestness and enthusiasm so necessary in the teacher's calling.

The teachers' seminaries which I visited were all small, enrolling usually not more than 100 pupils each.

The women teachers are usually prepared in pedagogical departments connected with girls' secondary schools or high schools. As far as I could learn, there is no preparation for teaching which does not include work in the practice school. In some seminaries this work is done in grades of the city school system.

Special attention is given to the preparation of teachers of hand-work, housekeeping, and other vocational subjects. This instruction is given in the trade schools, the schools for housekeeping, and in special continuation schools for teachers.

TEACHERS FOR SECONDARY SCHOOLS.

If a teacher wishes to obtain a position in a secondary school, it is necessary, after obtaining his primary certificate, that he attend the university or some higher school for two or more semesters and that he submit to an examination by a special examining board. The teachers in the gymnasia and middle schools are usually university graduates.

Election of teachers.—After securing a certificate, the Swiss teacher usually acts as a substitute for a year or two, taking the place of some teacher who is performing military duty or has obtained temporary leave of absence for some other reason. When a position is vacant the local school board gives notice of the fact in the official-school gazette of the Canton and receives applications. The local board has the power to make temporary appointments for one year, which is usually regarded as a probation period for the new teacher. At the end of this time the place is permanently filled by a popular election in which all of the citizens of the district participate.

In Canton Berne the term of office for which teachers are elected is six years; in Canton Schaffhausen it is eight years; in Canton Thurgau it is for life, subject to recall by popular referendum. The shortest term of office of which I heard was three years. Under the terms of the contract the teacher usually has the right to resign at the close of any school year. At the expiration of a term of office, the board decides whether it will retain the same teacher or advertise the position. A decision not to advertise the vacancy elects the teacher for another term of office. Changes are relatively rare, even at the end of the rather extended term of office which prevails.

In fact, in Canton Berne a decision by a school board to change teachers at the end of two successive periods of six years each is considered sufficient to warrant an investigation by the Cantonal Teachers' Association. The method of selecting teachers for the secondary and higher schools frequently differs from that prevailing in the primary schools. The teachers in these higher schools are frequently selected by the school board alone, without popular vote. While the method of selecting a primary teacher varies in the different Cantons, popular election is widespread. Even in the city of Zurich, with 200,000 inhabitants, teachers are elected by popular vote. The school board, however, makes the nomination, and there has been only one case in 24 years in which this nomination was not confirmed by the people. The popular election is frankly regarded as perfunctory and antiquated in Zurich.

Salaries.—Teachers' salaries vary widely in Switzerland. The remuneration usually includes a home and garden and a definite supply of fuel. In the poorer Cantons a primary teacher sometimes receives, in addition to the home and garden, as little as \$150 per year. In Canton Zurich the average salary for primary teachers is \$650 per year, but 141 teachers receive less than \$400. The salaries in this Canton are the highest in Switzerland.

Pensions.—Pensions for teachers in some form are universal in Switzerland. The General Government makes a small annual appropriation for this purpose, but the larger share is borne by the individual Cantons. The teacher, too, is in most instances called upon to contribute a small percentage of his salary to this fund. In addition to the pension system, the teachers have organized all sorts of voluntary mutual aid and insurance societies which contribute to the stability and attractiveness of the teaching profession.

The teachers of Switzerland are well organized. A mere list of the different official and voluntary teachers' associations fills several pages.

SCHOOL SUPERVISION.

Since all the teachers have had a professional training designed to fit them for their particular work, and since each is a permanent member of the teaching profession, there is much less demand for supervision than in America. Even in city school buildings with 20 classes the only local supervising officer is the head teacher, who has the same classroom work as the other members of the teaching force. The duties of the head teacher are confined to such details as the admission of pupils and presiding over the teachers' conference. There is attached to this office an additional salary of perhaps \$50 per year. Sometimes the presiding teacher is designated by the

school board, but more often he is elected by the teachers themselves for one year. At the end of this time he gives place to another. The administration of the school is therefore a democracy similar to the other democratic institutions of Switzerland. The city superintendent of schools is usually merely an administrative or fiscal officer.

In most of the Cantons there are school inspectors who are assigned to districts comprising frequently more than 200 teachers. These inspectors make a thorough inspection of each school at least once every two years, and oftener if conditions demand. On one of these official visits the inspector makes a thorough examination of the sanitary condition of the building and surroundings, the condition of the textbooks, and equipment. He examines the teacher's plan book in which the Cantonal course of study has been amplified by the teacher and adapted to special conditions. He discusses these plans and suggests desirable modifications. He inspects the notebooks of the pupils and observes the teacher's work for several hours. He will perhaps assign to the pupils tests in composition and arithmetic. After the close of school he will hold a conference with the teacher and with the local school board and will make such suggestions as he may deem pertinent. In some Cantons there are no district inspectors, but the supervision of the school is committed to a local commission elected by the people and to district boards elected by the Cantonal school commission, the people of the district, and the teachers.

V.—SCHOOL BUILDINGS AND EQUIPMENT.

On entering a Swiss schoolhouse an American is at once impressed with the air of permanence and durability which characterizes it. In all the cities, and even in the smaller villages, the school buildings are fireproof. They are built of stone and brick. The stairways are usually constructed of native granite throughout. The floors are usually concrete or bitulithic and in the classrooms are covered with a thick linoleum.

The rooms are of the standard American size, and the lighting is almost without exception unilateral. The windows are never hung on pulleys as in America, but are hinged casement windows which open inward. As a protection against the severe cold the windows are usually double.

It is almost the universal custom in Switzerland to arrange the schoolrooms on one side of the building and the corridor on the other. It is rare to find the common American hallway with rooms on both sides. The corridor is usually on the inner angle of the building,

and the longer outer angle is reserved for the classrooms. The classrooms are rarely provided with cloakrooms, but lockers or double rows of hangers are placed in the corridors. The toilets for boys and girls are placed on each floor at the ends of the corridors. Frequently the walls of the corridors are finished with glazed tile for a space of 6 feet from the floor. When this is not done, the plaster wainscot is finished with cloth, and this is painted heavily so that the surface may be washed.

The general arrangement of a primary school may be seen from the plans of the Schosshalde schoolhouse which are included in this report. The primary school building contains most of the accessories which are shown in these plans and mentioned in the description.

Every large schoolhouse includes a residence for the janitor. The country schoolhouse contains a home for the teacher.

The interior of the classrooms is clean and simple. On the walls are usually pictures of Swiss scenery and in all the rooms I visited there was a picture of the Pestalozzi Monument at Yverdon. The Swiss teachers are just beginning to demand blackboard space comparable to what we have in America. In the older schoolhouses, and in fact in many of the modern ones, the only blackboard is a small one containing perhaps 20 square feet placed in the front of the room for the teacher's use. This is usually made of wood, but slate and black ground glass are beginning to be used extensively for blackboards. The chalk is never erased with a dry rubber, but the teacher and pupils use a damp cloth for that purpose.

I saw no single desks in Switzerland. The city schools are provided with double desks, and in many of the country schools the form has space for four pupils. The desks are frequently made entirely of wood, although later models with iron standards are being introduced into some Cantons. The American school desk is more simple and comfortable than anything which came under my observation and costs not more than one-third to one-half as much as the Swiss desks. It was a matter of surprise to me that the American school desk had not found its way into Switzerland. The explanation perhaps lies in the fact that desks are never screwed down in Switzerland, while our American desks are designed to be fastened permanently to the floor. Such a proceeding is contrary to the Swiss idea of cleanliness. Besides, the classrooms are frequently used during the holidays as quarters for the militia on their annual drills. For this purpose it is necessary to remove the furniture. In the more modern buildings a row of desks is fastened to light steel or wooden rails provided with casters. When the linoleum-covered floor is wiped up each day by the janitor the desks are rolled to one side out of the way.

In every classroom must be found at least the minimum equipment prescribed by the Cantonal authorities. The hot-water system of heating is the most common, though one occasionally finds a hot-air heating and ventilating plant. Window ventilation is the rule. The windows are opened for this purpose during the short intermissions, which occur every hour. In connection with almost every school building there is an indoor or an outdoor gymnasium, sometimes both. These gymnasiums are equipped with the best apparatus for German and Swiss gymnastics.

In external architecture there is usually a successful effort to make the building harmonize with its surroundings. Especially in the country there is a refreshing simplicity and dignity about the schoolhouse. Since the janitor or the teacher lives at the schoolhouse, it is never characterized by the neglect evident in so many American country schoolhouses, which are deserted for several months in the year. The teacher's garden and the pot plants in the windows of his dwelling upstairs give the school a homelike atmosphere, in marked contrast to that which is too common with us. The plans and cuts of schoolhouses which are exhibited herewith are fairly typical of what was found in the Cantons visited.

THE PRIMARY SCHOOL BUILDING IN THE SCHOSSHALDE IN BERNE.

[From pamphlet issued by the city school direction.]

The new primary school building in the Schosshalde is situated upon a plat of land belonging to the city of Berne. The elevated situation of the lot gives one a view of the entire horizon and offers an incomparably beautiful view of the Alps. The school grounds, including the walks, contain an area of about 4,040 square meters, and the school building itself occupies a space of 820 square meters. The building consists of the basement, first floor, second floor, third floor, and attic. It contains in all 18 classrooms, of which 9 rooms receive their light from the northeast and 9 from the southeast. The rooms are divided among the different floors as follows: On the first floor, 6 classrooms and the janitor's office; on the second floor, 6 classrooms and a teacher's room, used also as a board room; on the third floor, 6 classrooms and a principal's room; in the basement, a school kitchen and dining room, a milk kitchen which may also be used for a laundry, domestic science room which may also be used for a dining room, shower baths with 10 showers, and a dressing room for boys; shower bath with 10 showers and a dressing room for girls; manual training room and storeroom, a boiler room for the heating plant, a fuel room and a cellar for the janitor. The vestibule and the passageway of the basement are used as a dining room for the children. In the attic is the dwelling for the janitor, consisting of 3 rooms and kitchen, and also a manual training room for benchwork. Classrooms intended for 48 pupils have a length of 9.60 meters, a width of 6.90 meters, and a height of 3.65 meters. Each classroom has a floor surface of 66 square meters and a capacity of 241 cubic meters, thus providing for each pupil a breathing capacity of 5.52 cubic meters. In each classroom the 3 windows provide a light surface of 23.1 per cent of the floor space. The passages are 3.30 meters wide. Before the stairway this expands into a vestibule 5.50 meters wide.

VI.—VOCATIONAL EDUCATION.

The common-school system with a course of study designed to insure a high degree of general intelligence among people of all classes and occupations is the assumed basis of all efforts at special training. During the period of obligatory school attendance little is done which has special reference to the future occupation of the pupil. Since, however, the public mind is thoroughly permeated with ideals of efficiency, it is only natural that these ideals should give at times a vocational bent to the classroom instruction in the common school. Since the teachers usually remain for years in one community, their interests become identical with those of the parents and children, and they unconsciously use the life and occupations of the school district as a basis for classroom instruction. The surest way of adapting elementary teaching to the special needs of a community is to retain the teacher until the life of the teacher and that of the community are merged into one. The tendency on the part of the Swiss teachers to utilize the facts of the immediate environment as a source of exercises and illustrations is distinctly marked.

DRAWING.

Drawing is universally considered an important element in the preparation for the occupations of mechanic and handworker. It has, therefore, an important place in the elementary and secondary courses of study. Both free-hand and mechanical drawing are carefully taught by trained teachers in most of the Cantons of Switzerland.

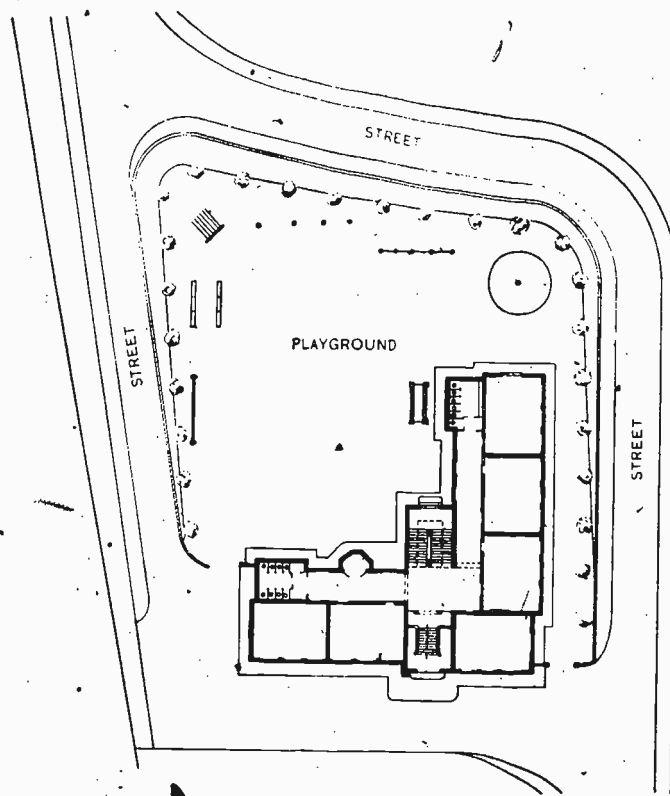
The quality of the drawing in the elementary and secondary schools is excellent and constitutes the basis for the advanced work in drawing in the continuation schools, trade schools, and the technical schools. In the higher grades of the elementary schools drawing is usually taught by special teachers. In the city frequently these teachers are connected with the city trade schools.

THE APPRENTICESHIP SYSTEM.

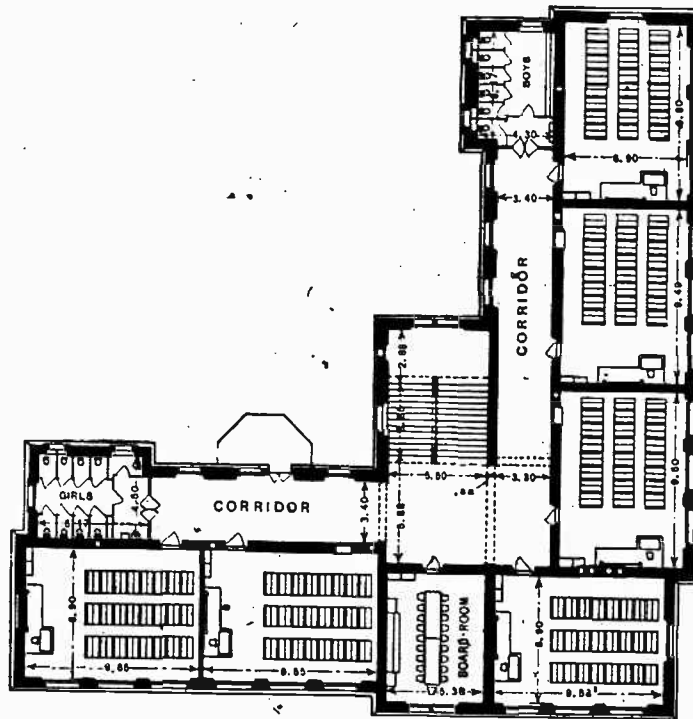
A well-organized apprenticeship system prevails in Switzerland. The system is under the general supervision of a central committee of the Swiss Union of Arts and Trades in cooperation with the National Department of Industries and the Cantonal and communal labor organizations. The boy or girl who wishes to learn a trade enters into contract with a master workman for an apprenticeship period of from one to four years. The nature of this contract has been regulated in many of the Cantons by special laws and the apprentices are subject to official supervision by the local and Cantonal authorities. The regulations specify the hours of labor and

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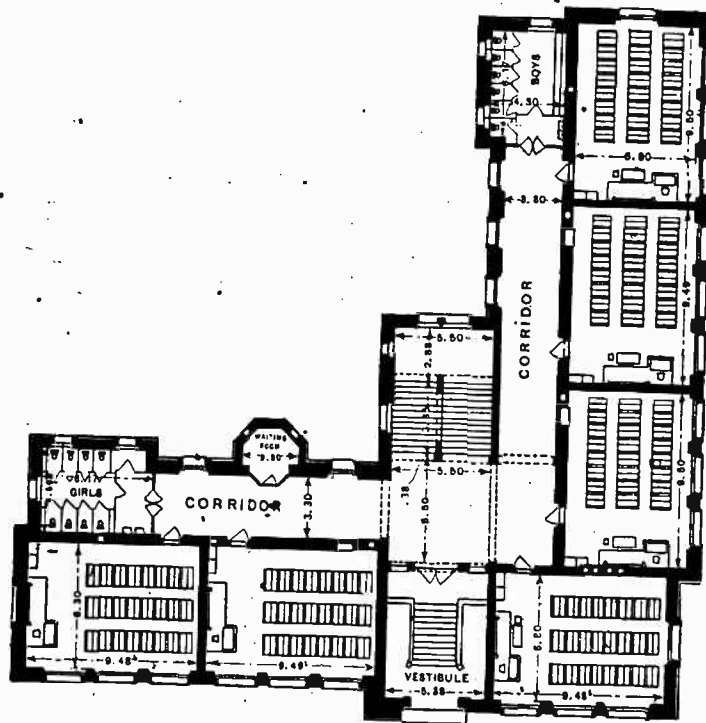
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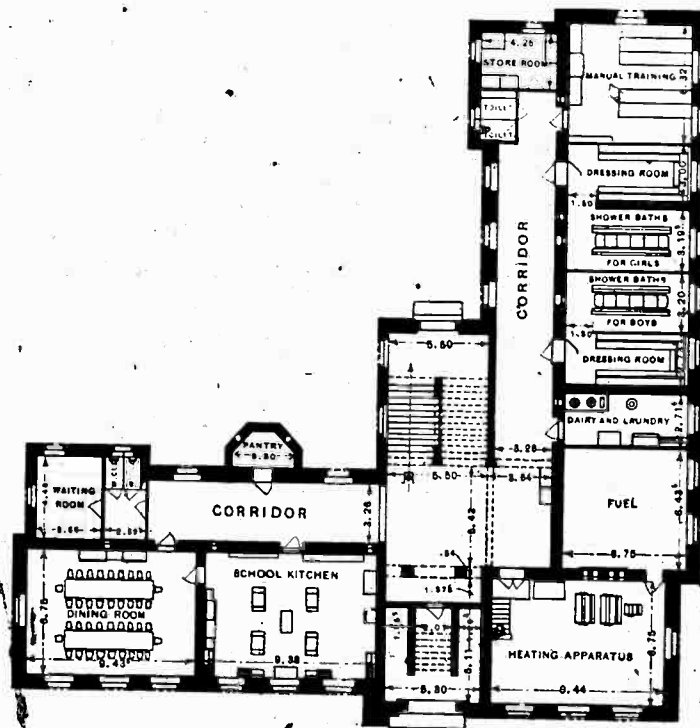
PRIMARY SCHOOL HOUSE, SCHOSSHALDE, BERNE. GROUND PLAN.



PRIMARY-SCHOOL HOUSE, SCHOSSHALDE, BERNF. BASEMENT PLAN.



PRIMARY-SCHOOL HOUSE, SCHOSSHALDE, BERNE. MAIN FLOOR PLAN.



PRIMARY-SCHOOL HOUSE, SCHOSSHALDE, BERNE. PLAN OF SECOND AND THIRD FLOORS.

the rights and duties of the apprentice and the master. They provide that the apprentice shall in return for his labor receive thorough instruction in everything connected with the trade and that he shall have certain hours every week for attendance on trade continuation schools designed to supplement the practical instruction in the shop. At the close of the apprenticeship period the young workman must submit to an examination prepared by the department of industry, the communal council, and the apprentice commission in order to prove his proficiency. These examinations consist in part of questions concerning the technical elements of his trade, but chiefly of practical tasks from which it may be possible to judge his skill. After passing the examination successfully, a diploma is awarded. In order to encourage good work by the apprentices, prizes consisting of deposits in the saving banks, books, instruments, and tools are awarded to the candidates passing the best examination.

THE CONTINUATION SCHOOLS.

It is readily recognized that no one workshop can be expected to furnish complete instruction in all the elements of a trade and in related subjects necessary to the highest success of the workman. To supplement the work of the shop, a system of trade continuation schools has been organized throughout Switzerland. Many of these schools were originally organized and supported by guilds of craftsmen and by trade unions as a cooperative organization for the education of their apprentices. While many of them are still supported in part by the local trades union, the Cantonal and Federal subventions have assumed gradually an increasing share in the cost of maintenance. The local supervising board is usually made up of representatives from the workmen and employers. A rather complete view of the organization and methods of the trade continuation school is found in the appendix to this report (page 60). In the larger cities the work of these schools has become more highly specialized. The city of Zurich, for example, offers continuation courses in 40 different trades at a cost of \$150,000 per year.

APPRENTICESHIP SHOPS.

Instead of learning the trade under a master, the pupil may enter into a contract with shops (Lehrwerkstätten) maintained by the city itself. These shops offer a course of study and practice extending through the ordinary apprenticeship period. The Lehrwerkstätten in Berne constitute a good example of this tendency. Naturally the instruction received in the apprenticeship shop is more comprehensive than could be secured in the ordinary workshop. The apprenticeship shop is especially suggestive to us in America, since

Our efforts toward trade education will in the absence of a well-organized apprenticeship system naturally take this course. The course of study offered in one section of the Berne apprenticeship shops is presented in the appendix to this report, page 105.

SCHOOL OF ARTS AND CRAFTS.

In Switzerland there are numerous special schools of arts and crafts which are intended to further the industrial interests of the communities in which they are located. A school for watch-makers is supported by the city of Geneva to prepare the skilled workmen demanded by the great watch-making industries of that city. Similar schools have been organized in other sections of Switzerland.

The School of Arts and Crafts offers courses in all the more important industries of Geneva. An announcement of this school is found in the appendix, page 107. In Zurich I visited a school for silk weavers founded in 1881 by the Association of the Silk Industry. This school is administered by a commission composed of seven members, of which one is selected by the Cantonal government, three by the municipal council of Zurich, and three by the Association of the Silk Industry. Similar schools for the textile industries are found in other parts of Switzerland. In Brienz is the school for wood carvers with a course of four years, comprising instruction in freehand and technical drawing, modeling, and wood carving. In general when an important industry exists in any part of Switzerland we may expect to find a trade school in which the workers of that industry may receive special instruction looking toward their improvement.

These schools are in great variety and are closely adapted to the demands of the industry which they serve.

INDUSTRIAL MUSEUMS.

In the important manufacturing centers of Switzerland, industrial organizations working in connection with the Cantonal and Federal authorities have established industrial museums in which are collected specimens of fine workmanship and the latest machinery. Industrial workers are encouraged to visit and study these museums. Many offer special lecture courses and exhibitions as well as courses in drawing and industrial arts.

SECONDARY TECHNICAL SCHOOLS.

These schools occupy an intermediate position between the polytechnic school at Zurich and the trade schools. It is their purpose to train persons who do not need the superior education of the finished engineer, but whose work demands that they have a more complete theoretical and practical education than the trade schools

VOCATIONAL EDUCATION.

offer. These schools are not intended to supplant the practical training of the workshop. On the contrary it is strongly advised that all technical students come to them with one or two years of practical work in the trade chosen. The Cantonal technical schools at Biel, Burgdorf, and Winterthur are good representatives of this type of school.

HIGHER TECHNICAL SCHOOLS.

In Switzerland there are two schools which offer the highest form of technical instruction. These are the Federal Polytechnic School at Zurich and the School of Engineering attached to the University of Lausanne. These schools offer courses of study designed to prepare engineers, architects, and other industrial leaders. The Polytechnic School at Zurich ranks among the world's greatest technical universities.

VOCATIONAL TRAINING FOR WOMEN.

Beginning with the third school year, the elementary schools of Switzerland offer instruction for from two to four hours a week in knitting, sewing, mending, and housekeeping. These subjects are taught by licensed teachers of sewing and housekeeping. In the upper grades the pupils are taught to cut and make their simpler clothing. Instruction in cooking also forms a part of the curriculum in the last year of many of the city school systems. A course of study in household arts prepared by the sewing teachers of Berne is found in the appendix to this report.

THE CONTINUATION SCHOOL FOR HOUSEHOLD ECONOMICS.

Since the adoption of the resolution extending national aid to the vocational training of women in 1895 there has been a rapid development of the continuation school for household economics. A translation of the instructions for the organization of these schools issued by the Department of Industry is found in the appendix (p. 46).

SCHOOLS FOR HOUSEKEEPING AND DOMESTIC SERVICE.

Through the efforts of the Swiss Women's Society for the Public Welfare, there have been established in many places in Switzerland schools designed to train women for the home and for domestic service. These courses vary in length from three months to one year. In the appendix may be found the regulations and the daily program of the Home-Arts School at Winterthur which is fairly typical of this kind of school (p. 95).

PROFESSIONAL COURSES FOR WOMEN.

Many schools have also been organized to prepare women for the trades, for work as seamstresses, ladies' tailors, milliners, etc. The courses of study in these schools are always organized to meet local

conditions and needs. Women are also admitted to some departments of the schools of industrial arts.

AGRICULTURAL EDUCATION.

Since 35 per cent of the population of Switzerland are engaged in agricultural pursuits, considerable attention is devoted to agricultural education. In the Federal Polytechnic School at Zurich there is an agricultural department where the fundamental principles of agriculture and its related sciences are presented with great thoroughness. Many of the graduates of this school are employed as teachers in the Cantonal agricultural schools. There are four Cantonal agricultural schools which offer theoretical and practical courses, viz., Strichhof in Zurich, Rütli in Berne, Ecône in Wallis, and Cernier in Neuenburg. In these four schools 178 pupils were enrolled in 1910.

In addition there are 15 agricultural schools which offer courses during the winter months for young men who are engaged throughout the year in practical farming. These schools enrolled 875 pupils in 1910. There are also three schools devoted to dairying and cheese making and two schools devoted to instruction in horticulture and wine growing.

Fourteen Cantons have also instituted traveling lecture courses in agriculture. The Cantons and the Federation also provide scholarships for teachers and students who wish to travel in foreign countries in order to study agricultural methods. For all these the Canton supplies two-thirds and the Federation one-third of the total cost of maintenance. In all the agricultural schools which the writer visited the course was of a decidedly practical nature. Almost all the work on the farms attached to the schools was done by students. Courses of study and further information may be found in the appendix (p. 99).

COMMERCIAL EDUCATION.

Since many people in Switzerland are engaged in commerce, naturally much attention is given to commercial education. A training for commerce is offered in special commercial schools established by the Cantons or by the cities, or under private patronage, through continuation schools, and through special courses under the patronage of the Swiss Mercantile Union, which has divisions in all the principal cities and towns of Switzerland and comprises a membership of more than 10,000 persons. The course of study in the special commercial schools extends over periods varying from one to four years and includes—

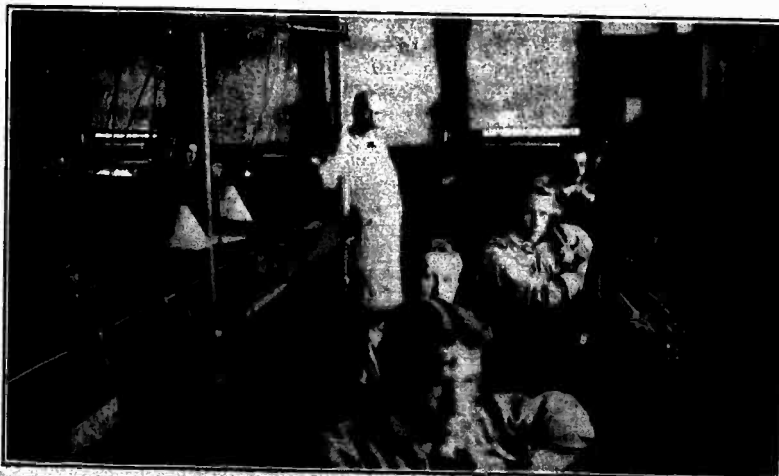
1. Modern languages, including German, English, French, Italian, Spanish, Portuguese, Dutch, Russian, and Arabic.
2. Science of commerce, including accounting and auditing; the organization and conduct of enterprises in commerce and industry.



A. WORKING IN THE SCHOOL GARDEN. SECONDARY SCHOOL FOR BOYS, BERNE.



B. CLASS IN PAINTING—SCHOOL OF INDUSTRIAL ARTS, GENEVA.



C. SCHOOL FOR WATCHMAKERS, GENEVA.



A. APPRENTICESHIP SCHOOL, BERNE.



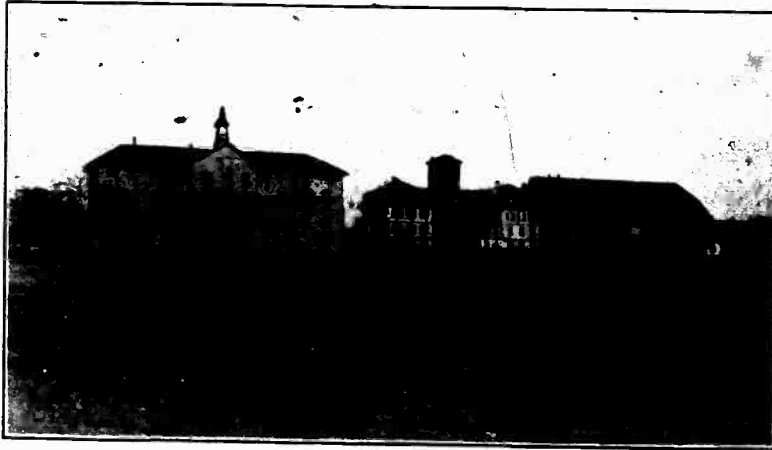
B. WORKSHOP FOR MACHINISTS. APPRENTICESHIP SCHOOL, BERNE.



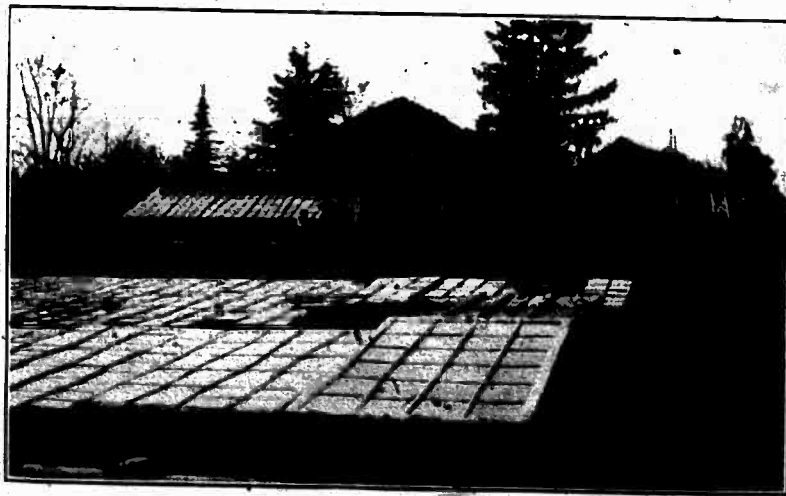
A. CONTINUATION SCHOOL FOR CITIZENSHIP, SCHUPPEN, CANTON BERNE.



B. TRADE CONTINUATION SCHOOL AT SCHUPPEN, CANTON BERNE.
Eleven trades are represented in this group of pupils, who have just finished a drawing lesson.



A. CANTONAL AGRICULTURAL SCHOOL NEAR BERNE.



B. GARDEN SCENE, CANTONAL HORTICULTURAL SCHOOL, GENEVA.

commercial bookkeeping in its application to banking, manufacturing, and insurance; practical business management; salesmanship; correspondence in various languages; chemistry; physics; technology involved in manufacturing; and commercial geography.

3. Commercial arithmetic and insurance.

4. Political economy, commercial economics, finance, statistics, and the history of economics.

5. Commercial law, including the laws governing the administration of public affairs.

The continuation and apprenticeship courses offered by the Mercantile Union comprise French, Italian, English, Spanish, and other modern languages, with special reference to conversation and business correspondence in these languages, bookkeeping, stenography, typewriting, commercial arithmetic, commercial law, commercial geography, penmanship, and civics. After the completion of the required courses, the commercial apprentices are given an examination and awarded certificates which receive general recognition.

There are also hundreds of private schools which offer instruction in modern languages and in the commercial subjects.

APPENDIX.

A GREETING TO OUR LITTLE ONES.

A circular to his teachers by ERNST KASSER, *Inspector of Primary Schools, Canton Berne.*
[Illustrating the spirit of the inspection.]

The first day of a new school year is always an important occasion for the children who, under our laws, must make for the first time the journey to the schoolhouse. Most children look forward to this moment with joyful anticipation; the exceptions usually come where parents have been so foolish and shortsighted as to make the school a bugaboo.

In the more favored districts the new pupils find a spacious and beautiful schoolhouse, but sometimes, especially in the country, they must be content with the older, simpler, and more crowded classrooms.

Accompanied by older sisters and brothers, sometimes by parents, more rarely alone, they approach the threshold of the school. "How does the teacher look? Will she know me? Is she looking at me? Has she a switch in her hand? Will she let me show her what I already know? I hope I shall learn a great deal. Soon I can read, write, and do arithmetic as well as my older brothers and sisters. I can sing already, and prettily too; my mother has already taught me that. As soon as I get home at noon I shall tell my mother and father of everything I have seen, heard, and learned. I hope I shall get a new primer with pretty pictures in it. I will try hard and shall soon learn to read, and Papa and Mamma will be glad." These and scores of similar thoughts and questions chase through the little heads.

Then, too, the child's first day of school is one of anxious concern and high anticipation for the parents. They realize anew the importance of an education as a preparation for life. The boy, of course, must be sent later to the secondary school, where he will doubtless become a fine student, and may be a teacher, a preacher, or a prosperous business man. The girl, after a good training, will have an important position in some office, or in the home, or will perhaps be a teacher. Sometimes the mother has smiled through her tears as she has said, "Good-bye; be a good child."

With timid or joyful steps they now approach the schoolhouse. How is it there? Are the mind and the heart of the teacher ready to receive her new class of children? Many thoughts about her charges flit through her mind also. Is her heart free from care and her brow free from frowns? To-day, dear teacher, it must be Sunday in your soul. You must receive the newcomers with open arms and open heart. Away with all sternness and all constraint! Even if you enter on the day with a trembling soul because of your responsible task, you must not on that account lose your joyousness. Much depends on this first reception, for to-day will either begin a mutual understanding or there will come between teacher and pupil an indelible shadow. Let us hope that it will be a day of mutual discovery and revelation. It is not so easy to express in words what is necessary to this mutual understanding. Always there must be a loving heart and a high conception of the teacher's calling. The school must be a place of joy, so that the children may not look forward with dread to the opening hour, but will come gladly and with the feeling that the school is a second home.

By all means avoid the stern, commanding tone in the early school days. For a time the daily program may hang unnoticed on the wall, and the recess and play periods should receive special emphasis. And when the sun looks enticingly in at the windows and the birds sing in the trees, let us go out for a half hour into the woods. We can learn our songs better out under the leafy shade than in the close schoolroom, and to count the gaily colored butterflies which the spring has awakened from their winter slumber is far more profitable than to number the balls on the numeral frame. Let us take a walk for a half hour, drink a cup of chocolate together, tell a story, play a game, and have a good time. Then, if in the late summer or in the early fall we begin to show proper respect for the daily program, that is early enough. Thus shall we make the transition from the home to the school and its regular activities as easy as possible. In this simple way shall we conduct the children from the free life of the early years to the more ordered life of the schoolhouse whose walls will always resound in memory with an echo of life and joy.

And now come in, my little ones, and may God bless your entrance.

INSTRUCTIONS FOR THE ORGANIZATION OF CONTINUATION SCHOOLS FOR HOUSEHOLD ECONOMICS.¹

NECESSITY AND AIM.

Neither the primary nor the secondary school can be expected to give that preparation to the girl which will enable her to conduct with sufficient understanding the work of the home or of any other profession. There is, therefore, a place for a school where elementary knowledge is extended and supplemented by a training which has a direct bearing on later activities.

GENERAL PURPOSE.

The continuation school for homemaking should be neither a mere sewing school nor a review school, but should bring about a proper transition from the school into practical life. It should build on the knowledge already obtained through the completion of the course of study prescribed for the common schools. This school should have nothing further to do with grammar and spelling, with the fundamental rules in arithmetic, or with the technique of sewing and other handiwork, but should use these elements of knowledge as the basis for the development of capacities which are serviceable for the demands of life.

The school should not, however, confine itself to purely practical and vocational ends and to indispensable general culture. It must also have a part in the moral training of the young woman. It must prepare the girl for the profession of wife and mother, and must train her in habits of industry and fidelity even in small things, in punctuality, neatness, and economy. It must influence her character and must equip her with the invincible weapons of a pure heart. The continuation school distinguishes itself from every other form of school through its union of three aims of which now one, now the other, as demanded by local conditions and needs (country and city, industrial and farming community) will receive chief attention.

For all pupils, even for those who from youth have been accustomed to think of an independent business career, training in the art of homemaking is desirable. At any station of life they can not well do without the elements of special feminine knowledge and skill involved in cooking, laundry work, and housework, as well as sewing, mending, and the making of simple garments.

Additional mental training through instruction in hygiene, in dietetics, in the mother tongue, and in household and business book-keeping is the second task. It is necessary

¹ Translation of bulletin issued by the Federal Department of Education.

that manual work in every sphere of labor be permeated and dominated by thought, if the activity is to be attended with dignity and success. In this respect the instruction in the continuation school must be established on another basis than that of the preceding elementary school. This school will find its point of contact in the processes of nature, the daily environment, and in the conditions surrounding the pupils. It will not merely teach a science learned from books. Only instruction which makes real demands on the observation and reason of the young girl will insure this desired mental development.

The third and not the least important aim of the continuation school is to develop true womanhood, to awaken the soul of the homemaker, which sleeps in the breast of every girl, to elevate her thoughts, to fill her mind with higher ideals, and to arouse a sense of the responsibility inherent in her future position as wife and mother and the center of the family circle. These ends can not be reached by any formal teaching. In these the personality of the teacher is the significant element. The whole manner and spirit of the teacher, the methods of practical instruction, her patience, self-control, self-denial, firmness, and endurance are communicated through imitation from teacher to pupil. We need, therefore, an educated and refined teacher of mental ripeness and strong moral personality.

COURSE OF INSTRUCTION.

If the continuation school for homemakers is to fulfill its purpose in any adequate manner, it is necessary that we adopt a graded course of study and a definite plan of work. Where there is a large number of pupils, or where pupils have taken previous courses, classes should be organized on the basis of knowledge and ability. It is a false conception of the spirit and purpose of the school to look upon it merely as a welcome opportunity to do the mending and sewing needed at the moment. The public welfare demands the removal of this misconception and the placing of the school in its true light as an educational institution.

In addition to the sewing and mending which have hitherto made up the course, we will have hygiene, household economics, accounts, the mother tongue, and perhaps a foreign language, as well as practical exercises in cooking and laundry work. Only with such a course will the continuation school of household economics deserve the name and secure participation in the Federal subventions. A course which deals merely with the encouragement of handiwork or the making and repair of clothing fulfills these objects in a very imperfect manner.

The execution of this program in theory and practice demands a minimum of six hours per week for each pupil. It would be best to devote an entire week day to the instruction, but this is hardly possible in an agricultural section. With the cooperation of the employer, such a program is possible in industrial communities, as experience has shown.

With this time at our disposal the forenoon from 8 to 12 o'clock may be devoted to cooking and housekeeping, and the theoretical principles involved, while the afternoon from 1.30 to 5.30 may be assigned to handiwork and scientific branches. There can be no objection to the utilization of two afternoons, instead of a whole day. The late evening hours, for example, from 7 or 8 to 10 or 11 are unsuited to instruction. Young girls—and the continuation school will be composed largely of these—need rest after the day's work. A tired organism is not receptive of instruction, and bodily and mental exertions performed under these conditions absorb too much strength. Aside from opposing mental and hygienic reasons, we can not exclude moral objections to these late hours. The early evening hours, beginning at 4 or 5 o'clock, are to be recommended when it is not possible to secure the more favorable periods already suggested.

The instruction should continue for the entire school year whenever this is possible. When this term is for any reason not feasible, the course should not be less

than 20 weeks. Each pupil should attend two successive courses. Attendance on two year-courses is desirable.

Instruction in household subjects in connection with the primary or secondary schools has produced good results, but such courses can not take the place of the continuation school, because much necessary instruction must be postponed for the riper age and the more mature understanding. If the common school succeeds in developing the homemaking instinct, accustoms its pupils to cleanliness, order, punctuality, and economy, and teaches the simpler ideas of cooking, it has attained its object. To the continuation school falls the task of extending and deepening this knowledge

ENTRANCE.

Entrance should whenever possible take place with the beginning of the seventeenth year. The girl just released from the common school is tired of school. Allow her time to digest her elementary instruction. The continuation school impulse will arise spontaneously, especially if the course is so organized that it is inherently attractive and awakens immediate interest.

Older girls and women should not be excluded from the school. It is advisable, however, that these be organized into special classes and that they be excused from written work and theoretical subjects, if they so desire. Instruction in household-science should, however, be made obligatory even for these.

Fewer than six pupils do not justify the organization and continuance of a course. In the practical subjects, when the number of pupils exceeds the limit for good work, a second teacher or an assistant should be installed, or a second division should be formed. In the theoretical subjects 30 pupils may be taught at one time.

Pupils who enroll in the continuation school are obligated to regular attendance. The teachers should keep an accurate list of absences, and this list should receive careful scrutiny from the board of control. Where several teachers are at work in the same school, each should keep an absence list.

The levy of a small fee, to be paid at the beginning of the course as surety for regular attendance, is advisable, since this measure is often sufficient to prevent absence.

To levy a tuition fee is inadvisable. Admission should be open to all. There can be no objection to the imposition of a small fee to cover the actual cost of the materials furnished by the school, such as paper and muslin for patterns and sewing, food materials and fuel in the cooking classes, and starch, fuel, and soap for the laundry work. This fee may be remitted by the board in special cases.

TEACHERS.

The success of the continuation school for housekeeping, as already stated, depends on the personality and adaptation of the teaching force. There are needed for this type of school wise teachers (Erzieherinnen, character builders), who also have command of technical knowledge. It is seldom that we find all the desired qualities in one person. Two, three, or more special teachers may sometimes supplement each other into a complete teaching force. A good teacher in the primary school often possesses the personality demanded by the continuation school in order to insure the moral training of the young girls. If she is to undertake the practical side of the work also, she will doubtless need further training than that now offered by the teachers' seminaries. Such a teacher, in her intercourse with the maturing girls, will exert a great influence on the development of their characters, and from the standpoint of health and economic efficiency will perform an inestimable work for her community. We should not forget that the girls on the benches of the continuation school will one day in some circle themselves be teachers, mothers, and housewives. Therefore the character of the teaching force is of great importance. If there be in the district such a primary teacher who for any reason can not undertake the instruction in handwork



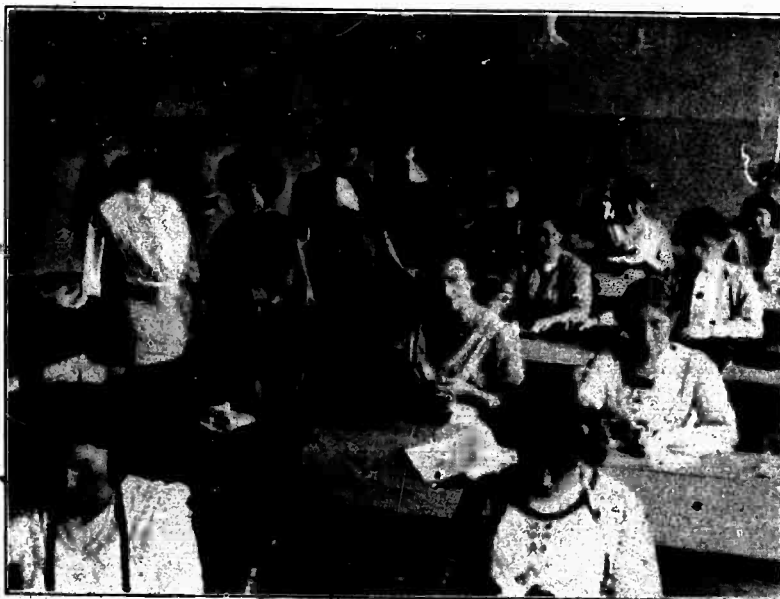
A. AFTERNOON WORK SCHOOL, CARTIGNY, CANTON GENEVA.



B. KITCHEN AND DINING ROOM, SCHOOL OF HOUSEHOLD ARTS, GENEVA.



1. LAUNDRY CLASS, SCHOOL FOR HOUSEKEEPING, ZURICH.



2. DRESSMAKING CLASS, SCHOOL FOR WOMAN'S WORK, BÉRNE.

and in housekeeping, she may be assigned to the theoretical subjects—German, household science, accounts, hygiene, and child training—and the practical subjects may be given to a special teacher of sewing and housekeeping. In few Cantons are the sewing teachers prepared to teach cooking and laundry work, and yet the physical man needs not clothing only, but also correct nutrition and hygienic living. A better training of the sewing teachers is advisable. The teacher of handiwork in the continuation school for household economics must be governed more by practical necessities than by any systematic scheme which has been arranged for her. She must, therefore, have command of a considerable fund of knowledge and of skill in cooking, mending, and in the making of simple garments.

For years we have had in Switzerland licensed teachers of housekeeping. Our institutions have trained a great many teachers who combine with practical knowledge and skill the necessary culture and command of teaching methods. Small communities, however, will hardly find it possible to secure the services of such a teacher, since they can not employ her for her full time. It is easy to obviate this difficulty by concentrating in a central village the instruction for the neighboring communities. The special equipment necessary may be installed at the place selected and a traveling teacher of household economics may give instruction for one or two days in the week, and during the remainder of the week may visit other communities.

While special quarters for the cooking and housekeeping courses are desirable, and while their installation should be insisted on in every large community, it must not be assumed that this provision will immediately become universal. Where there is no regular school kitchen, the continuation school for household economics may be organized without cooking and housekeeping, and instruction in these subjects may be given by a licensed traveling teacher of housekeeping in an uninterrupted course of five or six weeks. Sometimes a community welfare club may have a kitchen and equipment which may be rented at small cost. In every community there is doubtless a room which may be transformed into a temporary kitchen. As the number of applicants warrants, these courses will be repeated every year or at longer intervals. Every pupil of the continuation school is required to attend these courses in cooking and housekeeping, since they compose an integral part of the course of study, and only through them is there an opportunity to obtain the necessary practical training.

The theoretical instruction in housekeeping, including dietetics and hygiene, should be assigned to the teachers having charge of the corresponding practical course, since between theory and practice there are always suggestive interrelations. A good cook is not always qualified to give instruction in housekeeping, and a teacher who does not understand cooking and housekeeping can not successfully impart instruction in household economics. With such considerations in view, the selection of the teaching force should receive more attention than is usually given to it. Only those teachers should be chosen who exhibit conclusive proof of ability. In order to offer better training to the unlicensed teachers of cooking and housekeeping now in positions, as well as to teachers of sewing insufficiently trained for the continuation school, the Cantonal school authorities should provide for regular continuation courses for such teachers.

In the continuation school, instruction based on observation and experience should predominate. The pupils must be stimulated by the teacher to observe their surroundings and to think independently, and they must be led through the results of their work to a lively and immediate interest. Nevertheless, suitable textbooks are desirable. These should be used for reference and never for memory work.

Skillful teachers deserve adequate compensation. "It is not easy to fix salaries, since these depend on local conditions. The minimum should be 30 cents per teaching hour. Traveling teachers and teachers brought from a distance should receive in addition their traveling expenses.

SUPERVISION.

Women may be elected as voting members of the supervising board of the continuation school for household economics. Even in the smallest village there will be found competent women who will undertake this work for the public welfare. Their influence is valuable not only during the school period, but also afterwards in assisting the pupils in the choice of occupation. Where the continuation school is not yet considered necessary, the cooperation of the women on the board of supervisors will serve to further interest in the institution and to increase its popularity. The members of the board should obligate themselves to regular visits, which should be noted on the school record.

CLASSROOMS AND FURNITURE.

The classrooms, both for the theoretical subjects and for sewing, as well as the kitchen and the rooms connected with it, should be light, spacious, and provided with adequate heating arrangements. The equipment should meet the demands of modern hygiene. Especial attention should be given to the seating. The small desks designed for the children of the elementary school are not suited for adults. Whenever new equipment is to be provided, stools or chairs with backs are recommended. For evening courses, good light and ventilation should be insisted upon. For the preservation of notebooks, patterns, and handiwork, as well as textbooks and accessories which must be left in school, a cabinet or other suitable receptacle should be provided. For cutting we shall need one or more large tables. It is recommended that the school provide tough paper for the patterns, so that these may be uniform. Portfolios for the patterns may also be purchased more cheaply in quantity by the school. Uniform books and material are recommended, and provision should be made for the continuation school of household economics through the Cantonal textbook and supply depository, where this exists.

When new school kitchens are to be erected we should avoid building them too deep underground, since the hygienic objections to basement dwellings also apply to school kitchens. The kitchen should not be more than half below ground, and it would be still better to have it entirely above ground. In order to avoid odors of cooking in the house, it is rational to put the kitchen on the top story. Adjoining the kitchen should be a supply closet, a laundry and ironing room, and a dining room.

EXAMINATIONS AND EXHIBITS.

A final examination in the theoretical subjects and an exhibit of notebooks and handiwork done during the year is highly desirable. Under the influence of the wise and tactful teacher, even grown people will be glad to exemplify in this way the benefits of the continuation school. The results of the course in cooking may best be exhibited by a so-called public review, at which those interested may obtain an insight into the methods of teaching and the degree of skill which the pupils have acquired. Simple dinners for the supervising board and occasional visiting guests are allowable. Large banquets and frequent entertainments are objectionable, since these entail a heavy burden on the teacher and disturb the orderly progress of the instruction.

PROGRAM OF STUDIES.

The continuation school for household economics should always take a form adapted to local needs and the demands of the environment in which it is located. Thus cities and larger industrial communities will have an organization very different from that obtaining in small country districts. Cantons with a large factory population will develop an institution differing widely from that of an agricultural section. There are no standard patterns which fit all conditions, but the aim should be to develop a good, intelligent, efficient woman who will meet bravely and successfully

the problems of life. The fact that complete success is not always attainable and that the continuation school can not always atone for the sins and mistakes of the home and the elementary school should not deter the teacher or the State from offering the opportunity. The cultivation of the mental and physical powers of the adolescent girl, hitherto sadly neglected in our educational scheme, and her direct preparation for life are social duties.

A. Theoretical Subjects.

The mother tongue.—The method of perfecting the pupils in the use of the mother tongue, spoken and written, must be placed upon a basis quite different from that of the elementary school, and perhaps no other subject will find wider variations in previous preparation and in aim.

Written work.—First of all, we should take up the correct composition of letters and communications relating to family and business affairs. In this work we should use ordinary paper, cards, envelopes, and forms instead of school notebooks. The loose sheets may be kept in a strong envelope. The teacher should correct these written exercises and should discuss the corrections with the pupils. The material for the contents of these letters and of other short compositions should be found in current events. The newspaper may be used to good purpose. In this, as in all other subjects, observation of surroundings and of ordinary and extraordinary happenings should receive the principal emphasis. The translation from the dialect into pure German will further the mastery of the written language.

In the second division, composed of former secondary pupils and of those who have already completed the first course, the work may be extended to include short essays, the reading and discussion of inspiring and instructive selections, biographies of distinguished men, essays with ethical content, and poems and dramatic works, both classic and modern. To read a selection aloud, and afterwards to have the pupils make a paraphrase, improves greatly their powers of presentation and expression. The German period should also be utilized for the ethical education of the pupils.

DRILL WORK.

Arithmetic and bookkeeping.—The arithmetic should center about practical applications of the four fundamental operations. Exercises involving large numbers and fractions with large denominators should in general be avoided. The work in arithmetic should have an economic as well as technical side. Along with facility in operations with numbers should go an insight into their daily application. We should take into consideration exercises in the housekeeping operations of the laborer, the farmer, and the tradesman. By means of numbers we may discover truths which our pupils and the members of their households may have never considered, and thereby may bring before them clearly and definitely actual conditions. The instruction should also have as a principal aim the adjustment of the balance between income and expenses.

The subject of arithmetic should receive a concrete treatment. The number relations of life do not arrange themselves according to addition and subtraction, but appear in a mingled array. We should adapt ourselves to these demands and should consider how we may most surely arrive at the desired end. The following grouping is suggestive:

1. Household arithmetic.
 - a. Computations relating to the dwelling.
 - b. Computations relating to clothing.
 - c. Computations relating to food.
 - d. Computations in percentage.
 - e. Keeping of the household account book.

The German literature is not the equivalent of the English literature, into which it is translated. The selection of the work will, however, be similar to the reader.

2. Trade arithmetic and bookkeeping.
 - a. Computations relating to work.
 - b. Bills and statements.
 - c. The keeping of the journal, cashbook, time book, ledger, and the making of inventories.

In the first-year class, with one hour per week devoted to the subject, only the household arithmetic may be taken. Under the subject of "dwelling" we should include computations relating to the heating under various conditions, the lighting, the consumption of air by the inmates, and the cleaning. The subject of "clothing" suggests numerous exercises, such as material necessary, comparison between the price and durability of different goods, comparison of cost when made by oneself, when made in the home by a hired seamstress, and when made in an outside shop. Similar exercises relating to the laundry may be used. The greatest variety in suggestions for arithmetic is found under the subject of "food." These may include computations of the cost of a meal for one or more persons, the comparison of the cost of various menus, comparison between wholesale and retail prices, between the food consumption of small and large families, etc. From all this work we may easily derive exercises in percentage which will be very instructive. We may find, for example, the percentage of the income spent for the dwelling, for clothing, for food, and for other necessities. Computations of interest on possible savings should receive consideration. The necessity of keeping a book of household accounts in connection with the work indicated above is evident. This book should be especially adapted to future use. Instead of losing much time in the designing and preparing of a special book, it is better to use a good printed form. It is best for the pupil to keep a real household account book, instead of merely making mechanical entries from dictation. They should learn to make statements of expenses for the day, week, month, and year.

In trade arithmetic it is best to conduct an imaginary small business with a shop, that of a seamstress for example, or a tailor. Computations and accounts relating thereto will give opportunity for varied instruction. The bills and statements should, if possible, be made out on printed forms and in connection with the bookkeeping. The introduction to bookkeeping should be so clear and simple that even the weakest pupil will comprehend the purposes and relations of the different books. The trade arithmetic should be reserved for the more advanced pupils. In all classes mental arithmetic should receive constant attention, since this is the method of computation ordinarily used in daily life and necessary facility comes only with constant practice.

Household economics, hygiene, and dietetics.—Instruction in household economics should first include a knowledge of the human body, its organs, their functions and demands. This work has been already begun in the common schools, and there remains for the continuation school only to widen and deepen this knowledge and continue instruction concerning the care of the body.

The teaching should be simple and whenever possible illustrated by the living body itself. The study of inner organs should be explained through specimens, models, and charts. A woman teacher is especially desirable in this subject, since she can more easily discuss with the girls important matters connected with their health.

Through a free and frank discussion of these subjects we may combat prejudice and false notions and impart valuable directions for the preservation of health. We should also devote attention to the more important principles relating to the care of the sick, the first symptoms of diseases in children and adults, and first aid in case of accidents.

We should also discuss the requisites of a hygienic dwelling house with reference to its location, the access of light and air, space relations, the furniture and equipment, the keeping of the home, the ventilation, the heating, and the illumination. The instruction should be based on actually existing conditions. We may point out rationally planned homes, and houses incorrectly arranged, and the resulting good and evil consequences which are everywhere to be observed. We may awaken a

greater interest in the theoretical instruction about house cleaning, heating, lighting, with such practical exercises as sweeping, dusting, cleaning windows, lighting the fire in the stove, and the cleaning of kerosene lamps. These practical exercises should be brought in especially where the instruction in housekeeping is introduced into a short course in cooking given by a traveling teacher.

Under the head of clothing much may be said about the qualities of cloth, and the adaptation of the style to its purposes, to profession, age, and season. If we have time we may discuss also the production of the raw material, the processes of weaving, etc. The instruction must by all means include the preservation and repairing of clothing, the daily cleaning of the outer clothing with the brush, the removal of spots and stains, and the thorough cleaning through washing. It should include the special treatment of wool, cotton, and silk, of light and dark clothing, and of the finer and heavier goods. We should consider also appropriate cleansing materials, the different soaps, soda, ammonia, turpentine, benzine, etc. The laundry proper is a subject in itself. Here theoretical instruction is comparatively worthless, and experience only matures real knowledge and ability. The removal of stains and the proper cleaning of clothing, as well as the starching and ironing, should not merely be discussed in a theoretical way. These also demand actual observation and experience.

By far the most varied and the most important part of the instruction in household economics centers about nutrition and food. In this domain the continuation school has the best opportunity to disseminate its blessing in a wide circle through explanation and instruction concerning the needs of the human body for food, and the combinations of diet adapted to age, occupation, health, climate, etc. Food products must be taken into consideration, and comparisons must be made between foods of various origins (animal and vegetable) with special attention to milk, eggs, meats, vegetables, and fruits. Here, also, we recommend the examination of the products in their natural condition. Only in exceptional cases should we use pictures. They are merely a weak substitution for nature. Collections of grain, legumes, groceries, and spices facilitate understanding. Especial attention is directed to the uselessness of dictating and memorizing scientific theories which are not understood. The teacher must be in full command of her subject and must adapt it to the understanding of her pupils. Colored tables illustrating nutritive value facilitate instruction in dietetics, but these are to be used with judgment, since distinguished men of science to-day hold widely different opinions.

The rearing of children.—Although instruction in the art of rearing children is important and necessary, for lack of time it has not been possible in most cases to organize this as a special subject in the continuation school for household economics. Nevertheless, the fundamental principles of self-culture, as well as of the physical and mental development of the child, should receive consideration. Instruction as to the physical care of children through proper food, cleanliness, fresh air, etc., may be easily included in the teaching of hygiene. The pedagogical questions relating to the development of the intellect, the cultivation of the feeling, and the training of the will demand a more exhaustive treatment. Here again the woman is the born teacher. Instead of abstract theories which arouse little interest, we should make use of observation and experience, supplemented by suitable reading matter. The instruction should be limited to the most important and most pertinent facts.

Law and civics.—The times demand from women a knowledge of the legal provisions involved in everyday affairs. We may concentrate into a few hours' instruction the most important provisions of the law relating to traffic (the post office, the telegraph, telephone, the railway), the law of contracts, business law, bankruptcy, laws regulating weight and measure, the food laws, the laws governing civil rights, residence and sojourn, etc. It is now almost necessary that women know something about the civil government. The education of the Swiss woman is defective if she remains in complete ignorance of the governmental institutions of our land.

B. Practical subjects.

Handwork.—Within the last decade there has taken place a revolution in the making of clothing which has been too little appreciated by the school. It is the function of the continuation school to note these changes. It is not the part of common sense to use up the time making clothing by hand when just as beautiful work may be done with machine, or to occupy one's self with the knitting of stockings when machine-knit hosiery may be purchased at a less price. We do not mean by this to underestimate the value of beautiful handwork, but merely point again to the brief time at our disposal and our immediate purpose to equip the girl with the skill and the dexterity necessary to the making and mending of her own clothes. It is vastly more important to have our pupils learn quickly and surely to make their underwear, shirt waists, and simple dresses, and thereby save dressmakers' bills, than to insist on pedantic rules and precise measurements. We should also endeavor through our work to develop neatness and taste and the appreciation of style and color. The development of skill in the use of the sewing machine should be one of the principal aims. There should be a machine at the disposal of every six pupils. It is a common mistake to neglect definite instruction in the use of the machine. The penalty for this neglect is imperfect work during the entire school period. Several hours should be devoted to instruction in handling and the care of the sewing machine.

Drawing.—Drawing in the continuation school for household economics depends again on the time at our disposal and on the degree of proficiency which the pupils have acquired in the common schools. If they enter without previous preparation in drawing, as is the case in some Cantons in which there is no instruction in this subject, we should devote little attention to an attempt which would be rendered useless by the lack of time, but should confine ourselves to the consideration of a few simple patterns based on a textbook with illustrative plates. Even the knowledge of drawing and geometry involved in the use of the rule of the triangle will be of great use. Drawing possesses an educational as well as a vocational value, and whenever possible free-hand and geometrical drawing, with emphasis on practical applications, should receive especial attention.

Cutting out and fitting.—A definite method of designing the pattern should lie at the basis of cutting. Merely to cut out a garment according to a ready-made pattern or to make this larger or smaller has no place in the continuation school. There are various methods by which one may arrive at a correct fit. The teacher should make herself so familiar with one of these that she can cut the pattern without consulting her textbook. Only when she is herself conscious that the way is simple and clear and leads to a correct fit will she succeed in inducing interest and imitation on the part of her pupils. If the pattern is made from light cheap muslin instead of paper, it will be possible to baste it loosely together for the purpose of trying it on. Making the pattern in half size or the fitting of half the waist with one arm, etc., is recommended for securing skill in method. In the short time at our disposal not many garments can be finished, and it is therefore best to practice cutting and fitting in this manner, and thus secure material for later observation and use.

Measurements.—Correct measuring is necessary to arrive at the correct cut, and we should therefore lay great stress upon this feature and should give our pupils much practice in measurements. Every pupil should make to her own measurements patterns for a shirt, a nightshirt, drawers, a jacket, a bodice, a shirt waist, and an underskirt.

Plain sewing and dressmaking.—The instruction should include in the first division the mending of simple garments. This may be done as a class exercise by all the pupils at the same time. To more advanced pupils special tasks may be allowed, if it is not possible to place them in a special division with a different program. The program of study should be approved by the supervising commission and should be designed to meet local conditions. It should include the necessary elements in the

cutting and making of simple garments. Only in the second division should we introduce more complicated patterns with somewhat more ornamentation. The school should not give direct or indirect encouragement to luxury, but should cultivate an appreciation of exact work and genuine simplicity. Even trifles, such as the sewing on buttons, hooks, and eyes, and the working of buttonholes, should be given the necessary attention.

Mending and altering.—In the first division, mending should be regarded as an obligatory subject. In the second it should be carried on as incidental work. Mending should embrace the mending of stockings (darning and patching), the darning and patching of white goods, colored goods, and woolen goods.

Under the subject of alterations we should include the remodeling of dresses, the conversion of cast-off clothing for adults into clothing for children, and the use of discarded articles. It is recommended that the middle of the course be assigned to the work in mending and alteration. As a rule, sufficient interest has not been aroused at the beginning, and often time is lacking at the close. The clever teacher who possesses practical knack in execution and who exhibits good judgment as to the most advantageous utilization may give instruction of lasting worth for use in the home.

Other handiwork.—Crocheting, knitting, and embroidery can only be given in the continuation school as supplementary work. Where it is possible these subjects should be provided for through an increased number of hours or through further division of classes. This work is valuable from both aesthetic and economic standpoints, but should not displace what is more necessary.

A few suggestions for the course:

Division I:

1. Child's shirt and lady's chemise, drawers, mending, man's colored shirt, shirt waist.
2. Apron with pinafore, boy's or man's shirt, mending, sleeping jacket, undershirt.
3. Nightgown, corset cover with one side body, dressing sacque, mending, an unlined coat.

Division II:

1. Chemise with collar, a man's white shirt, drawers, a lined waist, and the alteration of a garment.
2. A man's nightshirt, a semifitting dressing sacque, a white or colored undershirt, a lined coat.
3. Corset cover with two side bodies, the mending of a waist, making of a waist-coat, or of a complete coat suit.

Cooking.—As a rule, pupils enter the continuation school without much previous instruction and with little practice in the kitchen. There is needed, therefore, an elementary and systematic course of instruction which proceeds from the simple to the more difficult. The haphazard selection of menus should not be allowed. The teacher or the supervising committee should plan the menus for a few weeks, or if possible for the entire course. Local customs and usages should not be suddenly ignored, but when necessary should be tactfully improved. In the preparation of the dishes we should have in mind, not the appetite of the pupils, but the thorough mastery of the separate cooking processes, such as boiling, roasting, stewing, broiling, and baking. We should practice each of these individual branches of the art of cooking under the guidance of the necessary explanations, and only after a thorough mastery of these elementary processes and their application should we pass to the meal as a whole.

In the making of soup, for example, the toasting of the flour, the stewing of the vegetables, etc., may be discussed and practiced. In the cooking lesson instruction in reasons for methods and the effects of procedure should be continually discussed and through frequent repetition should become the mental property of the pupils. They should learn not only how a savory dish may be prepared, but also what food value it has, and how its price compares with its nutritive value.

The instruction should not take the form of scientific pedantry, but should adapt itself to the comprehension and the education of the pupils. It must be popular rather than scientific.

During the cooking period from 30 minutes to an hour should be given to the discussion of related phases of housekeeping.

The dictation of recipes is a time-consuming and almost useless labor, since good collections of recipes may be purchased at a small price. The time saved may be devoted to other important elements of housekeeping. This instruction based on the practical cooking should have a definite place in the program. It should be graded and should be limited to practical subjects relating to the home life or suggested by the menu of the day.

Examples:

1. Cooking: Toasted flour soup, tripe, fruit.
Domestic science: The various cereals, their use and their nutritive value.
2. Cooking: Roast beef, beans, potatoes.
Domestic science: Lesson in serving.
3. Cooking: Oatmeal soup, liver cutlets, salad.
Domestic science: The various cooking utensils and their use in the preparation of definite dishes; the care and cleaning of cooking utensils.

In the first division of the continuation school we should insist more on constant practice in the essential elements of cooking than upon a great variety of dishes. The instruction should, however, not be made monotonous on that account. While we shall begin with that which is familiar, we will continually introduce related new material. Before the assignment of work there should be a short discussion of the matters in hand and the class should be divided into groups of from two to four pupils who should work together. In the assignment we should endeavor to keep all members of the class equally busy. The preliminary instruction should be so clear and definite that during the cooking period itself only brief hints and directions are necessary. The teacher should not merely explain, but should also demonstrate the work before the whole class. Only when she is convinced that everyone present understands her task and knows the procedure should she put the class to work.

Advanced pupils, e. g., such as have already had instruction in cooking and housekeeping in the primary school or such as have already attended classes in the continuation school, need different treatment. Everywhere, however, the introductory discussion should not be entirely omitted, though it may be assumed that such pupils already possess the elementary technique in cooking, and we may proceed to few recipes and the preparation of somewhat more elaborate menus. Estimates of the cost per meal and per head should not be overlooked, unless this instruction is assigned to the arithmetic period.

Sixteen pupils should be the maximum for one teacher, and to these should be assigned three or four ranges. One group may be used for setting the table and cleaning up. If there is only one range, the number of pupils should not exceed 12. Where there is gas, gas ranges with one or two burners are to be preferred on the score of cleanliness and simplicity. The installation of several kinds of ranges for using wood, coal, gas, and petroleum for fuel does not meet expectations. The variety renders it difficult to watch the cooking and imperils success. The equipment should correspond with that at home. If for any reason the installation of several small ranges is not possible, the meal may be cooked by groups on the same range in smaller portions. Only through participation in the work and in the preparation of the whole meal rather than of single dishes will we secure the desirable skill and reliability.

In a course of 20 weeks with one lesson per week, only the simplest course may be undertaken. An elementary cooking course requires a minimum of 20 weeks with two hours each. A traveling course in cooking, of uninterrupted duration, should continue for six weeks with one lesson per day, 36 lessons in all. A course of three weeks' duration with two lessons daily for the same pupils suffers from the disadvantage that too many new things are presented in a short time and in a superficial way.

Courses with one or two lessons per week are most profitable, since this allows what is learned to be thoroughly mastered through reflection and experience.

Washing and ironing.—Laundry work demands an exact knowledge of textile materials and of the various cleansing preparations and manipulations, as well as the adaptation of means to ends. On account of the brief time at our disposal, the exercises in washing are usually confined to intervals between the cooking lessons. However, we should take into account the great economic significance of the laundry in housekeeping and should devote to it the time necessary to a thorough study. Especially should we consider thoroughly the washing of delicate fabrics and the removal of spots and stains.

Ironing is an important element in housekeeping, and instruction in this work in the continuation school for household economics is a part of the preparation for the profession of homemaking. The special course in ironing or alternate exercises in ironing should have as their aim that starched and unstarched clothes should come from under the iron in perfect condition. To reach this aim at least ten lessons are necessary in each division. Along with the special instruction in ironing there goes also auxiliary instruction in the starching and dampening of the clothes. The teacher should give her instruction and demonstration in a methodical manner. Clothing in sufficient quantity and adapted to the progress of the pupils should be provided. We should begin with simple unstarched linen and should demonstrate the use of the iron. In the first division cold-starched linen, such as men's white shirts, cuffs, collars, should not be undertaken. These, as well as richly ornamented lingerie, complicated waists, etc., should be reserved for the second division. The maximum number of pupils which should be assigned to one teacher is 10.

Cleaning and polishing.—It is self-evident that these forms of housework must also be treated in a systematic manner, if the pupils are to learn the best methods of doing them. The teacher should possess a knowledge of chemistry, physics, and an intimate acquaintance with goods and materials, and she should draw from this storehouse for the explanation of the different devices which she uses. In addition to the acquisition of mechanical skill, this work possesses an educative value in that it tends to cleanliness, carefulness, and exactness, and in many cases also to self-control.

SUGGESTED PROGRAMS FOR COURSE OF SIX HOURS PER WEEK.

EXAMPLE I.

DIVISION I.

Theoretical subjects.

| | Hours per week. | In course of 20 weeks. |
|---|-----------------------|------------------------------|
| (Alternately, 1 hour each every second week.) | | |
| Business composition and letters..... | ½ | 10 |
| Household arithmetic..... | ½ | 10 |

Practical subjects.

| | | |
|---|---|-----|
| Cutting, sewing, and mending..... | 2 | 40 |
| Cooking, washing, and house cleaning..... | 2 | 40 |
| Ironing (2 hours every second week)..... | 1 | 20 |
| | 6 | 120 |

DIVISION II.

Theoretical subjects.

| | | |
|---|---|----|
| (Alternately, 1 hour each every second week.) | | |
| Reading and pedagogy..... | ½ | 10 |
| Trade arithmetic or household science..... | ½ | 10 |

| <i>Practical subjects.</i> | | Hours in course per week. | of 20 weeks. |
|--|--|---------------------------------|-----------------|
| Cutting and sewing..... | | 2 | 40 |
| Cooking..... | | 2 | 40 |
| Ironing (2 hours every second week)..... | | 1 | 20 |
| | | <hr/> | <hr/> |
| | | 6 | 120 |

EXAMPLE II.**DIVISION I.***Theoretical subjects.*

| | | |
|--|---|----|
| Business composition and letters..... | 1 | 20 |
| Household science and home arithmetic..... | 1 | 20 |

Practical subjects.

| | | |
|---------------------------------------|-------|-------|
| (Three hours every second week.) | | |
| Cutting, sewing, mending..... | 1½ | 30 |
| Washing, cooking, house cleaning..... | 1½ | 30 |
| Ironing..... | 1½ | 30 |
| | <hr/> | <hr/> |
| | 6½ | 120 |

DIVISION II.*Theoretical subjects.*

| | | |
|---|---|----|
| Reading and pedagogy..... | 1 | 20 |
| (Alternately, 1 hour each every second week.) | | |
| Hygiene and care of sick..... | ½ | 10 |
| Bookkeeping..... | ½ | 10 |

Practical subjects.

| | | |
|--|-------|-------|
| Cutting and sewing (3 hours every second week)..... | 1½ | 30 |
| Cooking (3 hours every second week)..... | 1½ | 30 |
| Washing and ironing (2 hours every second week)..... | 1 | 20 |
| | <hr/> | <hr/> |
| | 6 | 120 |

A glance at these programs will quickly convince us that little may be accomplished with less than six hours per week or with less than two courses of 20 weeks each. Where year courses are feasible, the work of the two divisions may be taken in one year. Even where this is possible, however, two-year courses, with review and amplifications, are not only allowable but extremely desirable.

Where it is possible to have two full-year courses or an increased number of hours per week, the study of a foreign language (French, English, Italian) should not be neglected. The mastery of a foreign language is always a possible source of income and advancement for the girl. Language instruction should have as its aim fluency in the use of the language, and we should use one of the modern methods adapted to the previous training of the pupils.

In agricultural regions the full-year course also gives opportunity for instruction in home gardening. For this a piece of ground in the neighborhood of the school is necessary. This wholesome and instructive occupation under expert guidance is to be recommended from both hygienic and economic standpoints. When the teacher is not qualified to impart the instruction, a special teacher may be employed with advantage, and we may arrange for an interrupted gardening course with work in the spring, summer, and autumn to accompany the theoretical instruction.

Larger towns and cities should not content themselves with the organization and execution of such a course as we have here suggested. They will institute special

courses of several months' duration for the acquisition of the knowledge necessary in the home or for vocational training. These courses will, as a rule, not stand in such close organic union as the subjects of the simpler continuation school for household economics. They may be attended independently of each other. Still, even these classes should not lose sight of educational values, and the courses should sustain a certain relation to each other. Pupils who enroll for the course in lingerie should first take machine sewing. Pupils who take the course in tailoring should already have completed the lingerie course or should give proof of requisite ability. For the course in tailoring, lingerie, and embroidery, drawing should be obligatory. Those who take the course in cooking or in laundry work should also attend the theoretical instruction in household science and hygiene. Attendance on the course in mending demands no prerequisites.

German, as well as a foreign language, should in general be obligatory. This instruction should have both cultured and practical ends in view.

Arithmetic also should be included in the circle of subjects which have close connection with homemaking. This subject should be treated in connection with the bookkeeping.

A. Simplest equipment for a school kitchen.

For one range or for six pupils:

- 1 small linen closet.
- 1 supply closet.
- 1 wood box.
- 1 coal bin.
- 1 small spice cabinet.
- 1 coal scuttle.
- 1 coal shovel.
- 1 dustpan.
- 1 broom.
- 1 whisk broom.
- 1 wood basket.
- 1 table with two drawers, one for writing material, the other for the knife box.
- 1 bench for two dish pans.
- 6 stools.
- 1 kitchen dresser.
- 2 shelves, the upper for the saucepans, the lower for the roasting pans, the dishes, etc. (The walls back of the table should be provided with hooks for cooking utensils.)
- 1 washbasin.
- 1 water bucket.
- 2 scrubbing buckets.
- 2 scrubbing brushes for cleaning the table and benches.
- 2 mops for cleaning the floor.
- 2 dish pans.
- 1 nutmeg grater.
- 1 salt jar.
- 1 box for cleaning preparations.
- 1 knife sharpener.
- 1 knifeboard.
- 1 water pitcher.
- 2 fat jars.
- 4 enameled saucepans of assorted sizes.
- 2 muffin irons.
- 2 omelette pans.
- 1 brass pan.
- 1 large white-metal steamer with covers.
- 1 enameled mixing dish.
- 6 enameled plates.
- 1 enameled scoop.
- 1 enameled ladle.
- 1 enameled grating bowl.
- 1 half-liter measure.

For one range or for six pupils—Continued.

- 1 quarter-liter measure.
- 1 grater.
- 1 sieve.
- 1 meat beater.
- 1 rolling-pin.
- 1 noodle board.
- 1 egg beater.
- 1 bread board.
- 2 pointed wooden cooking spoons.
- 7 round wooden spoons.
- 2 kitchen knives.
- 2 knives.
- 2 forks.
- 2 pewter spoons.
- 1 chopping knife.
- 2 glasses.

For general use:

- 1 kitchen cabinet.
- 1 water cooler.
- 1 hatchet.
- 1 kitchen scales.
- 2 tubs.
- 1 scalding tub.
- 1 sink.
- 3 ironing boards.
- 6 smoothing irons.
- 6 iron mats.
- 1 laundry basket.
- 1 bracket.
- 1 clothes bin.
- 1 black board.
- 1 step ladder.
- 1 market basket.
- 1 parcel bag.

Linen:

- 12 towels.
- 12 plate cloths.
- 6 glass cloths.
- 6 dusting cloths.
- 6 dishcloths.
- 3 cloths for scrubbing up the table.
- 3 cloths for drying the dishes.
- 3 ironing-board covers.
- 6 window cloths.

B. Desirable additions to the above.

For each pupil:

1 round basket in which cloth may be laid to serve as a receptacle for potato peels, vegetable parings, etc.

1 round dough bowl.

1 enameled dish.

1 deep iron pan.

For general use:

1 colander.

1 wire sieve.

1 hair sieve.

For general use—Continued.

4 baking tins.

1 almond grater.

1 meat chopper.

1 lemon peeler.

1 lemon squeezer.

1 onion grater.

1 pepper mill.

1 tin box for cracker crumbs.

1 thermometer.

1 surgeon's case.

C. Tableware and cutlery.

2 dozen tablespoons.

2 dozen teaspoons.

2 dozen forks.

2 dozen knives.

2 dozen soup plates.

3 dozen plates.

3 dozen dessert plates.

3 large and 3 small round vegetable dishes.

6 oval meat dishes.

3 salad dishes of assorted sizes.

2 dozen drinking glasses.

1 water decanter.

2 saltcellars.

1 coffee-pot.

2 milk pitchers.

1½ dozen cups.

ORGANIZATION AND METHODS OF INSTRUCTION IN THE CONTINUATION SCHOOLS.¹

By J. BIEFEE, *Swiss Federal Inspector of Trade Schools.*

END AND AIM.

First of all, it is necessary to determine the end and aim of the trade continuation school, and then to define its task. This determines the choice of subjects and the material of instruction. In order to reach the end most surely, the right organization must be perfected. We must, in the first place, have a term of instruction sufficiently long and the number of hours per week must be adequate. To each subject, according to its importance and its scope, must be assigned a certain number of hours. In order to secure the best results from the instruction, we must consider at what time in the day or week it may most profitably be given. In order to satisfy the various vocational needs, a proper classification must be considered. Not ~~is~~ material is the schoolroom itself, its equipment, and the teaching material. Along with the organization, the success is principally dependent on the conduct of the school and the methods of instruction. Of decisive influence may be mentioned the handling of pupils, the demands which we make of them, and the interest which we arouse by our teaching. Most important is the teacher himself, who may expect to attain results only through a mastery of his subjects, through a convincing presentation of his subject, and through a maintenance of good order and discipline.

The trade continuation school must minister to the needs of the individual worker in the smaller trades and handicrafts and must also serve the larger industrial life. In the interest of the State, it must also train our young people to become good citizens and must develop their character and put them in a position to understand their rights and duties as members of society.

ORIGIN.

For a long time it was thought that the general continuation school was able to meet these demands. The course of study in this school, however, concerned itself chiefly with the review and amplification of the common-school subjects. The need of

¹ Abridged.

specific vocational instruction was then less strongly apparent. Gradually, however, it appeared that the general continuation school could not satisfy vocational necessities. In response to evident needs there arose here and there, especially in the larger places, trade schools along with or in place of the general continuation school, having as their object the vocational training of the pupils, at least in the subject of drawing. As the population of the country grew and economic conditions took on a severer aspect on account of higher tariffs and increasing competition, there was developed in a large circle the conviction that only through an advance in the efficiency of the individual and of the whole could our country hold its own in the struggle. To supplement the workshop appeared the trade continuation school, especially designed to increase the skill and efficiency of the young worker. Prof. Bendel, a zealous and influential advocate of our trade continuation school system, says in his paper on the "Development of the trade continuation school in Switzerland":

The trade continuation school can not limit itself merely to a more thorough grounding of the pupils in the subjects and capacities acquired in the common school, nor to the cultivation of technical skill in drawing alone. It is especially called upon to give to the apprentice, in a manner designed to develop his independent observation and judgment, that fundamental knowledge and skill necessary for his trade, and of which he may find practical application in his daily occupation.

In the circular of the Swiss department of industry concerning the trade continuation school, issued in 1891, the task and aim of these schools is described as follows:

The vocational continuation school forms a necessary supplement of vocational instruction and has as its aim the development and cultivation of skill and knowledge which relate to the practice of a trade and which do not as a rule receive sufficient attention either in the common school or in the workshop of the master.

For pedagogical reasons also the instruction in the vocational continuation school must relate directly to the trades. Our pupils will only develop an interest in the school when we offer them something which they can use in their everyday life; from which they perceive that they get a direct benefit. That which is not directly related to their work has little meaning for them and leaves them without interest.

SHOULD BE OBLIGATORY.

In order that the greatest number of people may derive a benefit from vocational instruction, the trade continuation school must be made obligatory. There are good grounds for the opinion that though the efficiency of the school for certain individuals will be diminished thereby, we must establish this further obligatory form of education if the education of the whole people is to be elevated. It is not sufficient that only a part of our youth should have these further advantages. It is a well-known fact that under voluntary attendance we reach only a part of those who need instruction. A considerable number, even of ambitious pupils, will remain away because of such circumstances as lack of interest on the part of the master or of the parents. On the other hand, in numerous cases the motive for school attendance was not the desire of the pupil for knowledge, but the will of the parents or the master.

O. Pacht says in his essay on the "German continuation school of the present":

If we wish to maintain a certain measure of the fruits of civilization, if we wish to maintain the efficiency of the nation among all classes upon the standard which we have reached, we must reach especially those elements which have no interest in their own improvement. These people do not come voluntarily; therefore compulsion is necessary.

Obligatory attendance possesses also an immense advantage in the conduct and organization of the school. We can then give definite instruction with reference to the fulfillment of school obligations and also with reference to the program and course of studies. The existence of the school is no more dependent on the good will of the parents or the master or indeed on that of pupils themselves. With optional attendance, as a rule, the pupils attend only those subjects which in their eyes possess some

ticular importance, perhaps drawing and arithmetic. Experience teaches us that business correspondence, bookkeeping, and civics are, therefore, much neglected. Either these classes were not attended at all, or at most for two semesters only. The successful execution of the program of studies is only possible when attendance is obligatory.

BRANCHES OF INSTRUCTION.

What branches of instruction must receive chief consideration, in order to attain the aims of the trade continuation school, to serve handwork and industry, and to supplement the practical work of the apprentice? Often the practical instruction attained in the everyday work of the shop is insufficient. In the routine duties connected with the shop he does not acquire the knowledge and skill necessary to the complete conduct of his business. Even on the side of manual skill he does not learn his trade completely. The reasons are many. The fault may lie with the master, with the apprentice, or with the conditions under which he works.

There are masters who give themselves little pains with the apprentice intrusted to them; they do not conduct him from step to step in the business, but often almost throughout the entire period of apprenticeship assign him subordinate tasks. The apprentice is sometimes considered as a mere laborer, or is allowed to specialize in some kind of work. There are locksmith apprentices, as we note from the apprentice examination, who have never done forge work; there are shoemaker apprentices who have never made an entire shoe, but have always been employed in mending; there are tailor apprentices who have never learned cutting; and a multitude of apprentices who have never learned to work from drawings. The vocational instruction is sometimes for other reasons insufficient. There are few workshops where everything is done which the workman should know after the completion of his apprenticeship. We referred above to the fact that the young shoemaker often does not learn to complete a shoe. The task of the shoemaker is now being more and more reduced to mending, since most shoes are bought in the stores and are made almost exclusively in the large factories. Without any fault of the master the apprentice has insufficient instruction in some of the most important elements of his trade, because there is in the shop no work which offers it. Supplementary practical instruction in the school itself, is therefore, desirable, but many difficulties stand in its way. In large cities, such as Munich, many of these school shops have been instituted in recent years. Of course they are possible in cities large enough to insure special classes for each trade.

Study of materials and processes.—Through the apprentice examination it is often revealed that instruction in the practical knowledge of the trade is very much neglected. The apprentice often knows almost nothing about the origin, the processes of extraction or production, the worth and the peculiarities of the raw material with which he works, and is too often uncertain as to the signs which indicate the good or bad qualities in that material. To be sure, he knows his tools and auxiliary machines by name, but he is not equipped with adequate knowledge concerning installation, repairs, and operation. Still less does he know about the physical laws involved in their construction. The chemical reactions which play so large a rôle in many trades are for him a riddle. Here it is necessary that the school seek to close up the gaps, and through practical instruction it must offer the opportunity to supplement the workshop in these vital subjects connected with his trade.

Concerning the necessity on the part of the school to supplement the shop on the practical side, Dr. Kerchensteiner expresses himself as follows:

The practical side of handwork ordinarily does not concern itself with the theoretical. On the other hand, most of the continuation schools devote themselves to theory and leave the practical side entirely to practical life. It is admitted in trade circles on this account that the practical skill of the apprentice is one-sided and is far from adequate. The apprentice does not acquire a complete mastery of his technique. In order, therefore, to make the continuation school effective, it is necessary

to combine practice with theory and to establish adequate school workshops which are not intended to displace the daily practical work of the apprentice, but which should supplement this where it is imperfect and which should make it possible for the student to acquire a rational method of work instead of the thoughtless following of tradition.

We are aware of the fact that the instruction of the school workshop, as desirable as it is, is in many places, especially in the country, met by insuperable obstacles. Technology, however, in some form or other should have a place in the program of every trade continuation school.

Trade arithmetic and geometry.—In the daily work of the shop the apprentice rarely receives instruction in trade arithmetic and in geometry. When anything must be computed, the master usually does it; the apprentice looks on, but learns nothing from the process. It is an exceptional case, for example, when a master painter says to his apprentice, "Calculate the surface which we have painted, and I will assist you; you measure and write down; I will hold the tape and will see if you are doing it right." Or when a tinner says to his apprentice, "Calculate how much tin will be needed for the roof which is to be made according to this drawing." Or where is the cooper who tells his apprentice how to reckon the content of a crib or of a round or oval cask? All of these things are ordinarily kept back from the apprentice. It is the task of the school to supply the deficiency.

Drawing.—Drawing can ordinarily be learned only in the school. In the smaller shops the apprentice never sees a drawing and is not compelled to work according to drawings. In the larger factories it sometimes happens that a part of the apprenticeship period is spent in the drafting room. This is naturally a great advantage for the apprentice. Drawing is, therefore almost entirely a subject of school instruction, and from the beginning it has been the subject which has lent the school its vocational character. Indeed, there are to-day in Switzerland many trade continuation schools which are merely drawing schools.

Always, according to special needs, other subjects of specific utility must be added, such as mechanics and theory of machines for machinists; for the latter also electro-mechanics; chemistry and physics for the building trades; botany and surveying for gardeners, etc.

Practical business methods.—Though the education of the apprentice in all these domains is inadequate, nevertheless he does receive from his work itself certain suggestions, and the ambitious young man may learn much from his fellow workmen, and by reading may supplement his practical experience. The workshop, however, usually leaves him entirely without instruction in certain practical business matters connected with his trade, such as the relations with the contractors and customers, with the post and railroad, and with the bank. He never receives from his master the commission to compose an advertisement, to write a business letter, to fill out a bill of lading, or frame a telegram. He learns nothing of exchange or banking methods. The school must supply these deficiencies. Instruction in business composition and everything connected with it comprises one of the most important subjects of the continuation school. From the master he likewise learns little of the special arithmetic connected with his trade. He is ignorant of the method of calculating cost and determining prices, and has no experience in bookkeeping. Since the future master mechanic and shopowner, whom we should see as a possibility in every apprentice, must be an adept in these business matters, it is the special task of the school to supplement education in this direction.

Training in citizenship.—For the school there remains also the important task of training the youth for good citizenship. It must offer, therefore, instruction in civics. The handworker must know the rights and duties of the citizen from the point of view of his trade. Every citizen must be made conscious of these privileges and duties and must know that all men of whatever position or calling must work together for the preservation and prosperity of the State. No one profession may prosper only when it goes

well with the social whole. The individual handworker, be he craftsman or laborer, should learn to look beyond the narrow circle of his own needs and interests, and to work for his whole community and State. In our trade continuation schools we should give especial attention to the geography, the water power of Switzerland, the conditions and industries in the various sections, natural resources, trade and commerce, as well as to the historical development of our country and the constitutional government of the Confederation. With these subjects is naturally connected a study of the administration of the commune, the Canton, and the Confederation, of the activities of the legislative, the executive, and the judicial departments, and of the rights and duties of Swiss citizenship.

Moral training.—The last, but not least, task of the trade continuation school is to serve as the educator (Erzieherin) of the youth who are entering the trades. This does not mean that we shall place in our program a special subject like religious instruction, as is done, for example, in Munich. The moral training (Erziehung) of the people should be the end and aim of all teaching. The instruction in the mother tongue, especially in reading, may perhaps best be used for this purpose. We all know how necessary such instruction is for young people between the years of 15 and 20. The regular process of instruction offers opportunity for training in attention, diligence, conscientious performance of duty, exactness, and in order and neatness. If in our teaching we insist so strongly on these qualities that our pupils develop corresponding habits, we must accustom our pupils to good and polite behavior. The teacher should not be content merely to exercise his powers during the school hours, but he should endeavor to project his educative influence beyond the classroom. He should regard himself not merely as a medium for the communication of knowledge, but both inside and outside the classroom should be the friend and adviser of the individual pupils. As opportunity offers he should seek to cultivate more intimate and personal relations by visiting museums, workshops, and factories with the pupils, and through comradeship on excursions or in social evenings. Through this personal intercourse the teacher learns to know many a pupil from another and better side than in the instruction itself. In the same measure in which he approaches his pupils, they will draw near to him; they will make him a confidant and will see in him not the strict schoolmaster, but the man who means well by them. We have in our hands the building of his character, which is true education. In order to exercise this permanent influence it is necessary that the teacher know his pupils. To do this he must not merely have them for an hour per week during the year, but if possible throughout the entire apprenticeship period and in as many subjects as possible.

Hygiene.—I must mention one branch of instruction which, to my knowledge, has as yet won no place in the continuation schools of Switzerland. This is hygiene, or the science of living (Lebenskunde), as it is called in Munich. Instruction in hygiene may be given in connection with civics or the mother tongue, perhaps best with the reading, as is frequently done in Munich. In most cases the common school has laid a good foundation for this work. The principal aims of further instruction in the trade continuation school should be to teach the pupil how to live a reasonable life in accordance with the laws of nature; to inform him concerning the causes, the symptoms and the results of common diseases, especially of contagious and vocational diseases. He should also be made acquainted with the demands of hygiene on the shop and factory, and of the protective measures provided for the workman by law.

MATERIAL OF INSTRUCTION.

In the choice of the materials of instruction he should be influenced by three conditions:

1. The pupils for the most part already possess much valuable practical knowledge and experience.
2. They wish to learn something new which is related to their vocational interests.

3. The brief time for instruction demands the greatest possible correlation and the most careful choice of material.

As self-evident as these three points seem to be, there are yet teachers who are not able to free themselves from the methods of the common school. They develop and explain a subject as if they had before them elementary pupils who had heard nothing of the matter in question. They neglect to discover the especial interests of their grown pupils, and to treat correspondingly the subject material. This failure to take into account the knowledge of the apprentice produces in him an aversion to the continuation school. When a teacher discovers that his pupil already knows something about a subject, he should seek by questions to discover the extent of this information and should knit the new instruction to this old knowledge. In this way self-activity and free expression are secured, and the teacher may content himself merely to direct the conversation into the right channels to keep it going. When the knowledge of the pupil is exhausted, he will present new and supplementary material. In arithmetic, for example, suppose we are considering exercises that relate to the pulley. The pupils have doubtless all seen pulleys; so we will not begin at once with the exercise, but will ascertain what they know about pulleys. We will find from them that there are fixed and movable pulleys. Some pupils in a mixed class taken from various occupations will perhaps know the compound pulley and can give information concerning this. We will speak briefly of the use of the pulley and state the laws governing its action. In this preliminary conversation we will discover that many pupils already have a surprising knowledge of the subject, and we will seek to bring out as much of this as possible. Only when this is done will we begin with the arithmetic proper.

RELATION TO VOCATIONAL INTERESTS.

Suppose that in a class in technology or vocational natural science we are treating the subject of adhesives. The blacksmith knows the process of welding two pieces of iron, the carpenter glue, the bricklayer mortar and cement. With this knowledge of the pupils we make our connection. They all want to learn something new, especially that which concerns their trade. Do not allow them to form the opinion that the trade continuation school is merely a continuation of the primary school and that they must once more repeat what they have already had to the point of surfeit.

There is especial danger that the instruction in German, arithmetic, and civics (Vaterlandskunde, which includes the history, geography, and government of Switzerland) shall copy the methods of the elementary school. The wise teacher will, even in these subjects, have a care that the instruction offer something new and that it leave with the pupil the feeling that he is getting something from which he may profit in his trade. Moreover, the whole relation of the teacher and the pupil, the method and tone of the instruction, and the school management itself should arouse the feeling that the school is not merely a supplementary primary school, but is a higher sort of an institution. The fact that much of the knowledge learned in the primary school has been forgotten does not necessarily indicate that the first semester should be spent in a formal review. Without falling into ruts, we can fill up the gaps with material of vocational value. If, for example, we should delay work in trade arithmetic until the pupils are perfect in all arithmetical operations, they would long before that have finished their apprenticeship. Of course there must be a substantial foundation before the solid superstructure may be undertaken, but the reinforcement of the fundamentals must proceed in such a manner that the pupil does not feel that it is merely a review of old material. The exercises must be clothed in a new form. In arithmetic, for example, we must continue to practice the four fundamental rules, operations in percentage, the calculation of interest, etc., but this should be presented in the form of examples from practical life and not with naked numbers.

In drawing it is desirable that we make the pupil more skillful in the handling of the instruments before we take up vocational drawing proper. Nevertheless we should seek to give the free-hand drawing and the geometrical and projection work such a form that the apprentice may see in each exercise something which directly helps him in his trade. Therefore, we will let the young bricklayer make geometrical drawings quite different from those of the blacksmith, while the seamstress and book-binder would naturally choose different models for free-hand exercises. If the instruction in every subject is given such a form that it holds the interest of the pupil, he will attend the school with satisfaction.

Since the pupil must receive instruction in many domains in a comparatively short time, it is necessary that the teaching material be reduced to its most concentrated form and limited to the essentials. When we have on the average not more than seven hours weekly for vocational, business, and civic subjects, and must assign three of these hours to drawing alone, there is little time left from a three-year course of 40 weeks each for the other subjects. In this brief time we can not lose ourselves in details and can not even treat many subjects of positive worth, but must seize on the absolute essentials and must handle these accurately and thoroughly. Since the continuation school is the last instruction which most of our pupils will receive, we should endeavor to give a certain finish and symmetry to their knowledge. These demands are not easy to meet, and indeed their accomplishment is possible only when the instruction is well organized. The selection and correlation of material demand careful preparation on the part of the teacher and require an amount of home preliminary work which only those who understand can appreciate.

In German books on the continuation school much is written about the focal point of instruction. It is often demanded that a certain subject be chosen as a center of correlation. As to the subject to be selected, vocational school men are not agreed. Some would make it drawing, others trade knowledge. We will not strike far from the mark if we make the trade itself the center of correlation. When possible, all the subjects should be focused directly on the vocation of the individual pupil. Every subject should have a vocational coloring and should bear immediately on the special business of the pupil. This demand is comparatively easy to meet when all members of the class are apprentices to the same trade. If the class is made up entirely of book-binders, or machinists, or bakers, it is easy to bring all instruction into intimate correlation with the special trade. The material in language, arithmetic, business methods, bookkeeping, and civics may be adapted to special vocational needs. The same is true in a measure when classes can be arranged so as to include only members of related trades. If, for example, only metal workers are brought together in a class, their trades will have much common ground and many interrelations which may be used as a basis for a common interest in what does not directly concern each trade.

Conditions are more difficult in mixed classes in which representatives of widely differing trades must be taught at the same time. Here it is not possible to make individual adaptations in every subject. It is under these conditions, however, that most of the continuation schools have to work, especially those in the country villages. But even in these schools the instruction should not be leveled down to the plane of the general continuation school. The material for business composition should be taken from the practical life of the individual pupil; the reading matter may be selected for its vocational content; the arithmetic exercises should be selected so that each trade will be represented, and individual work will be assigned in accordance with special needs. In bookkeeping the exercises chosen should naturally deal with the trades and should afford a common ground for understanding. In natural science, which should include hygiene and which for a class of the type under consideration must take the place of special instruction in the scientific problems of the special trades, we can study the principal raw materials and the laws of physics and chemistry in their relations to the industries. The principles of power and mechanics have a common interest for all. In the study of the

national life, instruction in the most scientific historical and geographical conditions in trade and commerce with special reference to the handicrafts and industries will possess a common utility. Finally, in drawing, at least in the vocational drawing proper which follows the general preliminary school instruction, it is easily possible to consider each trade. This is what we mean when we say that the trade itself should be the center of correlation.

DURATION OF THE CONTINUATION SCHOOL.

The Cantons of Fribourg, Glarus, and Berne have made the definite provision that attendance on the continuation school is obligatory during the entire apprenticeship period. In the Cantons which have passed laws governing apprenticeship, namely, Neuenburg, Fribourg, Waadt, Geneva, Obwalden, Glarus, Wallis, Berne, Lucerne, Zurich, Baselstadt, Schwyz, there is a general provision requiring attendance on the trade continuation school or the general continuation school. Certain Cantons which do not compel attendance provide that the master shall grant permission to the apprentice to attend the school four or five hours per week during the work day.

The institution of the apprenticeship examination, obligatory in the Cantons of Neuenburg, Fribourg, Glarus, Zug, Wallis, Berne, Lucerne, Zurich, and Schwyz, has had a happy effect on the attendance of the continuation school. These examinations include usually reading, composition, mental arithmetic, written arithmetic, book-keeping, freehand drawing, and mechanical drawing as far as it concerns the apprentice's trade. The examinations also include oral questions about tools, materials, and products, and other subjects connected with the special trades. Various Cantons, such as Berne and Zurich, have worked out special exercises for these examinations, which offer excellent suggestions as to the choice of teaching material.

The duration of the apprentice period varies with the trade from two to three and one-half years for boys, and from one to two years for girls. The period of apprenticeship is fixed by law in only six Cantons, but there is a tendency toward uniform apprenticeship laws in Switzerland and to compulsory continuation school attendance during the entire period. The influence of the Swiss trades union is exerted in this direction. In Cantons which have not yet made attendance on the continuation school compulsory this is usually brought about by the trade unions, which are frequently the founders and usually the patrons of the trade schools. It frequently happens that the members of these unions as a body pledge their apprentices to attendance on the trade school.

Another effective means of securing attendance is the provision that the apprentice examination shall be given only to those who have attended some trade school.

In some schools the instruction in all subjects except drawing is suspended during the summer months. The authorities, however, strongly advise against this course and the tendency now is toward full teaching time throughout the year except in places where special difficulties are offered and here the lost time is made up by increased weekly hours during the school term. Such special arrangements are made in the tourist centers, where the school is generally closed during the travel seasons, and in mountain sections where for two or three months in the summer the cattle are taken to the mountain pastures. In Zurich the apprentices at bricklaying concentrate the greater part of their study in the two severe winter months when their work is suspended on account of the cold.

THE DIVISION OF TIME AMONG THE SUBJECTS.

In the circular of the Swiss Department of Industries it is prescribed that the instruction shall be imparted for at least 240 hours per year except for those pupils of whom drawing is not demanded and of these 180 hours are required. Since the average school year is 40 weeks, the minimum number of hours per week would be 6, of which 4 are to be given to the business and vocational subjects and to civics. Since the remaining 2 hours are hardly sufficient for drawing, we prefer to assign 3 hours to this

branch. This would give us 7 hours per week as the minimum for handling the necessary subjects of instruction. The following is suggested as a proper division of time among the subjects during the 6 semesters of the average apprenticeship:

Hours given to various subjects.

| Semesters. | Business, composition, reading. | Trade arithmetic. | Book-keeping. | Civics (Vaterlandskunde) | Technological subjects. | Drawing. | Total hours per week. |
|------------------|---------------------------------|-------------------|---------------|--------------------------|-------------------------|----------|-----------------------|
| 1..... | 2 | 2 | | | | | 7 |
| 2..... | 2 | 2 | | | | 3 | 7 |
| 3..... | 2 | 2 | | | | 3 | 7 |
| 4..... | 1 | 1 | 1 | | | 3 | 7 |
| 5..... | | | 1 | 1 | 2 | 3 | 7 |
| 6..... | | | 1 | 1 | 2 | 3 | 7 |
| Total hours..... | 140 | 140 | 60 | 60 | 80 | 360 | 840 |

We feel that the subject of drawing is overemphasized in the above schedule. It would perhaps be better for most trades to reduce the number of hours in this subject to two hours during the first four semesters and to substitute for the third hour a special technological subject, such as applied natural science or the study of materials and tools.

The subject of technology is most neglected with us. I have assigned to this subject two hours per week throughout the third year, and this is by no means too much. Our future handworkers and laborers should know the "why" of the operations in the workshop. Physical and chemical reactions upon which they come so frequently in their activities should be clear to them and they should also recognize that their tools, appliances, and machines are designed and built according to fixed physical laws. They should also have knowledge concerning the origin and production of the materials with which they work and should learn to distinguish good and bad qualities. Besides the direct benefit which the subject has for the pupil, the connection brought about by it between the school and the workshop is especially important. For the civic subjects one hour per week is allowed during each of the last three semesters. If in addition to the history, geography, and government of Switzerland we should include under this subject needed instruction in industrial conditions, in commerce and trade, and in economic relations, the assignment of time is far too meager rather than too generous.

For bookkeeping and accounts we have assigned the same number of hours as for the civic subjects. About this subject, however, there is the widest difference of opinion. There are teachers, masters, and tradespeople who regard bookkeeping as the most important branch, and who would give the subject one or two hours per week throughout the entire course. Others who are more conservative hold that the pupils are not mature enough for bookkeeping proper. There are even influential authorities who would not include bookkeeping among the subjects of the continuation school, on the ground that it is too remote from the interests of the pupils, has no connection with their practical life, and would not be understood. On the contrary, we are told how important bookkeeping is for the handworker and what losses ensue when he is not able to keep his books correctly or when he makes false estimates. Moreover, we can not afford to wait for maturity before taking up this subject. The school must lay the foundation upon which the worker may build later. The exercises assigned should naturally be as short and simple as possible. It will be noted that in the schedule recommended we have placed technology, civics, and bookkeeping in the second half of the apprenticeship periods. The pupils are here more mature and possess considerable experience in other trades.

For trade arithmetic and business composition, next to drawing, we have recommended the highest number of hours—two hours per week during the first three semesters and one hour per week during the fourth semester. Most of our pupils, especially the apprentices, come from the common schools and have never attended the secondary or Realschule. The statistics of the examination commission of the Swiss trade union for the year 1910 show that from 5,893 apprentices examined that year only 2,040, or 34 per cent, had ever attended a middle school. Careful drill in the preparation of written exercises and in arithmetic is necessary to the success of our pupils. In order to make them reasonably independent in these particulars much constant drill is necessary. Even with two hours per week the results are none too promising.

The recommendation of seven hours per week is in line with the established custom in the better schools of Germany and Austria. In Switzerland comparatively few schools have as yet passed the maximum of six hours per week. In most of the Swiss schools also there is a tendency to exaggerate the importance of drawing by giving the subject an undue number of hours and to minimize the value of the business side of the trade instruction.

THE TIME FOR THE INSTRUCTION.

According to the directions of the Swiss Department of Industry, the obligatory subjects must be offered on work days and before 8 o'clock in the evening. The administration of the schools, as far as this provision is concerned, is far from satisfactory. Of the 38 schools in Canton Zurich, 15 continue until 9 o'clock in the evening, 4 until 8.30, 14 until 8, and 5 until 7. Eleven schools still offer Sunday instruction. While these conditions are still unsatisfactory, there has been a marked improvement since the apprentice law came into operation. Sunday instruction has in this period decreased from 13 to 4 per cent of the whole. In Canton Berne Sunday instruction is allowed in exceptional cases, but this Canton is now without Sunday classes. Of the 47 continuation schools in this Canton, outside of the city of Berne, 27 continue until 9.30 in the evening, 16 close at 9 o'clock, 2 at 8 o'clock, and 4 at 7 o'clock. Of the 31 schools in St. Gallen, 8 offer Sunday instruction. Fifteen of these hold until 9 o'clock in the evening, 1 until 8.30, 13 to 8, and 2 close before 8.

WHAT TIME SHOULD BE CHOSEN FOR THE SESSION OF THE TRADE CONTINUATION SCHOOL?

Formerly these schools were called "Evening schools" or "Sunday schools," which terms indicate that the convenience of the master rather than the welfare of the pupil or the demands of pedagogy received chief consideration in the selection of the hour.

The late evening hours are to be avoided, because the pupils at this time of day are tired from the day's work, and, too, because on the way home after school, under cover of darkness, there is danger that they may fall into mischief. The afternoon hours from 1 to 4, or from 2 to 5, are favorable. At this time the pupils are capable of mental work and susceptible to mental impressions. The masters, however, do not usually look with favor on this arrangement. It takes the apprentice away from his work in the busiest part of the day, and it is not possible to get much work from him during the brief time remaining after the close of school. In many schools the entire afternoon from 1 to 7 is utilized for the continuation school. This gives three hours for drawing and after recess two hours for instruction in the other subjects. Two additional hours another evening from 5 to 7 will give us the seven hours per week which we have decided is necessary. The afternoon hours between 4.30 and 7.30 are also favorable. This takes the pupil from the shop at the close of the work day and is more agreeable to the master. The pupil is not yet dead tired and can still do good mental work. Then, too, there is the consideration that the schoolhouse is now unoccupied by the day school and that the teachers may be employed for instruction in the nontechnical studies without conflict with their other duties.

Sunday instruction undesirable.—Sunday forenoon is not suited for the session of the continuation school, but since the school does not this time come into conflict with the workshop, Sunday instruction is in high favor with the masters. The teaching force, both for the technical and the nontechnical subjects, is easily secured at this time. The pupils are clean and mentally fresh. On the other hand there are many objections to Sunday instruction. In the first place it interferes with the church service. And too, the preliminary military instruction, the junior shooting practice, the athletic associations, and the religious festivals make this time undesirable. It is not that the continuation schools constitute a desecration of the Sabbath, for mental work is not forbidden, else the churches themselves would have to close. Nevertheless, unpleasant conflicts arise which we should seek to avoid. Attempts have been made to correct the difficulty by suspending the instruction during the church service or by allowing the pupils one morning per month for attending church. But all this disturbs an orderly course of instruction and contributes to irregularity of attendance. The military drill, as a rule, takes place on Sunday, usually during the forenoon. The young people who like to take part in these exercises will be hard to bring into the school, and it is a question whether or not a pupil can be punished for absence from school on Sunday. During recent years opportunity has been offered to our youth to practice shooting in the military shooting clubs. The ammunition for this club is furnished free of cost. We find that this opportunity is usually seized with great eagerness and that it will prove another point of conflict with Sunday instruction in the trade schools. The athletic clubs to which many pupils belong hold their drills on Sunday forenoon, or perhaps they have an excursion or a picnic at this time. Should we forbid this physical recreation on this day and shut the pupil in the schoolroom? But another reason, and the weightiest of all, demands the abandonment of all Sunday instruction in the continuation school. Sunday should be a day of rest for the apprentice. This is all the more necessary since he is in the period of most rapid physical and mental development. To shorten the period of rest of our young workers does not contribute to the physical and mental development of our people nor to the efficiency of the individual himself. Sunday should be what its name indicates—a day filled with sunshine and the joy of living. From the standpoint of family education we should prefer also that the members of the family who during the week have caught only fleeting glimpses of each other should enjoy the family circle undisturbed on Sunday. For the sake of other instruction we should not withdraw the youth from the educative influence of the family, which is the strongest on this day.

ORGANIZATION OF THE SCHOOL.

The class should be organized wherever possible with the vocation as the unit. Either the pupils of a single trade should constitute a class, or, where this is not possible, pupils of related trades should be grouped together. In large cities where it is necessary to form parallel classes, it is recommended that the division be made in accordance with the abilities of the pupils. One prerequisite for profitable instruction is that the classes should not contain elements of widely varying ability. It is always deplorable when bright pupils are compelled to mark time in instruction which the weaker members of the class are not able to follow. It is of course to be expected that pupils will not exhibit the same ability in all subjects, and the arrangement of classes should be made accordingly.

In the formation of classes we can proceed in two different ways. We can divide the pupils according to the materials with which they work or according to the products which are produced. According to the first method of procedure, we would have schools composed of workers in metal, wood, stone, textile materials (*Stoffarbeiter*), etc.:

- a. Metal workers (blacksmiths, tanners, plumbers, etc.).
- b. Wood workers (cabinetmakers, carpenters, wheelwrights, cooper).

- c. Stone workers (brick layers, stone masons).
- d. Fabric workers (tailors, shoemakers, saddlers).

According to the second method of procedure we would have:

- a. Workers in the building trades (masons, stonecutters, carpenters, locksmiths, cabinetmakers, plumbers, glaziers, painters, paper hangers).
- b. Workers in clothing trades (tailors, shoemakers).
- c. Workers with food products (bakers, cooks, waiters).
- d. Workers in the printing trades (pressmen, typesetters, linotype operators, bookbinders).

Governed by conditions, we will form our classes in accordance with one or the other of these principles. Circumstances will often make it necessary to assign apprentices to classes where they really do not belong. In the country, where it is possible to have two groups, it is usually best to divide into "metal workers" and "workers in the building trades." Representatives of other occupations may be assigned so as to make the two divisions about equal in numbers. Since a class made up from miscellaneous trades imposes a more difficult task in instruction, it should be as small as conditions will warrant. In order to secure a satisfactory grouping of pupils, the total number should be as large as possible. It is therefore advisable not to have many small schools, but to consolidate the districts within a radius of 3 or 4 miles so that the trade continuation schools may be at least 6 miles apart. An additional advantage in such consolidation is the fact that the combined school may be more easily provided with the necessary models and working equipment.

Overcrowded classes handicap the instruction and make discipline difficult. In drawing and other vocational subjects the division of the class into two parts is to be recommended as soon as it includes more than 30 pupils. The division should be made according to vocation or according to the ability of the pupils. The organization of a class with less than 5 pupils is, as a rule, inadvisable. Even in the theoretical subjects the number of pupils should never exceed 30. The more often and the longer the individual is called into activity, the greater will be the benefits of the instruction for him. This is especially true in business correspondence, reading, and arithmetic. Even in bookkeeping, especially in mixed classes, the pupils should not merely write, but should be able at any time to give an account of their work. In civics the most intense interest is awakened when there is opportunity for exchange of opinion between pupil and teacher. We refer especially to the discussion of political questions of the day, such as a pending referendum or an election. This is difficult when the class exceeds 30.

METHODS OF INSTRUCTION.

It may seem superfluous to speak about methods of instruction in the continuation schools or to give advice along this line, but experience has taught that mistakes in method in these schools are more common than one would think possible. We must continually bear in mind that the pupils are no longer children and we must free ourselves from methods which were adapted to the primary or secondary school, but which are not suited to grown men. He who would handle the continuation pupil with success must know his mental makeup. He has reached the adolescent period in his development and his intellectual growth is fairly typified by the rapid physical changes through which he is passing. He has reached the age of self-consciousness and self-assertion, and this sometimes expresses itself in pranks and rudeness. The individual pupil is usually tame enough, but he becomes unmanageable when surrounded by his companions before whom he would appear as a strong man and a hero. With these peculiarities we must reckon. In the school the tone in which one speaks to the pupils is of great importance. Young people are more easily led through their feelings than through their reason. The tone of many teachers is too harsh. The teacher should not see in every smile of his pupils and in every incivility a revolt against his authority which must be brought to strict account. While obedience in

the child must sometimes be brought about by force, we must accustom the adolescent youth to self-reliance and self-control.

The language of the teacher should be simple and easily understood. He should, however, not forget himself and descend to the level of the pupil in his language or speak his dialect. Purity of speech is to be demanded of the teacher in every subject, for this is a part of the language work.

Nothing is so well calculated to further success in the instruction as thorough conscientious preparation by the teacher for the lesson period. He should not only have complete mastery of the material to be presented at the next recitation, but he should also have a clear conception of the entire range of instruction for the semester. Only in this way can he correlate his work and reach a definite end. The feeling that the teacher is master of his subject inspires respect and attention and is conducive to good discipline.

This maintenance of discipline is one of the points of difficulty in the continuation school. It requires that the subjects taught may be made interesting and that the teacher convince the pupils that he is really interested in their individual welfare. One method of coming into closer contact with the pupil is to visit the workshop where he is employed. Visits to the school by the master and the members of the board are also of great assistance in the maintenance of discipline.

External conditions, such as the schoolhouse, the seating, the lighting, and the equipment, also play an important rôle in discipline. A poorly equipped and poorly arranged schoolhouse, an uncomfortable seating, lack of order in the arrangement of the material and in the conduct of the work tend to disorder in the pupils. Nothing is more conducive to poor discipline than irregular school attendance. A pupil who is often absent can not follow the instruction properly and becomes inattentive and disorderly. In addition he sets a bad example to others. The teacher should require a strict accounting for absence and should not accept an excuse without close scrutiny. Unless the excuse for absence is rendered beforehand, the teacher should inform the master of the absence at the end of the recitation period.

TEACHING MATERIAL—TEXTBOOKS.

Shall we place textbooks in the hands of pupils? Mehner has said: "For instruction in German and bookkeeping there is no serviceable text or equipment save the blackboard. Even in arithmetic and in geometry we need only a little apparatus and a few models with which to illustrate the metric system and the properties of geometric forms." In the schools of Munich no individual textbook is used in business correspondence, in arithmetic, geometry, or bookkeeping. In hygiene and civics only is a book used. For reading, small classics may be used. In the treatment of the special knowledge relating to the various trades, the teacher will hardly be able to use a textbook. He can write the general exercises on the blackboard. Where a mixed class must receive instruction at the same time, the teacher will be compelled to make a collection of special exercises in order to meet the needs of each trade. In arithmetic, for example, we may have a class of 30 pupils representing 10 different trades. We should give to each exercises suited to his needs. We should, of course, be unable to write all of these exercises on the blackboard, and we will accomplish our purpose best if we have at hand a good selection of classified exercises which we can place in the hands of the pupils. In bookkeeping a collection of printed exercises representing as many trades as possible is of great advantage. It is best if each pupil works on an exercise related to his own trade. The blacksmith could, to be sure, learn bookkeeping if he handled an exercise designed for a carpenter, but he undoubtedly would have more pleasure and more interest in the work if it related to his own trade.

Instruction in the special knowledge relating to the various trades (Berufskunde) demands a rich store of material for demonstration and for supplementing the spoken work. It will usually not be necessary to incur great expense in providing this material. Raw materials for the most part can be procured at home. A diplomatic

approach will secure much as gifts from the workshop and factory owners, and such material is usually more interesting than that which is purchased. The individual objects of the purchased school collection are usually too small for one to see much in them. Besides, in this manner we get only sound material, and it is just as necessary to show the apprentice that which is defective. This we will secure most easily from the workshop and the master. Material brought by the pupils themselves serves the purpose better and is not something strange or made in a special manner, but is natural. Then, too, this method of procuring the material interests the masters. It shows them that the school is not merely theoretical, but that it is working with the real objects of everyday life. The apprentices like to bring this material to school, and in this way we form the union between the school and the workshop.

For exhibiting the products made from raw material and their method of production, we may use charts, blackboard drawings, or sketches made by the teacher on large sheets of paper. The last method possesses the advantage that the drawings may be kept for use later in the course or in succeeding years. In the discussion concerning the treatment of raw material we should have at hand the principal tools, apparatus for explaining the principles involved, and good illustrative pictures. Instruction in physics should not be conducted without experiments. It is advisable that the pupils themselves be allowed to make these experiments.

Connected with every trade-continuation school should be special libraries for teacher and pupils. The teacher must continually supplement his knowledge by private study. He can not buy for himself the necessary books and literature, and the school library should contain for his use the necessary technical books which he needs in the preparation for his work. No continuation school should be without a library of books and periodicals for young people. The simple works of our poets and authors, books of travel, especially those which give an insight into the economic conditions which concern the worker, stories from the lives of famous leaders of industry, sketches from history which will strengthen the patriotism of the pupil, a simple presentation of the facts of hygiene, and special books relating to the trades and the development of industry.

The limits of this report will not permit further excerpts from this valuable work. Mr. Biefer, after further details relating to the organization of the school, treats in an exhaustive manner the course of study in the various subjects of instruction. He gives a chapter on "Business correspondence and reading," suggesting composition subjects and letters which will arouse the special interest of pupils preparing for the different trades. His chapter on "Vaterlandskunde" presents the essential facts about the history, geography, and government of Switzerland in a form to be readily used by the teacher. The chapter on "Trade arithmetic" outlines a course of study for each of the trades and contains a collection of special exercises adapted to 51 different trades. There are special chapters on "Bookkeeping" and "Drawing" illustrating the methods of adapting the work in these subjects to mixed classes and various trades. The book entitled "Methodik des Unterrichts an Gewerblichen Fortbildungsschulen unter besonderer Berücksichtigung schweizerischer Verhältnisse," by J. Biefer, may be obtained from the Art Institut Orell Füssli, Zurich.¹

¹ The author of this report makes grateful acknowledgment to Inspector Biefer for his kind permission to use his helpful book.

**COURSE OF STUDY FOR THE GERMAN PRIMARY SCHOOLS OF
THE CANTON BERNE.**

A. LOWER DIVISION.

I. RELIGION.

Biblical stories, suitable to the understanding of the children; easy verses and proverbs.

Biblical religious instruction is to be prepared for and reinforced by other stories of ethical and religious character suited to this age.

II. LANGUAGE.

(a) Observational study.

Observation and discussion of objects within the child's sphere of observation in school, house, and neighborhood (such as objects in the schoolroom and in the home; plants and animals; house, garden, meadow, forest, village, city; occupations of man); everything as far as possible with real objects; otherwise with the aid of good pictures. Appropriate stories from child life in connection with the objects discussed.

(b) Reading and writing.

First year: Preliminary practice and reading of handwriting; reading aloud, first of single words, then of short sentences in script; correct formation of letters; copying, and writing words and sentences dictated.

Second year: Introduction of print. Reading of simple descriptions from the object lessons; writing of simple sentences from them. Exercises to impress word-pictures.

Third year: Reading of connected descriptions from object-lesson material and the child's sphere of life; occasional practice in reading entirely new matter. Writing short descriptions from object lessons. Spelling.

NOTE.—In all three years there is to be constant practice in speaking, first in dialect, gradually proceeding from this to the literary language.

(c) Arithmetic.

First year: Introduction to numbers as far as 10; adding and subtracting of unity; reduction, equating and grouping of numbers; adding and subtracting of more than 1; multiplying, dividing, and measuring, all with actual things—spheres, sticks, beans, buttons, pebbles, nuts, etc.

Second year: In the same way arithmetic up to 50.

Third year: Through 100. Practice in multiplication.

NOTE.—In all three school years examples are to be given continually from the child's experience.

(d) Drawing.

In connection with observational study, practice in conceptions of form, size, position, and direction of objects, and elementary attempts to reproduce them with slate or lead pencil (no systematic drawing).

(e) Singing.

Attractive child's songs, in limited tone range; exercises in hearing, voice cultivation, rhythm, and easy exercises in beating time; in the third year reading of notes.

(f) Physical training.

Gymnastic games.

A useful distinction is drawn between the two division processes, *ziehen* and *massen*.

B. INTERMEDIATE DIVISION.

I. RELIGION.

Suitable stories from the Old and New Testaments, together with material from history and from life; committing to memory verses from the Bible and from hymns, with a view to expressing the basic thoughts of the stories treated in clear and beautiful form.

II. INSTRUCTION IN EXACT SCIENCES.

(a) Education for citizenship.

Fourth year: Instruction in direction, air, water, bodies of water, land formation, and development of land forms; buildings, population, transportation, and methods of transportation; pictures from the past of the home community.

Fifth year: Continuation of local geography; introduction to map study; geography of the Canton Berne, and episodes from its history.

Sixth year: Geography and history of the Federation, with particular regard to the neighboring States.

(b) Nature study.

In direct connection with local and general geography: Pictures from plant and animal life, in house, field, and forest; description of minerals; drawing continued in connection with science instruction, as in the lower division.

III. LANGUAGE.

(a) Continued practice in connected oral description of the material treated.

(b) Reading aloud and by sense, with the necessary explanations of language and content; concept reading; committing to memory of brief extracts from poetry and prose.

(c) In connection with the nature study and the reading subjects treated, gradually more independent composition, consisting of stories and descriptions; then, as occasion offers, personal experiences, and observations, in which the letter form is to be given special attention.

(d) Orthographic and grammatical instruction and practice in connection with the language subjects treated and the written work of the students (syllabication and accent), distinguishing between the most important parts of speech, capitalization, number, gender, tense, case.

IV. ARITHMETIC.

Fourth year: Numbers to the thousands; fundamental practice in the four processes; introduction to the study of coins and metric measures in common use, so far as possible with practical applications.

Fifth year: Numbers to tens of thousands; introduction to common fractions and decimals in simplest form, $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{10}$ and $\frac{1}{100}$, with special reference to coins, periods of time, and other measures.

Sixth year: Selected numbers; further practice in fractions and decimals; special attention to $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$; decimal units to 0.0001; measuring and estimating of square, rectangle, and triangle; measures of surfaces, square meter, arc, hectare, square dekameter.

Rules for all three school years: Oral and written arithmetic go hand in hand and should be given equal attention. Concrete applications are to form the basis of instruction.

V. WRITING.

Preliminary exercises for the formation of finger and hand strokes in the elements of writing. Exercises: German and English writing, together with Arabic numbers. Lessons not longer than half an hour.

VI. DRAWING.

Conception and representation of straight and curved lines and their relations in simple outlines and figures based on the observation of real objects, such as leaf and plant forms; application in simple ornaments.

VII. SINGING.

Exercises in voice cultivation, tone discrimination, rhythm, time, and note reading in connection with songs, with a range of about one octave; singing, usually one-part songs; a number of songs to be learned by heart.

VIII. PHYSICAL TRAINING.

Material according to the directions of the gymnastic program for the Canton Berne and the Federal gymnastic school.

UPPER DIVISION.

I. RELIGION.

Episodes from the Old Testament; life and works of Christ; appropriate passages from the Gospels and the Acts of the Apostles, together with appropriate material from history and from life; miracles; ecclesiastical institutions in public life; committing to memory of Bible verses and hymns.

II. INSTRUCTION IN SCIENCE.

(a) Geography.

First course: Geography of the Confederation of Thirteen.

Second course: Continuation of Swiss geography.

Third course: Switzerland in survey. Under favorable conditions, instruction about the most important nations of Europe and foreign countries.

(b) History.

Continuation of Swiss history in connection with selected episodes from general history down to the present.

First course: Historical events from the pre-Federation period; history of the Federation of Thirteen.

Second course: From the time of the Reformation down to the French Revolution.

Third course: Most recent period from the Helvetia movement to the present, and review of Swiss history.

(c) Natural science.

Introduction to the relation of the subjects that are important for practical life, in which the teacher is to have local needs especially in mind.

First course: (a) Detailed development, structure, and nutrition of plants, with special regard to cultivated plants. (b) Phenomena from mechanics: Pendulum, lever, barometer, suction pump and force pump, fire engine.

Second course: (a) Most important phenomena from the animal life of the locality and of foreign lands. (b) Heat, sound, light, and electricity.

Third course: (a) Minerals, with reference to agriculture and the formation of humus. The most important metals; how they are mined, and their applications in industry. (b) Structure and care of the human body.

III. LANGUAGE.

The same exercises as in the intermediate division, but with increased demands.

The themes for composition are to be more varied and should make greater demands on the thought of the student, but care should be taken that they do not exceed his power of comprehension. The letter-writing in the intermediate division should be extended to include correspondence and business composition.

Emphasis is to be laid upon clear, correct, and pleasing presentation. Compositions are, as a rule, to be written in school.

Grammatical instruction and exercises are to be introduced in the other language instruction.

IV. ARITHMETIC.

Seventh year: Continued practice in fractions and decimals in simple forms; cubic measure and weight; measurement and calculation of contents of regular prisms; the more simple methods of business arithmetic; miscellaneous examples.

Eighth year: Comprehensive treatment of fractions and decimals, limited to cases of actual occurrence; practical applications; continuation of measurements of surface and solids (trapezium, trapezoid, prismatic solids, etc.); business arithmetic, especially percentage; miscellaneous examples.

Ninth year: Final course. Examples from the various divisions of business arithmetic; more difficult calculations in surface and cubic measurement (polygons, circle, cylinder); numerous miscellaneous examples.

Rules for all three school years: Oral and written arithmetic go hand in hand and are to be practiced equally.

V. WRITING.

(Continuation of the preliminary exercises for the development of finger and wrist movements in the elements of penmanship. (Only a few minutes to each.)

Exercises: Writing German and English script, together with Arabic figures. (Only half-hour lessons.)

Instruction and exercises in bookkeeping, limited to the most simple and necessary features.

VI. DRAWING.

In direct connection with instruction in the sciences. Systematic drawing; development of simple straight and broken line artistic forms, with or without color; the point of instruction to be so far as possible an actual object; then drawings on the blackboard. Under favorable conditions mechanical drawing for the boys.

VII. SINGING.

Continued exercises in voice cultivation, tone discrimination, time, and reading; application in appropriate one, two, and three part songs, with some consideration to choral work. Some songs are to be committed to memory.

VIII. PHYSICAL TRAINING.

The prescribed and voluntary exercises are to be limited to the most necessary ones; on the other hand, the apparatus work, the motion exercises, and the applied gymnastics are to be developed further; in accordance with the directions in the gymnastic program arranged for the Canton Berne and the Federal gymnastic school.

Weekly program of hours in lower division.¹

| Subjects. | Summer (14 weeks of 18 hours each). | Winter (20 weeks of 27 hours each). |
|---|--|--|
| | <i>Half hours.</i> | <i>Half hours.</i> |
| Religion..... | 4 | 6 |
| Observational study, including drawing..... | 8 | 16 |
| Reading and writing..... | 10 | 16 |
| Arithmetic..... | 8 | 12 |
| Singing..... | 4 | 4 |
| Physical training..... | 4 | |
| Total hours..... | 18 | 27 |

¹ Since the school law grants to the communities considerable latitude in regard to distribution of the school time, definite rules with regard to the distribution of the hours of the week can not be given. Care must always be taken, however, that where the weekly program of hours does not agree with what is usually expected in the distribution of lessons among the individual subjects, a relation should be attained such as is here provided. According to section 60 of the primary school law, the manual work of the girls is to be included in the weekly total of hours. It is accordingly not permitted that the girls on account of manual work shall be compelled to take more lessons than the boys.

Weekly program of hours.
IN INTERMEDIATE DIVISION.

| Subjects. | Summer (14 weeks of 20 hours each). | Winter (21 weeks of 30 hours each). |
|-----------------------------|--|--|
| | <i>Hours.</i> | <i>Hours.</i> |
| Religion..... | 2 | 3 |
| Science..... | 4 | 8 |
| Language..... | 4 | 6 |
| Arithmetic..... | 4 | 6 |
| Writing (2 half hours)..... | 1 | 1 |
| Drawing..... | 1 | 2 |
| Singing..... | 2 | 2 |
| Physical training..... | 2 | 2 |
| Total..... | 20 | 30 |

IN UPPER DIVISION.

| | | |
|-----------------------------|----|----|
| Religion..... | 2 | 3 |
| Science..... | 5 | 7 |
| Language..... | 4 | 7 |
| Arithmetic..... | 4 | 6 |
| Writing (2 half hours)..... | 1 | 1 |
| Drawing..... | 1 | 2 |
| Singing..... | 1 | 2 |
| Physical training..... | 2 | 2 |
| Total..... | 30 | 30 |

Notes to the foregoing program.

1. The work is only described in a general way in order that the desired latitude may be given to the teaching force and to the local authorities to adapt their work to local conditions. Details are given in the compulsory textbooks which will suffice as an indication of the use of further material from life and from literature designed for young people.

2. Under this plan the teachers of the school working together are to work out a special plan for all the subjects of instruction and submit it to the school commission and the school inspector. In this special plan the purposes of the courses and the most important of the materials chosen for treatment (the latter in tabular form) are to be presented. Large municipalities with several school districts and school commissions may make special plans for their schools. Wherever the eight-year school period is introduced, these special plans must have the approval of the school inspector.

3. Lessons in the lower division shall as a rule not last longer than half an hour, and in the other divisions not more than three-quarters of an hour. After every hour of instruction the recess prescribed by law shall be maintained. This shall count as part of the school time.

4. Excursions which are undertaken with school classes or divisions of such, for the purpose of instruction in the natural sciences or local geography, shall count as actual school time.

5. Language instruction is to be fostered in branches that are not of technical nature.

6. It is the duty of the teaching force to bring the individual subjects of instruction into that closer connection which corresponds to their nature and which the unity of the educational purpose demands.

7. For singing instruction the authorities usually designate a selection of six to eight songs, which are prescribed for all schools of the Canton, to be learned by heart.

8. The teacher is to work out a program of lessons, have it certified by the school commission and hung up in her room.

9. With regard to sewing, teachers will follow the law on the subject, the regulations, and the accompanying directions.

10. Wherever manual training is introduced according to section 25, number 7, of the law, a special plan is to be arranged therefor.

EXTRA WORK FOR THE EXTENDED UPPER DIVISION.

(A special class sometimes organized where pupils have not access to a sekundarschule.)

I. INSTRUCTION IN SCIENCE.

(a) Geography.

The most important countries of Europe; fundamental conception of mathematical geography; most important civilized foreign nations: (for boys) introduction to topographic map work.

(b) History.

Swiss history from Burgundian wars down to the present, together with such events of world history as are of special significance for the development of the Swiss nation. In connection with history and geography, elementary civics.

(c) Natural science.

To be added to the work assigned previously: Fundamental principles of chemistry and mineralogy in so far as they are necessary for the elementary understanding of the important processes in home making, home arts, and agriculture.

II. FRENCH.

(a) Speaking, reading, and writing in simple forms of speech and in the sphere of children's observation and experience.

(b) Elementary grammar, including conjugation of the most frequently occurring irregular verbs.

(c) Committing to memory simple extracts.

III. ARITHMETIC.

Mensuration, drawing, and computation of plane surfaces; measurement of bodies, including prism, sphere, cone, logs, casks (optional for girls).

IV. DRAWING.

Ornamentation; technical drawing compulsory for boys.

Paragraphs 71 to 75 of the school law.

**PROGRAM OF STUDIES OF BOYS' SECONDARY SCHOOL,
BERNE.**

[Entrance to this school is optional on examination after completion of fourth year of the primary school.]

PROGRAM OF STUDIES.

I. RELIGION.

V Class (fifth school year).

Old Testament in group treatment, with the omission of the best known and most difficult passages, to the restoration of the Kingdom of Judah.

IV Class.

Completion of the Old Testament and selections from certain designated parts of the New Testament.

III Class.

The more difficult passages from the parts previously treated, together with consideration of the matter already treated when necessary for the context.

II Class.

Section VI of the Child's Bible, and parts of Section VII not previously treated in history.

NOTE.—The geographical concept is to be developed from the fifth class on, in direct connection with the subject matter treated.

II. GERMAN.

Selection of methods for the attainment of readiness in speech is left to the teacher's discretion. Grammar shall in no case serve as an examination subject.

As a practice book Hilary's "Exercises in Orthography, Words, and Sentences" is recommended.

III. FRENCH.

V Class.

Introduction to writing and pronunciation; frequent reading exercises; conjugation of *avoir* and *être*, omitting the subjunctive, and frequent oral and written practice in simple sentence structure. The present indicative and imperative of verbs, in-*er*. Oral and written translation from French into German, and memory drill on the subject matter, as well as on the words occurring in the passages. In the first course, skill in reading shall be particularly fostered.

IV Class.

The regular conjugation in all four forms, orally and in writing, omitting the subjunctive and the rules of the past participle. Continued practice in oral and written translation, as in the first year. Careful drill in subject matter and vocabulary. In the first and second course translations from the mother tongue into French are to be required only occasionally.

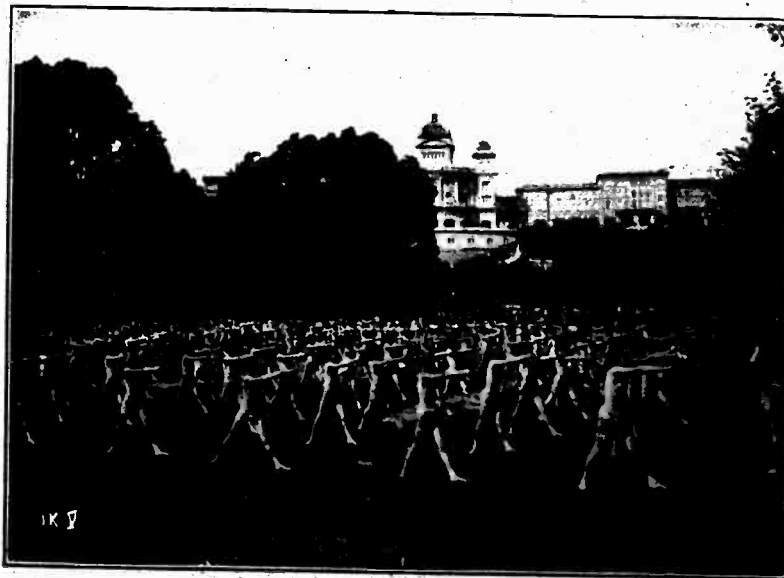
III Class.

Word formation; subjunctive; past participle. Beginning of conjugation of irregular verbs. Continued practice in oral and in written translation. Drill on vocabulary. Oral exercises. Memorizing of certain easy passages.



A. EDUCATION FOR CITIZENSHIP. ELECTORAL LIST POSTED IN A PUBLIC PLACE, GENEVA.

Note the appeal to civic pride; "These electoral lists are intrusted to the protection of the citizens."



B. GYMNASTIC DRILL ON THE PLAYGROUND AT BERNE AFTER SWIMMING PRACTICE IN THE RIVER.

Swimming is compulsory for both boys and girls in the secondary schools.

II Class.

Continuation of the irregular verbs; oral and written exercises on the subject matter treated; continued reading; practice in speaking.

I Class.

Completing conjugation, with the rest of the study of forms; reading and conversation; recitations; continued written exercises.

NOTE.—The instruction at all stages is to be given as far as possible in French.

IV. ENGLISH.

II Class.

Pronunciation and reading; forms; practice in oral and written expression; dictation; memory work.

I Class.

Continuation of the work of the first year; elements of the language; reading letters.

V. ITALIAN.

II Class.

Reading; pronunciation; forms; oral and written exercises; memory work.

I Class.

Continuation of the work of the first year; drilling on syntax.

VI. MATHEMATICS.

Arithmetic.

V Class.

The four fundamental processes with larger numbers; instruction on the more usual coins and measures; applications, the line.

IV Class.

The metric system, with the exception of cubic measure; common fractions; applications.

III Class.

The metric system; decimals; simple examples in percentage and interest; proportion.

II Class.

Percentage, interest, and exchange; calculation of discount.

I Class.

Foreign measures and coins; English money; alligation; exchange; simple and compound interest.

NOTE.—In all grades special attention should be given to oral arithmetic with small numbers or simple relations.

Geometry.

III Class.

Superficial and cubic measurements. Square, triangle, circle, cube, parallelepiped, prisms, cylinder, dividing the angle.

II Class.

Most important theorems from plane geometry as far as similar figures. Construction problems. Review of material of the third class. Arithmetical application of conclusions reached by proof found in geometry.

I Class.

Finish plane geometry. Most important topics of solid geometry. Pyramids, spheres, truncated cones, truncated prisms. Applications.

ALGEBRA.

II Class.

The four fundamental processes, with literal quantities. Application to business arithmetic and geometry. Square root.

I Class.

Equations of the first and second degree, with one unknown quantity. Applications.

VII. NATURAL SCIENCE.

III Class.

Summer: Botany.
Winter: Zoology.

II Class.

Natural history: Botany and zoology.
Physics: The fundamentals of solids, fluids, and gases; heat.

I Class.

Essentials of chemistry in connection with the basic principles of mineralogy. Main principles of sound, light, magnetism, and electricity. Review and further development of hygiene.

VIII. HISTORY.

V Class.

Topics of ancient history, especially Greek and Roman.

IV Class.

Topics from the middle ages down to the age of inventions and discoveries.

III Class.

Swiss history to the Reformation; with reference to general history.

II Class.

General history from the Reformation down to the French Revolution, with special reference to Switzerland.

I Class.

General history from the French Revolution down to the present, with special emphasis upon Swiss history.

IX. GEOGRAPHY.

V Class.

Geography of the Canton Berne.

IV Class.

European nations and peoples.

III Class.

Lands and peoples of the world outside of Europe, with special reference to countries of economic importance.

II Class.

Switzerland.

I Class.

Main principles of mathematic geography. Review of Switzerland.

X. DRAWING.

(A) *Freehand drawing.*

V Class.

Conception and representation of elementary forms from nature; sketches; drawing from memory; color work.

IV Class.

Continuation of the previous work, with more difficult forms; easy exercises in ornamentation; brush drawing; exercises in sketching; drawing from memory.

III Class.

Studies of objects; projection of form and color; drawing and painting of plants from nature in simple and more conventionalized reproduction; exercises in sketching; drawing from memory.

II Class.

Plant and fruit studies in various technique; applications; studies of solids (perspectives); sketches; drawing from memory.

I Class.

Studies of plants; natural and conventionalized applications; studies of solids; still life; outdoor drawing; animals and men; drawing from memory; sketches.

(B) *Geometric drawing.*

II Class.

Brush work; geometrical ornamentation, with easy exercises.

I Class.

Projection (plan, elevation, and section). Measurement of real objects and drawing to scale.

XI. WRITING AND BOOKKEEPING.

(a) Writing.

V-II Classes.

German and French handwriting. (b) Bookkeeping.

I Class.

Simple bookkeeping, with special emphasis on commercial bookkeeping. In addition, computation of book accounts.

XII. SINGING.

Based on Jacques-Dalcroze method:

- (a) Metric and rhythmic values. (Kinds of time and value of notes.)
- (b) Scales and their relations.
- (c) Intervals.
- (d) Harmonics.
- (e) The most important rules for shading, intonation, and phrasing; their application to songs.
- (f) Voice and tone cultivation.

XIII. PHYSICAL TRAINING.

All classes.

- (a) Class drills and marches from the gymnastic manual.
- (b) Free movements and wand drills based on the manual. Exercises from Swedish movements and from the Müller system.
- (c) Apparatus exercises adapted to each class. Exercises on the horse, the giant stride, the swinging rings. Exercises with the buck and Swedish apparatus.
- (d) Games—prescribed and voluntary.

XIV. MANUAL TRAINING.

(A) *Instruction in cardboard work.*

I Year.

- (a) Exercises in folding, cutting out, sewing and glueing.
- (b) Simple cardboard work.
- (c) Instruction about tools and materials.

II^d Year.

- (a) More difficult cardboard work.
- (b) Combination of cardboard with ribbons, clasps, and folds.
- (c) Solids in simple forms.
- (d) Making of sketches on the work to be done.

III Year.

- (a) More difficult work with cardboards (mounting on linen).
- (b) Combination of cardboards.
- (c) Work on solids with oblique sections.
- (d) Combination work.
- (e) Sketches of the work to be done.

(B) *Instruction in woodworking.*

Classes IV and III^d

- (a) Explanation of tools and apparatus.
- (b) Exercises in the use of the different saws, planes, chisels, files, etc. Practice pieces.
- (c) Making of useful articles.

NOTE.—The work for the most part will be done in soft wood.

(C) *Physical-chemical "Praktikum."*

Classes II and I.

In order to develop the self-activity and the thought of the students and to guide them into attentive observation, the theoretical instruction in physics and chemistry is to be given organic connection with laboratory work and simple experiments.

THE CITY GYMNASIUM OF BERNE.

I. ORGANIZATION OF THE SCHOOL.

The city Gymnasium in Berne has four divisions: (a) Progymnasium; (b) Commercial School; (c) Realschule; (d) Academy (Literärschule).

(a) The Progymnasium consists of four classes; the normal entrance age for the lowest class is the completed tenth year of age. At the end of the Progymnasium course the students enter one of the three upper divisions—the Commercial School, the Realschule, or the Academy.

(b) The Commercial School consists of four classes; the normal entrance age for the lowest class is the completed fourteenth year of age. The purpose of this school is to prepare its students for commercial callings, for administrative duties, or work in transportation, and at the same time provide them with a good general education. The Cantonal commercial certificate introduced in the year 1900 is considered sufficient for entrance to the University of Berne.

(c) The Realschule consists of five classes, of which the last has a half-year course; the normal entrance age for the lowest class is the completed fourteenth year of age. The Realschule prepares the students for technical callings and for entrance to the technical special schools and universities (for example, the Polytechnikum). It corresponds to what is called in other Cantons the "Industrieschule," and in Germany to the "Oberrealschule."

Pupils are received into the commercial school and into the Realschule for the upper class of the Progymnasium, and boys are also received who have attended with success a good Sekundarschule up to the age of 14 to 15 years.

(d) The Academy consists of five classes, of which the last one has a half-year course; the normal entrance age for the lowest class is the completed fourteenth year of age. The purpose of the academy is to prepare for admission to university studies.

All the subjects are required in all divisions of the city Gymnasium, with the exception of religious instruction, and in the Progymnasium Latin or English, and in the Academy Greek, Hebrew, English, and Italian. In the Realschule, of English and Italian, one only is required. Instruction in practical geometry is elective, and in the commercial school Spanish, typewriting, and singing are elective.

New pupils will be received as a rule only at the beginning of a new school year in spring. Upon entrance every student must show his certificate of birth, and in case he has already attended another school must bring a certificate of that fact, which shall show his ability, his knowledge, his industry, and his deportment.

Admission is contingent upon the result of an examination, to which all candidates must submit. If students who speak a foreign language are candidates for admission, they are required to show that they have a sufficient knowledge of the German language to be able to follow the instruction understandingly. For admission to the lowest class, accomplishment of the work prescribed for the fourth school year in the plan of instruction for primary schools is requisite.

Examinations will be given in German and arithmetic as follows:

I. IN GERMAN.

(a) Reading: Correct and rapid reading of a narrative in German print (dialect excluded) which shall correspond to the ability of a normally gifted child of the prescribed age; comprehension and oral reproduction of the contents.

(b) Composition: Writing a brief suitable narrative which has been read or told twice, or working over an easy description according to a given outline in orderly, neat handwriting and without serious offenses against spelling and punctuation.

¹ The lowest or fourth class of the three higher divisions really belongs to the Progymnasium, and is only united to the higher division for administrative reasons; it corresponds to the highest class, i. e., the fifth school year, of a Progymnasium in Berne, or a completed Sekundarschule.

(c) Grammar: Discriminating between nouns, verbs, and adjectives, and gender, number (singular and plural), tense (present, past, and future).

II.- IN ARITHMETIC.

Accuracy and rapidity in abstract and applied arithmetic; simple examples in the four fundamental processes, orally in numbers up to 1,000, writing in numbers up to 10,000.

For the other classes of the Progymnasium the admission examination shall include German, French, arithmetic, and for classes I a and b, Latin.

For the Realschule: German, French, mathematics, English, or Italian (for class IV English for those students only who are going to continue with English); for the three upper classes physics; and for the two highest classes descriptive geometry and chemistry.

For the commercial school: German, French, English, mathematics; and for classes III to I, Italian and bookkeeping.

For the academy: German, Latin, French, mathematics; and for class III Greek or English or Italian.

The amount of the requirements in the admission tests will be gauged by the amount of the subject to be covered.

Every newly admitted student has to pay a matriculation fee of 5 francs. Upon promotion to a higher class every student has to pay a promotion fee of 2 francs. School fees are not required in the Progymnasium, but only in the upper divisions (60 fr. a year). For each class of these divisions on the average four free scholarships may be granted to worthy indigent students.

Students' trips: During the summer vacations a number of the students of the three upper divisions will go out on trips as a reward for industry and good behavior, under the leadership of the teachers, the cost of which shall be borne from the school travel fund. (Meyer foundation.)

Students who are the children of nonresident parents must upon admission inform the principal as to their boarding place. The school commission is authorized to disapprove unsuitable boarding and rooming places.

II: INSTRUCTION DURING SCHOOL YEAR 1911-12.

PROGYMNASIUM.

CLASS IV A.

Religion: 2 hours. Biblical stories from the Old Testament, up to and including Solomon; appropriate Biblical passages and hymns, together with stories from other sources in the Bible.

German: 6 hours. Covering the numbers from "Schmid's First Reader," together with narrative material from other sources. Themes, dictations, composition, based on stories told or read; translations from the dialect; free composition; exercises with the aid of Dr. O. von Greyerz's "Vorstufe zur Sprachschule."

French: 6 hours. Introduction to French pronunciation and writing; sections I to 20 in Keller's "Cours elementaire de langue française."

Arithmetic: 5 hours. Development of numbers; metric system; coins; measurement of time; resolution and reduction; the four fundamental processes and denominate numbers; applications; analysis.

History: 2 hours. Episodes from Swiss history up to and including the Suabian War.

Geography: 2 hours. Local geography of the Canton Bern.

Drawing: 2 hours. Square and circle, right-angle-triangle, and ellipse; application of these forms; representation of objects from nature.

Writing: 2 hours. Practice in French and German script.

Singing: 2 hours. Knowledge of notes; harmonic scale; time, harmony, and rhythmic exercises; discrimination in tone; one and two part songs.

Physical training: 2 hours. Exercises in prescribed work; voluntary exercises and apparatus; games.

CLASS III A.

Religion: 2 hours. Biblical accounts from the Old Testament from the time of the separation of the Kingdoms; geography of Palestine; biblical stories from the New Testament; hymns and verses learned from the Child's Bible.

German: 6 hours. From "Schmid's First Reader"; memory work, recitation, and reading exercises; grammar; thorough treatment of all kinds of words, especially nouns and verbs (declension and conjugation); exercises in narrative; compositions of narrative and descriptive content; exercises and dictation work in spelling.

French: 6 hours. Material in Roesman and Schmid, Part I, Edition B, Lesson 31-52; dictation and exercises from the material discussed (verbs of all conjugations); memorizing prose and poetry.

Arithmetic: 5 hours. Common fractions and their application; percentage.

History: 2 hours. Episodes from the Middle Ages.

Geography: 2 hours. Switzerland.

Drawing: 2 hours. From nature: Leaves, branches, and fruits; painting with water colors; drawing of simple ornaments from blackboard sketches by the teacher, coloring these with water colors; simple ornamental original designs.

Writing: 2 hours. Practice in (German and especially in-script) French.

Singing: 2 hours. Half tones; introduction into the different tonescales; intervals; rhythmic exercises; one and two part songs.

Physical training: 2 hours. Prescribed and free exercises; exercises on the spring-board, ladder, horizontal ladder, horizontal bars, parallel bars, etc.

CLASS II A.

Religion: The Gospel of St. Mark.

Latin: 6 hours. Study of forms from the Latin School Grammar of Dr. Paul Meyer, fourth edition; exercise book Nos. 1-28; written work.

German: 5 hours. Exercises in reading and writing, with the use of Fischer and Stickelberger's German Reader, Vol. III; themes, especially descriptive and narrative. Grammar: Sentence structure.

French: 5 hours. Exercises 49-76 in Roesman and Schmid's First Book of French; oral exercises; themes based on reading material. Forms: Regular verbs and the most common irregular verbs. Memory work, in accordance with the list on page 295.

Arithmetic: 4 hours. Review of common fractions; decimals and their application to percentage; profit and loss, etc.

History: 2 hours. Ancient.

Geography: 2 hours. Geography of Europe.

Natural history: 2 hours in summer: Description of individual flowering plants; excursions. In winter: Man; treatment of individual animal forms; vertebrates.

Drawing: 2 hours. Modern lettering, with practical applications; forms according to nature—leaves, flowers, fruits, whole plants in colored reproduction; application of plant motives in simple designs for the development of ability in composition; more difficult examples of surface ornamentation; brush drawings, as practice in manual dexterity.

Writing: 1 hour. Practice in round hand (after Soennecken) and the Roman curve writing.

Singing: 1 hour. Scales; melody and rhythm exercises; one, two, and three part songs; one hour choral work as in Class II D.

Physical training: 2 hours. Combination of free-play exercises and wand movements; apparatus; swinging rings action play.

CLASS I A.

- Religion: 1 hour. Apostolic history.
- Latin: 6 hours. Nos. 26-29 (inclusive) of Meyer's Exercise Book, and the corresponding chapters of the grammar; written work.
- German: 5 hours. Practice in reading, writing, and free composition. Reading: P. A. Schmid's Second Reader. Compositions of narrative and descriptive type. Explaining German idioms. Review of grammatical material, mainly with the aid of Greyerz's "Sprachschule." In class Hauff's "Karawane" is read. Reading aloud from modern authors.
- French: 5 hours. Rossman and Schmid's second-part exercises 1-13; systematic treatment of the irregular verbs; oral and written exercises in connection with the conversational material of the lesson book, and reading of "Poum." by P. and V. Margueritte; memorizing poems.
- Arithmetic: 2 hours. Geometric relations and proportion; forms of business arithmetic.
- Algebra: 2 hours. The four fundamental operations with all numbers and fractions; equations of the first degree with one unknown quantity; extraction of square and cube root.
- Geometry: 2 hours. Plane demonstrational geometry to similar figures; constructions and calculations.
- History: 2 hours. General history and Swiss history from the age of the discoveries to the death of Frederick the Great.
- Geography: 2 hours. Summer: America and the Arctic Zone. Winter: Switzerland.
- Natural history: 2 hours. Summer semester: Botany: General review of plant families. Excursions. Winter semester: Mammals.
- Drawing: 2 hours. Theory of perspective; perspective representation of geometric figures in different positions in a plane; drawing of selected objects from nature; shading.
- Stenography: 1 hour. Simplified German stenography (Stolze-Schrey system). textbook by Schwarz.
- Physical training: 2 hours. Various exercises; all apparatus.

PROGRAM OF STUDIES IN REALSCHULE.

CLASS IV.

- Religion: 1 hour. Church history.
- German: 5 hours. Selected extracts in prose and poetry, from Bächtold's Reader (first section); exercises in reading, recitation, and free composition; declamations—practice in pure high German pronunciation, with the aid of Greyerz's "Sprachschule"; grammar in discussion of compositions; figurative expressions, idioms, and proverbs. Jungfrau von Orleans. Ten themes.
- French: 4 hours. Oral and written exercises, based on the second part of Rossman and Schmid's Reader; general review of forms; translation, dictation, and easy compositions. Reading in class: Quinze jours à Paris; Contes du Soir (by Chatelain). Conversation and dictation on subject-matter; memorizing of poems; outside reading.
- English: 4 hours. Reading from Schmid's "Lehrbuch der Englischen Sprache"; grammar, based on textbook matter; retranlations; reading and translating; dictation exercises and memory work; conversation.
- Italian: 3 hours. Introduction to Italian language, based on Heim's "Kleines Lehrbuch der Italienischen Sprache"; forms in connection with the reading matter; oral and written exercises; memorizing of short prose extracts and poems; conversation.

Mathematics: 5 hours.

(a) Algebra: Equations of the first degree, with more than one unknown quantity; powers, with integral and fractional exponents; square root; quadratic equations, with one unknown quantity.

(b) Geometry: Review of the first course in plane geometry; continuation and completion of plane geometry; stereometry, first part.

Natural history: 2 hours. Summer: Botany—Anatomy and physiology of plants; the most important native and foreign plants. Winter: Zoology—Birds, reptiles, amphibians, fishes.

History: 2 hours. Ancient history.

Geography: 2 hours. America, Australia, Oceanica, and Asia.

Geometric drawing: 4 hours. Geometric constructions: geometric ornamentations; wash drawings, colored ornamentation with pen drawing; orthogonal representation of geometric bodies.

Art drawing: 2 hours. Perspective representation of various objects (columns, etc.), with shading. In connection with the foregoing, drawing of household implements of all kinds. Simple ornamental modeling in plaster of Paris.

Physical training: 2 hours. Position exercises—jumping, running, throwing, wrestling, weight lifting. Games, boundary ball, volley ball, relay races.

CLASS III.

Religion: 1 hour. Church history.

German: 5 hours. Two of Liliencron's "Kriegsnovellen"; Eichendorff's "Taugenichts"; Freiligrath Selected Poems; Schiller's "Wallenstein"; lectures, chapters from the grammar; Schiller's "Lied von der Glocke"; prose selections and poems from Bächtold (intermediate division); ten themes.

French: 4 hours. Grammar in combination with translations from the exercise book of Rossman and Schmid; translation, dictation, themes, memorizing of poems. Reading in class: Maupassant, "La Guerre franco-allemande"; Molière, "L'Avare" and "Les Femmes Savantes." Conversation; outside reading.

English: 3 hours. Reading: Schmid's "Lehrbuch," Rudyard Kipling's "Stories from the Jungle Book"; Cooper's "The Path Finder." Grammar based on reading; dictation; reproduction; conversation.

Italian: 3 hours. Reading and drilling in selections from Donati's "Corso pratico di lingua italiana." In connection with this work, drilling in forms. Written exercises; conversation; memorizing of prose selections and poems; reading from De Amicis, "Il Cuore."

Algebra: 3 hours. Quadratic equations, with more than one unknown quantity; logarithms; radical equations; arithmetical and geometrical progression; interest; continued fractions; diophantine analysis.

Geometry: 3 hours. Finish stereometry; goniometry; use of logarithmic-trigonometric tables; calculation of right and oblique triangles.

Physics: 2 hours. Introduction to physics; mechanics of solids, liquids, and gases; measurement of heat.

Natural history: 2 hours. Summer: Botany—Gymnosperms and cryptogams. Zoology: Butterflies and beetles. In winter: Lower animals.

History: 2 hours. Medieval history.

Geography: 2 hours. Brief survey of the geography of Africa, with special consideration to Egypt and South Africa; geography of Europe, except Germany.

Geometric drawing: 2 hours. Hyperbole, parabolic curves, cycloids, evolvents; representation in outline; projection and sections of different machine parts on the basis of model measurements; plane, prism, and conic sections.

Art drawing: 2 hours. Vases, bases, and capitals; still life; plaster ornaments; skulls and stuffed birds; freehand drawing.

Physical training: 2 hours. Position exercises; jumping, running, wrestling, throwing discus, etc.; weight lifting; games.

Singing: 1 hour.

CLASS II.

Religion: 1 hour. Old Testament.

German: 3 hours. "Nibelungenlied" (in the modern German adaptation of Legerlotz); Schiller's "Kabale und Liebe," and "Marie Stuart"; Lessing's "Emilia Galotti." Reading aloud from modern German poets; 10 themes; lectures.

French: 3 hours. Translations; themes. Reading in class: Corneille's "Le Cid"; Racine's "Phèdre." Literature of the seventeenth century in its chief literary figures, based on the "Morceaux choisis" of Bornecque and Röttger. Memory work and outside reading.

English: 3 hours. Reading: Cooper, "Last of the Mohicans"; Dickens, "Tale of Two Cities." Oral translation and conversation; written translation from Schmid's exercises.

Italian: 2 hours. Reading and drilling on selections from Donati's "Corso pratico di lingua italiana"; forms and syntax based on the foregoing; oral and written exercises; committing to memory of easy selections in prose and poetry. Reading: Cordelia, "Racconti e bozetti."

Mathematics: 5 hours.

(a) Algebra: Combinations; probability; binomial theorem for integral exponents; imaginary and complex numbers; determinants; cubic equations.

(b) Geometry: Plane and spherical trigonometry with applications to mathematical geography; analytic plane geometry; transformation of coordinates.

Descriptive geometry: 2 hours.

Physics: 3 hours. Mechanics of solid bodies; the wave theory; acoustics; optics; heat.

Chemistry: 3 hours. Inorganic chemistry. Introduction to chemistry: Elemental processes, oxidation, reduction, acids, bases, salts, the most important elements and combinations. General laws. Practical experiments by the students.

Natural history: 2 hours. In summer—general geology and history of earth formation (with excursions). In winter—elements of mineralogy.

History: 2 hours. Modern times.

Geography: 2 hours in summer. Physical geography of Germany; mathematical geography.

Geometric drawing: 2 hours. Shaded construction drawings based on sketches and various kinds of models, sections.

Art drawing: 2 hours. Academic studies; drawing from busts and from living model (hand, head, in profile); freehand drawing, especially sketches of antique objects; still life in water colors.

Physical training: 2 hours. Position exercises—jumping, running, wrestling, throwing, games, etc., weight lifting (15 kg.).

Singing: 1 hour.

CLASS I.

Religion: 1 hour. New Testament.

German: 3 hours. Goethe's "Werthers Leiden"; Hebbel's "Nibelungen" I, II, III; Grillparzer's "Sappho"; survey of older German poetry to 1500; lectures; nine themes.

French: 3 hours. Translations: "Morceaux Choisis" of Bornecque and Röttger. Dictation, themes, lectures, memory work, outside reading. Literature of the eighteenth and nineteenth centuries in their chief literary figures.

English: 2 hours. Reading—Macaulay, "Lord Clive"; selected chapters from English literature (Chaucer and Milton), based on Andrews' "Short History of England's Literature," written and oral translations based on Wersoven's "Zusammenhängende Stücke"; conversation.

Italian: 3 hours. Review of forms and syntax; oral and written translation of connected discourse. Reading—"Scolta di racconti e bozzetti di E. Castelnovo." Literature: Chief figures in Italian literature, fourteenth and sixteenth centuries. Mathematics: 5 hours.

(a) Algebra: Functions with real variables; infinite series; fundamental theorem of equations of higher degree; approximate solutions; elements of differential calculus.

(b) Geometry: Analytic geometry of conic sections; beginning of analytic geometry of space.

Descriptive geometry: 2 hours. Fundamental theorems of synthetic geometry; curves; tangential planes and section problems of radiating surfaces; regular polyhedrons.

Physics: 3 hours. Mechanism and electricity.

Chemistry: 2 hours. Continuation and completion of inorganic chemistry. Two hours' laboratory work during winter semester.

Natural history: 2 hours. In summer—plant geography; sketch of Switzerland. In winter—anthropology.

History: 2 hours. General history and Swiss history from the year 1789 to the year 1870.

Geography: 2 hours in summer. Physical geography, second part; review of Switzerland.

Geometric drawing: 2 hours. Axonometric representations; perspectives.

Art drawing: 2 hours. Architectural types of the ancients, of the Middle Ages, and of the Renaissance.

Practical geometry: 2 hours in winter. Horizontal sketches, etc.

Physical training: 2 hours. Position exercises—running, jumping, throwing, wrestling, and games; weight-lifting (17 kg.).

Singing: 1 hour.

UPPER CLASS (SUMMER SEMESTER).

German: 3 hours. Goethe's Faust, Part II, entrance scene and concluding act; Middle High German Literature (second part); review of modern German literature from Luther to Klopstock, with reading from Bächtold's Reader (second part); declamations; examples of most recent German writing; lectures; two themes.

French: 3 hours. Translations; themes; review of the grammar; reading in class from the manual by Ploetz; also Taine's "La Philosophie de l'art"; Literature: French writers of the second half of the nineteenth century. General review; outside reading.

English: 2 hours. Reading: Dickens's "Oliver Twist." Literature: Feyerabend's "History of English Literature." Review; translations from Wershoven.

Italian: 2 hours. Review of difficult topics in forms and syntax; oral and written translation in connected discourse. Themes: Selected passages in prose and poetry from the "Antologia," by Caracciolo, and a review of the Italian literature of the nineteenth century.

Mathematics: 4 hours. Elements of analytic geometry of space; general review of all divisions of algebra and geometry, with numerous problems.

Descriptive geometry: 2 hours. Rotary surfaces; general review.

Physics: 4 hours. Theory of heat; review of mechanics.

Chemistry: 3 hours. Organic chemistry.

History: 2 hours. Review from 1789; constitutional history from 1871 to the present.

Geometric drawing: 2 hours. Plans.

Art drawing: 2 hours. Landscapes and marines from nature.

Practical geometry: 3 hours. Practical measurements with instruments.

LATIN COURSE IN THE ACADEMY.

CLASS IV (third year in course).

Six hours. Forms from No. 49 to the end; review; syntax, cases; Caesar, War with the Helvetii (Bell. Gall. I); written exercises.

CLASS III A.

Six hours. Reading: Caesar de Bello Gallico V and VI; Tirocinium Poeticum, Books I-III (except 27-33, inclusive, in III); syntax; sections 33-82 of Meyer; every two weeks a written translation into Latin.

CLASS II.

Five hours. Reading: Livy III, 59 to end; selected chapters from I and II. Salust: Bellum Ingurthinum. Cicero: Pro Marcello, Pro Ligario, Pro rege Deiotaro. Complete and review syntax. Every two weeks a written translation into Latin.

CLASS I A.

Five hours. Vergil Aeneid II and IV; Cicero de Amicitia; Horace: 40 odes, 1 epode, 5 satires, 2 epistles; Terence: Phormio. Syntax exercises; written work.

OBER-PRIMA B.

Five hours. Reading: Tacitus Annales I; Plautus: Captivi; selected chapters from ninth book of Livy, and Cicero: De Officiis II; grammatical reviews; reproductions.

SCHEDULE OF COURSES OFFERED BY THE HOUSEKEEPING SCHOOL OF GENEVA (RUE ROUSSEAU).

FOREWORD.

The activity of a mother in her home is singularly complex and includes a number of occupations into which one must be initiated by a rational and methodical education.

The many cares of the household, the preparation of food, the making and repairing of clothes, washing, ironing, all require a serious apprenticeship.

But it is not enough that the future mother be an expert housekeeper. She must also be distinguished by the nobility of her sentiments, by her good sense, her judgment, and those qualities of the heart that really make the wife the soul of the home.

To familiarize the girl with all the occupations that fall to the lot of the woman in the bosom of the family, to inculcate in her habits of industry, order, and economy, to make her understand all the nobility and beneficence of the humble duties of domestic life, to cultivate the faculties of her mind, to enlighten her reason and to form her heart and character, such is the high aim to which the domestic and professional school aspires.

The pupils who attend it will receive an instruction intended rather to widen their horizon, to permit them to penetrate the reason for the facts and things in the midst of which they live, than to fill their brains with vast knowledge.

They will acquire at the same time that domestic education which to-day constitutes an essential part of the general culture of women.

EXTRACT FROM THE REGULATIONS.

The Housekeeping School is intended to follow the sixth year of the primary schools. It includes two years' study. The pupils leaving the sixth year of the primary schools are admitted upon presentation of a satisfactory examination certificate.

Pupils not provided with this certificate must be 13 years of age and take an examination, the conditions of which are fixed by the regulations.

The branches of study are; French and German, with particular attention to composition and correspondence; commercial arithmetic and bookkeeping; drawing and practical notions of geometry; elementary notions of sciences and commercial geography; hygiene and domestic economy; cutting and making of lingerie and clothes, the mending of the linen, washing and ironing, embroidery, cooking, gymnastics.

The school year is 40 to 42 weeks. There is holiday Thursday and Saturday afternoons.

The professional and housekeeping school is free.

Pupils ending the second year with a satisfactory examination certificate may enter the fourth year of the secondary and high school for girls.

A third year includes apprentice sections for the following trades: Commerce, lingerie, ladies' and children's dressmaking, and incidentally ironing, millinery, and embroidery.

STATEMENT OF COURSES.

First year.

French—5 hours. Review, by means of exercises, of the ordinary rules of grammar. Study of the sentence. Oral exercises in grammatical and logical analysis. Punctuation; enunciation; dictation.

Reading of selections, with remarks on the orthography and meaning of words, construction of sentences and style.

Elocution exercises; study of selections of poetry and prose.

Compositions on varied subjects, with or without outline; correspondence.

Subjects taken from modern history will be used for conversation followed by oral and written exercises.

German—4 hours. Review of the declension of nouns; simple tenses of regular verbs and of irregular verbs of frequent use; declension of the adjective, comparative and superlative; sentences.

Conversational exercises on the following subjects: The four seasons; the body and the clothing; the market; flowers and vegetables; use of wall charts; poetry and singing.

General and commercial arithmetic—3 hours. Review of the work of the fifth and sixth years of the primary school. Metric system, decimal fractions, common fractions and mixed numbers. Bills; domestic bookkeeping; oral arithmetic.

Geography—1 hour. Review of the physical geography of Switzerland and the adjoining countries. Study of these countries from the point of view of their natural and industrial products. Principal centers of industry and commerce. Steamship and railroad lines. Brief study of the productions of the principal colonies of France and Germany.

Hygiene and domestic economy—1 hour. Hygiene of the home: Heating, ventilation and aeration, lighting and cleaning. Hygiene of clothing; fabrics and designs. Hygiene of food. Alcoholism.

Drawing—4 hours. Review of the work of the primary school: Solids (plan, elevation, section). Projection and perspective. Reduction to scale. Geometric designs for decorative purposes in needlework. Ornamental work in flowers. Cutting and ornamentation of woven materials. Application of a single plant to the ornamentation of special pieces of furniture, to the interior decoration of the house, to embroidery, to laces, and various fabrics. Reduced construction of one of the objects studied in development and free perspective.

Gymnastics—2 hours. Rational gymnastics; carriage; games; dancing in groups; various dance steps; exercises preliminary to swimming.

Singing (optional)—2 hours.

Practical work.

Langere—3 hours. Exercises in sewing: Buttonholes, flannel stitching, back stitching.

Cutting and making of—Flannel skirt with a bodice for a child of 1 to 3 years of age; apron or bathing suit for a little girl or boy of 2 to 5 years of age; drawers for girl 2 to 5 years old.

Cutting and making of clothes—2 hours. Patterns, cutting and making—(1) dress for a baby of 1 to 3 years; (2) skirt with flounce for a girl; (3) an unlined blouse.

Washing and ironing—1½ hours. Notions about the different methods of laundering; washing, ironing, and folding of plain linen; preparation of raw and cooked starch; fluting and ironing of a white skirt.

Mending—2 hours. Mending of worn-out clothes; darning by hand or by loom; mending of linen and of various garments; articles with flat stitch, whip stitch, lace stitch.

Cooking—1½ hours. Preparation of simple food: Soups, boiled and roast meats, disposition of remnants; fresh vegetables, farinaceous foods, simple side dishes. Instructions concerning the source, quality, and preparation of food.

Second Year.

French—4 hours. Continuation and extension of the studies of the first year; synonyms; word families; vocabulary; dictation.

Reading of choice selections with remarks on the spelling and meanings of words, the construction of sentences, and style.

Exercises in elocution; recitation of selections in prose and verse previously explained; oral exercises in narration.

Composition on various subjects; résumés of texts; letters.

Subjects taken from the history of Switzerland and Geneva will furnish material for conversations, followed by written and oral exercises.

German—3 hours. Numeral adjectives, cardinal and ordinal. Pronouns. Compound tenses of regular verbs. Reflexive verbs. Irregular verbs. The most common separable verbs. Dependent and independent sentences. Reading of chosen pieces.

Conversational exercises on the following subjects: Time and its subdivisions, moneys, travels. Description of a city from wall charts. Poetry and singing.

Arithmetic—1 hour. Percentage; proportion; rules of compound quantities; their application in commerce; practical methods for oral and written calculations.

Bookkeeping—2 hours. Principles of bookkeeping. Commercial papers; day-book, cashbook, journal. Their use in business. Double-entry bookkeeping. Clerical work in the operations of a business house. Trial balance. Inventory. Balance sheet.

Geography—1 hour. Rapid review of the physical geography of the following countries: England, the Netherlands, Belgium, Russia, Spain. Study of these countries from the point of view of their natural and industrial products. Principal centers of commerce and industry. Summary of the most important facts concerning English colonies.

The United States, Brazil, Argentine Republic, and Japan. The most important steamboat and railway lines.

Hygiene—1 hour. Outline of the structure and the organic functions of the human body. Hygiene of the body, functions of the skin. Personal hygiene: Care of the teeth, hair, hands, feet. Bathing. Work and rest: Sleep, physical exercise, walking, gymnastics. Household medicine chest. Preparation of medicinal teas, poultices, plasters, emetics. Care of the sick. Contagious diseases. Precautions to be taken. Disinfection. Feeding the sick. Hygiene of early childhood. Feeding of infants.

Drawing—4 hours. Decoration applied to the clothing, the furniture, and to the interior arrangement of the house. Elementary colors, gradation of tints, harmony. Shadows, parallelism of rays. Composition.

Gymnastics—1 hour. Rational gymnastics; games, group dances, various dance steps; carriage; exercises preliminary to swimming; severer lessons than the first year.

Sciences—2 hours. Introduction to the study of science. The atmosphere, its composition. Notions about simple and composite bodies. Oxygen: Combustion and respiration. Vapor and dust contained in the air. Atmospheric pressure. Ordinary barometers. Practical applications of air pressure. Water, its composition. Solution and its applications. Quality of drinking water. Ebullition and distillation. Heat expansion of bodies. Thermometers. Convection and radiation, their application to domestic economy. Electricity. Magnets and the compass. Conductors and insulators. Electric spark. Lightning and lightning rods. Electric lighting and heating; electric bells, telegraph, telephone. Elementary notions about the transmission of electric energy to distant points. Some practical applications. Electric motors and street cars.

Botany—Exercises in classifications.

Practical work.

Lingerie—3 hours. Pattern made by personal measurement; cutting and making—(1) a girl's waist; (2) girl's drawers. Patterns: Cutting and making of a night shirt.

Ladies' clothing—2 hours. Pattern, cutting, trying on, and making—(1) a skirt; (2) a blouse; (3) a shirt-waist lining. Pattern for a shirt waist.

Children's clothing—2 hours. Pattern, cutting and making—of a sailor suit (tucked skirt, shirt waist with a front, sailor blouse). Pattern, and cutting and making of a pair of boy's trousers.

Washing and ironing—1½ hours. Washing and ironing of men's shirts; collars, cuffs, curtains, skirts, blouses. Washing of woolen clothes, of cotton and silk lace, velvet and crêpe. Cleaning gloves. Different kinds of spots and the way to clean them.

Embroidery—1 hour. Scallops, simple, curled, ornamented; feather stitching; letters, simple and ornamental; English embroidery.

Mending—1 hour. Rents and patches in cloth with demonstration and practical application; mending of white linen, especially of men's shirts (patches, buttonholes, bordering); darning of heavy cloth and table linen.

Cooking—1½ hours. Preparation of fine soups; braised meats; fresh vegetables; pastry, cakes, cream, preserves, sirups. A study of the composition of menus and their nutritive value.

Singing (optional)—2 hours.

THE HOME-ARTS SCHOOL OF WINTERTHUR.

REGULATIONS.

1. The Home-Arts School of the Winterthur Ladies' Association has for its object the training of young girls, chiefly from the rural and industrial circles. By imparting a thorough theoretical and practical instruction in all branches of household arts, the pupil will be qualified to do all household work with expert knowledge, whether to help in the home or in the vocation of servant.

2. The instruction comprises the following fields: All cleaning work in the house, cooking, washing, ironing, mending, making new garments, keeping of simple household books, figuring household expenses, practical language instruction, elementary hygiene, and vegetable gardening.

A complete program will define the course of the instruction in the essential branches.

3. The teaching force will consist of the principal, a teacher of household arts and industries, special teachers for the theoretical instruction and a teacher for gardening.

4. Courses will last six months. For tuition, board, and lodging, the cost is 30 francs in summer and 160 francs in winter, payable upon entrance. For pupils without means, scholarships may be provided upon request.

5. Evidence of good moral character and good health will be required of candidates for admission. Twenty pupils will be admitted to each course; all citizens of the Canton are eligible for admission, as well as any girls resident in Zurich between the ages of 16 and 24.

6. Pupils outside the Canton will be accepted only when the courses are not filled by citizens or residents of the Canton. Charges to these pupils will be 200 francs in summer and 220 francs in winter.

7. Notice of withdrawal must be given to the principal not later than two weeks before the opening of the course; pupils who fail to give notice within the time specified, except in case of illness, will be liable to a penalty of 25 francs in summer and 35 francs in winter.

8. The following articles should be brought by pupils at admission: Clean clothing sufficient for three weeks; 2 outdoor dresses; 1 or 2 working dresses; 2 pairs of shoes; 1 pair of slippers; 4 wash cloths; 6 house aprons; tooth brush and clothes brush; and sufficient materials for sewing.

Each student is expected to bring with her a certificate of residence.

9. At the end of the course an examination will take place and certificates will be issued to cover the work accomplished.

10. Students who seek positions will be placed through the employment bureau of the society, provided they have obtained a satisfactory certificate.

11. In case a girl is guilty of offenses against the discipline of the establishment, she may be dismissed by the commission upon the request of the principal. A pupil thus dismissed will have no claim to money paid for tuition; the same is true in cases of voluntary withdrawal from the school.

12. The use of intoxicating liquors will be allowed only upon the written prescription of the physician.

13. Students are forbidden to make presents to the principal and teachers.

14. A commission shall have full oversight over the school; this commission shall submit important questions to the executive committee of the ladies' association for final decision.

15. The expenses of the institution shall be met as follows:

(a) From tuition and boarding fees.

(b) From contributions of the Canton and of the Federation, as well as from benefactions and legacies.

(c) From any surplus in money received from the boarders' table. The treasury of the ladies' association will cover any deficits.

16. Representatives of the commission in charge of the Home-Arts School, or those delegated by them, shall be responsible for all obligations incurred by this institution.

EXECUTIVE COMMITTEE.

WINTERTHUR, June, 1910

DAILY PROGRAM OF THE WINTERTHUR HOME-ARTS SCHOOL.

| Period. | |
|---------|---|
| 6-7 | Pupils rise, air the rooms, prepare coffee, and on Mondays to Fridays sweep hall and stairs, clean shoes, and fix lamps. |
| 7-8½ | Breakfast, make the beds, do the marketing, rinse breakfast dishes, and prepare meals. |
| 8½-11½ | On Monday washing and ironing alternately by half the pupils; the other half take charge of general housework and kitchen work. |

- 8½-11½ On Tuesdays to Fridays the first and second sections prepare the midday meal for boarding pupils and workmen; the fourth section prepare the midday meal for girl pupils. Both sections discuss the menu.
- 8½-9 On Tuesdays to Fridays the third and fifth sections put bedrooms in order, clean windows, wash floors, and sew for the household.
- 9-10 On Tuesday the third and fifth sections hang up clothes; on Wednesday the pupils do general housework; and on Thursday to Saturday clean the rooms thoroughly.
- 11-11½ The third and fifth sections set the table.
- 11½-12 Midday meal for pupils.
- 12-1 Pupils serve boarders' table, do preliminary work, and clean up kitchen and office.
- 1-2 Pupils work in kitchen and offices, washing dishes, cleaning closets, fireplaces, and tables, and scrubbing floors; in the dining room they clear off table, sweep, and dust.
- 2-4 One-half the pupils sew (making new garments), and one-half do gardening; and on Saturdays all do scrubbing.
- 4-5 Supper; wash and put away dishes.
- 5-6 On Tuesday, dietetics; Wednesday, hygiene; Thursday, domestic science; Friday, German; Saturday, getting wash ready.
- 6-7 On Tuesday, bookkeeping; Wednesday, singing; Thursday, arithmetic; Friday, gardening; Saturday, kitchen work for Sunday.
- 7-8½ On Tuesday, pedagogy; Wednesday, planning menus.
Late supper, wash dishes, write down the day's receipts and tabulate them; afterward—leisure; reading.
On Sunday pupils attend church; one-half the pupils excused from work.

TYPICAL DAILY PROGRAMS.

The daily programs which follow will illustrate the division of the school day in the Swiss schools. It will be noted that the number of recitations per day exceeds that which prevails in America. It must be remembered, however, that in most cases the recitation period includes both preparation and recitation as we would understand it in America. In lower grades no home work is assigned, and even in the high school it is limited by resolutions of the teachers and school boards to from five to eight hours per week. The recitation period consists of a review of the previous day's work and of the main essentials in the subject studied and a development of new ideas through questioning and presentation, by the teacher and, where the subject requires, a drill in processes. While the school day is considerably longer than with us, the pupil is comparatively free from school tasks when he leaves the school itself.

Weekly program for the higher division of a two-teacher country school.

| Hour | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|-------|------------|-------------|---------------------------|------------|------------|-----------------------------------|
| 7-8 | | | (Used during the summer.) | | | |
| 8-9 | Religion | Arithmetic | Language | Religion | Arithmetic | Nature study |
| 9-10 | Arithmetic | Language | Arithmetic | Arithmetic | Grammar | Arithmetic |
| 10-11 | History | Geography | Dictation | Geography | Religion | Singing |
| 11-12 | | | | | | |
| 1-2 | Language | *Arithmetic | Grammar | Drawing | Arithmetic | 1 to 4 continuation school. |
| 2-3 | Writing | *Civics | Writing | Drawing | Language | |
| 3-4 | Singing | *Gymnastics | Mensuration | Civics | History | |

* For boys only—girls sewing.

Weekly program of third year (7th school year) of boys secondary school, Berne (summer term).

| Hour. | Monday. | Tuesday. | Wednesday. | Thursday. | Friday. | Saturday. |
|-------------|------------------|-------------|------------------|------------------|-------------|-------------|
| 7.00-7.40 | Gymnastics. | French. | Geography. | French. | French. | French. |
| 7.45-8.25 | Arithmetic. | Drawing. | Manual training. | Geometry. | Singing. | Gymnastics. |
| 8.30-9.10 | History. | Drawing. | Manual training. | Natural history. | Arithmetic. | History. |
| 9.30-10.10 | Geometry. | Drawing. | Arithmetic. | German. | German. | German. |
| 10.15-10.55 | Geography. | Excursions. | Penmanship. | Religion. | French. | Singing. |
| 2.15-2.55 | Penmanship. | | | Written work. | | |
| 3.00-3.40 | Arithmetic. | Excursions. | | Written work. | German. | |
| 4.00-4.40 | Natural history. | | | | Religion. | |

Weekly program of fifth year (ninth school year) of boys' secondary school, Berne (summer term).

| Hour. | Monday. | Tuesday. | Wednesday. | Thursday. | Friday. | Saturday. |
|-------------|----------------------|-------------|----------------------|---------------|--------------|----------------------|
| 7.00-7.40 | English and Italian. | Geography. | English and Italian. | Geography. | German. | Mechanical drawing. |
| 7.45-8.25 | French. | Physics. | History. | Drawing. | Bookkeeping. | Mechanical drawing. |
| 8.30-9.10 | German. | Physics. | French. | Drawing. | History. | Mechanical drawing. |
| 9.30-10.10 | Geometry. | French. | Laboratory. | Geometry. | Algebra. | Arithmetic. |
| 10.15-10.55 | Algebra. | Arithmetic. | Laboratory. | German. | Gymnastics. | English and Italian. |
| 2.15-2.55 | Chemistry. | German. | | French. | Excursions. | |
| 3.00-3.40 | Chemistry. | German. | | Written work. | Excursions. | |
| 4.00-4.40 | Gymnastics. | Drawing. | | Written work. | | |
| 4.45-5.25 | Religion. | Arithmetic. | | | | |

Weekly program for first year in progymnasium, Berne, winter 1912-13, average age of pupils 10 years.

| Hour. | Monday. | Tuesday. | Wednesday. | Thursday. | Friday. | Saturday. |
|-------|-------------|-------------|------------|-------------|-------------|-------------|
| 8-9 | Singing. | Arithmetic. | Religion. | French. | German. | Arithmetic. |
| 9-10 | Arithmetic. | French. | Singing. | German. | Gymnastics. | French. |
| 10-11 | French. | German. | French. | Arithmetic. | French. | German. |
| 11-12 | German. | Gymnastics. | German. | History. | Arithmetic. | Drawing. |
| 2-3 | History. | Geography. | | Geography. | | |
| 3-4 | Writing. | Drawing. | | Writing. | Religion. | |

Weekly program of senior class in commercial department of city gymnasium, Berne (winter 1912-13).

| Hour. | Monday. | Tuesday. | Wednesday. | Thursday. | Friday. | Saturday. |
|-------|-------------------|-----------------------|--------------|------------------------|------------------------|-------------------|
| 8-9 | English. | Science of wares. | English. | Italian. | Political arithmetic. | Economics. |
| 9-10 | Economics. | Italian. | Bookkeeping. | English. | Geography. | Bookkeeping. |
| 10-11 | German. | French. | Commerce. | Commercial arithmetic. | Commerce. | Science of wares. |
| 11-12 | Italian. | Political arithmetic. | Geography. | German. | German. | Science of wares. |
| 2-3 | French. | | | Spanish. | Commercial arithmetic. | |
| 3-4 | Science of wares. | History. | | History. | Typewriting. | |
| 4-5 | Spanish. | Commerce. | | Bookkeeping. | French. | |
| 5-6 | | Gymnastics. | | | | |

Weekly program of second year of the literary department city gymnasium of Berne (winter 1912-13).

| Hour. | Monday. | Tuesday. | Wednesday. | Thursday. | Friday. | Saturday. |
|-------|-------------|-----------------|-------------|------------|-----------------|-------------|
| 8-9 | Latin | History | Greek | Latin | Latin | Latin |
| 9-10 | Greek | Latin | French | Greek | French | German |
| 10-11 | French | Greek | Latin | German | Natural history | Greek |
| 11-12 | Gymnastics | Natural history | Mathematics | Gymnastics | Mathematics | Mathematics |
| 2-3 | Geography | Drawing | Drawing | English | Mathematics | |
| 3-4 | Mathematics | German | | History | Greek | |
| 4-5 | English | Mathematics | | Religion | Geography | |

PROGRAM OF THE AGRICULTURAL SCHOOL IN ZURICH.

The Cantonal agricultural school of Strickhof has for its object the training of young people who desire to devote themselves to agricultural pursuits in a theoretical and practical way (section 6 of the agricultural law).

Furthermore, it is to serve as a central agency for all progressive activities in the domain of agriculture for the Canton of Zurich. (For exhibition purposes, machine and apparatus tests, carrying out of experiments, etc.)

For the attainment of these objects the school is provided with a considerable endowment.

THE SCHOOL AND THEORETICAL INSTRUCTION.

The school is divided into two sections, namely: (a) The all-year school, (b) The winter school.

The complete course of instruction in the all-year school comprises two years. The summer session lasts five months, from the beginning of May to the end of September. The winter session also lasts five months, from the beginning of November to the end of March. A considerably greater amount of theoretical instruction is assigned to the winter session than to the summer session.

In the winter school, instruction extends over two consecutive winter semesters of approximately five months' duration, beginning in November and closing toward the end of March.

The first half of the school period in both divisions is preferably devoted to instruction in the general cultural and basic branches; the second half more to instruction in special fields.

As far as possible emphasis will be placed upon having the material of instruction prepared independently by the pupils.

Regular recurring reviews will give the teacher an opportunity to form a judgment with regard to the progress of the individual students and to learn whether what has been ordered to be done has been carried out correctly.

Evening hours and all periods between lessons are to be filled with review of what has already been learned, with the keeping of record books, and with the solving of assigned problems. In general, care is taken that the students are busy to some purpose all the time. So-called lecture evenings serve to train the students in extemporaneous lecturing and discussion.

At the close of every semester certificates are issued to the students covering their industry, work accomplished, and deportment. At the end of the winter semester there is a public examination.

The vacation period comprises five and a half weeks, two weeks in April, two weeks in October, and about ten days between Christmas and New Years.

As auxiliary material in theoretical instruction the following are of service:

1. A library of over 3,000 volumes, chiefly works from all departments of agricultural instruction and the sciences associated therewith.

2. Apparatus, models, charts, etc., for instruction in the natural sciences, in plant growing, animal husbandry, and the technical agricultural branches.

3. A chemical laboratory, in which the students are given work in simple chemistry, especially physical chemistry, as for instance, analysis of agricultural products (milk, potatoes, wine, etc.); analysis of these into their component parts; soil analysis, etc.; refining apparatus for wine; protection against noxious animal life.

There will also be found at the service of our pupils the abundant collections of the university and polytechnikum, the botanical garden, the museum, etc. In addition splendid opportunities are offered by the great city institutions, such as the gas, water, and electric light plants, the slaughterhouse, and garbage-disposal works, as well as the many well-equipped industrial establishments of private character, such as creameries, breweries, soap factories, machine shops, etc.

Frequent excursions of greater or less extent, to visit various of the above-mentioned collections, institutions, and business enterprises not only serve as demonstration work for the subjects given in school, but serve to emphasize the differences in the relations of the sciences in various fields of production and give the young people a broader view of industry.

The teaching force consists of the director, who, besides being charged with part of the theoretical instruction, is also intrusted with the management of the property and the administration; 4 to 5 head teachers; 12 assistant teachers. Two work foremen and a gardener share in instructing the students in practical work.

With regard to the division of the subjects of instruction, as well as the number of hours given to each specialty in the individual sections and classes, the following program will provide the information.

PROGRAM.

1. German.

First class: Handwriting. Interpretation of selected prose passages and poems; declamations; themes, with special reference to letters—3 hours in summer, 3 in winter; in the winter school 4 to 5 hours.

Second class: Themes, chiefly from agriculture; business compositions; declamation; biographies of prominent men—3 hours in summer, 3 in winter, and 3 in the winter school.

2. Mathematics.

First class: The four basic operations, with whole numbers, fractions, and decimals; ratio and proportion; commercial arithmetic, with problems from agriculture; measurements of length and surfaces; square root—3 hours in summer, 5 in winter, and 5 in the winter school.

Second class: Continuation of commercial arithmetic (percentage, exchange, notes, etc.); agricultural arithmetic; figuring surface and cubic measurements—2 hours in summer, 3 in winter; in the winter school, 2 to 3 hours.

3. Field measurement and leveling.

Second class: Practical exercises—2½ hours in summer.

4. Drawing.

First class: Preliminary exercises; simple ornaments; line drawings; simple projections—2½ hours in summer; 3 hours in winter.

Second class: Fresh-hand drawing—Plants and animals from models and from nature. Technical drawing—Simple machines from examples and models; drawing of plans and sections—2½ hours in summer; 2 hours in winter.

5. *Physics.*

First class:

(a) Mechanics: Mass; mechanics of solids, liquids, and gases.

(b.) Heat—3 hours in winter; 3 hours in the winter school.

Second class:

(c) Selected chapters from meteorology, optics, theory of mechanism, electricity, and machines—2 hours in summer.

6. *Physical geography.*

First class: The earth's interior; surface of the earth; the sea; the land—division of the land; land-formation in general; atmosphere; climate and the weather—1 hour in winter; 1 hour in the winter school.

7. *Chemistry.*

First class: A. Inorganic Chemistry.

Elements, combinations (acids, bases, salts); discussion of important agricultural processes (aeration, assimilation, etc.); transformation of salts, with special consideration of processes that take place in agriculture—3 to 4 hours in winter; 4 hours in the winter school.

Second class: B. Organic Chemistry.

Carbons; selected chapters from technique of illumination.

Alcohols; phenomena of fermentation; manufacture of spirits; brewing of beer.

Acids; vinegar manufacture, lactic and butyric fermentation.

Carbon-hydrate; starch and sugar manufacture; albumen.

Composition of animal and plant bodies—3 hours in summer; 2 hours in the winter school.

Second class: O. Agricultural chemistry.

(a) Knowledge of the soil; most important minerals and stones; weathering; soil building; soil classification; properties and analysis of soil; practical soil judging—1 to 2 hours in summer; 1 hour in the winter school.

(b) Fertilizers; laws of plant feeding; significance of different plant foods; the soil's need for fertilizer; stable manure and composts; artificial fertilizer; fertilizer experiments; computation of fertilizer values—2 to 3 hours in winter; 3 hours in the winter school.

(c) Animal feeding; natural laws of nutrition; constituent parts of animal body; constituent parts and composition of feeds; production of the feeds; cattle feeding in general; feeding of milch cows and calves—2 to 3 hours in winter; 3 hours in the winter school.

(d) Practical exercises in the laboratory: Milk tests; determination of fat content; determination of dry and ash content; wine and cider fermentation test; analysis of potatoes and starch; analysis of soil for lime; determination of alcohol and acid content of wine and cider—2 hours in winter; 2 hours in the winter school.

8. *Botany.*

First class: General botany: Histology, morphology, ecology; knowledge of cultivated plants and weeds; herbarium; excursions—3 to 4 hours in summer; 2 hours in the winter school.

Second class: Introduction into systematic botany; further extension of the herbarium; plant diseases—1 to 2 hours in summer, 2 in winter; in the winter school, 2 hours.

9. *Zoology.*

First class: Structure and development of organs of animals (organs of motion, sense, nutrition and reproduction—2 hours in summer; 3 hours in the winter school.

Second class: Special zoology; classification and description of animals with special reference to the animals useful and injurious to agriculture—2 hours in summer.

10. Animal husbandry.

First class: General theory of breeding (influence of external conditions on the form and abilities of animals; influence of breeding; heredity; methods of breeding); care and maintenance of animals; stable arrangements—3 hours in summer; 3 hours in the winter school.

Second class: Special animal breeding.

1. Cattle: Breeds of cattle; adaptation of breed to purpose; body forms in reference to their capacity for work; methods of judging the forms and qualities of animals; breeding, maintenance, and care of cattle; uses of cattle.
2. Swine: Breeds of swine; methods of raising; selection of breed animals; feeding, maintenance, and care of swine—4 hours in winter; 4 hours in the winter school.
3. Practical exercises in judging animals.

11. Hygiene of domestic animals.

Second class: Obstetrics; bearing; recognition and treatment of diseases which demand immediate aid; contagious diseases and quarantine; judging of age in horses, horseshoeing; practical exercises—2 hours in summer, 1 in winter; 3 hours in the winter school.

12. Bee culture.

First class: Natural history and economic value of bees, care of bees—1 hour in winter.

Second class: Theory continued; practical exercises in the apiary—1 hour in summer; 1 hour in the winter school.

13. Plant cultivation.

First class:

- (a) General plant cultivation; preparing ground; sowing and planting; cultivation and harvesting of crops; plant breeding; rotation of crops; systems of rotation—2 hours in winter; 2 hours in the winter school.
- (b) Special plant cultivation, with particular consideration of the cultivation of forage crops, grain, and field vegetables—3 to 4 hours in summer, 2 hours in winter; in the winter school, 2 hours.

Second class:

- (c) Special plant cultivation continued—1 hour in summer, 2 in winter; in the winter school 4 hours.

14. Vegetable cultivation.

First class:

- (a) Cultivation of vegetables in general; situation, arrangement, and treatment of vegetable garden; harvesting and marketing the product.
- (b) Vegetable cultivation; varieties of vegetables; berry culture—1 hour in summer, 1 in winter; in the winter school 2 hours.

15. Fruit and vineyard cultivation.

First class:

- (a) Fruits: The fruit tree and its cultivation; care of the trees; marketing of the fruit—1 hour in summer, 1 in winter; in the winter school 2 hours.

Second class:

- (b) Grapes: The grapevine and its cultivation; care of the grapes; harvesting—1 hour in summer; 1 hour in the winter school.
- (c) Care of the wine cellar.

16. Forestry.

Second class: The forest and its significance in the economy of nature; the different kinds and forms; estimating the value of the forest; cultivation, care, and utilization of the woods; forestry legislation; excursions—2 hours in winter; 2 hours in the winter school.

17. Reclamation.

Second class: Clearing; irrigation; draining; cultivation of swamp lands; the distribution of commons—2 hours in winter; 2 hours in the winter school.

18. General economics.

First class: Economic history; production of wealth (nature, labor, capital, enterprise); circulation of commodities (exchange and sale, market, trade, measure and weight, money, credits), economic results (wages, interest, rents, proceeds, income). 1 hour in winter; 1 hour in the winter school.

19. Administration.

First class: Scope and purpose of agricultural administration; the production of agricultural wealth (sources of production; nature)—1 to 2 hours in summer; 1 to 2 hours in the winter school.

Second class: Circulation of agricultural products (markets, prices, commerce, labor, capital); measures for improvement of agriculture (education and experimentation; subsidies and prizes; credits; insurance; duties)—2 to 3 hours in summer; 1 to 2 hours in winter; 3 hours in the winter school.

20. Cooperative associations.

Second class: Conception, purpose, and significance of cooperative associations; historical development; different kinds of cooperative societies—their organization and efficacy—1 hour in winter; 1 hour in the winter school.

21. Bookkeeping.

First class: The problem; fundamental principles of bookkeeping; keeping of books for the Strickhof accounts—1 hour in summer, 2 in winter; in the winter school 2 hours.

Second class: Systematic introduction into the practice of agricultural bookkeeping based on an example from real life; systems of bookkeeping for cooperative societies—1 hour in summer, 1 hour in winter; in the winter school 2 hours.

22. Law and civics.

First class: Introduction to law; discussion of certain specially important parts of the civil code—1 hour in winter; 2 hours in the winter school.

Second class: Constitutional law of the Federation and of the Canton; solution of written problems based on legal contracts (selling and leasing contracts; surety; association statutes, etc.)—2 hours in winter; 1 hour in the winter school.

23. Machinery and tools.

First class: Significance of agricultural implements and machines; material necessary for their production; special treatment of the more important agricultural implements and machines—2 hours in winter; 2 hours in the winter school.

Second class: Continuation and demonstrations—1 hour in summer; 1 hour in the winter school.

24. Singing.

First and second classes: Four-part singing—1 hour in summer; 1 hour in winter; 1 hour in the winter school.

25. Physical training.

First and second classes: Military instruction—2½ hours in summer.

26. *Lecture exercises.*

First and second classes: Lectures by students on subjects chosen by themselves from the field of agriculture; general discussion—2 hours in winter; 2 hours in the winter school.

Attached to the school is a farm of 100 acres, comprising fields, meadows, vegetable gardens, vineyards, and stables, with 45 head of cattle, 4 horses, and 15 hogs. Under the leadership of a foreman and a gardener, the pupils take part in all the practical work afforded by this farm. This work naturally falls mainly in the summer term, at which time the first class has 48 hours of practical work per week and the second class 36 hours per week. During the winter they have 14 and 9, respectively.

OPTIONAL COURSE OF STUDY IN HOME ARTS FOR GIRLS.

FIRST YEAR.

Sewing: Selected work—pincushion, needlebooks, napkin ring, coverlets, handkerchief bag, doll's pillow (in order to acquire facility in running and backstitch), finally crossstitch without corners.

Knitting: Work to be selected—dishcloth, kettle holder, wristlets, facings, doll's cap (for acquiring facility in plain and seamstitch)—maximum number of stitches 36.

SECOND YEAR.

Knitting: 1. Work to be selected—one pair of child's stockings, one pair of mitts, two cotton gloves (the first stocking or glove to be worked by the teacher, the second to be undertaken by the child).

2. A doll's cap as preliminary practice for knitting the heel.

Sewing: 1. Pieces to be selected—bib, workbag, napkin holder, with quilting stitch, seamstitch and crossstitch.

2. Hemming of handkerchiefs, dust cloths, or towels.

THIRD YEAR.

Knitting: One pair child's woolen stockings with double stitch.

Sewing: 1. Salt or vegetable sack as practice piece for backstitching and English seamstitching.

2. Pieces to be selected—pincushion, needlebook, sleeve, pillow, book cover, napkin bag, child's cape (in order to give practice for crossstitching horizontal, vertical, interrupted, and zig-zag series).

FOURTH YEAR.

Knitting: 1. One pair of stockings (double stitch and name worked in).

2. Picot.

Sewing: Coat with English seamstitching and flat-roll seamstitching.

Note.—In the third and fourth years special training is to be given in correcting mistakes in the stitches and in blind stitching.

FIFTH YEAR.

Knitting: A pair of stockings (as a practice piece for regular sock knitting in the sixth year).

Crocheting: Selected work—dust cloth, cover, book piece (for practice in various special stitches such as treble stitch, etc.).

Sewing: 1. One pair of sleeves, or work apron (as preliminary work for flat roll seamstitch), with at least two straight and two diagonal and crossstitches.

2. A very small child's shirt or two infant's shirts.

3. A workbag (to acquire a model crossstitch and to practice initialling).

SIXTH YEAR.

- Sewing: 1. Buttonhole work; sewing on of bands, buttons, rings, etc.
 2. Chemise, shoulder straps with cut-out arms, and two small chemises or one bath robe.
1. Stocking knitting—practice in running stitch, backstitch, overcasting, hems, filling in, open and closed knitting.
 2. Knitting pair of stockings as work in between.

SEVENTH YEAR.

- Knitting: 1. Child's woolen jacket (discussion of the form of knitting); a pair of stockings as work in between.
 2. Mending and darning stockings; patching.
- Sewing: 1. Plain sewing on practice piece and on articles with flat seam.
 2. Sewing girl's bib apron, or two small kitchen aprons, or a chemise.
- Crocheting: Pair of slippers.

EIGHTH YEAR.

- Knitting: 1. Pair of gloves; stocking darning, patching; pricking a pattern.
 2. Cutting.
 3. Review of everything learned on stockings.
 4. Practice piece on cotton mending and mending of colored goods (calico, cotton, muslin, wool); mending with backstitch; sewing undergarments.
- Crocheting: Work to be selected (cap, shawl, jacket).
- NOTE.—When conditions allow, the sewing machine may be used in the eighth year.

NINTH YEAR.

No change, except for the introduction of flannel mending.

GENERAL NOTES.

1. The instruction is to be in general the same as in the compulsory course.
2. From the first to the third year frequent lessons in cutting are to be given; from the fourth to the ninth year the patterns are to be applied to the making of articles of an easy kind by the children themselves.

THE APPRENTICESHIP SHOPS OF BERNE.

The apprenticeship shops of Berne comprise special schools for machinists, cabinet-makers, ornamental ironworkers, and tanners and plumbers. The apprenticeship period for machinists is four years; for the other divisions three years. Applicants for admission must be 15 years of age, and must possess a good common-school education. An entrance examination is required in German, arithmetic, geometrical drawing, and freehand drawing.

The commune of Berne and the apprentice or his parents enter into a regular apprenticeship contract, whereby the two are mutually bound to the fulfillment of obligations during the apprenticeship period. After the first half year the apprentices are paid nominal wages of from 5 to 15 cents per day. The working day is 9½ hours.

An idea of the course of study may be obtained from the following description of the program of the machinists' division:

First Year.

Theoretical instruction.

Algebra: The four fundamental operations with monomials and polynomials; equations of the first degree with one unknown quantity; extracting square root of decimals; equations of the first degree with two or more unknown quantities.

Arithmetic: Review of the four fundamental processes; fractions and decimals by means of examples taken from industrial practice; weights and measures; percentage and interest.

Plane Geometry: Lines, angles, triangles, parallelograms, polygons; the circle; finding the perimeter and content of plane figures; solution of applied problems.

Drawing: Projections—projection of simple objects, round, oval, and prismatic flanges, octagonal nuts, etc; construction of ellipse, oval, parabola, hyperbola, cycloid, involvent, spirals, and their application in machine parts; reproduction of simple bodies in outline and projection; detail drawings of simple objects to scale. Free-hand drawing—sketching simple machine parts from models in rectangular projection to scale; sketching in parallel perspective.

Shop instruction.

Filing, turning, planing, forging, and tempering; making simple detail pieces for machines, etc.

Second Year.

Theoretical instruction.

Mechanics: The most important forms of motion; fundamental laws of inertia and of reciprocal action; force; the laws of acceleration; energy of moving bodies; composition and resolution of forces in a plane, with different points of application, momentum, equilibrium.

Technology: Iron ore; kinds of iron and their nomenclature; cast iron; malleable iron; effects of foreign elements on cast iron; fuels; the production of cast iron; the blast furnace; work of the blast furnace; products of the furnace and their applications; foundry work; production of malleable pigs; open hearth and puddling processes; steel (Bessemer and Siemens-Martin processes); cold steel; crucible cast steel; electric recasting; the fashioning of malleable iron; rolling mill; steam hammer; hydraulic press; steel foundry; manufacture of pipes; cast-iron pipes; welded steel pipes; etc., forms of iron occurring in trade; sheet iron, copper, lead, tin, aluminum.

Alloys: Brass, bronze, aluminum alloys.

Arithmetic: Simple and double transmission; pulley and cogwheel transmissions. **Gearing.** Change wheels on lathes. Calculating labor time on machine work. Turning, drilling, planing, beading.

Stereometry: Solids; calculation of surface and content; weight measurements; concrete examples from the industry.

Drawing: Exercises in sketching machine parts, such as wheels, cogs, pulleys, couplings, etc.

Construction:

(1) Riveting—kinds of rivets; soldering rivets; side-valve laps; fish joints; end-rivets; triple and quadruple butts.

(2) Bolts and screws—Whitworth thread, Sellers thread; S. J. thread; flat thread; trapezoid thread; gas thread; different types of screws; arrangements of screws; tie bolts; bed-screws and grappings.

(3) Wedges—conduit, coin-flat, and hollow wedges; cross wedge; arrangement of wedges on axles, pistons, shafts, wheels, windlass, etc.

(4) Pulleys—hub, spoke, tire, waste.

(5) Cogwheels—evolvents and cycloid curves; tooth forms for in and out toothing.

Shop instruction.

Making of parts of machines, apparatus, etc.

Third year.

Mechanics: Parallel forces; gravity; equilibrium; lever, inclined plane; wedge, screw, etc.

Business composition: Letters and business papers taken from actual commerce; bills, receipts, notes, advertisements, requisitions, notices, etc.; stamp taxes, railroad and mail papers, checks, drafts, etc.

Bookkeeping: Purpose and importance of bookkeeping for those engaged in industry; keeping the necessary books.

Drawing: Designing of whole machines, such as augurs, planing machines, curling machines, turning lathes, etc., from previous sketches.

Physics:

First quarter.—Heat: Measurement of heat; expansion of solids; fluids, and gases; specific heat; sources of heat; conduction and radiation; boiling and condensation; properties of steam; atmospheric precipitation.

Second quarter.—Light: Nature of light; sources of light; rapidity of light; light measurement; reflection; refraction; lenses; photographic apparatus; the eye; optical instruments.

Third quarter.—Magnetism and Electricity: Characteristics of a magnet; production of artificial magnets; units of measure; lines of forces; the magnetic field; the earth's magnetism; conductors and nonconductors of electricity; electric current; transformers; cloud electricity; lightning rods.

Fourth quarter.—Galvanism: Direction and force of the electric current; effect of the current on the magnetic needle; electromagnetism; chemical effect Ohm's law; resistance; Wheatstone bridge; the galvanic elements; heat and light effects; induction phenomena; wireless telegraphy; telephone; transmission of electricity; municipal power plant.

Drawing: Every student is employed for one month steadily in the drawing division, where he is charged with drawing up plans for the workshop. There is no class instruction. Instruction is given entirely by means of experiments, with the practical cooperation of the students in carrying out and repeating experiments and measurements.

Shop instruction.

*Construction and assembling of complete machines according to original plans; careful putting together of exact machine parts, etc.

Fourth year.

Motors: Study of the theory of energy; work; efficiency; vital force.

Construction and use of power motors, such as wind and water motors, water wheels, turbines, axle and radial turbines; water-power machines; hot-air engines; gas engines; benzine motors; gasoline engines; electric motors; direct and alternating current motors.

THE ARTS AND CRAFTS SCHOOL OF THE CITY OF ZURICH.

COURSE OF STUDY OF THE APPRENTICESHIP CLASS IN FURNITURE MAKING.

Instruction is given during three years and is both theoretical and practical. Time of instruction, 4 hours a week, from 8 to 12 a. m.

FIRST YEAR.

1. Knowledge of tools.
2. Explanation and handling of the special tools, their use and care.
3. Knowledge of materials.
4. Wood—its treatment and care before and during working.
5. Simple woodworking in pine, etc.
6. Treatment of the most important auxiliary materials, especially of glue.
7. Simple joining; mitering, dovetailing, chiseling, mortising, etc.

8. Finishing simple pieces of cabinetwork, etc.
9. Technical drawing.
10. Shop hygiene (posture of the body at the workbench, etc.).

SECOND YEAR.

1. Study of materials.
2. Care of the wood while it is being worked.
3. Care of tools.
4. Manufacture and repair of separate parts of tools.
5. American tools and their use.
6. Transition to more difficult work.
7. Joining.
8. Doweling.
9. Veneering.
10. Finishing of simple pieces of veneer.
11. Directions for staining and coloring wood; mixing of special stains.
12. Technical drawing.
13. Explanation of detail drawings.
14. Shop hygiene.
15. Trade bookkeeping.

THIRD YEAR.

1. Study of materials.
2. Care of the wood while being worked.
3. Transition to a finer class of work.
4. Directions for the easier forms of inlaid work.
5. Staining and coloring wood by chemical and vegetable dyes; use of tannin.
6. Directions for polishing and waxing.
7. Work on the woodworking machine, circular and band saws, use of machines (last half year).
8. Technical drawing.
9. Detail drawing.
10. Calculations.
11. Shop hygiene.
12. Trade bookkeeping.

POSTER DISPLAYED ON THE PUBLIC BULLETIN BOARDS OF
GENEVA.

REPUBLIC AND CANTON OF GENEVA.

DEPARTMENT OF PUBLIC INSTRUCTION.

SCHOOL OF ARTS AND CRAFTS.

Scholastic Year 1912-13.

SECTION OF TRADES.

Opening of classes and workshops Tuesday, August 20, at 7 a. m.

Apprenticeship courses for the following trades: Builder, carpenter, joiner, cabinet-maker, carriage (and automobile) builder, locksmith, tinner, and plumber.

A special course in building and in preparation of stone for designers, architects, masons, and stonecutters.

SECTION OF INDUSTRIAL ARTS.

Opening of classes and workshops Tuesday, August 20, at 8 a. m.

General instruction: Preparatory course in drawing, course in ornamentation and drawing from nature, course in representation of the human form, decorative representation with living models, elements of architecture applied to the interior decoration of the home, course in decorative composition applied to all the artistic professions.

Apprenticeship courses for the following artistic industries: Decorative painting, molding, carving, jeweler and goldsmith's trades, painting on enamel, enameling, iron forging, sculpturing in stone and wood.

Girls are admitted in the Section of Industrial Arts.

SECTION OF MECHANICS.

Opening of classes and workshops Tuesday, August 20, at 7 a. m.

It is the aim of the Section of Mechanics to produce machinists capable of applying the theoretical and practical instruction they have received and of quickly familiarizing themselves with the different specialities of the mechanical industries.

SECTION OF CONSTRUCTION AND CIVIL ENGINEERING AND SECTION OF APPLIED MECHANICS AND ELECTROTECHNICS.

Opening of classes Monday, September 2, at 8 a. m.

These two sections are intended to train technical experts, contractors, foremen, managers, and inspectors of public works and roads, architectural designers, chiefs of installation, directors of public service, etc., for the building trades and civil engineering, and for the electrotechnical and mechanical industries.

Requests for information relative to the conditions of admission and the courses of study should be addressed for all sections to The Director of the School, Rue de Lyon, 22.

New pupils must be enrolled at the Director's office, Rue de Lyon, 22.

1. For the sections of Trades, Industrial Arts, and Mechanics, Saturday, August 17, from 8 to 11.

2. For the sections of Construction, Civil Engineering, Applied Mechanics, Electrotechnics, Thursday, August 29, from 8 to 11.

The examinations for admission will take place in the respective classrooms or workshops, as follows:

For the section of Trades, Industrial Arts, and Mechanics, Monday, August 19, beginning at 8 a. m.

For the sections of Construction and Civil Engineering, Applied Mechanics and Electrotechnics, Friday and Saturday, August 30 and 31, beginning at 8 a. m.

THE COUNCILOR OF STATE IN CHARGE OF THE
DEPARTMENT OF PUBLIC INSTRUCTION,
W. ROSIER.

GENEVA, August, 1912.

POSTER ISSUED BY THE DEPARTMENT OF PUBLIC INSTRUCTION,
CANTON GENEVA.

AGRICULTURAL INSTRUCTION.

GIVEN IN THE RURAL SECONDARY SCHOOLS.

The Department will offer during the academic year 1912-13, in the secondary schools, by special professors, courses in the following subjects:

Cultivation of fruit trees.—M. John Wolf, Professor of Arboriculture.

Fruit-bearing bushes: Red and black currants, raspberries. Commercial cultivation.—Gathering and keeping of fruits.—Use of the fruit. Drying. Making of cider.—Enemies of fruit trees. Diseases, parasites, and harmful insects. Hygiene of fruit trees. Suggestions as to the choice of species.

Practical exercises in planting, grafting, pruning, and upkeep of fruit trees.

Market gardening.—M. Auguste Defour, horticulturist-gardener.

Kitchen gardens and Market gardening.—Choice of soil.—Method of planting to secure the most sunshine.—Plowing and troweling, hoeing, raking.—Sowing, setting out, transplanting.—Tools and American machinery.

Rotation of crops.—Organic and chemical fertilizers used in market gardening.—Classification of vegetables in accordance with their needs.—Water and irrigation.—Cold and hot frames.—Time of sowing of different vegetables.—Choice of the best varieties for market supply.

Garden work.

Study of animal life.—M. Monnard, Veterinary Surgeon.

General anatomy and physiology of domestic animals. Study of the vital portions of the horse with reference to the indications that they give as to the value of these animals (practical course).—Hygiene of stables and feeding of domestic animals.—Acquaintance with the best races of animals found in Switzerland.

Wine growing.—M. John Rochaix, Agronomical Engineer.

Management of vineyards: Pruning, disbudding, pinching, etc. Attention necessary in cultivation: Plowing, hoeing, raking. Manuring: Farm fertilizers and complementary of commercial fertilizers. Diseases of the vine: Means of prevention and fighting. Harvesting and wine making: White wines, red wines. Gathering, pressing, storing in cellars, use of yeast, care to be given to wines.

Raising of bees.—M. J. Paintard, Beemaster.

General considerations on bee culture with the use of movable frames. Natural history of the bee. Anatomy of the bee. Installation of a beehive. Different styles of beehives.

These courses are intended not only for the regular pupils of the rural secondary schools, but also for young people of both sexes over 15 who have finished the sixth year of the primary schools.

The lessons will take place in the morning on the days indicated in the table below. (They followed a time schedule of courses for the following: Arboriculture, 10 lessons; Market gardening, 5 lessons; Animal life, 5 lessons; Wine growing, 6 lessons; Bee raising, 4 lessons. Places where lessons were given: Anières, Athenaz, Bernex, Compègnères, Jussy, La Plaine, Meyrin, Sâtigny, Vandœuvres, Versoix.)

THE COUNCILOR OF STATE IN CHARGE OF PUBLIC INSTRUCTION,
W. ROSLER.

COURSES FOR APPRENTICE GARDENERS, CANTON GENEVA.

Which will be given

Monday and Thursday evenings from Oct. 5 to Mar. 4, 1912, at the Ecole de Grutli, first floor, rooms 8 and 10 (entrance Rue General-Dufour).

(The course in chemistry will be given at the Housekeeping School, Rue Rousseau.)

Committee in charge: Messieurs Moise Duboule, Petit-Saconnex, president; Marius Vitet, Andre Carrel, Phillippe Vachoux, and Henry Hertzschuh.

Supervisor: Mr. Marius Vitet. Grange-Canal.

INSTRUCTION FOR THE FIRST YEAR.

First Course (3 lessons, from 7 to 9 o'clock).

PREPARATION OF FLOWERS FOR DECORATIVE PURPOSES.

Prof. Fritz Hirt.

Thursday, Oct. 12. Cut flowers; care and mounting of flowers.

Monday, Oct. 9. Large and small bouquets for celebrations, weddings, and for personal wear.

Thursday, Oct. 12. Flower baskets. Floral decorations for funerals.

Second Course (6 lessons, from 7.30 to 9 o'clock).

Housekeeping School on the Rue Rousseau.

CHEMISTRY.

Professor: Dr. Mark Juge.

Monday, Oct. 16. Composition of bodies.

Thursday, Oct. 19. The air, its composition.

Monday, Oct. 23. Oxygen; combustion and respiration.

Thursday, Oct. 26. Water; substances dissolved in ordinary water.

Monday, Oct. 30. Acids.

Thursday, Nov. 2. Salts.

Third Course (7 lessons, from 7.30 to 9 o'clock).

BOTANY.

Professor: Dr. Alfred Lendner.

Monday, Nov. 6. Germination; different parts of the seed; study of plantules.

Thursday, Nov. 9. The cell and tissues.

Monday, Nov. 13. The root; its various forms and functions.

Thursday, Nov. 16. The stem; conformation, anatomy of a ligneous stem.

Monday, Nov. 20. The leaf; conformation and notchings; functions.

Thursday, Nov. 23. Chlorophyll assimilation; transpiration.

Monday, Nov. 27. Respiration. Parasites. Insectivorous plants.

THE SWISS SCHOOL SYSTEM.

Fourth Course (5 lessons, from 7.30 to 8 o'clock).

MARKET GARDENING.

Professor: M. Auguste Dufour.

- Thursday, Nov. 30. The kitchen garden and the market garden.
 Monday, Dec. 4. Tools.
 Thursday, Dec. 7. Multiplication. Seeding, setting out and bedding.
 Thursday, Dec. 14. Chemical and organic fertilizers; rotation of crops.
 Monday, Dec. 18.

Fifth Course (6 lessons, from 7.30 to 9 o'clock).

ARBORICULTURE.

Professor: John Wolf.

- Thursday, Dec. 21. Nurseries; planing and cultivation.
 Thursday, Jan. 4. Preliminary work; trenching, fertilizing, manuring.
 Monday, Jan. 8. Multiplication; setting out, training of young trees.
 Thursday, Jan. 11. Multiplication; cuttings and layering.
 Monday, Jan. 15. Planting and up-keep.
 Thursday, Jan. 18. The growing and developing of trees in the nursery.

Sixth Course (5 lessons, from 7.30 to 9 o'clock).

ARBORICULTURE APPLIED TO FRUIT TREES.

Professor: M. Elie Neully.

- Monday, Jan. 22. Propagation of fruit trees, general attention.
 Thursday, Jan. 25. }
 Monday, Jan. 29. } Setting out of trees bearing fruit with seeds and with stones; ele-
 Thursday, Feb. 21. } mentary instruction in pruning.
 Monday, Feb. 5. Insects; diseases and treatment.

Seventh Course (7 lessons, from 7.30 to 9 o'clock).

FLORICULTURE.

Professor: M. Ernest Dubois.

- Thursday, Feb. 8. }
 Monday, Feb. 12. } Hothouses and cold frames; general care, heating, aeration, etc.
 Thursday, Feb. 15. } Multiplication; seedlings, cuttings, layering; resetting and pot-
 Monday, Feb. 19. } ting.
 Thursday, Feb. 22. Pruning and pinching.
 Monday, Feb. 28. Fertilizers; composts and vegetable earth.
 Thursday, Feb. 29. Water and watering.

INSTRUCTION IN THE SECOND YEAR.

First Course (4 lessons).

PREPARATION OF FLOWERS FOR DECORATIVE PURPOSES.

Professor: M. Fritz Hirt.

[From 7 to 9 o'clock.]

- Thursday, Oct. 5. Cut flowers; care and mounting of flowers.
 Monday, Oct. 9. Large and small bouquets for celebrations, weddings, and for personal wear.

Thursday, Oct. 12. Flower baskets; fancy arrangements.

[From 6 to 9 o'clock.]

Monday, Oct. 18. Floral arrangements for funerals; contests with prizes.

Second Course (6 lessons, from 7.30 to 9 o'clock).

BOTANY.

Professor: Dr. Alfred Lendner.

Thursday, Oct. 19. Growth of branches; budding and grafting.

Monday, Oct. 23. The flower; the different parts that constitute it.

Thursday, Oct. 26. Pollinization and fecundation; rôle of insects, of the wind, etc.

Monday, Oct. 30. Fruit and seeds; dissemination; rôle of animals, of the water, of the wind.

Thursday, Nov. 2. Classification of plants—cryptogamous, phanerogamous.

Monday, Nov. 6. Monocotyledons and dicotyledons; principal families with examples.

Third Course (4 lessons, from 7 to 9 o'clock).

CULTIVATION OF ORNAMENTAL TREES.

Professor: John Wolf.

Thursday, Nov. 9. Ornamental trees and bushes. General ideas.

Monday, Nov. 13. Cone bearing trees. General ideas.

Thursday, Nov. 16. } Grafting by detached branches by eyes or buds, by using a spot
Monday, Nov. 20. } just below a former graft or by inoculation. With practical
demonstrations.

Fourth Course (4 lessons).

CULTURE OF FRUIT TREES.

Professor: Elie Neury.

Thursday, Nov. 23. } Pruning to increase fruitfulness; disbudding, pinching, training
Monday, Nov. 27. } on walls, etc.

Thursday, Nov. 30. }
Monday, Dec. 4. } Grafting of fruit trees; practical demonstrations.

Fifth Course (7 lessons, from 7.30 to 9 o'clock).

FLORICULTURE.

Professor: Ernest Dubois.

Thursday, Dec. 7. } Harmful insects; diseases and treatment.
Thursday, Dec. 14. }

Monday, Dec. 18. Winter treatment.

Thursday, Dec. 21. } Chrysanthemums; multiplication, cultivation, cryptogamous dis-
Thursday, Jan. 4. } eases, insects and treatment.

Monday, Jan. 8. } Pinks, varieties, species, cultivation and diseases.
Thursday, Jan. 11. }

Sixth Course (4 lessons, from 7.30 to 9 o'clock).

Housekeeping School on Rue Rousseau.

CHEMISTRY.

Professor: Dr. Mark Juge.

Monday, Jan. 15. Nitrogen and ammonia. Their rôle in the life of plants.

Thursday, Jan. 18. Nitrogenous fertilizers.

Monday, Jan. 22. Phosphorus and phosphorous fertilizers.

Thursday, Jan. 25. Potassium and potassium fertilizers.

Seventh Course (5 lessons, from 7.30 to 9 o'clock).

MARKET GARDENING.

Professor: Auguste Dufour.

- Monday, Jan. 29. Watering and irrigation.
 Thursday, Feb. 1. Harmful insects, diseases and treatment.
 Monday, Feb. 5. Seeds, cultivation of seed-bearing plants, harvesting.
 Thursday, Feb. 8. The best varieties of vegetables to cultivate.
 Monday, Feb. 12. Asparagus. Varieties and cultivation.

Eighth Course (6 lessons, from 7.30 to 9 o'clock).

LANDSCAPE GARDENING.

Professor: Robert Koller.

- Thursday, Feb. 15. Plans of parks and gardens: preparatory details; practical demon-
 Monday, Feb. 19. strations.
 Thursday, Feb. 22. Surveying of a plan; outline, planting, perspectives and esthetics;
 Monday, Feb. 26. estimating cost.
 Thursday, Feb. 29. Outline made on the field.
 Sunday, Mar. 1. Outline made on the field.

Monday, March 4, Auditorium (at 2.30 p. m.).

EXAMINATIONS.

Visits to fields under cultivation, florists gardens and market gardens and nurseries, with practical lessons, will be announced later.

THE COUNCILOR OF STATE IN CHARGE OF THE
 DEPARTMENT OF PUBLIC INSTRUCTION,
 W. ROSIER.

GENEVA, September, 1911.

POSTER ISSUED BY THE CANTON OF GENEVA.

SHORT COURSE IN AGRICULTURE.

The courses in agriculture provided for by the act of the 25th of February, 1903, will begin Monday, the 4th of November, at the Chatelaine Cantonal School of Horticulture. They will end about the 1st of March.

The course of lectures extends over two years and comprises the following branches:

| FIRST YEAR. | | SECOND YEAR. | |
|--|--------------|--|--------------|
| | Hrs. per wk. | | Hrs. per wk. |
| Animal life and hygiene..... | 3 | Animal life and hygiene..... | 3 |
| Agriculture..... | 4 | Breeding and feeding..... | 3 |
| Market gardening..... | 2 | Agriculture..... | 3 |
| Arboriculture..... | 2 | Market gardening..... | 2 |
| Agricultural accounts..... | 2 | Arboriculture..... | 2 |
| Machinery and appliances..... | 1 | Farm economics..... | 3 |
| Vine growing..... | 4 | Agricultural accounts..... | 2 |
| Bee culture..... | 1 | Machinery and appliances..... | 1 |
| Drainage..... | 1 | Dairies..... | 1 |
| French..... | 2 | Farm buildings..... | 1 |
| Geometry, surveying, and mensuration..... | 2 | French..... | 2 |
| Botany..... | 1 | Geometry, surveying, and mensuration..... | 3 |
| Ecology..... | 2 | Botany..... | 1 |
| Anatomy, physiology, first aid to the injured..... | 1 | Anatomy, physiology, and first aid to the injured..... | 1 |
| Chemistry (theoretical and practical)..... | 6 | Chemistry (theoretical and practical)..... | 6 |
| Civic instruction..... | 1 | Rural legislation..... | 1 |
| Physics..... | 1 | Physics..... | 1 |
| Cabinetwork and wagon making..... | 3 | Vegetable pathology..... | 1 |
| | | Breeding of birds..... | 1 |
| | | Ecology..... | 1 |
| | | Cabinetwork and wagon making..... | 3 |

The courses in agriculture are open to the regular students and visitors.

Young people of about 15 years of age are admitted as regular students, provided they have received sufficient previous instruction.

Regular pupils are lodged and boarded at the school at Chatelaine. Very careful surveillance is exercised over them. The cost of board is as follows: For pupils of Swiss nationality living in the Canton, 20 francs per month; for pupils of foreign nationality whose parents are established in the Canton, 60 francs per month. Visitors pay a fixed charge of 2 francs per course.

Scholarships may be granted to deserving pupils who make a written request, explaining their reasons, to the Department of Public Instruction.

The lessons will be given, as a rule, every day from 8 a. m. to noon and from 1 to 6 p. m. Saturday afternoon is reserved for visits to museums, farms, and institutions having to do with agriculture.

At the end of the second year a diploma is awarded to pupils who have deserved it by their work and the results of their examinations.

For information and matriculation apply, beginning with the present date, to the Department of Public Instruction, Hôtel de ville, 10, and to the Director of the School at Chatelaine.

THE COUNCILOR OF STATE IN CHARGE OF THE
DEPARTMENT OF PUBLIC INSTRUCTION,
W. ROSIER.

GENEVA, August 12, 1912.

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