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CARE OF THE HEALTH OF BOYS IN GIRARD COLLEGE PHILADELPHIA, PA.

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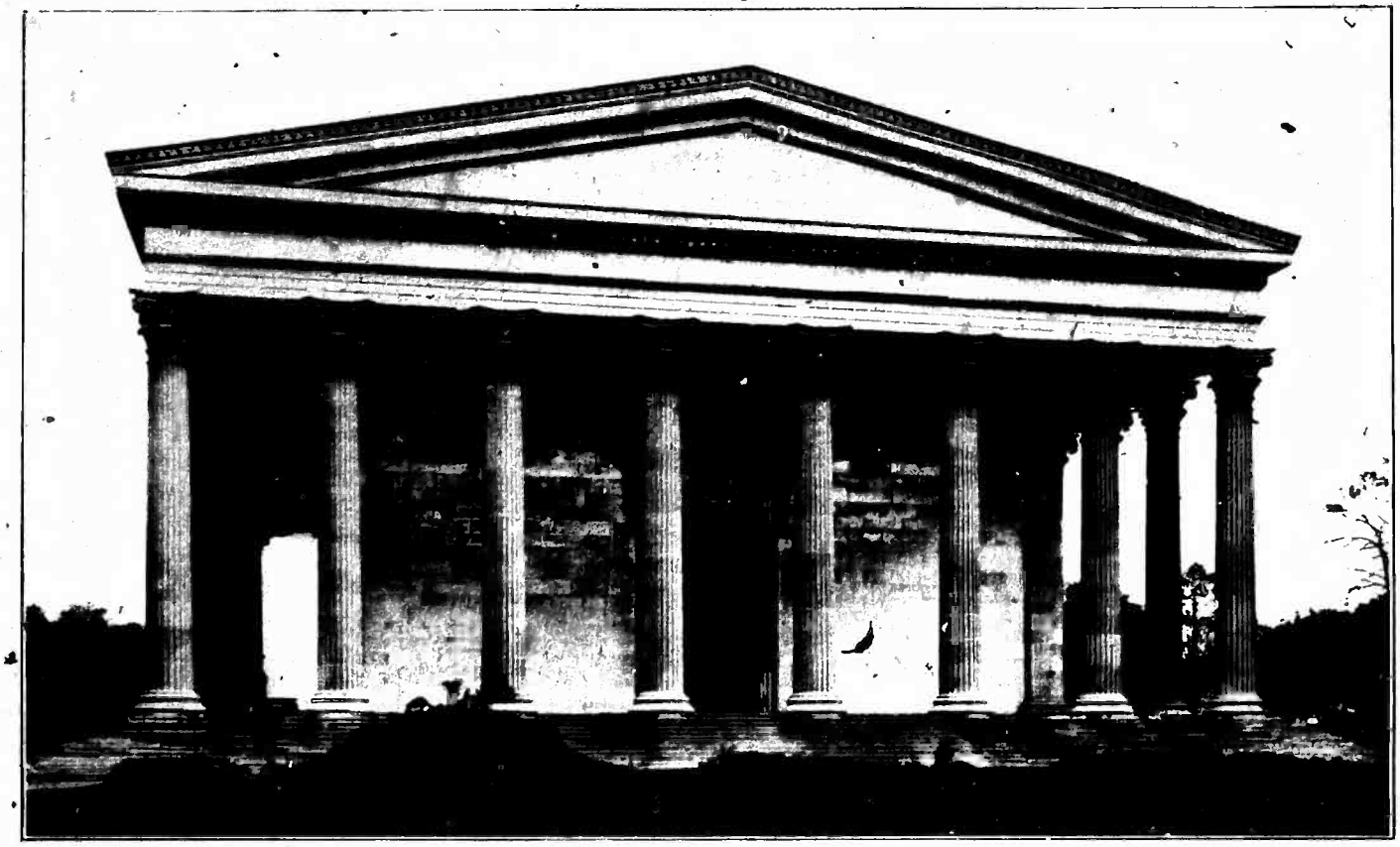
1914



GIRARD COLLEGE. MAIN BUILDING.

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CONTENTS.

ILLUSTRATIONS.

LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, December 18, 1918.

SIR: On a recent visit to Girard College, Philadelphia, I was so impressed with the evident good health of the boys in that institution and with the attention and care given to this important phase of the institution's work that I requested Dr. Cheesman A. Herrick, president of the college, to have prepared for this bureau some account of the health work of the college. President Herrick has very kindly complied with my request and has forwarded the manuscript transmitted herewith. I recommend that it be published as a bulletin of the Bureau of Education for distribution among the officers of orphanages, home schools, so-called industrial and reform schools, schools for the feeble-minded, State schools for the deaf and the blind, and other institutions in which children are detained and on which they depend for the care of physical health as well as for education. The importance of the proper care of the health of children in such institutions is indicated by the fact that reports to this office show not less than 90,000 inmates in institutions of this kind in the United States.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

The SECRETARY OF THE INTERIOR.

CARE OF THE HEALTH OF BOYS IN GIRARD COLLEGE, PHILADELPHIA, PA.

I. GIRARD COLLEGE.

By FRANK O. ZESINGER.

Girard College was founded and endowed by Stephen Girard, mariner and merchant, a native of France, who came to Philadelphia in 1776. After a long life of service to his adopted city, State, and country, he died in 1831, leaving the bulk of his estate in trust to the city of Philadelphia for the erection and maintenance of what is now known as Girard College.

The following extract from his will clearly expresses his purpose:

> and whereas I have been for a long time impressed with the importance of educating the poor and of placing them by the early cultivation of their minds and the development of their moral principles above the many temptations to which through poverty and ignorance they are exposed; and I am particularly desirous to provide for such a number of poor male white orphan children as can be trained in one institution a better education, as well as a more comfortable maintenance than they usually receive from the application of public funds.

The bequest for the erection of the college was $2,000,000, and the endowment for its maintenance amounted to about $3,500,000.

Girard College was formally opened in 1848 with 100 pupils. Since its founding it has sent out into the world nearly 8,000 boys.

The college is located in the northwestern section of the city and covers a tract of about 40 acres. There are 14 large buildings. The present attendance at the institution is 1,500.

Boys are admitted to the college between the ages of 6 and 10 and are maintained and educated until they are prepared to leave between the ages of 14 and 18. The course of study as prescribed covers 11 years.

The management of Girard College is vested in the board of directors of city trusts, composed of 15 members, 12 of whom are appointed by the judges of the court of common pleas of the county of Philadelphia, and three ex officio members, the mayor and the presidents of the select and common councils.

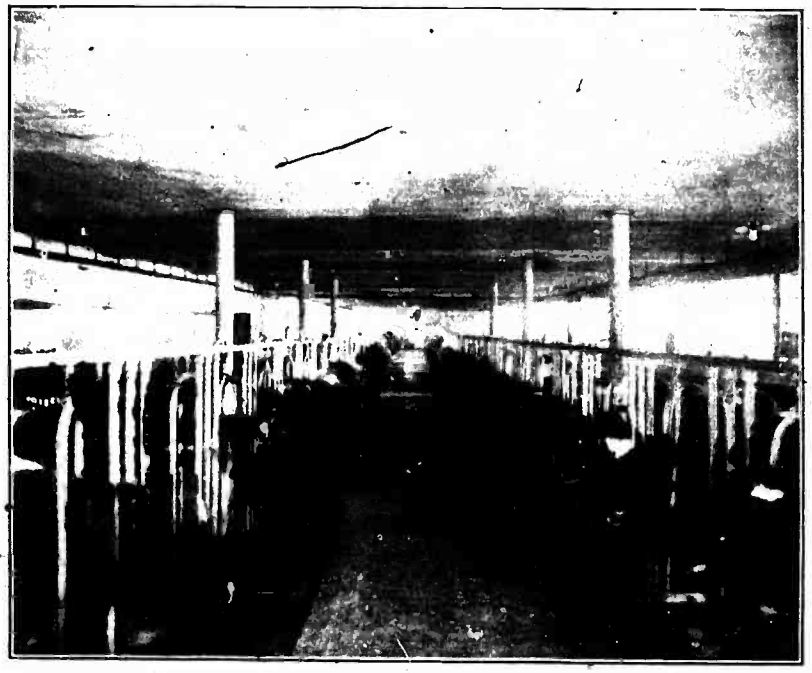
The following outline shows the plan of organization of Girard College and the emphasis placed on the health and welfare side:

PLAN OF ORGANIZATION.

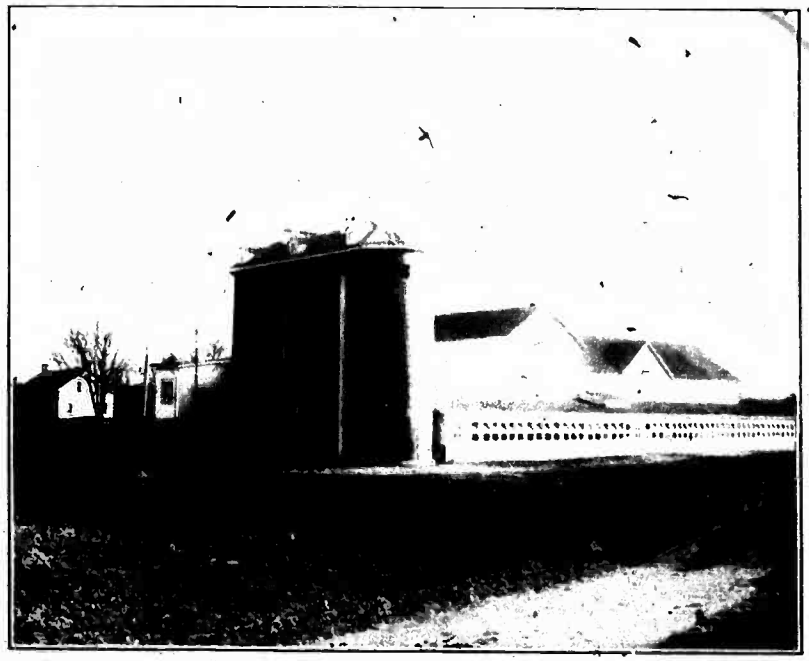
PRESIDENT

- SECRETARY TO PRESIDENT.
  - Postal clerk, 1.
  - Stenographer, 1.
  - Clerk, 1.
- INSTRUCTION AND LIBRARY (vice president).
  - High school.
    - Professors, 8.
    - Teachers, 5.
    - Assistant, 1.
  - Mech. instruction.
    - Supt. mech. school, 1.
    - Teachers, 12.
  - Prof. mil. science and tactics.
    - Band instructors, 2.
    - Attendant, 1.
  - Librarian.
  - Supery. principal elem. schools.
    - Clerk, 1.
    - Grammar school—teachers, 16
    - Primary school—teachers, 16.
    - Associate supervisors and relieving teachers, 2.
    - Teacher of special class, 1.
    - Teachers of special subjects, 2.
    - Teachers of vocal music, etc., 2.
    - Teachers of sloyd, 2.
- HOUSEHOLD AND PLAYGROUND (supervising prefect).
  - Prefects, 11.
  - Relieving prefects, 7.
  - Governesses, 22.
- DOMESTIC (matron, dietitian, and assistant matron).
  - Matron's assistants, 2.
  - Housekeepers, 2.
    - Cooks, 12.
  - Ass't housekeeper, 1.
    - Kitchen assistants, etc., 14.
  - Head waitress; waitresses and relieving girls, 41.
- BUSINESS (steward and assistant steward).
  - Utility men, 3.
  - Cleaners and caretakers, 63.
  - Seamstresses, 31.
  - Clerks, 3.
  - Chief engineer.
    - Assistant engineer, 1.
    - Night engineer, 1.
    - Engineers at power house, 2.
    - Lineman and trimmer, 2.
    - Firemen, 9.
    - Steam fitters, 2.
    - Plumber, 1.
    - Utility man, 1.
  - Head carpenter.
    - Carpenters, 3.
    - Bricklayer, 1.
    - Tinsmith, 1.
    - Painter, 1.
    - Laborer, 1.
  - Head gardener; gardeners, 8.
  - Chief baker; bakers, 2.
  - Supt. shoe shop; shoemakers 7.
  - Foreman of laundry.
    - Assistants, 2.
    - Laundresses, 36.
    - Delivery man, 1.
    - Washermen, 2.
  - Coachmen, 2.
  - Watchmen, 2.
  - Gatemen, 4.
  - Utility men, 2.
- HEALTH (visiting physician).
  - Resident physician.
    - Head nurse.
      - Nurses, 5.
      - Cook, 1.
      - Waitresses, 2.
      - Housemaids, 6.
    - Prefect, 1.
    - Seamstress, 1.
  - Opthalmologist, 1.
  - Chief of ear, nose, and throat department, 1.
  - Chief of dental dept.
    - Dentists, 2.
    - Clerk, 1.
  - Consulting surgeon, 1.
- SUPT. ADMISSION AND DISCHARGE AND ASSISTANT AND 1 CLERK.

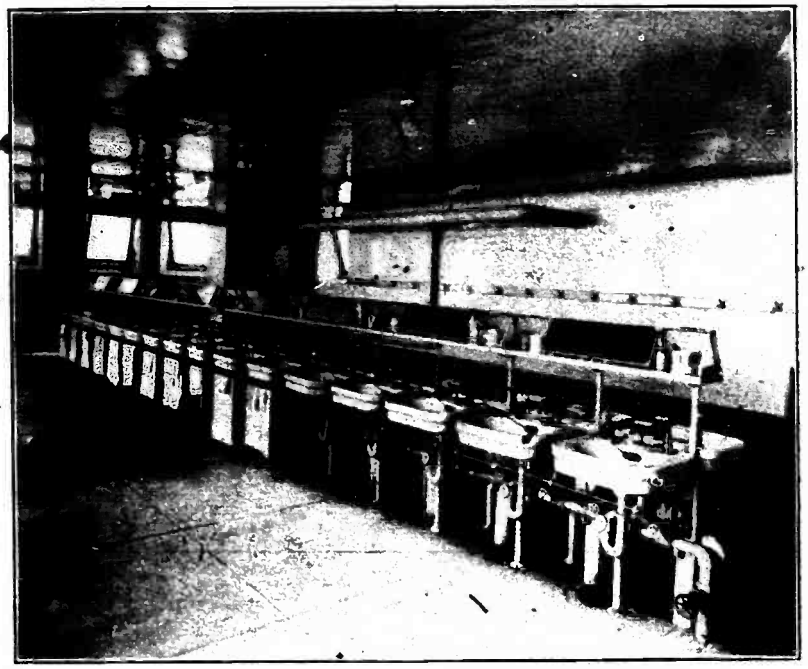
The health of the pupils has always been one of the chief concerns of the management, in accordance with the will of the founder, which declares: "Due regard shall be paid to their health, and to this end their persons and clothes should be kept clean."



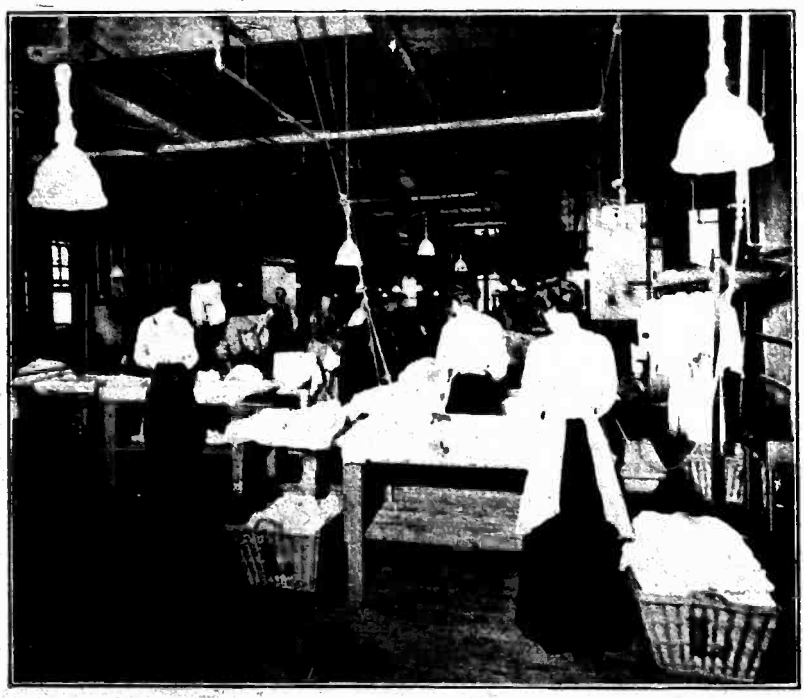
A. STABLE OF DAIRY FROM WHICH THE MILK SUPPLY OF GIRARD COLLEGE IS OBTAINED.



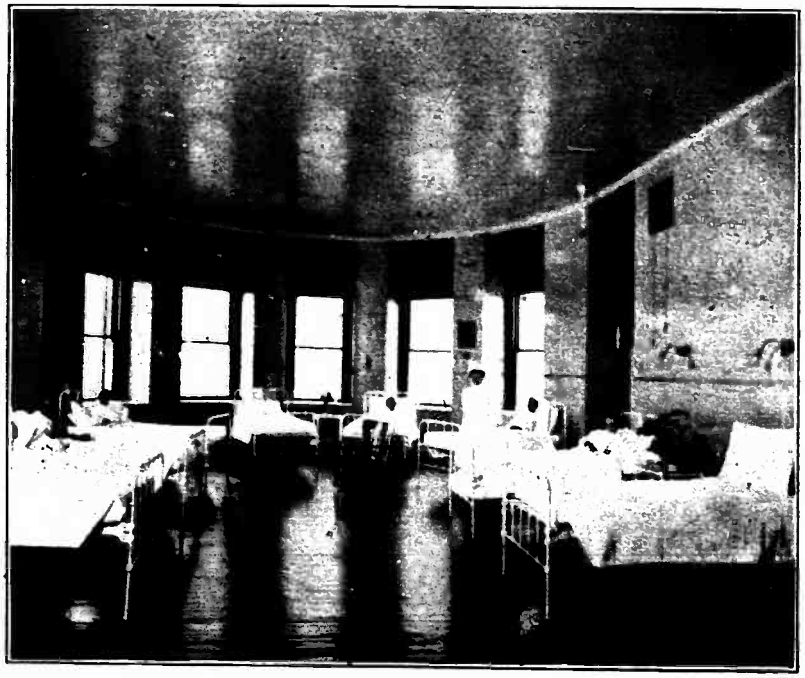
B. COW BARN AT DAIRY FROM WHICH THE MILK SUPPLY OF GIRARD COLLEGE IS OBTAINED.



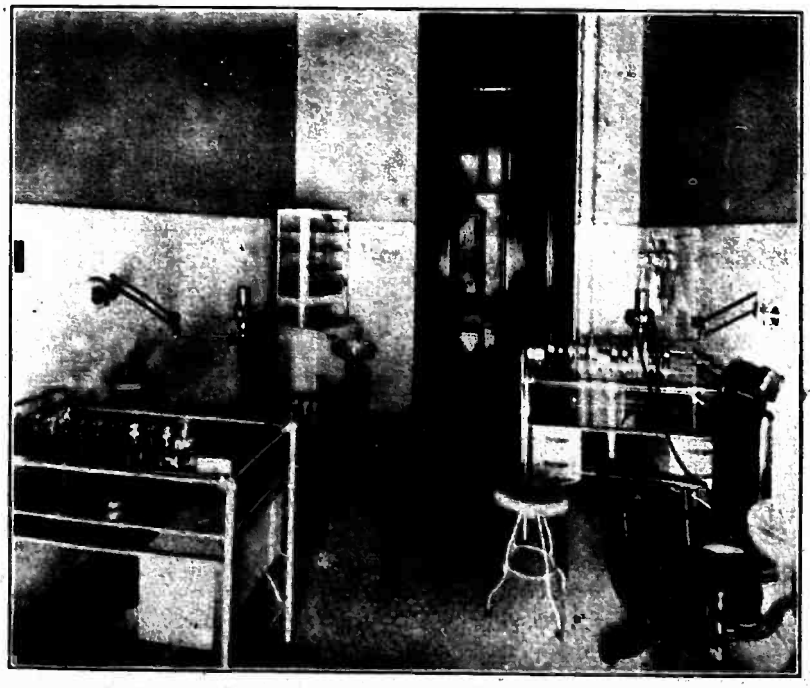
A. A LAVATORY IN BUILDING NO. 7.



B. LAUNDRY, SECOND FLOOR.



A. A WARD IN GIRARD COLLEGE INFIRMARY.



B. EAR, NOSE, AND THROAT DEPARTMENT OF THE INFIRMARY.

A. OPERATING ROOM IN THE DENTAL DEPARTMENT.

B. WAITING ROOM, DENTAL DEPARTMENT.

The following table shows the death rate of the pupils of the college by decades for the early period, and by years more recently:

	Per thousand.
1848–1857	7.5
1858–1867	5.1
1868–1877	3.1
1878–1887	4.2
1888–1897	4.1
1898–1907	2.8
1908	2.0
1909	2.0
1910	2.0
1911 (there were no deaths).	
1912	2.0
1913	2.0

Before presenting the detailed statements of the visiting physician, the chief of the dental department, the chief of the nose, throat, and ear department and the ophthalmologist, a brief review of some of the health protective measures in practice may be of interest and value.

Diet.—The will of the founder requires that the pupils "shall be fed with plain but wholesome food." The supervision of the diet is in charge of a trained dietitian. The diet lists are supervised by the visiting physician and his staff, who make any suggestions as to change that they may deem wise and beneficial.

Water.—In the year 1893 the board of directors installed a filtering plant of 500,000 gallons capacity. Bacteriological examinations of the water are made periodically to insure safety at all times.

Milk.—The milk supply is carefully guarded. Over 1,300 quarts are delivered to the college daily, from a dairy farm about 30 miles from the city. Under the terms of the specifications and the contract, the college authorities are enabled to keep constant supervision over the product. The cows are inspected by an authorized State veterinarian, and the stables [1] in which the cows are kept are of the most approved type. The men employed about the dairy in handling the milk are examined by the college staff of physicians, and the milk is carefully protected against possible sources of contamination from the time it leaves the cow until it is deposited in the refrigerators at the college. To insure compliance with the specifications, bacteriological examinations are made of at least three samples each month.

Personal cleanliness.—The pupils are required to take frequent baths, and also to visit the lavatories before going to meals and before retiring at night. Bath tubs, except for the very youngest boys, have been abandoned, and shower baths are installed in the various buildings. The lavatories are of the best type of white porcelain,[2] and each boy

[1] Plate 2. [2] Plate 1A.

has his own basin with a supply of towels, wash cloths, soap, tooth powder, tooth brush, hair brush, and comb marked with his name. The tooth brushes in use are made especially for Girard College after a design suggested by the dentist in chief. There are 344 shower baths and 1,276 lavatories; 56 porcelain enameled bath tubs and 320 basins are provided for the smaller boys.

Play and playgrounds.—Gymnastic apparatus, tennis courts, swings, see-saws, and other equipment are provided on the playgrounds. During the recess periods the games of the younger boys are carefully arranged and participated in by the teachers in charge. Under the supervision of an instructor in physical training, the boys are systematically taught indoor gymnastics and exercises and outdoor games and sports. An outdoor swimming pond is in use daily during the summer months. In the winter months it is used for skating.

The following statement of the supervising prefect, who is in charge of the playgrounds, indicates the policy of the institution:

> In regard to the playground activities in their relation to the health of the college, it is to be noted that the institution has so arranged the time on the playground that the boys spend as much time in the open air as they do in the schoolroom each week. A sufficient asphalt surface has been placed on our playgrounds so that even in rainy weather it is possible for the boys to be out of doors unless it rains very hard. It has been our policy to place apparatus on our playgrounds so that as many boys as possible may play the game which is peculiar to each season of the year. It has also been arranged for 350 of the boys on one playground to be tested each spring, so that each boy makes a record as to his physical ability in this line. In baseball we have had through the spring season as many as 28 teams in addition to the teams which play with outside organizations. It is our endeavor to reach as an ideal a point where every boy will have the desire and the opportunity to play those games which are familiar to the average American boy.

Ventilation.—Each officer or teacher in charge of a group of boys is made responsible for the ventilation and temperature of the rooms of which he has charge.

Illumination.—Much attention has been given to the subject of proper illumination and many improvements have been made in the lighting equipment of several of the buildings by the installation of indirect or reflected lights.

Plumbing.—All plumbing appliances are inspected at least once each year and no insanitary fixtures are permitted to remain.

The laundry[1] is equipped with modern machinery. A separate department is provided for the laundering of all clothing and bedding sent from the infirmary.

The bakery has been completely rebuilt and is now a model one. The walls of the oven and bread room on the first floor are tiled from floor to ceiling with 3 by 9 inch white glazed tiles. The equipment consists of a flour sifter, flour storage bin, water tank and flour

[1] Plate 3B.

hopper, with scales, dough mixer, dough divider, loaf moulding machine, cake cutting machine, roll divider, proof room, and two ovens of white enameled brick. After the bread is baked, it is kept at an even temperature by means of double window sashes. This equipment provides facilities for supplying a variety in bread and cakes, a very important factor in the diet of the pupils.

In his annual report to the board of directors, for the year 1910, the president of the college says:

> As medicine is generally tending more and more to the prevention of diseases rather than to their cure, our own work is developing largely in the same direction. Our medical staff has sought during the past year, and I believe will, to an increasing degree in the future, seek to make the medical department of Girard College a department of health and not one of caring for the sick. In this direction it can be of the largest service to the boys who are committed to the care of the college.

This is now the established policy of Girard College, and a brief description of the various agencies for the care of the health of the boys and the statements of the physicians which follow will indicate what is done at Girard College in this most important matter.

II. STATEMENT OF THE VISITING PHYSICIAN.

Examinations of applicants for admission to Girard College are held twice a year and at each examination approximately 100 boys are admitted. By a provision in the will of Mr. Girard the college is accessible to "poor, white, male orphans" between the ages of 6 and 10 years. Under these conditions it can scarcely be expected that all of the applicants will have the inheritance of robust health, and as a matter of fact quite a large percentage of the deaths of parents are attributable to tubercular disease.

Boys born in the old city of Philadelphia, or in Pennsylvania at least, have preference in the matter of admission. This territory furnishes a sufficient number of applicants to keep the total number of pupils in the college at about 1,500. Problems involving the health of the college are very closely allied therefore to the general health conditions as found in the State of Pennsylvania.

Each applicant for admission undergoes a careful physical examination to determine the exact condition of the different organs and functionings of the body and whether or not he is suffering from any communicable disease. In determining the acceptability of an applicant, the rather broad view is taken that unless he has some physical defect or deformity that is likely to interfere seriously with his progress in school he shall be admitted. Experience has shown that the healthful plan of life outlined for the Girard College boy, including as it does good food, healthful outdoor exercise, watchful care, warm clothing, sanitary surroundings, and perfectly ventilated sleeping quarters, increases his resistance to disease and enables him

to secure an education that could not be obtained without such advantages as the college affords. A careful inquiry is made into the family history of each boy, and although there may be a very positive tubercular or specific inheritance, the applicant is not refused admission unless there is evidence that such disease is in active progress.

As a matter of routine, every boy is vaccinated as soon as he enters the college. Our percentage of "takes" is comparatively small, most of the boys showing marks indicating a very recent vaccination. The Pennsylvania law regarding vaccination is particularly insistent on all children entering school being successfully vaccinated. Practically all boys applying for admission to Girard College have been to school, and therefore have been vaccinated.

No case of typhoid fever is known to have developed in Girard College for more than three years. With the knowledge that this disease is preeminently water or milk borne, we are particularly watchful of these two sources of infection. The water supply of the college is obtained from the regular city mains. The college has its own filter; and this means that the drinking water is twice filtered. The water is submitted each month to a chemical and bacteriological examination to insure its freedom from sewage contamination and as far as possible from infectious intestinal bacilli. We have reason to suppose, therefore, that more than ordinary protection is furnished against this fruitful source of infection.

From 800 to 1,000 of the pupils of the college go to the country during the vacation period of July and August, and we have an occasional case of post-vacation typhoid. During the past summer, and for two years previous, epidemics of typhoid fever have prevailed in towns within a radius of 100 miles of Philadelphia. Unfortunately it is this very territory into which most of the pupils go on their vacation.

Experience seems to prove that the general health of the boy can best be conserved in the college during the summer months, as well as at other times. Parallel reasons make it necessary for him to have the relaxation which change of routine and environment brings. Under the rules now governing applications for vacation time, the mother is required to secure a certificate from a reputable physician, testifying to the safe sanitary conditions of the place where she proposes taking her boy. This is the best that can be done by the college at long range. It is impossible even with this guarantee to know positively what the home surroundings of any boy are without a visit from our field agent. During each one of the three past years we have had two cases of post-vacation typhoid, making a total of six cases. As a protection against all possible sources of infection by the *Bacillus typhosus* it has been suggested that all of the pupils of the

college, or at least those going into districts suspected of being insanitary, be inoculated with antityphoid serum. Such a plan is now under consideration.

Not within recent years have we had an epidemic the source of which could be traced to causes arising within the college. The sleeping quarters are roomy, with an abundance of air space, and the bathing and toilet facilities represent the highest type of sanitary plumbing. The food supply is carefully planned and supervised, the object being to furnish an abundance of proper nourishment for a healthy, vigorous, growing boy.

We have occasionally outbreaks of communicable diseases, such as measles, mumps, scarlet fever, diphtheria, and whooping cough. These diseases are usually brought to us from sources outside of the college by pupils going out for Saturday or other holidays and remaining in the city. These epidemics generally occur in cycles, and we have frequently gone for several years without any form of communicable disease except measles. Almost every year, however, we have an epidemic of measles. The usual methods of prompt isolation of infected cases, careful search for possible "carriers," quarantining of "contact" cases, culturing in diphtheria "contacts," have served to stamp out promptly the usual forms of communicable disease. Measles apparently stands in a class by itself as regards difficulty of control. It is probably the most highly contagious of all forms of communicable disease and is particularly so during the early or "catarrhal" stage, probably several days before a rash appears. We find that it usually runs its course in the college in spite of our most strenuous efforts to control it.

The year 1912 may be regarded as an average one in considering the health of the college. For the whole year the daily average number of patients in the infirmary was 35, or about 2½ per cent of a total of 1,500 pupils. The highest percentage attained was in March, when it reached 3.8 per cent. The total number of pupils housed in the infirmary during the year included 250 "observation" cases and many of simple headache and minor digestive disturbances. The average Girard College boy is not given to complaining, and experience has shown that it is wise to take cognizance of his most trifling ills and keep him under observation for 24 hours. While this plan increases largely the number of cases "treated," it has the advantage of giving a lad about to be seriously ill the benefit of early rest in bed, careful nursing, control of diet, and observation of important developments in his case.

The infirmary (Pl. 4) is a large 3-story L-shaped building used exclusively for the care of pupils who are ill and for housing the various special divisions of the medical department. The medical staff consists of a visiting physician, resident physician, laryngologist,

ophthalmologist, consulting surgeon, chief dental surgeon, and two assistants. In the infirmary there are available about 50 beds for ordinary use and 130 beds for any unusual outbreak or epidemic. The second floor of the infirmary is the one in general use, the first floor being taken up with offices, clinic rooms, drug, and schoolroom. The third floor is used for the isolation of communicable diseases. When this floor is in use, it is practically isolated from other parts of the infirmary, and special nurses are engaged for the care of pupils ill here. The regular staff of nurses in the infirmary consists of four day nurses, including a head nurse, and two night nurses, with an occasional extra nurse engaged in times of great stress.

On the second floor of the building are thoroughly equipped operating and sterilizing rooms; all necessary operations are performed by the consulting surgeon, who is regularly on the medical staff of the infirmary.

III. STATEMENT OF THE CHIEF OF NOSE, THROAT, AND EAR DEPARTMENT.

The answer to the query, How is the health of the boys at Girard College conserved? is a very simple one so far as it pertains to the ear, nose, and throat. It is largely a question of prophylaxis.

We aim to keep these special organs in as near a normal condition as possible. Upon entering the college each boy is submitted to a physical examination of the ear, nose, and throat, and the result of this examination is kept on file.

The first fruits of this examination are that a large proportion of the applicants (from 33 to 50 per cent) are placed aside for some form of treatment either operative or local. The various catarrhal and suppurative inflammations of the ear, the multiple catarrhal conditions of the nose and naso-pharynx, and the very large number of cases in children of this age (6 to 8 years) of pathologic conditions of the adenoid tissue at the vault of the pharynx, and of the tonsils, are in the list of those separated from the normal, or rather near normal.

All of these conditions are remedied as far as possible immediately upon entrance. The Girard College boy, therefore, starts with a clean bill of health, so that with proper sanitary regulations as to the schoolrooms, sleeping rooms, etc., careful regulations as to the work and play, and all other necessary precautions which the environment of the boy suggests and which the authorities of the college are diligent to employ, it is a comparatively simple matter to maintain good health.

It has been borne out by experience that these measures reduce to a minimum the amount of sickness as it affects the ear, nose, and throat of the boy at Girard College.

IV. STATEMENT OF THE OPHTHALMOLOGIST.

Upon admission every boy is given an examination by the eye department and a record of the result is kept in a card-index system. The examination covers the following:

Name and age.....
Vision.....(Each eye taken separately at 5 or 6 meters.)
Eyeball:
External examination—
Lids and conjunctiva.....(Condition noted.)
Lachrymal apparatus.....(Condition noted.)
Motility.....(Condition noted.)
Cornea.....(Condition noted.)
Iris.....(Condition noted as to response to light and distance.)
Ophthalmological examination—
Media.....(Condition noted.)
Fundus.....(Condition noted, and a reading of its appearance recorded.)
Symptoms.....(Recorded, if there are any.)
Treatment—
(Instituted, if required.) Under this head all the boys divide into the three following classes:
No treatment.....These cases are not seen again before the periodic examination, unless they complain or are sent for consultation.
Observation.....These cases are those which show something out of the normal and are seen again as often as it is deemed necessary.
Refraction.....All refraction is done under mydriasis. The mydriatic used in every case is atropine sulphate, 4 grains to fluid ounce 1. One drop three times a day for six instillations. Upon reexamination many of these cases are done under homatropine.

In refraction cases glasses are generally ordered under the following rules:

Hyperopia.....If total less than 2 dioptres, no glasses ordered unless there are symptoms.
If total over 2 dioptres, glasses generally ordered.
Myopia.....Glasses always ordered.
Hyperopic astigmatism.....If more than 0.50 dioptre, it is corrected.
If less than 0.50, it is not corrected unless there are symptoms.
Myopic astigmatism.....Glasses ordered for all cases.
Mixed astigmatism.....Glasses always ordered.
Anisometropia.....Generally corrected.

In myopia, full correction is generally ordered. In hyperopia, care is taken to give full play to the physiological function of accommodation.

After a boy gets his glasses he is placed in one of two classes—those who must wear their glasses constantly or those who are only required

to use them when doing close work. In order to control this, lists of boys are sent to the respective school or household officers.

Boys who do not come regularly under the observation of the eye department are referred to it by the school or household officers whenever it appears to be necessary. The careful supervision of these officers reaches promptly and effectively any boys requiring treatment.

At regular intervals the vision of all the boys is taken, and those who show any defect are placed under appropriate treatment.

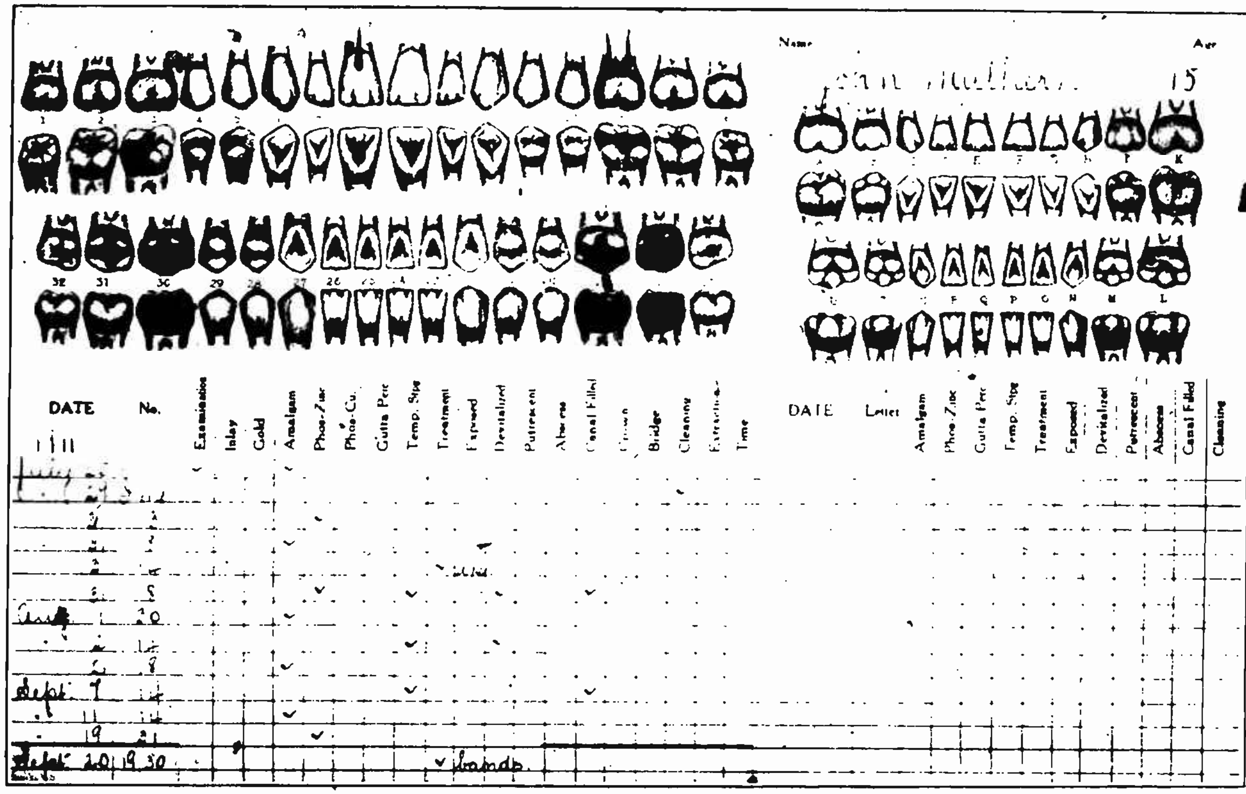
V. THE DENTAL DEPARTMENT.

Realizing the importance of the care of the teeth as a factor in the conservation of normal development and the health of the boys, and with the knowledge that a large percentage of disease and lack of mental and physical development are due to deleterious effects resulting from neglect and improper treatment of diseased conditions and malocclusion of the teeth, the board of directors of Girard College reorganized the department of dental surgery, which was formally opened on September 11, 1911. It is composed of three operating rooms, a waiting room, and a dental laboratory.[1]

The whole equipment in this department was selected and installed with the greatest care. The fitting out of what is one of the most elaborate dental departments to be found in any institution or school of this kind in the world has for its sole object and aim the care of the boys in Girard College and the practice of dentistry for them as an exact science. An elaborate equipment of this character has been considered unnecessary in most institution and school work; in fact, the care of children's teeth, particularly the temporary teeth, has been, as a rule, neglected by both parent and dentist.

With the enormous task of caring for and establishing a healthy condition in the mouths of approximately 1,500 boys, the necessity for having every facility at hand for rapid, thorough, and careful work is quite obvious. The white marble partitions, white enameled steel cabinets with porcelain tops, white enameled chairs, engines, and switchboards were selected to create an impression of cleanliness and refinement which we desire the boys of Girard College to have of their dental department. On leaving college the boys will then seek to have their teeth cared for in an office where a carefully selected equipment is available and where a high standard is maintained. These are usually found in the offices of the most progressive men, who realize that in their adoption they are enabled to advance their work to its highest degree of perfection.

[1] Plate 5.



DENTAL DEPARTMENT. RECORD CARD OF A 15-YEAR-OLD BOY.

DATE	No.	Examination	Inlay	Gold	Amalgam	Phos-Zinc	Phos-Cu.	Gutta Perc.	Temp. Stop.	Treatment	Exposed	Devitalized	Putrescent	Abscess	Canal Filled	Crown	Bridge	Cleaning	Extraction	Time
Sept 25 1910						✓														
" 26 arch																				
Nov 22 5.11						✓														
May 21 Dmp																				
" 22 " 12										✓										
" 23						✓														
" 24 Dmp																				
" 27										✓										
" 28						✓														

Classification: Class I. Division II Sub div

Naso-Pharyngeal Condition: Chronic [illegible] adenoids

Phone Before Appliances Adjusted: [illegible] Before / After

Movements Started: Upper 11/22/16 Lower 9.26.11 Study

Between July 1911

Models:

Upper 5/21/12

Lower 5/24/12.

Temporary

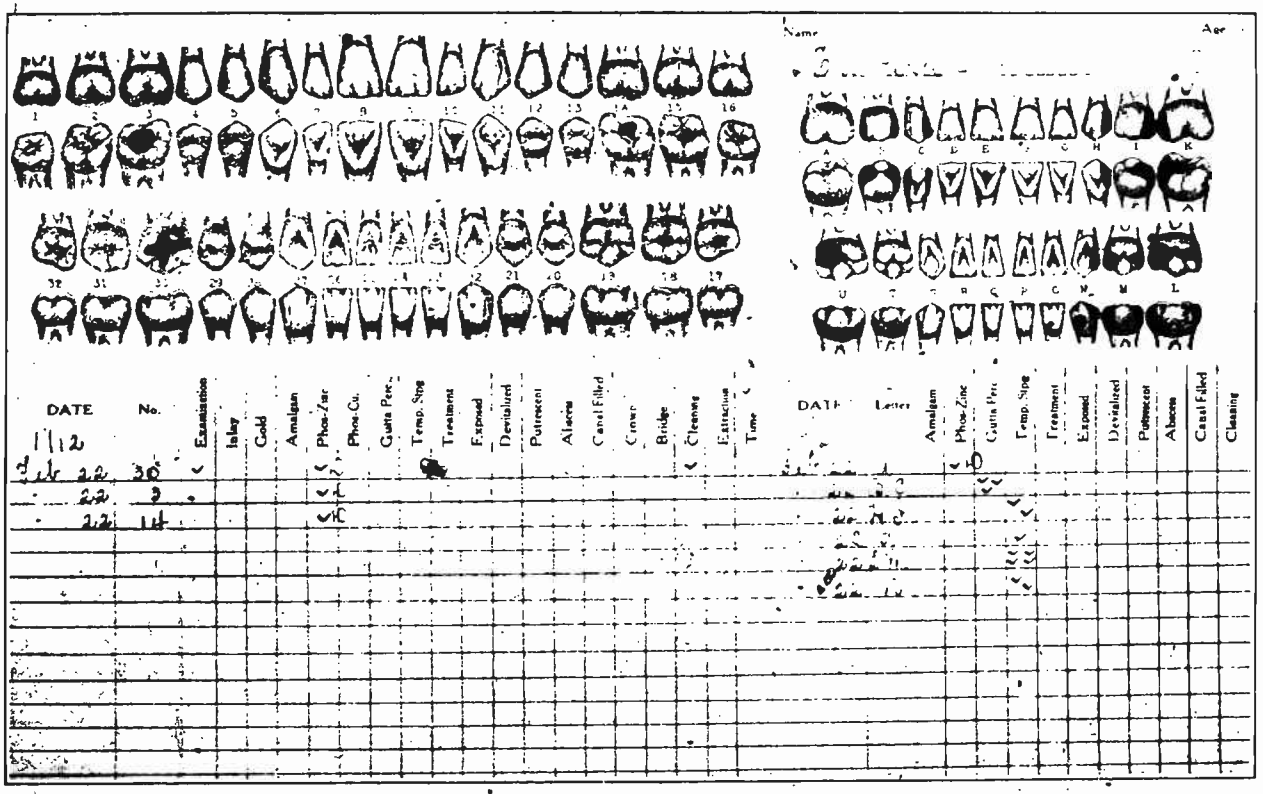
Retention: Placed [illegible] 5.23.12

Removed [illegible] 5/28/12

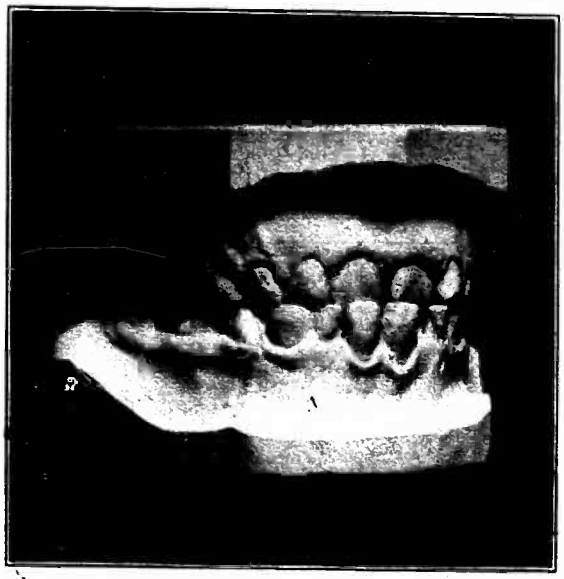
X-Rays

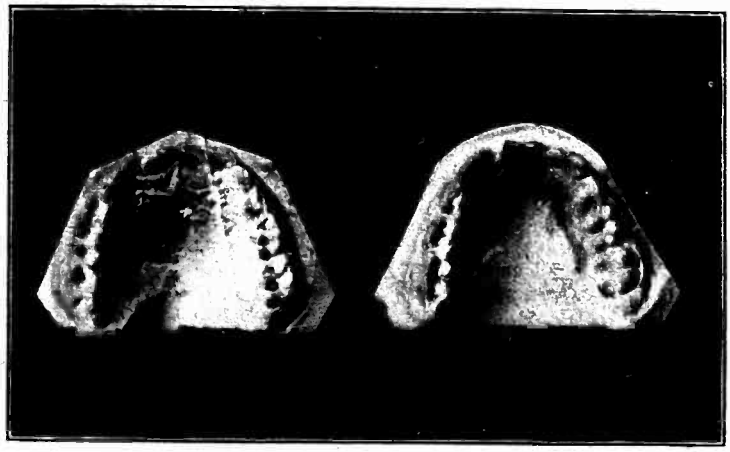
REMARKS 9/28/11 10/11/11 10/25/11 11/8/11 11/22/11 12/6/11 12/13/11 12/20/11 12/27/11 1/3/12 1/10/12 1/15/12 2/7/12 2/14/12 2/21/12 2/28/12 3/6/12

REVERSE OF CARD SHOWN IN PLATE 6.



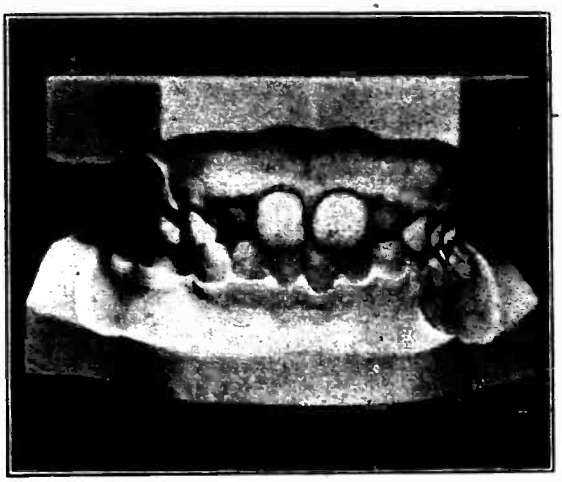
RECORD CARD OF BOY 8 YEARS OLD, MADE AT THE TIME OF ENTRANCE TO THE COLLEGE.

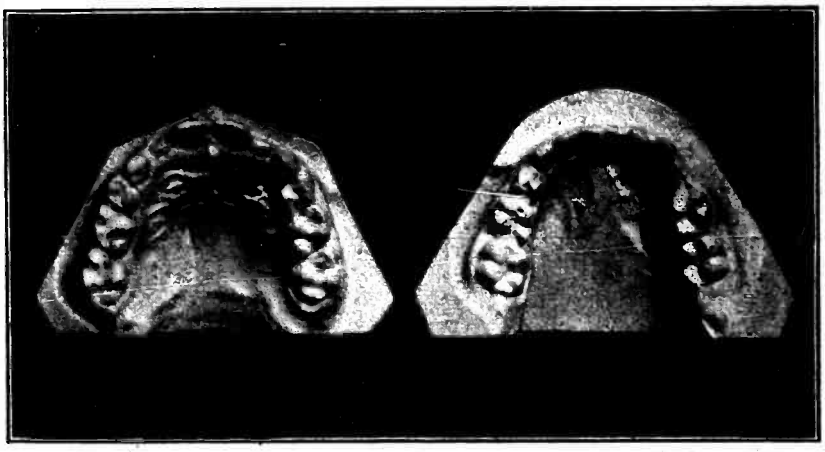




CASE OF 8-YEAR-OLD BOY BEFORE TREATMENT.

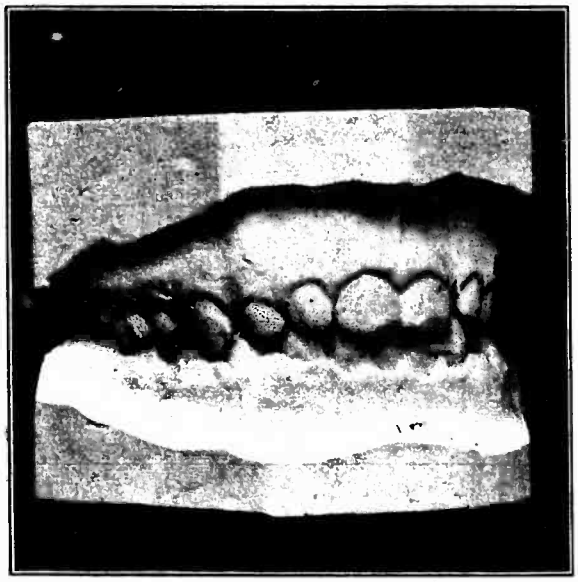
Upper central incisors erupting inside of the lower central incisors.

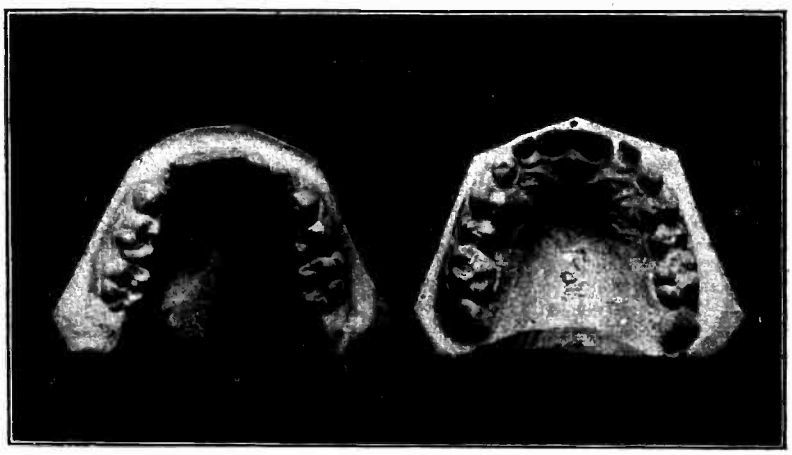




CASE SHOWN IN PLATE 9. THESE CASTS WERE MADE AFTER FOUR WEEKS' TREATMENT.

CASTS OF BOY 10 YEARS OF AGE.

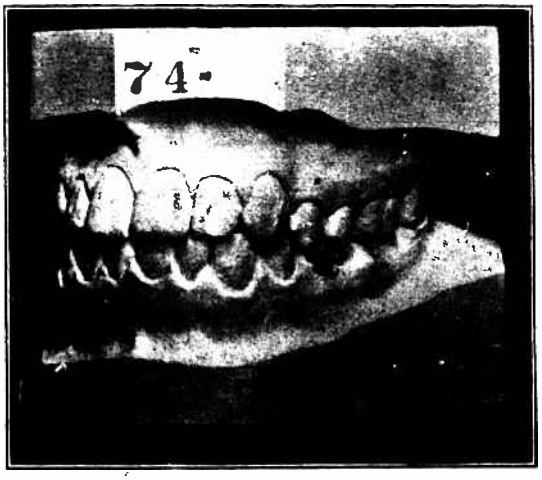


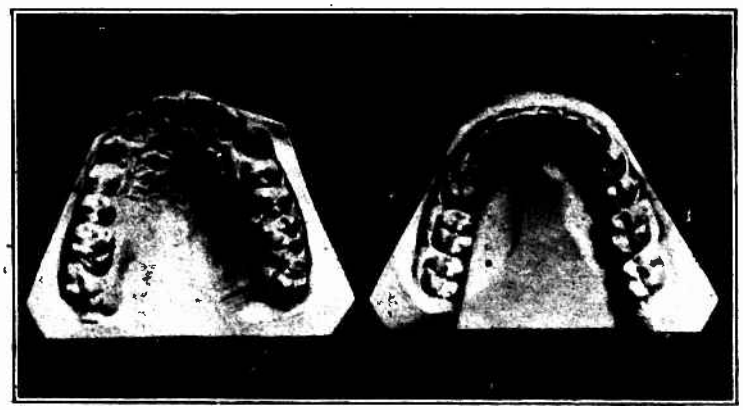


CASE SHOWN IN PLATE 11 AFTER 2½ MONTHS' TREATMENT.

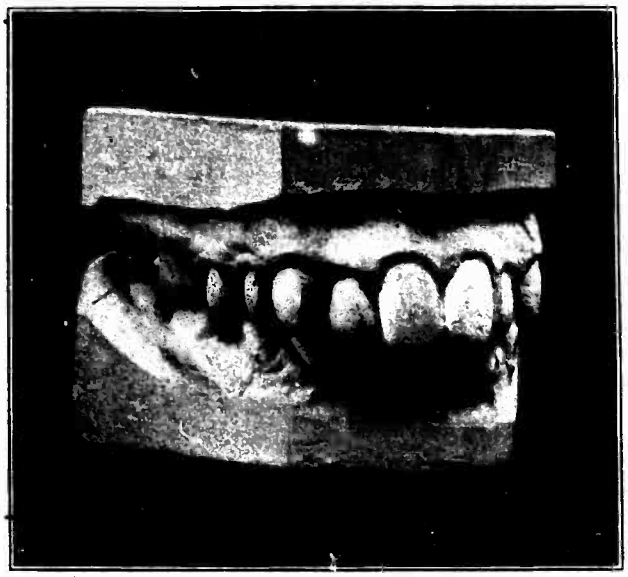
CASE OF BOY 15 YEARS OLD.

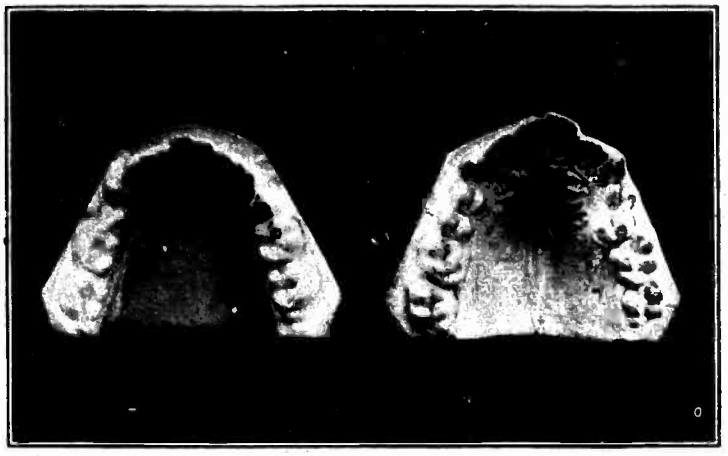
Teeth in both arches out of harmony.





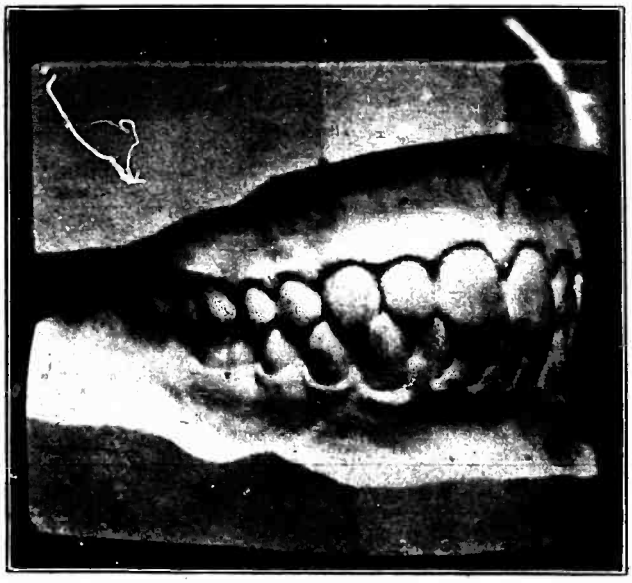
CASE SHOWN IN PLATE 13 AFTER TREATMENT.





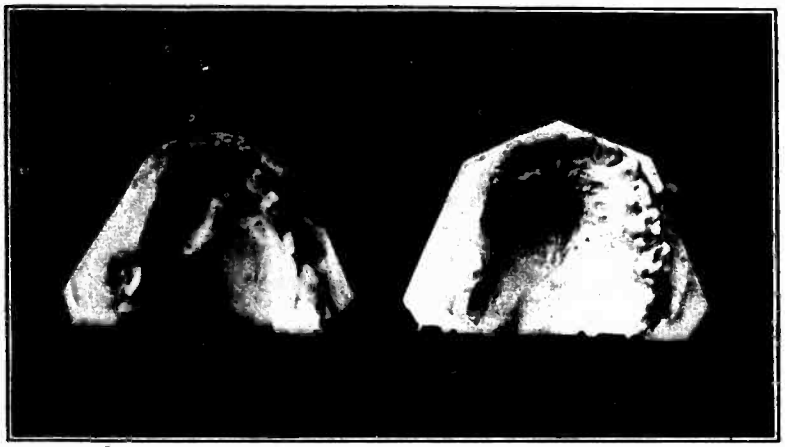
CASE OF BOY 13 YEARS OF AGE.

Lack of growth of the maxillary bones.



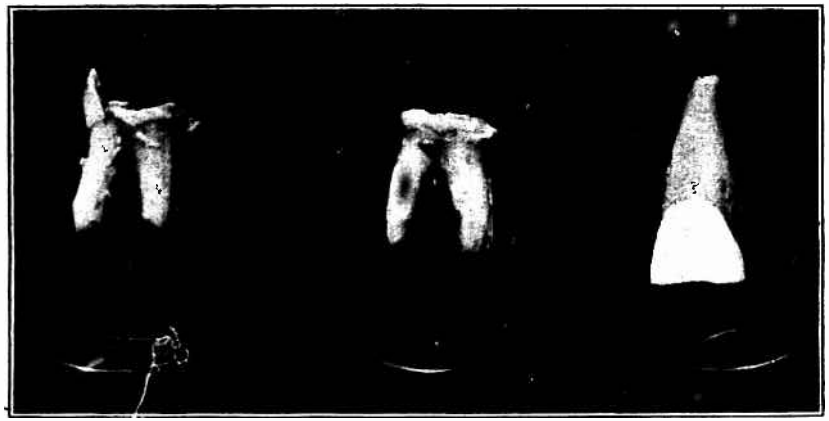
CASE SHOWN IN PLATE 15 AFTER TREATMENT.

Arches have been broadened and lengthened to accommodate all of the teeth.



"CRIMINAL NEGLIGENCE" IN THE CASE OF A BOY 8 YEARS OF AGE.

Five temporary molars and one permanent molar have been prematurely extracted, and two permanent molars are badly decayed. It will perhaps be four or five years before the permanent teeth will erupt to supply the child with any means of masticating his food.



DISEASED TEETH EXTRACTED.

Such teeth, if allowed to remain, become foreign bodies that will eventually set up an irritation and probably result in an incurable alveolar abscess.

The dental department of Girard College is under the care of a dentist in chief, two assistant dentists, and a clerical and mechanical assistant, all four of whom give their full time to the care of the boys in the college. After a thorough examination has been made and the condition of the oral cavity recorded, some simple and painless operation is performed, such as cleaning the teeth. In this way the boy's confidence and cooperation are gained, and he is interested in what is being done for his welfare. He is then given an appointment to return at a subsequent time, and his work is carried on and completed as rapidly as possible. His appointment is made for one hour and promptness is insisted upon. In this way he loses no more time from his school than is necessary.

A record card has been carefully prepared, so that every treatment and operation performed during each boy's attendance in the college can be kept on file and referred to at any time.

Plates 6 and 7 show a record card for a boy 15 years of age. The card indicates the thorough manner in which the work has been carried on, and the amount and character of the work which was necessary to put the boy's mouth in a healthy condition. Plate 8 is a copy of a record card of a boy 8 years of age, at the time of his entrance to the college. It was necessary to insert 14 large fillings in his temporary teeth to preserve them so that they might perform their normal function until they were naturally exfoliated and the normal eruption of the permanent teeth should take place. It also shows cavities filled in three of the erupting first permanent molars. This card indicated quite clearly the necessity of an examination and treatment of the temporary and permanent teeth at an early age.

It is not deemed sufficient to treat the boys in Girard College for present diseased conditions only, but to study the oral cavity as a whole. By prophylactic methods a healthy and aseptic condition is established as nearly as possible and the lost tissue is restored by means of fillings, etc. A study of each individual case is made as to its requirements. Malocclusion and irregularities of the teeth are studied by means of carefully taken plaster of Paris impressions, from which exact casts of the mouths are made. From these can be determined the lack of development and harmony of the alveolar process, the muscles, and surrounding tissues, which influence the growth of the jaws, going to make up a harmonious facial development.

The character of the work being done for our boys can perhaps be best shown by the accompanying photographs made from the plaster casts of some of the cases treated.

The first case (Pls. 9 and 10) is that of a boy 8 years of age. Plate 9 shows the case before treatment, with the upper central incisors erupting inside of the lower central incisors. Plate 10 shows pictures of casts made from the mouth of the same boy after four weeks' treatment.

The second case (Pls. 11 and 12) is that of a boy 10 years of age. Plate 11 shows the inside of the lower central incisors; the maldistribution of force in masticating of the superior centrals wedging between the lower central and lateral incisors had set up an irritation resulting in a diseased condition of the gum and bone tissues. Plate 12 shows photographs from casts made after two and one-half months' treatment. By establishing normal occlusial relations, the surrounding tissues returned to a healthy condition.

The third case (Pls. 13 and 14) is that of a boy 15 years of age. Plate 13 shows all the teeth in both arches out of harmony. The boy's ability to properly masticate his food is badly interfered with, and the lack of development of the superior maxillary bones and alveolar process has caused marked facial deformity, as well as interference with normal respiration. The crowded condition of the upper arch would clearly indicate that the temporary teeth had been neglected and perhaps prematurely lost and the early eruption of the permanent teeth had gone on unassisted. A few weeks' treatment at an early age, similar to that in the preceding cases, would probably have resulted in normal development. Plate 14 shows photographs from casts made of the same case after treatment. All of the teeth in both the upper and lower arches were widened and straightened; normal occlusial relations of the teeth were established; the growth of the alveolar process and maxillary bones was stimulated, and the normal function restored to all the surrounding tissues. Nine months' time was necessary for the active treatment of this case, and it will have to be kept under observation for perhaps one year longer before the bones will have assumed their full normal development and a permanent result assured.

The fourth case (Pls. 15 and 16) is that of a boy 13 years of age. Plate 15 shows the lack of growth of the maxillary bones and alveolar process, due to premature loss of the temporary teeth. The bite is closed, causing the lower central incisors to bite into the soft tissues in the roof of the mouth. Note the loss of space for the lower second right bicuspid, and that the superior left bicuspid is erupting inside of the arch. The narrow and crowded condition of both arches interferes with the normal functions of mastication and respiration. Plate 16 shows pictures of the same case after treatment. The arches are broadened and lengthened to accommodate all of the teeth. It required about nine months to

produce this result, which could have been obtained in about as many weeks if taken at an early age, when a perfect result would have been assured by assisting nature a little. Too much emphasis can not be placed upon the necessity of early dental attention, and particularly the care of the temporary teeth. When they are lost prematurely, the permanent teeth erupt unassisted into various conditions of irregularity and malocclusion, which greatly interfere with the growth of the bones of the head. Interference with the organs of respiration results in a lack of normal development of the tissues of the body, following the improper oxygenation of the blood.

In the examination and treatment of approximately 42,000 teeth we found it necessary to extract 42 permanent teeth, or a loss of one-tenth of 1 per cent. This is a very low percentage of loss; thus, of 122 boys who entered the college in September, 1913, only 8 had received previous dental attention and 6 boys under 9 years of age had some of their first permanent molars in such a diseased condition that the surrounding tissues had become infected, due to the death of the dental pulp, the formative element of the tooth, before the roots of the teeth were fully developed. Plate 18 is a photograph of some of the teeth extracted, the diseased condition and lack of development of the apexes of the roots being determined by X rays. Such teeth become foreign bodies that will eventually set up an irritation and probably result in an incurable alveolar abscess.

A great many boys come into the department in a sadly neglected condition. Plate 17 shows photographs of casts of the mouth of a boy 8 years of age. Five temporary molars and one permanent molar have been prematurely extracted, and two permanent molars are badly decayed. This might properly be described as criminal negligence, since it will perhaps be four or five years before the permanent teeth will erupt to supply the child with any means with which to masticate his food. One can readily appreciate how this poor boy's physical development will be hindered.

Following is the number of operations performed in the dental department of Girard College during a period of 15 months:

Amalgam fillings	1,843
Phosphate of zinc fillings	3,480
Gutta-percha fillings	1,149
Teeth devitalized	228
Putrescent teeth and abscesses treated	250
Root canals filled	857
Crowns and bridges inserted	10
Permanent teeth extracted	42
Permanent teeth replanted	1
Number of cases of malocclusion under treatment	74

CONCLUSIONS.

Certain conclusions seem warranted from the experience of Girard College in the care of the health of boys. Although the wards of the institution come with what is, on the whole, a bad family history, the death rate is low and the general condition of health favorable. By good sanitary conditions in the college and protection of the water and milk supply typhoid and other serious illness have been largely eliminated. Medical inspection and the correction of minor defects of the nose, throat, ear, eye, and other organs have contributed to the general good health of the pupils of the college, and the department of instruction in the institution reports that this care has markedly increased the school efficiency and materially reduced the problems of discipline. Perhaps the most evident good result has come from the new dental department. The present plan of caring for the teeth was introduced in September, 1911, and the improved condition in the health of the boys and in their personal appearance has been most marked since that date. The Board of Directors of City Trusts, which is officially responsible for the management of the college, and members of the staff which is carrying out their policies, unite in testifying to the notable service which a correct physical basis has given for the work of Girard College in rearing and educating its boys.

BULLETIN OF THE BUREAU OF EDUCATION.

[NOTE.—With the exceptions indicated, the documents issued below will be sent free of charge upon application to the Commissioner of Education, Washington, D. C. Those marked with an asterisk (*) are no longer available for free distribution, but may be had of the Superintendent of Documents, Government Printing Office, Washington, D. C., upon payment of the price stated. Remittances should be made in coin, currency, or money order. Stamps are not accepted. Documents marked with a dagger (†) are out of print.]

1906.

†No. 1. Education bill of 1906 for England and Wales as it passed the House of Commons. Anna T. Smith.
†No. 2. German views of American education, with particular reference to industrial development. William N. Hailmann.
State school systems: Legislation and judicial decisions relating to public education, Oct. 1, 1904, to Oct. 1, 1906. Edward C. Elliott. 15 cts.

1907.

†No. 1. The continuation school in the United States. Arthur J. Jones.
†No. 2. Agricultural education, including nature study and school gardens. James R. Jewell.
†No. 3. The auxiliary schools of Germany. Six lectures by B. Maennel.
†No. 4. The elimination of pupils from school. Edward L. Thorndike.

1908.

†No. 1. On the training of persons to teach agriculture in the public schools. Liberty H. Bailey.
*No. 2. List of publications of the United States Bureau of Education, 1867–1907. 10 cts.
*No. 3. Bibliography of education for 1907. James Ingersoll Wyer, jr., and Martha L. Phelps. 10 cts.
†No. 4. Music education in the United States; schools and departments of music. Arthur L. Manchester.
*No. 5. Education in Formosa. Julean H. Arnold. 10 cts.
*No. 6. The apprenticeship system in its relation to industrial education. Carroll D. Wright. 15 cts.
*No. 7. State school systems: II. Legislation and judicial decisions relating to public education, Oct. 1, 1906, to Oct. 1, 1908. Edward C. Elliott. 30 cts.
*No. 8. Statistics of State universities and other institutions of higher education partially supported by the State, 1907–8. 5 cts.

1909.

*No. 1. Facilities for study and research in the offices of the United States Government in Washington. Arthur T. Hadley. 10 cts.
*No. 2. Admission of Chinese students to American colleges. John Fryer. 25 cts.
*No. 3. Daily meals of school children. Caroline L. Hunt. 10 cts.
†No. 4. The teaching staff of secondary schools in the United States; amount of education, length of experience, salaries. Edward L. Thorndike.
No. 5. Statistics of public, society, and school libraries in 1908.
*No. 6. Instruction in the fine and manual arts in the United States. A statistical monograph. Henry T. Bailey. 15 cts.
No. 7. Index to the Reports of the Commissioner of Education, 1867–1907.
No. 8. A teacher's professional library. Classified list of 100 titles. 5 cts.
*No. 9. Bibliography of education for 1908–9. 10 cts.
No. 10. Education for efficiency in railroad service. J. Shirley Eaton.
*No. 11. Statistics of State universities and other institutions of higher education partially supported by the State, 1908–9. 5 cts.

1910.

*No. 1. The movement for reform in the teaching of religion in the public schools of Saxony. Arley B. Show. 5 cts.
No. 2. State school systems: III. Legislation and judicial decisions relating to public education, Oct. 1, 1908, to Oct. 1, 1909. Edward C. Elliott.
†No. 3. List of publications of the United States Bureau of Education, 1867–1910.
*No. 4. The biological stations of Europe. Charles A. Kofoid. 50 cts.
†No. 5. American schoolhouses. Fletcher B. Dressler.
†No. 6. Statistics of State universities and other institutions of higher education partially supported by the State, 1909–10.

1911.

*No. 1. Bibliography of science teaching. 5 cts.
*No. 2. Opportunities for graduate study in agriculture in the United States. A. C. Monahan. 5 cts.
*No. 3. Agencies for the improvement of teachers in service. William C. Ruediger. 15 cts.
*No. 4. Report of the commission appointed to study the system of education in the public schools of Baltimore. 10 cts.
*No. 5. Age and grade census of schools and colleges. George D. Strayer. 10 cts.
*No. 6. Graduate work in mathematics in universities and in other institutions of like grade in the United States. 5 cts.
†No. 7. Undergraduate work in mathematics in colleges and universities.
†No. 8. Examinations in mathematics, other than those set by the teacher for his own classes.
No. 9. Mathematics in the technological schools of collegiate grade in the United States.
†No. 10. Bibliography of education for 1909–10.
†No. 11. Bibliography of child study for the years 1908–9.
†No. 12. Training of teachers of elementary and secondary mathematics.
*No. 13. Mathematics in the elementary schools of the United States. 15 cts.
*No. 14. Provision for exceptional children in the public schools. J. H. Van Sickle, Lightner Witmer, and Leonard P. Ayres. 10 cts.
*No. 15. Educational system of China as recently reconstructed. Harry E. King. 10 cts.
†No. 16. Mathematics in the public and private secondary schools of the United States.
†No. 17. List of publications of the United States Bureau of Education, October, 1911.
*No. 18. Teachers' certificate issued under general State laws and regulations. Harlan Updegraff. 20 cts.
No. 19. Statistics of State universities and other institutions of higher education partially supported by the State, 1910–11.

1912.

*No. 1. A course of study for the preparation of rural-school teachers. Fred Mutchler and W. J. Craig. 5 cts.
†No. 2. Mathematics at West Point and Annapolis.
*No. 3. Report of committee on uniform records and reports. 5 cts.
*No. 4. Mathematics in technical secondary schools in the United States. 5 cts.
*No. 5. A study of expenses of city school systems. Harlan Updegraff. 10 cts.
*No. 6. Agricultural education in secondary schools. 10 cts.
*No. 7. Educational status of nursing. M. Adelaide Nutting. 10 cts.
*No. 8. Peace day. Fannie Fern Andrews. 5 cts. [Later publication, 1913, No. 12.]
*No. 9. Country schools for city boys. William S. Myers. 10 cts.
†No. 10. Bibliography of education in agriculture and home economics.
†No. 11. Current educational topics, No. I.
†No. 12. Dutch schools of New Netherland and colonial New York. William H. Kilpatrick.
*No. 13. Influences tending to improve the work of the teacher of mathematics. 5 cts.
*No. 14. Report of the American commissioners of the international commission on the teaching of mathematics. 10 cts.
†No. 15. Current educational topics, No. II.
†No. 16. The reorganized school playground. Henry S. Curtis.
*No. 17. The Montessori system of education. Anna T. Smith. 5 cts.
*No. 18. Teaching language through agriculture and domestic science. M. A. Leiper. 5 cts.
*No. 19. Professional distribution of college and university graduates. Bailey B. Burritt. 10 cts.
†No. 20. Readjustment of a rural high school to the needs of the community. H. A. Brown.
†No. 21. Urban and rural common-school statistics. Harlan Updegraff and William R. Hood.
No. 22. Public and private high schools.
No. 23. Special collections in libraries in the United States. W. Dawson Johnston and Isadore G. Mudge.
†No. 24. Current educational topics, No. III.
†No. 25. List of publications of the United States Bureau of Education, 1912.
†No. 26. Bibliography of child study for the years 1910–11.
No. 27. History of public-school education in Arkansas. Stephen B. Weeks.
*No. 28. Cultivating school grounds in Wake County, N. C. Zebulon Judd. 5 cts.
No. 29. Bibliography of the teaching of mathematics, 1900–1912. David Eugene Smith, and Charles Goldziher.
No. 30. Latin-American universities and special schools. Edgar E. Brandon.
No. 31. Educational directory, 1912.
No. 32. Bibliography of exceptional children and their education. Arthur MacDonald.
†No. 33. Statistics of State universities and other institutions of higher education partially supported by the State, 1912.

1913.

No. 1. Monthly record of current educational publications, January, 1913.
*No. 2. Training courses for rural teachers. A. C. Monahan and R. H. Wright. 5 cts.
*No. 3. The teaching of modern languages in the United States. Charles H. Handschin. 15 cts.
*No. 4. Present standards of higher education in the United States. George E. MacLean. 20 cts.
†No. 5. Monthly record of current educational publications. February, 1913.

*No. 6. Agricultural instruction in high schools. C. H. Robison and F. B. Jenks. 10 cts.
*No. 7. College entrance requirements. Clarence D. Kingsley. 15 cts.
*No. 8. The status of rural education in the United States. A. C. Monahan. 15 cts.
†No. 9. Consular reports on continuation schools in Prussia.
†No. 10. Monthly record of current educational publications, March, 1913.
†No. 11. Monthly record of current educational publications, April, 1913.
*No. 12. The promotion of peace. Fannie Fern Andrews. 10 cts.
*No. 13. Standards and tests for measuring the efficiency of schools or systems of schools. Report of the committee of the National Council of Education. George D. Strayer, chairman. 5 cts.
No. 14. Agricultural instruction in secondary schools.
†No. 15. Monthly record of current educational publications, May, 1913.
*No. 16. Bibliography of medical inspection and health supervision. 15 cts.
*No. 17. A trade school for girls. A preliminary investigation in a typical manufacturing city, Worcester, Mass. 10 cts.
*No. 18. The fifteenth international congress on hygiene and demography. Fletcher B. Dresslar. 10 cts.
*No. 19. German industrial education and its lessons for the United States. Holmes Beckwith. 15 cts.
*No. 20. Illiteracy in the United States. 10 cts.
†No. 21. Monthly record of current educational publications, June, 1913.
*No. 22. Bibliography of industrial, vocational, and trade education. 10 cts.
*No. 23. The Georgia Club at the State Normal School, Athens, Ga., for the study of rural sciology. E. C. Branson. 10 cts.
*No. 24. A comparison of public education in Germany and in the United States. Georg Kerschensteiner. 5 cts.
*No. 25. Industrial education in Columbus, Ga. Roland B. Daniel. 5 cts.
†No. 26. Good roads arbor day. Susan B. Sipe.
†No. 27. Prison schools. A. C. Hill.
*No. 28. Expressions on education by American statesmen and publicists. 5 cts.
*No. 29. Accredited secondary schools in the United States. Kendric C. Babcock. 10 cts.
*No. 30. Education in the South. 10 cts.
*No. 31. Special features in city school systems. 10 cts.
No. 32. Educational survey of Montgomery County, Md.
†No. 33. Monthly record of current educational publications, September, 1913.
*No. 34. Pension systems in Great Britain. Raymond W. Sies. 10 cts.
*No. 35. A list of books suited to a high-school library. 15 cts.
*No. 36. Report on the work of the Bureau of Education for the natives of Alaska, 1911–12. 10 cts.
No. 37. Monthly record of current educational publications, October, 1913.
*No. 38. Economy of time in education. 10 cts.
No. 39. Elementary industrial school of Cleveland, Ohio. W. N. Hallmann.
*No. 40. The reorganized school playground. Henry S. Curtis. 10 cts.
No. 41. The reorganization of secondary education.
No. 42. An experimental rural school at Winthrop College. H. S. Browne.
*No. 43. Agriculture and rural-life day; material for its observance. Eugene C. Brooks. 10cts
*No. 44. Organized health work in schools. E. B. Hoag. 10 cts.
No. 45. Monthly record of current educational publications, November, 1913.
*No. 46. Educational directory, 1913. 15 cts.
*No. 47. Teaching material in Government publications. F. K. Noyes. 10 cts.
*No. 48. School hygiene. W. Carson Ryan, jr. 15 cts.
No. 49. The Farragut School, a Tennessee country-life high school. A. C. Monahan and Adams Phillips.
No. 50. The Fitchburg plan of cooperative industrial education. M. R. McCann.
*No. 51. Education of the immigrant. 10 cts.
*No. 52. Sanitary schoolhouses. Legal requirements in Indiana and Ohio. 5 cts.
No. 53. Monthly record of current educational publications, December, 1913.
No. 54. Consular reports on industrial education in Germany.
No. 55. Legislation and judicial decisions relating to education, Oct. 1, 1909, to Oct. 1, 1912. James C. Boykin and William R. Hood.
†No. 56. Some suggestive features of the Swiss school system. William Knox Tate.
No. 57. Elementary education in England, with special reference to London, Liverpool, and Manchester. I. L. Kandel.
No. 58. Educational system of rural Denmark. Harold W. Foght.
No. 59. Bibliography of education for 1910–11.
No. 60. Statistics of State universities and other institutions of higher education partially supported by the State, 1912–13.

1914.

*No. 1. Monthly record of current educational publications, January, 1914. 5 cts.
No. 2. Compulsory school attendance.
No. 3. Monthly record of current educational publications, February, 1914.
No. 4. The school and the start in life. Meyer Bloomfield.

No. 5. The folk high schools of Denmark. L. L. Friend.
No. 6. Kindergartens in the United States.
No. 7. Monthly record of current educational publications, March, 1914.
No. 8. The Massachusetts home-project plan of vocational agricultural education. R. W. Stimson.
No. 9. Monthly record of current educational publications, April, 1914.
No. 10. Physical growth and school progress. B. T. Baldwin. 25 cts.
No. 11. Monthly record of current educational publications, May, 1914.
No. 12. Rural schoolhouses and grounds. F. B. Dressler.
No. 13. Present status of drawing and art in the elementary and secondary schools of the United States. Royal B. Farnum.
No. 14. Vocational guidance.
No. 15. Monthly record of current educational publications. Index.
No. 16. The tangible rewards of teaching. James C. Boykin and Roberta King.
No. 17. Sanitary survey of the schools of Orange County, Va. Roy K. Flannagan.
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