

**The care of the teeth in public elementary schools : with special reference to what is being done in Germany with specimen of chart used in the dental examination of the L.C.C. Michael Faraday School, designed by the author / by C. Edward Wallis ; issued by the Medical Officers of Schools Association.**

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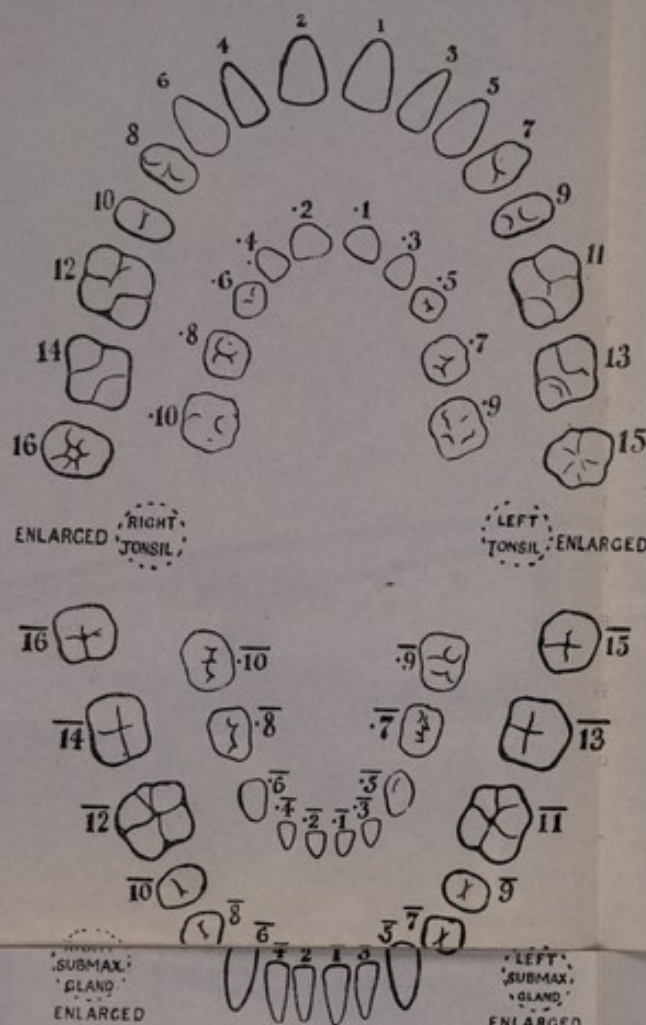
# London County Council.

## DENTAL RECORD.

Name.

Age.

Weight.



Average Weight.

PREVIOUS ILLNESS—

at years.

Rickets

Measles

Scarlet Fever

Cong : Syphilis

SYMBOLS—

Temporary tooth lost	—
Tooth not erupted	
Tooth extracted	×
Tooth requiring extraction	/
Tooth with fistula	⊙
Alv : abs.	abs.
Tooth erupting	^

REMARKS—

Underline any of following conditions, if present.

Condition of mouth and pharynx.

Healthy—gingivitis—stomatitis.

Tonsillitis.

Fistula—alv : abs., pyorrhoea.

Mouth—breather—(a) Much caries.

(b) Little caries.

(c) Enlarged tonsils

(d) Pharyngitis.

Palate—high—narrow.

Arch—supr. protrusion—contracted.  
infr. protrusion.

Bite—edge to edge—open.

Sound dentition—(a) Temporary.  
(b) Transitional.  
(c) Permanent.

Retarded eruption from—  
(1) Undue retention of temporary teeth.  
(2) Protruding roots.

State of teeth (a) Clean ; (b) Dirty.

Tooth brush used—not used—hasn't one.

Enamel hypoplastic—Hutchinsonian.

Supernumerary teeth—geminated teeth.

Natural arrest of caries.

Fractured teeth—cause.

Teeth filled.

Grinding capacity—

(a) Lost from defective or absent contiguous teeth on both sides.

(b) Irregularity on one side—both sides.

Teeth irregular—upper—lower.

Add up and fill in below—

TEMPORARY TEETH—

A. Carious savable.

Aa. Carious not requiring fitting.

Ab. Prematurely lost.

B. Requiring extraction.

TOTAL A.B.

PERMANENT TEETH—

C. Carious savable.

Ca. Carious unsavable.

D. Already extracted.

E. Requiring extraction.

TOTAL C.D.E.

F. Sound teeth to be lost.

G. Teeth absent.

GRAND TOTAL

Blue Form for Boys.  
White Form for Girls.

Specimen of Chart used in the Dental Examination of the L.C.C. Michael Faraday School, designed by the Author.



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Medical Officers of Schools Association.

# THE CARE OF THE TEETH

IN

## Public Elementary Schools

**With Special Reference to what is being  
done in Germany**

With Specimen of Chart used in the Dental  
Examination of the L.C.C. Michael Faraday School,  
designed by the Author

BY

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# THE CARE OF THE TEETH IN PUBLIC ELEMENTARY SCHOOLS, WITH SPECIAL REFERENCE TO WHAT IS BEING DONE IN GERMANY.

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SIR THOMAS BARLOW AND GENTLEMEN,

Following a suggestion made by Dr. Kerr, I was engaged during several months of last year (1906) in making a systematic detailed inspection of the mouths and teeth of the children in the Michael Faraday School, Walworth, this inspection forming part of the medical inspection which was being carried out at that time by Dr. Thomas.

With a view to our results being as far as possible comparable, I followed his plan of examining the children in groups, not according to their ages, but according to their years of birth, experience having shown that those born in certain years presented marked physical differences from those born in the preceding or subsequent years.

In order that these observations should be comparable with those made in 1901 in the Poor Law Schools by the British Dental Association, I designed the charts which you see here, which are based on those in use at that time, but amplified in order to demonstrate the correlation, if any, between the state of the teeth and the general physical condition, and also to include a reference to those physical conditions which have a more or less intimate connection with the development and diseases of the teeth and jaws. Time did not permit of my examining the whole school; and as, moreover, I am going to read a paper at the forthcoming International Congress of School Hygiene, giving full details of my investigations, I will on this occasion content myself with giving a short resumé of what I found.



The number of children I was able to examine was 245, that is to say, 164 boys and 81 girls, all born in the years 1897 to 1894. Of this number only 4 had healthy dentitions, namely, 2 boys and 2 girls, which works out at a percentage of only 1.63 children who had healthy sets of teeth.

Further, the examination showed that each child possessed an average of 3.9 carious temporary teeth and 2.8 decayed permanent teeth. It should be explained that at the ages dealt with the permanent dentition, even in those born in 1894 (about eleven years of age) was incomplete; and consequently it is evident that the incidence of dental decay in the permanent teeth was worse than appeared at first sight; in fact, my experience in this school showed that in most cases the permanent teeth became carious within two years of their eruption, a circumstance which demonstrates the special necessity for dental treatment at an early age in order to preserve the permanent teeth.


The most striking feature of these observations was the appalling neglect of the most elementary principles of dental cleanliness and the total absence of any evidence of skilled dental treatment, conservative or otherwise, beyond a few instances in which teeth had been extracted or broken by more or less ignorant persons.

The mouths presented every degree of malodorousness; out of the 245 only 3 children possessed toothbrushes for their own personal use and used them regularly. These 3 children were practically free from caries.

The teeth of most of the remaining 242 were coated with tartar and the débris of past carbohydrate meals; many were suffering from the effects of too long retention of temporary teeth and others from premature extraction, both conditions leading to serious dental irregularities and deformities of the jaw.

I think now I have said enough to show how serious is the condition of the children's teeth in an average representative London Council school in a poor district, and how, in spite of this enormous amount of dental decay amongst the poorer classes in London, practically nothing is being done at the present time to deal with it.

In view of the fact that at the present time in Germany no less than 29 large cities have seen fit to establish school dental surgeries for the examination and treatment of the teeth of the children attending the public elementary schools, I recently visited three of the chief of these institutions, namely, the municipal school-tooth-clinics of Strasburg, Mülhausen, and Darmstadt.



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WAITING ROOM OF STRASBURG SCHOOL-DENTISTRY.



CHIEF OPERATING-ROOM OF STRASBURG SCHOOL-DENTISTRY.



These particular institutions serve as very good examples of what is being done in that each one represents a different method of dealing with the subject, the one common characteristic being that they are all maintained at the expense of their respective municipalities.

The opportunity of visiting these institutions I owe almost entirely to Dr. Kerr, the medical officer to the Education Department of the London County Council, and also to Dr. Frederic Rose, the assistant educational adviser, whose recent diplomatic position in Stuttgart and scientific reputation in Germany obtained me much information otherwise inaccessible.

Instead of the cumbersome title that is applied to these school dental institutions in Germany, Dr. Kerr has suggested that we should describe them as "school dentistries." I shall, therefore, make use of this expression in the rest of my paper to describe the German school-tooth-clinics.

The first school dentistry visited was that of Strasburg, a large manufacturing city of some 150,000 inhabitants in Alsace-Lorraine. It owes its formation to the enthusiasm and perseverance of Professor Dr. Jessen, to whom the subject of school dental treatment owes a very great debt.

The first definite step he was able to take was in 1905, when, in the face of great opposition, he was allowed to commence an examination of the teeth of the Strasburg elementary school children; some 10,000 children were examined, and it was found that of this number but 4.3 per cent. had healthy dentitions.

The examination made at the Michael Faraday School in Walworth last year showed a much worse proportion, namely, only 1.63 per cent.; so that Dr. Jessen's deductions possess an even greater importance in London than they do in Germany.

The result of these investigations so much impressed the municipal authorities in Strasburg that in 1902 he was enabled to open the present school-tooth-clinic, as it is there called.

The school dental rooms are located on the first floor of the children's polyclinic of Strasburg.

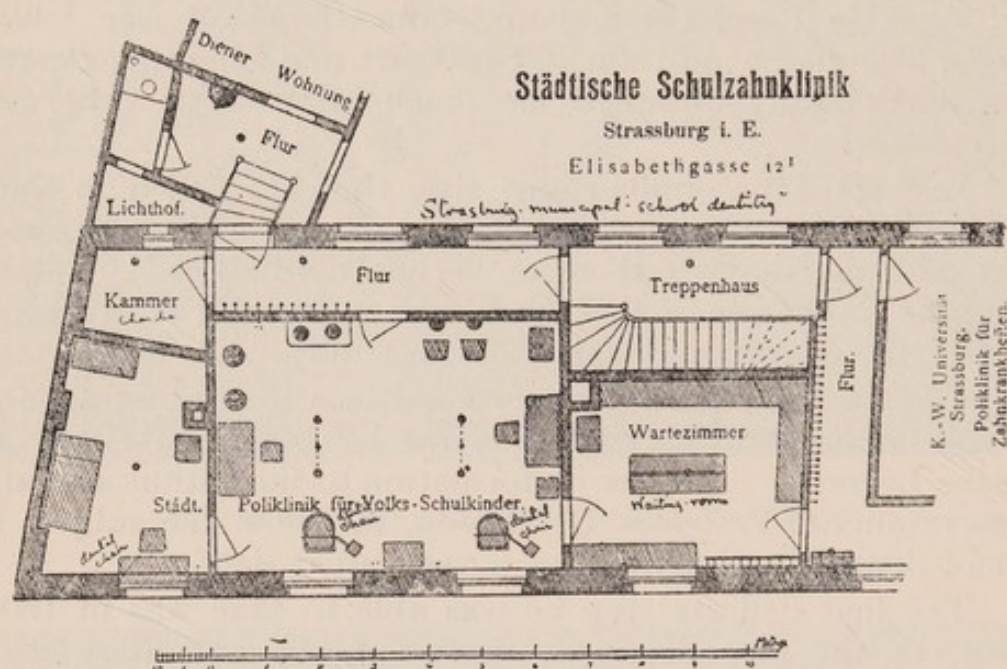
The accommodation consists of two surgeries, one with two dental operating chairs, and the other with one chair, besides a waiting-room to accommodate some 60 children.

The walls of the waiting-room are adorned with charts and such like information, so that even while waiting the children may acquire a certain amount of useful dental knowledge in an easy graphic manner.



Already the accommodation has become insufficient, and at the present time the plans are being prepared for a new Schule-zahn-Klinik, to give it its full title, which will supersede this institution and form part of the municipal bathing establishment building, which is now approaching completion.

The staff consists of the director, Dr. Jessen, who founded the institution and who occupies an honorary position, and



PLAN OF STRASBURG MUNICIPAL SCHOOL-DENTAL-SURGERY.

two dentists, who are appointed and paid by the municipality, and who devote their whole time each and every day to the work; their hours are from 8.30 a.m. to 12 noon, and from 2.30 p.m. to 6.

They are specially active during the school holidays, as it is then that the children can attend without interfering with their school work.

The senior of the two dentists receives £155 per annum and the junior £115 per annum, both with an annual rise of £15 per annum, and, both being municipal officials, are eligible for a pension if they stay there for the necessary qualifying period.

The staff are appointed by the Burgomaster, as the head of the municipality, acting on the advice of Dr. Jessen.

It will, I think, be surprising to the English mind that for such moderate salaries as these well qualified men can be obtained who will devote their whole time to the somewhat restricted sphere of treating children's teeth, without ever having the opportunity of developing the skill necessary for



many of the most interesting and difficult portions of a dentist's work so necessary for professional advancement.

There is no laboratory or work-room attached to the Strasburg school dentistry as now constituted, and consequently for the present, at any rate, the making of apparatus for regulating teeth cannot be undertaken.

The process of inspection only is carried on by the senior dentist to the school clinic, who visits each school in turn, inspects the classes, and incidentally instructs the children in the use of the toothbrush and the importance of eating hard rye bread, that is to say what we usually describe as black bread.

A most important feature of this school dental work is that every effort is made to thoroughly instruct the school teachers in the principles of dental hygiene, so that they may impart it to the children, and to aid them in this a large dental hygiene chart is hung on the walls of each school.

If a child complains of toothache during school hours, the teacher at once sends a card to the parent requesting that the child may be allowed to attend the school dentistry.

All children attending the infant schools are compelled to attend the school dentistry, and to make matters clear, a notice to the following effect is sent to the parents of each child whose teeth are decayed.

#### MUNICIPAL INFANT SCHOOL OF STRASBURG.

To the Parents of the Child.

Your child has diseased teeth and requires dental treatment.

This can be obtained in the municipal school dentistry, 12, Elizabeth Street, and there your child will obtain the necessary treatment.

Children with diseased teeth will not be allowed in the infant schools, because their own health and that of other children is endangered thereby.

I therefore ask whether you agree to the necessary treatment, which will be efficiently carried out free of cost to you.

Strasburg.      Date.  
 Infant School,  
 Head Mistress.

#### REPLY OF PARENTS.

I agree that the necessary treatment be carried out.

*Signature.*

Parent.



Besides the above certificate, which applies to those attending the infant schools, no child in the ordinary public elementary schools is allowed to go to a holiday school without having obtained a certificate from the municipal school dentistry that the mouth is healthy.

In addition to the notice sent to the parents of the children with teeth needing treatment, the appointment cards given to each child are as follows :—

Municipal School Dentistry,  
12, Elizabeth Street, Strasburg.

Hours of attendance :—8 to 12 and 2 to 5 daily.

Your child has diseased teeth ; you are therefore strongly recommended to send or take the child on the next  
                   date                   at                   o'clock. The child must bring this card.

Name.   Three visits.   Was present from   to   o'clock.

"           "           "           "  
 "           "           "           "

This card must be taken care of ; it must be shown to the teacher before and after each attendance at the school dentistry.

A careful record of all the work that is done is kept at the school dentistry, and an elaborate system of charts and cards is in use for the information of parents and teacher as to the time of appointments, work done and so forth.

At the back of each of these cards is printed an excellent memorandum on the hygiene of the mouth compiled and arranged by Dr. Jessen to the following effect.

### THE TEETH AND THEIR CARE.

(1) At  $2\frac{1}{2}$  years a healthy child should have 20 teeth.

At 6 years the first permanent molars appear at the back of the jaw.

Between 7 and 14 the milk teeth fall out and the permanent teeth appear.

At 12 years of age the second molars appear, and between 18 and 40 appear the wisdom teeth.

(2) Sound teeth and a healthy mouth are necessary for the stomach and health of the whole body. The milk teeth have special value for the development of the body ; the health of the child depends on the teeth even more than does that of the adult.

Only those who have healthy milk teeth get healthy permanent teeth.



(3) You must brush your teeth from the earliest childhood in the morning, and especially at night, if they are to be kept healthy.

The teeth should be brushed with a medium brush twice daily with salt water, and once on alternate days with precipitated chalk.

(4) Your teeth are often diseased without your knowing it; therefore a periodical dental examination is necessary. From 3 years of age the mouth should be examined every six months.

(5) As soon as the teeth (and especially the milk teeth) are decayed, and before pain has begun, they should be stopped. All tartar must be regularly removed, and any roots that cannot be stopped must be removed if the mouth is to be kept healthy.

(6) Artificial teeth are only necessary helps; preserve your own teeth by timely stopping. What is well chewed is already half-digested; therefore take care of your teeth.

The children are instructed by the school teachers in the proper way of cleaning their teeth and are supplied with tooth-brushes for fourpence each; and in the case of those who cannot afford this sum, the brushes are supplied by the Municipality free of cost.

I went into a class room, and, with the teacher's permission, made the children display their teeth by assuming a snarling expression. I was thus enabled to see that their teeth were really kept clean and that their mouths have been brought to a thoroughly healthy condition by proper dental treatment.

It is certainly a very great step to make the possession of a clean, healthy set of teeth an object of emulation, and this state of affairs seems to be in process of fulfilment, thanks to the enthusiasm of Dr. Jessen and the pains taken by the school dental staff and the teachers.

The new school dentistry of which I have already spoken, when in full working order, will contain six dental operating chairs, and will, as I understand from Dr. Jessen, be reserved for the more difficult cases; besides this, each school will have a room reserved for dental purposes in which simple inspection and extractions of teeth will take place, and which will be visited by municipal dentists as required.

During the month of April of this year (1907),

551 children were inspected,

831 teeth were stopped,

505 teeth were extracted,



and since the opening of the school dentistry in 1902 no less than 157,000 children have been examined.

It will be of interest to note here that, while watching the children being examined at the tooth clinic and also at the schools, I was struck with the large number of children who have hypoplastic enamel; that is to say, what are commonly called "honeycombed teeth." This, Dr. Jessen attributes to the fact that a large proportion of the children are bottle-fed, owing to their mothers having to go out to work in factories. It is also, in my opinion, associated with rickets in early life—a disease which appears much more prevalent in Germany than in England.

Besides the treatment of the school-children's teeth, every effort is made to instruct the parents by means of dental-hygiene lectures on what are called Parents' Evenings; they are given voluntarily by dentists belonging to the local dental society. In answer to a question as to the attitude of the local dental surgeons to this school work, Dr. Jessen stated that it is greatly favoured by them, as it diminishes the work to be done at the public institutions, such as hospitals, and also impresses upon the children at an early age the habit and necessity of having their teeth regularly attended to as they grow up.

### MÜLHAUSEN.

And now we come to the school dentistry of Mülhausen, which, like Strasburg, is a large manufacturing town, and contains some 100,000 inhabitants.

The school dental accommodation here consists of a somewhat small operating-room with one dental chair and an electric engine, a waiting-room of some 12 by 18 feet, and a small laboratory for the making of apparatus for regulating teeth, &c. The staff consists of one dentist only, who devotes his whole time to the work, and who works only during the hours when the children are not in school, viz. :—8 to 9 a.m., 11 to 12 a.m., 4 to 6 p.m.

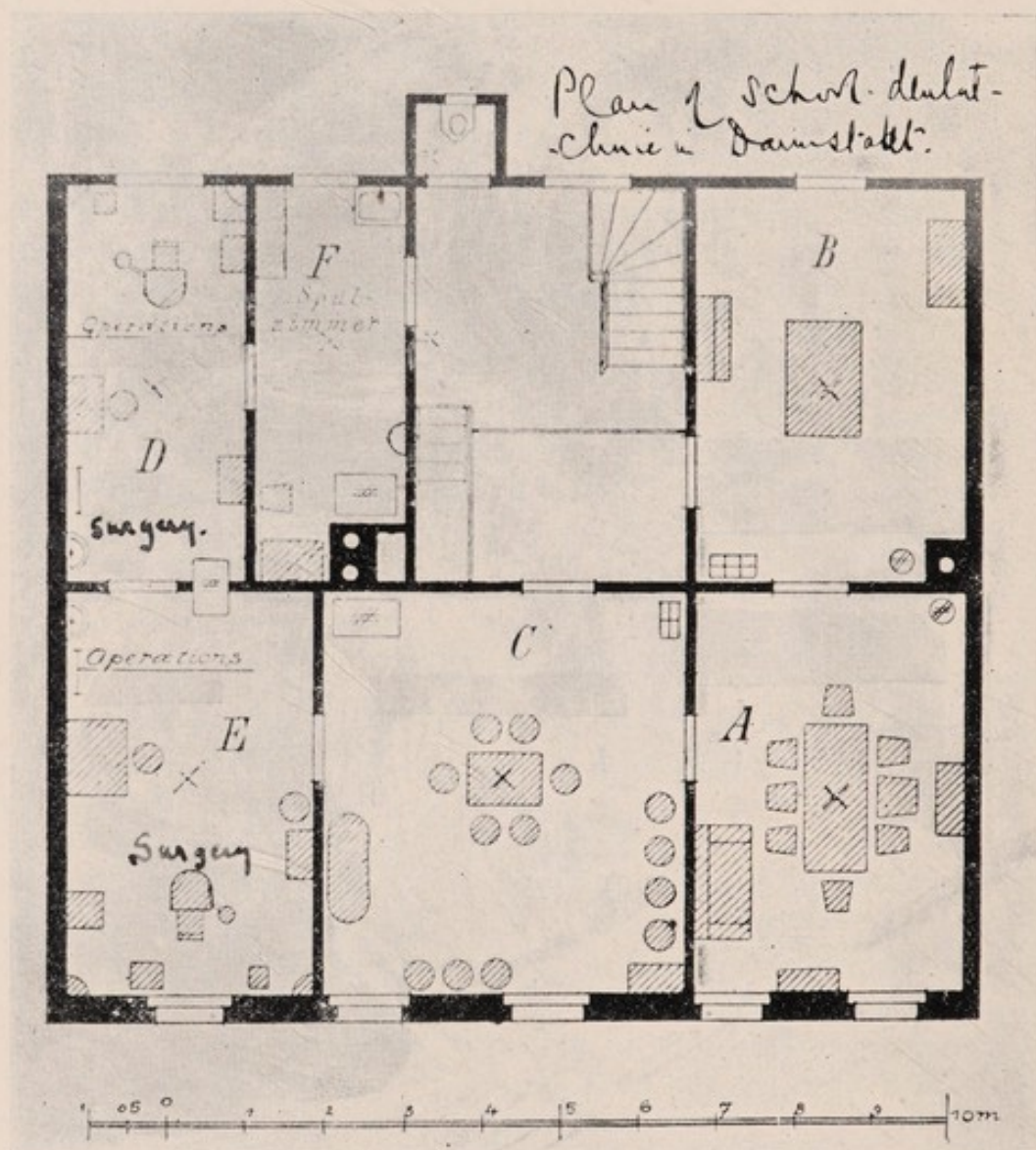
There is no dental mechanic at present, so that the amount of work done in the laboratory itself is extremely small.

The dentist is paid £180–£250 per annum; no private practice is allowed, and it is part of his duty to give lectures on dental hygiene to the teachers.

All children of school age in Mülhausen go to this school dentistry; last year 10,000 children were seen, that is to say apparently all the school-children in Mülhausen. There







PLAN OF SCHOOL DENTAL SURGERY IN DARMSTADT.



is no compulsion, but the advice of the teachers seems to have the desired effect of making them attend without difficulty.

The total cost of the Mülhausen school dentistry per annum up to now has been £350 per annum, which for 10,000 children works out at 6d. or 7d. per head, though in Strasburg Dr. Jessen calculated that the cost of school dental treatment there worked out at about 1 mark (1s.) per head.

### DARMSTADT.

The school-dental clinic or school dentistry of Darmstadt is of considerable interest, for the reason that the system in vogue there is quite different from that either at Strasburg or Mülhausen.

This institution, like the other two, is provided and supported by the Municipality; it is presided over by Dr. Kohler, who receives no fee. The work is, as far as I can make out, carried on by an assistant, who is paid at the rate of £30 per annum.

In this case, however, the dentist is one who has his own private practice, and who attends at the school dentistry every day for one hour only, namely from 6 to 7 p.m. (only sometimes on Saturdays). He is, therefore, what we should describe as a "part timer."

The ages at which the children attend are from 6 to 14, and apparently attendance is entirely voluntary, and the number attended to appears to be from 9 to 12 children daily.

The accommodation consists of two surgeries leading into one another, one of them furnished in a most lavish and expensive way with the latest dental appliances in the shape of what dentists call a pump chair, electric dental engine, sterilizers and aseptic instrument cupboards. The second surgery is apparently used for simpler operations, and though less lavishly equipped, is none the less quite suited for its purpose.

Besides the usual waiting and note-keeping accommodation, there is a novelty at the Darmstadt school dentistry in the shape of a room for testing the saliva, &c., and also an X-ray installation—a luxury which I should not venture to suggest the adoption of in England, as it appears to me to be of very little utility in the case of the teeth of children.

I may say, however, that the furniture and elaborate fittings were supplied gratuitously by the generosity of the proprietor of a certain German proprietary mouth-wash, and not, therefore, at the expense of the Municipality; this,



doubtless, explains the lavish nature of the fittings, perhaps the most remarkable of which is an electric fan to keep the dentist cool during his hour's work.

The Darmstadt system of employing a dentist who is also engaged in private practice is, I think, from one point of view, the best, as it insures, at any rate, the possibility of obtaining a young and energetic man to carry on the work. If the Strasburg and Mülhausen plan were adopted in England, it appears to me that we should get the dental posts filled with unambitious men who were content for £100 to £150 to spend all their time at their work without ever having before them the prospect of making a good income, such as is the lawful ambition of every young man who gets qualified.

Now that a description has been given of these three important German institutions, and the way in which they are carried on, let us consider some of the lessons that have been learnt, and as to how far these lessons may be applied to the children in our own English schools. For this we must refer largely to the observations made by Dr. Jessen.

The first important point emphasised is :

(1) " That the greater the amount of dental disease, the worse the physical development of the child."

This statement is amply borne out by my own personal experience at the Victoria Hospital for Children at Chelsea. The charts that I designed for use at the Faraday School have recorded on them the average weight of the children, and the particular weight of each child, so that one could see at a glance whether the child was above or below the average ; and it was found that in the cases in which the children's mouths were very unhealthy, the physical development as shown by weight was in most cases below the average.

(2) That the worse the condition of the child's teeth, the worse were its school reports.

In order to verify this, or the reverse, I picked out from my charts the very worst cases, and requested Mr. Marshall Jackman, of the Faraday School, to let me know how these particular children stood as regards their school work. It was found that in the case of the boys they were practically all below the average of their age, and that though the girls did not show quite as bad a record, yet that most of them were also below their proper position.

With regard to the subject of absence from school for illness and so forth, the Divisional Inspector of Schools in Strasburg states in his report that the amount of time expended in having the children's teeth attended to is much





CHIEF OPERATING-ROOM OF DARMSTADT SCHOOL-DENTISTRY.



SECOND OPERATING-ROOM DARMSTADT SCHOOL-DENTISTRY.





less than the amount of time lost through toothache, and also that through attendance at the school dentistry, loss of school attendance is considerably diminished.

We see, therefore, from these observations, which were made in the first instance in Germany, and which similar experience has confirmed here, that both the physical and mental development of the child are retarded by an unhealthy condition of the mouth associated with decayed teeth. I may perhaps be allowed to state here that, in my opinion, the damage done to the health of the individual is not so much due to the inability to masticate the food as to the constant swallowing of the germs of disease, and the products of putrefaction found in such abundance in these unhealthy septic mouths.

A point of very great importance was demonstrated last year by Dr. William Hunter, of the London Fever Hospital. He showed that the incidence of deafness, enlarged glands, albuminuria, and several other diseased conditions, was much greater in the case of those children with unhealthy mouths and teeth; it seems, therefore, that had these children's teeth been treated as is done in Strasburg, many of these serious complications might have been averted.

Another great advantage would follow the proper treatment of the children's teeth, and that is that their prospects of admission into the Public Services, whether Naval, Military, or Civil, would be greatly increased, and that instead of the enormous rejections on the score of *teeth alone* at our recruiting stations, we should have a much increased number of healthy individuals to draw upon, and so be able to select a better and healthier class of recruit.

I have not said very much as regards the expense of founding and maintaining these institutions, as financial considerations in Germany are difficult of application to England; at the same time, I am quite sure that the fitting up of school dentistry in England could be done less expensively and just as efficiently in England for less money. There was, at any rate in Darmstadt, a tendency towards expensive apparatus which I personally should never advocate for institutions of the same kind in London.

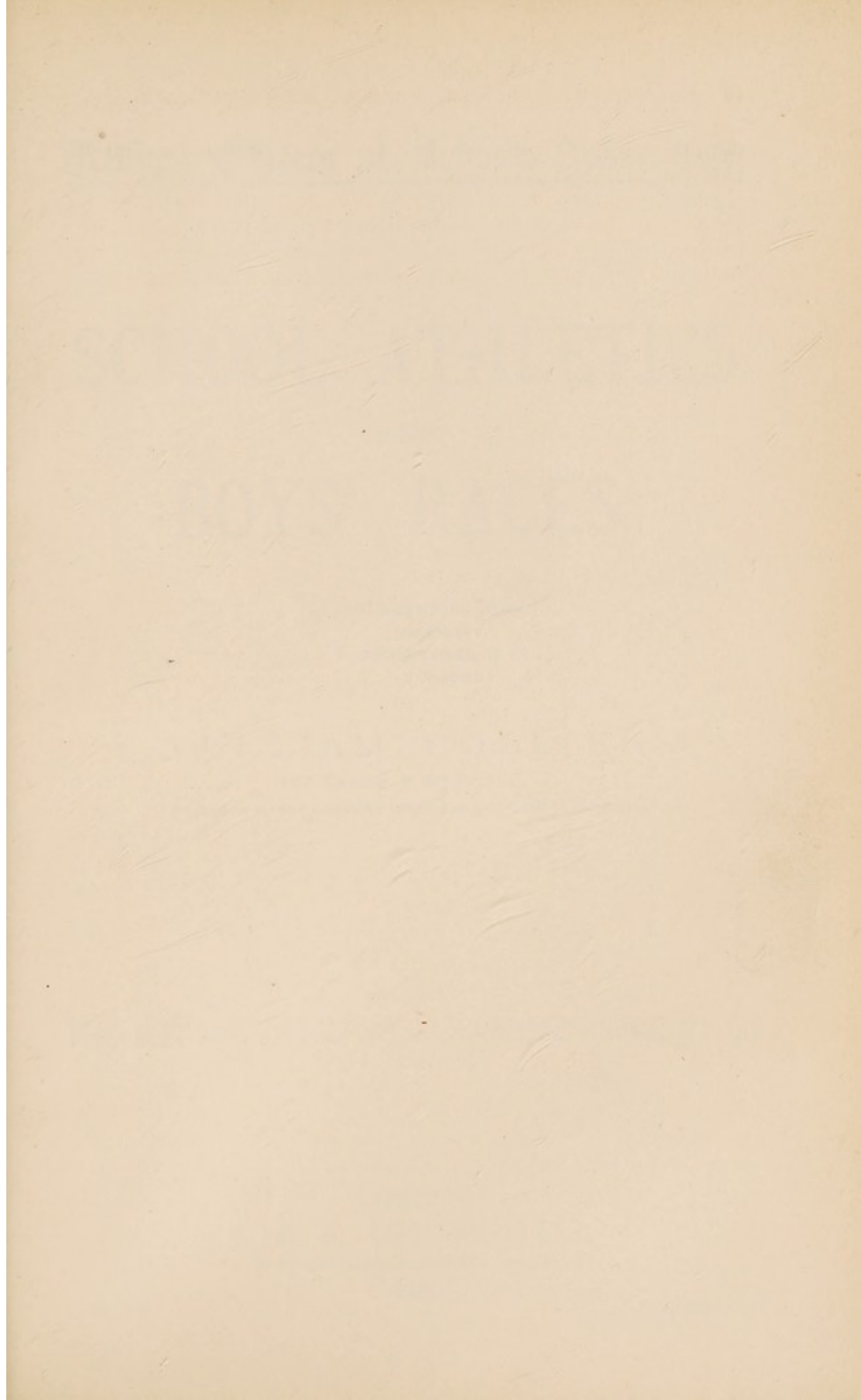
In conclusion, I cannot do better than quote from the report of Dr. Jessen, in which he states that in no department of Public Health can such far-reaching results be obtained with such moderate expense; in Strasburg it has been proved by actual practice that the health of children has been *markedly raised* through this dental treatment, and that



dental treatment aids in the prevention of disease and in the war against Tuberculosis.

I have lastly to express my great indebtedness to Professors Jessen and Griesbach, and also to the dental staffs of Strasburg, Mülhausen, and Darmstadt, who provided me with every facility for obtaining the required information.

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