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**REPORT**  
**ON THE**  
**WORK OF THE CONFERENCES OF**  
**DIRECTORS OF SCHOOLS OF HYGIENE**

held in Paris, May 20th to 23rd, 1930  
and in Dresden, July 14th to 17th, 1930

WITH A  
**MEMORANDUM ON THE TEACHING**  
**OF HYGIENE IN VARIOUS EUROPEAN**  
**COUNTRIES**

submitted to the Dresden Conference

BY

Professor Carl PRAUSNITZ

AND AN

**INTRODUCTION**

BY

Professor Léon BERNARD,

*Chairman of the Commission on Education  
in Hygiene and Preventive Medicine.*

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WITH A

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# INTRODUCTION

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**On the Work of the Commission on Education in Hygiene and Preventive Medicine, appointed by the Health Committee in 1924**

**by Professor Léon Bernard,**  
*Chairman of the Commission*

## INTRODUCTION.

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### REPORT ON THE WORK OF THE COMMISSION ON EDUCATION IN HYGIENE AND PREVENTIVE MEDICINE, APPOINTED IN 1924 BY THE HEALTH COMMITTEE OF THE LEAGUE OF NATIONS.

By Dr. LÉON BERNARD

(Professor of Clinical Tuberculosis in the University of Paris,  
Chairman of the Commission on Education in Hygiene and Preventive Medicine).

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At its session in January 1923, the Health Committee adopted a proposal submitted by Dr. Chodzko asking the Secretariat to collect information concerning "the position in the Universities of Europe, America and Japan as regards the study of hygiene and preventive medicine".

The idea which prompted this proposal was that the standard of training both for public health experts and for medical practitioners constitutes an important factor in the advancement of hygiene and hence of public health.

The Secretariat soon realised that, in order to achieve a result consistent with the Committee's desiderata, it was essential to extend the various ways and means of collecting really adequate material. On February 20th, 1924, the Health Committee decided accordingly to set up a permanent special Commission, which finally assumed the title of "Commission on Education in Hygiene and Preventive Medicine".

The Commission consisted of the following persons:

*President:* Professor Léon BERNARD, member of the Health Committee.

*Members:* Dr. Th. MADSEN, President of the Health Committee; Professor CANTACUZÈNE, member of the Health Committee; Dr. CHODZKO, Vice-President of the Health Committee; Dr. C. HAMEL, member of the Health Committee; Professor Ricardo JORGE, Vice-President of the Health Committee; Professor OTTOLENGHI, member of the Health Committee; Professor PITTALUGA, member of the Health Committee.

*Corresponding Members and Experts:* Dr. (now Sir Andrew) BALFOUR, Director of the London School of Hygiene and Tropical Medicine; Dr. J. BEJARANO, Professor of Hygiene in the Medical Faculty of Bogota (Colombia); Dr. GROT-JAHN, Professor of Social Hygiene in the University of Berlin; Sir George NEWMAN, Chief Medical Officer, Ministry of Health, London; Dr. PARISOT, Professor of Hygiene in the Medical Faculty of Nancy; Dr. A. STAMPAR, Director of the Health Service in the Ministry of Public Health and Social Welfare, Belgrade; Professor W. H. WELCH, Director of the School of Hygiene in Johns Hopkins University, Baltimore.

To them was added in 1930:

Dr. F. C. YEN, Dean of the Woo-Sung Medical School, *Shanghai*.

To me fell the honour of presiding over this Commission, and my first step was to determine its programme of work. In a report submitted at the first meeting (document C.H.243), followed by a supplementary report (document C.H.253), I suggested the principles, subsequently adopted, which should guide us in our work; these may be summed up in the following oft-quoted passage:

“Unless a body of trained experts is formed, no public health work is possible. Without the collaboration of a medical profession having a clear perception of the aims and methods of preventive medicine, the work of these experts would remain imperfect and sterile; without the support of the masses, hygiene would appear as an arbitrary collection of prescriptions and irritating formalities, resembling police regulations, and would remain a dead letter. The three aspects of the problem are closely related and, if our efforts are to be successful, this interdependence must be remembered.”

With a view to defining from the outset the general scope of our operations and differentiating between the three types of instruction in hygiene and preventive medicine, we had to investigate and determine: (1) the type of instruction for experts, medical officers, engineers, architects, nurses and other auxiliary public health personnel; (2) the type of instruction of medical students and (as a supplementary issue) for medical practitioners; (3) the type of instruction for other categories of persons — teachers, ministers of religion, administrative officials, etc. — and popular health propaganda.

In the same report, I attempted to give an account, in the light of what we knew at the time, of the various types of instruction given under these three heads, the general principles underlying current methods and the gaps in our existing knowledge of the actual situation, as well as of the desiderata suggested by such incomplete knowledge and an objective examination of these various aims and methods.

At that point, the Commission proposed to the Committee, which adopted them, the following methods of work namely: (1) to make use of all the documents collected at the Secretariat, both on instruction in hygiene and on the organisation of the public health services in different countries; (2) to make use of the documents gathered as a result of the interchanges, in so far as they deal with these two points; (3) to

institute enquiries on the spot through the medium of its members. In order to ensure unity of method in the enquiry and to guarantee that the final results would be co-ordinated and of real value, a questionnaire was prepared which is reproduced hereunder.

#### HEADINGS TO SERVE AS A GUIDE IN THE ENQUIRY.

##### I. *Instruction in Hygiene for Medical Students:*

1. Programme of instruction:
  - (a) Duration.
  - (b) Principles (teaching, practical work and field work).
2. Organisation of chairs of hygiene:
  - (a) Are there one or more chairs of hygiene for each Faculty or University? Date of creation.
  - (b) Relation between the chair or chairs of hygiene and instruction in bacteriology, parasitology, tropical hygiene, instruction in social hygiene (preventive medicine), social diseases, industrial hygiene, demography, public health statistics, sanitary administration.
3. Training of professors of hygiene.
4. Material and staff required; endowment of chairs.
5. University examinations and degrees, diplomas, scholarships, etc.

##### II. *Instruction for Health Experts:*

This part, with the preceding section I, forms the main objective of the Commission's enquiry.

6. Organisation of the instruction for medical officers of health.
  - (a) In Faculties, through chairs of hygiene (special advanced courses).
  - (b) In special schools of hygiene; the relations of these schools both with the university and with the health administration.
  - (c) By special advanced courses and special schools according to requirements.
7. Duration and cost of instruction.
8. What organisation do schools of hygiene propose to adopt for the promotion of scientific research work?
9. Recruiting of candidates.
  - (a) General education and conditions of admission.
  - (b) Interval between termination of general medical studies and commencement of studies in hygiene.
10. Leaving examinations and special diplomas granted by faculties in the special school. Subjects of examination; composition of examining boards; participation of health administrations; probationary period in the public health service.
11. Courses of instruction and diplomas for hygiene specialists (school hygiene, tuberculosis, venereal diseases, child welfare, malaria, maritime services, industrial hygiene, tropical hygiene).
12. The future of persons holding diplomas; rights conferred by diplomas; number and nature of posts in the public health services; influence of the health organisation on the teaching of hygiene.
13. Post-graduate instruction; advanced courses for the use of health officers.

14. The training of subordinate health personnel ; auxiliary health personnel; disinfectors; health visitors.
15. Training of sanitary engineers and architects (sanitary engineering). Is this instruction provided in the schools for engineers and architects or in the special schools of hygiene ?
16. Training of non-medical officials of health administrations.

### III. *Popular Education and Propaganda in Hygiene:*

This section of the enquiry is not the Commission's principal objective, but the members should collect such documents and information as are available with a view to their further use. Such documents and information should deal with:

17. The methods used in the various countries for popular propaganda.
18. The action taken by *public administrations* and *voluntary societies* in using and popularising these methods.
19. The technical training of persons in charge of popular propaganda.
20. The teaching of hygiene in elementary schools, secondary schools and colleges.
21. The technical training of persons in charge of such teaching elementary schools teachers, masters of secondary schools and colleges).
22. The teaching of hygiene in the various schools of higher education and non-medical faculties, by special teachers or by professors of hygiene of the faculties of medicine.

I have great satisfaction in informing my colleagues that, since that date, the Commission has worked according to the programme which it had drawn up. A considerable amount of documentary material has been collected and this was distributed as it appeared in multigraphed form.

#### DOCUMENTARY MATERIAL COLLECTED BY THE SECRETARIAT.

Document C.H.231 contains the information originally collected by the Section on education in hygiene in the following countries: Austria, Finland, France, Germany, Hungary, Italy, United States of America and Yugoslavia.

Document C.H.238 concerned a note by Dr. Janiszewski on the state of health instruction in the universities and colleges of Poland in 1922-1923.

Other reports were sent to the Secretariat in the early days of our activities as guides to members of the Commission who would have to visit the countries concerned for the purposes of carrying out enquiries on the spot. Mention may be made of the reports of Dr. Jitta on the Netherlands (document C.H.286), of Professor Nocht on Germany (document C.H.277), of Dr. Timbal on Belgium, of my own report on France and, lastly, of notes on the universities of Pisa and Palermo communicated by Professor Ottolenghi. These various documents were submitted at the Commission's session in April 1925.

Document C.H.362 contains a report by Sir George Newman on health education in Great Britain; it deals with instruction in hygiene for medical students, public health experts, non-medical public health personnel, and popular teaching and propaganda. This report, together with an explanatory note, was discussed at the Commission's session in October 1925.



Lastly, in 1930, at the Paris Conference, Professor Prausnitz submitted a report on public health training in Germany, (document C.H.867) which formed part of the following memorandum :

REPORTS DRAWN UP SUBSEQUENT TO ENQUIRIES ON THE SPOT.

The Commission received a large number of reports on the results of enquiries on the spot, which are of the first importance. In a note (document C.H.318) submitted at the Commission's session in April 1925, I summarised our aims and methods as follows:

“Our object: to determine the factors in public health education best calculated to contribute to the advancement of human well-being -- not to constitute ourselves judges of the various types of public health instruction given at the universities. Our method: not to enquire into the intrinsic value of university programmes, still less into that of the persons responsible for the carrying out of those programmes, but to analyse the results of the various types of public health training and their effects on medical education and public usage by means of personal enquiries on the spot, conducted in a purely objective and scientific spirit and such as to impress upon all universities and administrative authorities the ideal purpose of our mission.”

On the basis of these principles and within the scope of the above-mentioned questionnaire personal enquiries were carried out and are described in the following reports:

Dr. Andrew BALFOUR and Dr. Ch. PORTER: “Public Health Training in the United States” (document C.H.300);

Dr. CHODZKO: “Public Health Training in Denmark” (document C.H.361);

Professor Ricardo JORGE: “Public Health Training in the Netherlands” (document C.H.389);

Dr. CHODZKO: “Public Health Training in Roumania” (document C.H.475);

Professor OTTOLENGHI: “Public Health Training at the French and American Faculties of Medicine at Beirut” (document C.H.410);

Professor OTTOLENGHI: “Public Health Training in Switzerland” (document C.H.409);

Professor Léon BERNARD: “Public Health Training in Brazil, the Argentine and Uruguay”.

Lastly should be mentioned two very valuable general surveys on public health training in the universities and public health schools of Europe, the first being by Professor GENGOU (of Brussels) and the second by Professor J. PARISOT (of Nancy). Both these memoranda are the outcome of enquiries on the spot.

Professor Parisot's report, which he had been asked to draw up with a view to constituting a synthetic summary of the documentary material collected up to date, was submitted at the Paris Conference in 1930 (document C.H.866); in it are worked out exhaustively and with a wealth of detail the answers to the following three problems:

- (1) What is understood by health instruction and what is its scope ?
- (2) What are the methods at present employed ?
- (3) What should be the main guiding principles in organising a schematic yet practical plan for such training ?

#### SCHOOLS OF HYGIENE.

At its session in October 1925, the Commission received and accepted an invitation to be present in April 1926 at the opening of the newly constituted Warsaw School of Hygiene.

At this meeting, which afforded an opportunity of visiting the newly created institution for public health instruction, the programme of the school was discussed, together with a series of other questions, which brought forcibly before us the immensity, variety and complexity of the problem with which we had undertaken to deal, ranging as it did from the hidden bases of immunology to the medical effects of social insurance. There was thus no prospect of framing early conclusions; we had rather to consider the systematic classification of the various questions. Dr. Chodzko's recommendations were accordingly warmly welcomed: he suggested that the Commission should concentrate its attention mainly on school curricula and programmes for the teaching of hygiene, the relevant documents being collected by the Secretariat, with periodical meetings of the directors of schools.

The results of the Warsaw Conference were embodied in a note by the President of the Commission (document C.H.471). I immediately suggested that the periodical meetings in question might form a natural corollary of the work of the Commission on Education, and since then they have, in point of fact, taken up a great part of the Commission's activities.

The second Conference was held in September-October 1927 at Budapest and Zagreb, on the occasion of the inauguration of the schools of hygiene in those cities. An analytical report will be found in my report (document C.H.661). A number of very important points were brought out in the course of these proceedings.

A comparative study of the programmes of schools of hygiene, following on the reports by Dr. Chodzko (document C.H.628) and Dr. Pelc (document C.H.623), pointed to the conclusion that uniformity could not be expected for a series of reasons which were set out at length.

Arising out of the reports by Dr. Chodzko (document C.H.627) and Dr. Stampar (document C.H.417 (a)), a discussion was held on the best methods of recruiting pupils for these schools, and also the classes of students for whom their teaching should be adapted.

A discussion on the relations between schools of hygiene and the universities on the one hand and the public health authorities on the other, on the basis of Dr. Welch's report, led to the conclusion that no rigid system could be laid down in the matter, but that whatever solutions might be adopted — which must necessarily vary according to circumstances — three principles should be adhered to: collaboration between the school and the university and public health services respectively; the necessity for having those two bodies represented in the management

of the school; and, lastly, the necessity for combining in the life of the school a scientific spirit and a sense of practical realities.

Lastly, on the basis of Dr. Chodzko's and Dr. Johan's reports, the Conference discussed the various forms for the machinery of contact and exchanges to be established between the different schools. It was decided at once that certain questions for research should be submitted simultaneously to the schools at Budapest, Prague, Warsaw and Zagreb. The subjects selected were as follows: specific immunisation against scarlet fever; the Wassermann reaction, with exchange of antigens; oral antityphoid inoculation; a number of practical questions relating to rural public health (latrines, wells, purification of sewage).

After these first meetings, it seemed time to lay down at all events the main principles for the programme of schools of hygiene, the material having been thus analysed and compared. This question forms the subject of my memorandum submitted in October 1928 (document C.H.759).

The third meeting of directors of schools of hygiene was held in Paris in May 1930.

The programme of this meeting, drawn up by the Medical Director, will be found in document C.H.873, while the specific questions submitted for discussion were analysed by myself in a note intended as a basis of discussion (document C.H.865). These questions concern what I described as the "characteristic features" of a school of hygiene. They are: (1) the minimum number of departments or branches into which the work of the school should be divided, if the school is to be efficient and really practical — what I have referred to as the "basic constitutional standard" (as already noted, it was clear from the previous Conferences that there could not be a uniform constitution for all schools, but, none the less, some basic constitutional standard must be agreed upon, any school falling below such standard being doomed to failure); (2) the various kinds of teaching, considered from the standpoint, first, of the different categories of pupils, and, secondly, of work at the school and field work, and the part to be played by scientific research and activities other than teaching work in the life of the school; (3) questions relating to the teaching staff, courses of training and graduation; (4) the authorities under which the schools should work; (5) the influence of schools on sanitary progress and the improvement of public health in the countries in which they exist.

The proceedings having been conducted on these general lines, reports were submitted by Sir Andrew Balfour and Professor Jameson on the work of the London School of Hygiene and Tropical Medicine (document C.H.870), by Dr. Vacek and Dr. Pelc on the State Institute of Public Health of Czechoslovakia (document C.H.871) and on the Prague School of Social Work (document C.H.871*a*), by Dr. Kacprzak on the Warsaw School of Hygiene and schools of hygiene in general (document C.H.872), by Dr. Stampar on the organisation and activities of schools of public health (document C.H.874), and by Dr. Johan on the training of public health officers in Hungary (document C.H.875).

The Paris meeting discussed the character of field training, the character of scientific research in the school, the teaching of sanitary engineering and other activities of schools of hygiene. These proceedings are embodied in document C.H.882. Further, a very important memorandum by Professor Prausnitz (document C.H.880) constitutes a synthetic summary of the various ideas and of the conclusions

arrived at at the Paris Conference, while also giving a very complete picture of teaching in hygiene in certain European countries.

A further meeting was held in July 1930 at Dresden, when members of the Conference had an opportunity of visiting the Exhibition and permanent Public Health Museum in that town.

This meeting first examined the Prausnitz report and, after discussion, adopted its conclusions, more particularly as regards the minimum educational programme for public health officials. The framing of this programme was a substantial step forward.

The meeting examined secondly the question of the teaching of preventive medicine and social hygiene to medical students and, lastly, the methods of providing supplementary instruction in preventive and social medicine for medical practitioners, public health officials (doctors and engineers) and auxiliary public health personnel.

A report on the Dresden meeting is embodied in the following memorandum of Professor Prausnitz.

A memorandum by Dr. Miyajima on the "Method of attracting to a School of Hygiene the Student best qualified for Public Health Work" (document C.H.881) was approved and referred to the Health Committee for information and action.

#### OTHER WORK OF THE COMMISSION.

The Commission on Education in Hygiene and Preventive Medicine has been asked by the Health Committee to act, if necessary, as its agent, in the capacity of Technical Council, in the proposed collaboration between the Health Section and the International Educational Cinematographic Institute set up at Rome under the auspices of the League of Nations.

At the Paris meeting of 1930, the Commission noted the proposals of the Chinese National Government concerning collaboration with the League of Nations in health matters. It next examined, with the closest attention, the scheme for the organisation of the Central Station for Applied Hygiene at Nanking, submitted by Dr. Borcic.

At the Dresden meeting, a Sub-Committee was set up to advise regarding the school of hygiene of the Athens centre, and this Sub-Committee had begun to discuss the programme of the school on the basis of Dr. Norman White's proposals.

At the same meeting, in view of the comprehensive and suggestive work done by the Dresden Public Health Museum work — which, while admitting of criticism, is essentially inspiring — it was decided to appoint a Sub-Committee to enquire into public health museums from the standpoint of instruction in hygiene.

#### CONCLUSIONS.

Such is the situation to-day as regards the work of the Commission on Education in Hygiene and Preventive Medicine.

A list of the documents filed by the Section is sufficient evidence of the mass of material collected in connection with this work. A perusal of them will show that, in all three of the categories of education included from the outset in the Commission's

programme, facts have been placed on record, principles have been affirmed, and future developments have been mapped out.

For example, valuable suggestions will be found concerning popular educational propaganda, sanitary education for various categories of persons not belonging to the medical profession, technical training for the auxiliary staff of professional health experts. These ideas refer either to the specific objects or to the principles and methods calculated to assist in their attainment, or to the actual results observed in any particular country.

Undoubtedly, however — and this is only natural — the Commission's attention was devoted more particularly to the technical training of health experts, primarily sanitary officials, whether members of the medical profession or not, and to the health training of medical practitioners, the preliminary training of students and supplementary training for medical graduates. The file contains all the material for a fairly complete picture of this double teaching programme in most of the countries of Europe and America, and of the manner in which it has been interpreted and put into operation. This was the object that the Health Committee had in view in setting up the Commission, and from this standpoint its work may be said to be complete, a synthetic summary being found in the Parisot and Prausnitz Reports.

In the course of this prolonged enquiry, however, it was deemed desirable to go more deeply into certain of the data relating to the complex problems which had presented themselves. Moreover, during this period, education in hygiene had been enriched by newly created models in the form of the schools of hygiene at Baltimore, Warsaw, Zagreb, Budapest, London, and again in Prague. No record would be complete which failed to recognise the great part played in the setting up of these institutions by the Rockefeller Foundation, whose grants afforded Governments both moral and concrete assistance. This constitutes a fresh record to be included in the annals of its beneficent humanitarian activities.

The Commission felt that nothing could be more opportune than to collaborate with these schools, which, for their part, showed a desire to consult the Commission. Their programme was discussed and practically drawn up jointly. Their experience, after they have been in existence for a few years, may serve to demonstrate the practical value of these ideas and of the programmes which they are to carry out. Various points were defined, the chief ones being: a basic constitutional standard; the minimum period for practical training in field work; the objects of and standard in respect of scientific research. This is the point we have reached and we would recommend as one of the most powerful factors in the life of the schools themselves and one of the most fruitful sources of information for the Health Organisation the maintenance of periodical meetings of directors of these schools, this being a condition for their permanent collaboration and regular progress.

It seems clear, moreover, taking all these facts in conjunction, that, of the various forms of teaching met with in the course of our enquiries, the school of hygiene is best adapted to the requirements of specialised training for hygiene experts. We cannot over-emphasise the desirability of establishing these schools, and were delighted to learn that one had just been set up at Madrid, the fact that it has been placed under the direction of our colleague, Professor Pittaluga, being a certain augury of success. We came to the conclusion, as the result of our observations, that the relations of such

schools with the various public or private authorities concerned, more particularly the public health authorities and the universities, must vary according to local conditions.

As regards the teaching for medical students, two general ideas emerge from our researches: first, that chairs of hygiene in the Faculties of Medicine should include as a matter of course, teaching in preventive medicine, and, secondly, that it would be a most excellent thing if the notion of preventive medicine could form an essential part of the teaching of every chair in the Faculties of Medicine.

Later work must be in the direction of a more detailed study than has hitherto been possible of supplementary education, in which the schools of hygiene will probably be called upon to play an important part.

After this brief sketch, which is designed, as it were, to represent a milestone on the road the Commission has travelled, to sum up its achievements, to emphasise what still remains to be done and to indicate what is proposed to be done in the immediate future, it seems unnecessary to dwell on the importance of its work, in response to the recommendation that brought it into being. This work has proceeded without ostentation — but ostentation is perhaps rather a feature of work that is not entirely satisfactory. It is preferable, in my view, to point out to the new Health Committee how extremely important it is that the work inaugurated and carried on by the Commission on Education in Hygiene and Preventive Medicine should be continued in one form or another, special emphasis being placed on the maintenance of the principle of periodical meetings of directors of schools of hygiene and of liaison between these schools, with one another and with the Health Section.

Governments are applying to the League of Nations for the assistance of its Health Organisation in the improvement of their public health services, and, at this juncture, it is more important than ever that we should consider what methods are best suited to the technical training of public health officials, who will be responsible for the direction and working of these services. It is no less than our duty to give such questions our most careful consideration.

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**REPORT ON THE CONFERENCES OF DIRECTORS  
OF SCHOOLS OF HYGIENE**

**held in Paris, May 20th to 23rd, 1930  
and in Dresden, July 14th to 17th, 1930**

**with a  
MEMORANDUM ON THE TEACHING OF HYGIENE IN VARIOUS  
EUROPEAN COUNTRIES,**

**submitted to the Dresden Conference,**

**BY**

**Professor CARL PRAUSNITZ.**

# THE TEACHING OF HYGIENE IN CERTAIN EUROPEAN COUNTRIES.

By Dr. Carl PRAUSNITZ, Professor of Hygiene at the University of Breslau.

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## PREFATORY REMARKS.

The progress of civilisation consists, to a great extent, in the more thorough and conscientious acceptance of responsibility for human life and health by the nations of the world and by the individuals who compose those nations. It is becoming ever more clearly realised that improvements in curative medicine alone will always be unequal to this task. While it is recognised that every effort should be directed towards a more efficient treatment of disease in the individual, yet the higher aim must be to prevent disease in the community. Consequently, the development of scientific and practical medicine has, particularly within the last few decades, shown a marked tendency to develop in the direction of their *social* and *preventive* aspects. The future belongs, therefore, to Public Health and Preventive Medicine.

The success of the work performed in these fields depends upon the knowledge of hygiene possessed by every person engaged in the work. It is, therefore, of vital importance to ensure for all such persons the highest possible standard of training in the problems of hygiene.

In some countries, even in those possessing a high level of culture, health instruction has, until recently, been carried out unsystematically, whilst in several countries with a younger civilisation these efforts have been quite inadequate.

The *need* for health instruction being recognised, the next point to consider is its *aim*. Briefly, every individual should receive so thorough and detailed a training as to enable him to deal intelligently and efficiently with all questions likely to confront him in his work. The amount and character of training required varies, therefore, according to the needs of the individual receiving it.

The *persons* who are to be given health training naturally fall into several different groups. Whilst every *physician* ought to be fully conversant with the social and preventive aspects of medicine, it is the *medical officer of health*, responsible for the health of the population entrusted to his care, who needs the most thorough training in the teaching and practice of public health and preventive medicine. Similar instruction, though of a different type should be given to the *sanitary engineer*, as well as the various groups of the *auxiliary sanitary personnel* (sanitary inspectors, nurses, health visitors, midwives). But in every health campaign the best results will be secured through the intelligent co-operation of the general public. This may



be achieved — especially with the younger generation — through the medium of the *school-teacher*, who can render valuable service in urban, and even more in rural, areas, provided he has received adequate training. In urban and industrial communities, the leaders of the *social insurance corporations* and *trade unions* have realised the importance of preventive teaching. Their interest and active participation in this field of work have proved particularly valuable. In rural areas — *e.g.*, of Yugoslavia — excellent results have been obtained by the co-operation of specially trained male and female *instructors in hygiene* with agricultural, veterinary and economic teachers giving lectures and demonstrations in the different villages. In some countries promising endeavours are being made to enrol the *clergy* as helpers. The older generations will, however, be more forcefully influenced by popular health teaching addressed directly to the general public by means of the different forms of health propaganda — *e.g.*, leaflets, posters, lectures and the cinema — by public health nursing, and by the establishment of health centres ensuring the contact of the population with the practical work of social and preventive medicine.

The character of all this teaching differs fundamentally from that of the universities of the present day. The instruction needed for the purposes outlined above is of a less academic nature than that given to the university student, and should be more intimately linked up with the practical requirements of the health services. The training must therefore partake in a much higher degree of the character of *field work*. In addition, it should reach a far wider circle. The universities and medical schools and their hygienic institutes, destined only for the training of students, have neither the facilities nor, as a rule, the teaching staff qualified for those other purposes. If these institutions are to be entrusted with that work also, they will have to undergo considerable modification. The alternative is the establishment of special institutions destined exclusively for this object — the *Schools of Hygiene*.

Within the last decade, a number of such schools have been founded, the first in connection with the Johns Hopkins University in Baltimore and the Harvard University in Boston. Several other universities in the United States have followed suit. In Europe, Schools of Hygiene have been established in Warsaw (1925), Budapest and Zagreb (1926), and London (1929). In 1930 and 1931, similar institutions will be opened in Prague, Athens and Madrid. The work of these schools is being closely watched by other countries, some of which are proposing to establish schools of their own in the near future.

These Schools of Hygiene represent definite organisations founded with this special object — the higher teaching of hygiene — either by the university (United States of America and London) or by the State (Warsaw, Budapest, Zagreb, Prague). But it must be borne in mind that in many other countries, notably in *France* and *Germany*, health instruction is also being provided, though on somewhat different lines. Naturally, in individual countries there are wide differences in the public health problems met with and the administrative methods of dealing with them. These differences are evident in the mode and scope of work of the institutions concerned in health training; but its basic principles are the same for every country; the instruction should be efficient in character, comprehensive as regards the subjects taught and extensive with regard to the persons to be trained.

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## Part I.

# THE WORK OF THE CONFERENCES OF DIRECTORS OF SCHOOLS OF HYGIENE IN PARIS AND DRESDEN (1930)

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The Health Organisation of the League of Nations recognised at an early date the fundamental importance of instruction in hygiene. In 1924, a *Commission for Education in Hygiene and Preventive Medicine* was appointed. Its work in the ensuing six years has been fully described in the preface to this memorandum, written by the Chairman of the Commission, Professor Léon Bernard.

The information obtained by the Commission through the collection of documents, as well as by visits of its members to different countries and by conferences, afforded a thorough insight into the demands made upon health instruction in various countries and the way these demands were met by the different Schools of Hygiene. It was, therefore, decided to hold two further meetings of the Directors of Schools of Hygiene in 1930 (in Paris, May 20th to 23rd, and in Dresden, July 14th to 17th), with the object of reaching an agreement upon the fundamental principles of health instruction which such schools should provide. It was felt that, in the course of existence of the present Schools of Hygiene, much experience had been gained which, when compared with similar work performed in certain other countries by kindred institutions, would allow definite conclusions to be drawn as to the organisation and teaching programme best suited to fulfil all the requirements of modern public health practice. It was thus hoped to obtain a guide for the work of the new schools that are planned or in process of establishment in other parts of the world.

Since, however, the work of the schools, so far as it is concerned with the instruction of health officers, is intimately bound up with the *preliminary health instruction of the medical students*, as well as with other branches of *post-graduate medical teaching*, these questions were also discussed. As a result of the deliberations of the Paris and Dresden Conferences, a series of conclusions was reached embodying the present state of experience. It was proposed that this work should be carried on in future by periodically convening these conferences of Directors of Schools of Hygiene.

The different aspects of health teaching were discussed in Paris and Dresden from three points of view — viz.:

A. The special work of the *Schools of Hygiene* in training the future medical officers of health, the auxiliary sanitary personnel, the school-teachers, itinerant instructors and others, and the general public; also the methods of organisation and administration best suited to enable them to perform this work;

B. The training in social and preventive medicine required by the *medical student*;

C. *Supplementary instruction* in social and preventive medicine for medical officers of health, communal health officers, medical practitioners and the auxiliary sanitary personnel.

### A. SCHOOLS OF HYGIENE.

The comparative study of the work of the different Schools of Hygiene showed that there are considerable differences between the individual schools both in organisation and programme. These differences are due, partly, to local conditions, which will be considered in detail at a later stage of this report, and partly to differences in the point of view of the persons responsible for their administration. But the fundamental point brought out by the reports of the directors and in the discussions was the marked resemblance presented by all of them. It was therefore the chief object of the work of the conferences to determine those features which are common to all. It was possible to define the minimum requirements which any School of Hygiene must fulfil, if it is to do efficient and useful work and thus justify its existence. The discussion on the *minimum basic standard* of a school dealt with the following points:

- (1) The character of the *scientific research* work.
- (2) The character of instruction in *sanitary engineering*.
- (3) The method, character and extent of *field training*.

In addition to these questions connected with the instruction of the future health officers, there was a debate on:

- (4) The advisability of including in the programme of the school *other activities* — e.g., health instruction of the general public and practical public health work.

#### 1. THE CHARACTER OF THE SCIENTIFIC RESEARCH OF THE SCHOOLS OF HYGIENE.

The question of research is of fundamental importance for the development and standing of the school. Will it be sufficient for the school to be a purely mechanical training institution, or must it have as its basic principle the spirit of research? It was of particular interest to the members of the Conference at Paris that the debate on this question was opened by the Director of the oldest School of Hygiene, Professor Howell, of Johns Hopkins University. As pointed out by him, a School of Hygiene is under a strong moral obligation to contribute actively to the advancement of knowledge. In all American Schools of Hygiene this obligation is a real one by virtue of their being faculties of universities. In addition, the welfare of the schools themselves is directly concerned with research, for it is research that stimulates the intellectual activity of the members of the teaching staff; it tends to make them authorities in their field of work, thus increasing their influence both upon their colleagues and their students. If the teachers are pervaded by the spirit of scientific enquiry, the student will become imbued with the same attitude of mind.

It was gratifying to find that these views were shared by all the European members of the Conference. Whether the research is of a "pure" or "applied" nature

would not appear to be of primary importance. Much would depend upon local conditions. When the school is at the beginning of its career, in countries where its chief concern must be the building up of an efficient personnel of medical officers of health not existing previously and where, in addition, much external practical work is carried out by the school, its research work will be mainly performed with a practical end in view. This holds good, for example, in the Central and Eastern European countries. Other schools will be inclined to favour "pure" research; but it is worthy of note that even the London School of Hygiene and Tropical Medicine, to which the above remarks do not apply and which also counts among its teaching staff scientists of worldwide repute, performs a considerable amount of applied, in addition to pure, research work.

As a rule, research work will be performed mainly by the staff. Nevertheless, in the case of individual students interested and able to give more time to their studies, exceptions should be made. They should be encouraged to carry out scientific work by every aid which the school can give them. But in any case, there can be no doubt that *in every School of Hygiene there must reign a disinterested spirit of research.*

## 2. THE FORM OF INSTRUCTION IN SANITARY ENGINEERING.

It was in this question that the differences obtaining in the various schools were probably most apparent. The less advanced the sanitation of a country is, the more will it be desirable for this subject to obtain a dominating influence upon the work of the School of Hygiene. Here the school must carry the training of the future medical officer of health into great detail in order to enable him to plan, direct, and supervise at least the more elementary work of this character, more especially when it is performed by untrained personnel. And, in order to ensure the adequate execution of more complicated work, it may even be advisable that the School of Hygiene should teach this subject, not only to the future medical officer of health, but that it should also take active part in the instruction of the sanitary engineer and the sanitary inspector. The training courses for each branch of the service will, however, have to be separate and distinct. The other extreme is represented by countries with an established sanitary tradition like Great Britain. In that country, the training of sanitary engineers and sanitary inspectors was in the hands of special organisations long before the advent of the School of Hygiene. Therefore, the medical officer of health may rely upon finding skilled technical personnel to carry out all sanitary work. It is only necessary for him to have sufficient technical knowledge to understand the work planned or in progress; he must be able to discuss intelligently problems of sanitary engineering with engineering specialists and to supervise the work of the sanitary inspector. Between these two extremes most of the other European countries may be placed.

According to the differences indicated, it may not, in every instance, be necessary to give the school a separate Division of Sanitary Engineering; but it must always be required that there is a professor or qualified teacher of sanitary engineering on the staff of the school, and that the future medical officer of health will receive a solid training, ensuring him at least the knowledge needed in his particular country. Upon this point there was unanimity.

### 3. THE METHOD, CHARACTER AND EXTENT OF FIELD TRAINING.

This part of the instruction of a health officer has long been recognised as being a cardinal feature of his training. There can be no doubt as to the necessity of a very thorough theoretical instruction, which must first awaken the scientific interest of the student and give him the basic knowledge required. This is essential; but here, again, we are faced with the varying requirements of different countries, and even with differences in the class of students trained. On the one hand, there is the School of Hygiene in Johns Hopkins University which has to train students, not only for the different requirements of the forty-eight States of North America, but which is at present engaged to an even greater extent in the instruction of doctors from foreign countries, some of whom may already possess considerable knowledge of practical work. Then there are countries like Germany and Great Britain, where the student, after obtaining his diploma, will not at once be allowed to do responsible work, but finds himself, often for years, in the position of an assistant medical officer of health. Such men will learn the practical aspect of their duties under the tuition of an experienced medical officer of health; still, much is left in this case to the chance of the superior officer being an active organiser and a good teacher. Much practical work is also required — *e.g.*, in Germany — of the municipal and communal health officers. Many of them are called upon to undertake responsible duties immediately after their training in the school has been completed, and they may have no one to guide and supervise them. The same holds good of the physicians entrusted with responsible work in the field of social insurance.

Finally, there is the case of countries where the official health service is only in the making; where every medical officer of health, immediately after his training, enters into full responsibility and must at once and independently form his own opinion and decide upon the principles on which the conduct of his work will depend.

Such are the differences. Yet as to the vital necessity of practical field training in the programme of every school there can be no question. Without it, the candidate, after completing his course, can be but a theorist; he will have only a hazy appreciation of the practical difficulties of the subjects which he has been taught. The necessity of field training was therefore recognised universally. It was also agreed that this training should be carried out both in urban and rural areas, and, if possible, both in model districts and in such districts as were still on a lower level. The different requirements of the individual schools were, however, evidenced when the question was dealt with as to the method employed in field training, and the time set apart for it.

Obviously, the school must assume *responsibility* for the field training just as for every other branch of its teaching. This will be easiest if the area in question is under the control of the school. But that, again, is only possible in countries where the school has been established before a thoroughly organised health administration was in existence. Thus, in Yugoslavia, the school, under the immediate direction of the Health Ministry, is responsible for the field work; it actually controls and even performs the practical work of the districts entrusted to its care. In most countries,

this state of affairs does not exist; there, the school must find a way of co-operating with the local health authorities — *i.e.*, the medical officers of health.

Thus, in Peiping where the city has turned over one of its wards for teaching, the medical officer of health for this ward was proposed by the Medical College and nominated by the City. In so far as the work carried out in the district exceeds the general standard of health work in the city, the excess may be paid for by the school.

In other countries, the school will choose for its field work suitable districts administered by medical officers of health known to be experienced teachers and good organisers.

There is an obvious advantage in the theoretical and the practical training being given by the same person. Where that is not possible for the reasons stated, it is necessary at least to ensure uniformity of teaching. Whilst it may not do the student harm occasionally to hear different points of view expressed on the same matter by different teachers, yet the guiding principles of teaching should always be kept in harmony. This object may be fulfilled if the school is in close touch with the medical officer of health in charge of the field training, and is thus enabled to stimulate and assist him by advice and financial subsidies in the improvement of his district — *e.g.*, in Hungary and Poland. Or, again, the school may enrol the medical officers of health responsible for field training in its permanent staff, as is the case in the London school.

Turning now to the nature of the work performed by the student, it is necessary to define the expression "*field training*". It should embrace everything calculated to bring the student who has received his theoretical instruction into close touch with as many and as varied practical aspects of his work as possible. Therefore, it will comprise, in the first place, visits to places and institutions of hygienic interest, where he will *see* the work being done; and, in the second place — no less important — it should comprise his *active participation in the work*. The latter part receives its full share in Hungary, Poland and Yugoslavia, where the students are actively engaged for several months in dispensary and relief work and health administration. In the London School, a considerable part of the time is also set apart for this work; but, as the student only does part-time work (his studies being limited to five afternoons of every week), the field training cannot be nearly so comprehensive. In Germany, the *entire* course of training is at present limited to three months, and this precludes sufficient time being given to the practical part of the work; it is much to be desired that new regulations should be passed by the Government in order to bring about an improvement.

If field instruction is to be efficient, it must be more "training" than "teaching", and to this end it requires a considerable amount of time. How long exactly this time should be will obviously depend on the requirements of the candidate immediately after completing his course. It was generally agreed that the *ultimate aim* of a School of Hygiene should be to give its students not less than *six months'* field training; where, however, part of the work is done in the urban area in which the school is situated, this part might be dovetailed into the lecture and laboratory work. The other alternative, which was preferred by most members of the Conference, was to

accept for the immediate future a *minimum of three months' whole-time work exclusively devoted to field training*<sup>1</sup>.

This period was recognised to be the minimum required for the training of candidates who take up responsible work as medical officers of health *immediately after leaving the school*. It was considered feasible to modify this time in the case of candidates who do not at once enter into the responsibilities of a medical officer of health; the same holds good for those persons who take the course without intending to become health officers, since they, too, may be called upon to carry out some part of public health work — *e.g.*, in connection with social insurance.

These questions having been carefully considered, the Conference turned to discuss the *minimum programme* of a school — *e.g.*, its *activities and the subjects to be taught*. In the School of Hygiene of Johns Hopkins University, a distinction is made between compulsory and facultative subjects. The compulsory subjects comprise bacteriology, statistics, epidemiology, sanitary engineering and the administration and organisation of public health work. Problems of personal hygiene deservedly receive full attention. Physiology is only a facultative subject, but it is very popular among students of school hygiene and social and industrial hygiene.

In the London School, the compulsory subjects comprise bacteriology, parasitology and chemistry as the basis of the teaching and occupying about one-third of the course; then follow epidemiology, vital statistics and public health. This latter comprehensive term embraces the remaining aspects of preventive medicine; emphasis is laid upon the teaching of physiology as applied to hygiene; instruction is given in sanitary engineering, control of infectious diseases, social hygiene, mental hygiene, eugenics, and sanitary law and administration.

The discussion did not enter into details as to the time required to be given to each individual subject; the General Medical Council of Great Britain has laid down definite regulations in this respect. The majority of European Schools, however, allow even more time for the teaching of most of these subjects.

The question as to the subjects to be taught is closely connected with the *number of teachers* required. Most schools have a comparatively large number of instructors. In order to give the student a very thorough training in all the varied branches of his work, they have supplemented their permanent staff by a number of visiting lecturers. But, as was rightly pointed out, this entails the danger that the course might degenerate into a series of individual uncorrelated lectures, and that in such case the student would fail sufficiently to realise the central idea of his work. It was even suggested that the degree of maturity reached by a school might be gauged by the number of its teachers, and most members were agreed that the aim of the school should be to keep this number between ten and fifteen.

<sup>1</sup> It should, however, be noted that Professor Parisot (Nancy) is in favour of eight months, whilst Professor Grant (Peiping) requires six. In Yugoslavia, the training is, in fact, longer; for there *every physician* is only qualified after six months' field work (fever hospital, social hygiene, relief work, etc.); in addition, about two months of the special course for medical officers of health are devoted to field training.

#### 4. OTHER ACTIVITIES OF A SCHOOL OF HYGIENE.

The differences between the work of the individual schools is most clearly demonstrated by the views held by their directors with regard to the other functions they should fulfil — especially as regards the training of the auxiliary health personnel and the teaching of the general public, both through the medium of the school-teachers and by direct health education of the general public. Here, again, there is a similar gradation to that noted in the previous sections of this report. In Yugoslavia, the school is intended to be the centre of all general education in public health<sup>1</sup>. Thus it is open to everyone who, by his social position, may be able to serve as a worker for teaching purposes; it trains school-teachers, it gives courses to peasants, and it is the national centre of pamphlet and film propaganda. This work is dealt with in a most comprehensive manner and is exemplary.

On the other hand, in the London school, instruction is practically limited to the future medical officers of health, the only exception being that, in tropical medicine and tropical hygiene special courses are given to non-medical persons. In the Schools of Hygiene of other countries, an intermediate position is taken up. The Warsaw school does good work in the health education of the public and of certain classes of civil officials<sup>1</sup>, whilst the Budapest school has recently begun training health visitors. Both these schools also perform a considerable amount of practical work in sanitary engineering and epidemiology. Mention may be made of the fact that, in France, Germany and Hungary, film education is extensively used for popular health education; but its organisation is not connected with the School of Hygiene or corresponding institutions.

Most of the members of the Conference were agreed as to the desirability of the school's taking an active part in practical work, especially with regard to health education of the public. As to its extent there was some divergence of opinion; but it was agreed that the school should endeavour to be a militant institution, the *driving force in public health work*.

#### CONCLUSIONS OF THE DRESDEN CONFERENCE AS TO THE WORK AND ORGANISATION OF SCHOOLS OF HYGIENE.

As the outcome of the discussions of the Paris Conference described above, the following conclusions were adopted by the Dresden Conference:

1. The permanent value of the School of Hygiene as an integral part of the public health machinery is definitely established; but, in view of the purely technical, non-administrative character of these schools, they should be established as *autonomous institutions*.

2. Owing to the varying local conditions existing in the different countries, it has not everywhere proved practicable to form a close connection between the School of Hygiene and the University. But in every instance it has been found satisfactory to include University Professors in the teaching staff. In any case, a

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<sup>1</sup> For the details, reference should be made to the Annexes, describing the teaching of hygiene in the countries in question.



*Conclusions — Schools of Hygiene — (continued).*

close collaboration between the Universities and the Schools of Hygiene would be profitable for both.

3. The main functions of the School of Hygiene must consist of both research and teaching.

But in several countries public health field work (administration) and public health propaganda are also included in the activities of these institutions.

4. Original research work is essential for the maintenance of the scientific atmosphere upon which the life of the School of Hygiene depends; its value both for the teachers and the students cannot be over-emphasised.

Whether this research work is what is frequently referred to as "pure research" or "applied research", is of little moment, although the School of Hygiene must obviously concern itself mainly with matters of practical importance to the country concerned.

5. In certain countries it has been found practicable for the School of Hygiene to supervise, or even to undertake, executive duties in connection with the public health work of a district or larger unit of the country; where health demonstration areas have thus been instituted, their value both to the community and to the teaching work of the school is fully recognised.

In any case, every school of Hygiene should have at its disposal for training purposes one or more health centres or health demonstration areas, which may or may not be under the administrative control of the school.

**6. The minimum Requirements for the Instruction of Medical Officers of Health.**

*I. Instruction within the School.*

(a) Fundamental subjects as applied to hygiene:

- |   |   |  |
|---|---|--|
| (i) Physiology,   | } | Lectures<br>and<br>laboratory<br>work. |
| (ii) Chemistry and physics,   |   |  |
| (iii) Bacteriology, immunology and serology, parasitology,<br>entomology. |   |  |

(b) Clinical training in the diagnosis and treatment of acute contagious diseases.

(c) Sanitation as applied to dwellings, rural and urban communities.

- |  |   |                                 |
|--|---|---------------------------------|
| (d) (i) Vital statistics, as applied to hygiene, | } | Lectures and<br>practical work. |
| (ii) Epidemiology.                               |   |                                 |

(e) (i) Elementary sociology,

(ii) The environmental and social conditions in relation to health and disease,

(iii) Eugenics,

(iv) Physical education.

*Conclusions — Schools of Hygiene — (continued).*

(f) Social services:

Dispensary services (pre-matrimonial, pre-natal, maternity, infant and child welfare, school health, vocational guidance, tuberculosis, venereal diseases, cancer, alcoholism; care of the physically and mentally deficient and the poor. Also such other services as may be required by the local conditions — *e.g.*, malaria, scabies, trachoma, leprosy, etc.).

(g) Industrial hygiene.

(h) Hospitals and other organised medical services.

(i) Social insurance.

(j) Public health law and administration.

(k) Teaching of the methods of health propaganda.

The duration of, and the importance assigned to, the different sections of this instruction should be proportioned and judiciously adapted to the degree of instruction which students in each particular country possess on entering the school.

II. *Field Work.*

The Commission is of the opinion that:

(a) Organised field work should be an essential part of the course of training for health officers;

(b) It should comprise at least three months — *i. e.* one-third of the total course;

(c) The student should take an active part in all branches of field work — *viz.*:

(i) In the work of social hygiene organisations (see Section I (f)),

(ii) In sanitation work,

(iii) In public health administration,

(iv) In general health propaganda work;

(d) It is desirable that the medical officers of health to whom the students are assigned for field training should be attached to the School of Hygiene as members of its teaching staff.

III. *General Suggestions.*

In a number of countries, legislation already requires that candidates for posts in the public health services, both State and municipal services, should possess diplomas obtained at the School of Hygiene. This practice has given such excellent results that the Conference strongly recommends its extension to other countries.

IV. *Suggestions as to Administration.*

In Schools of Hygiene which are independent units it is proposed that an administration along the following lines should be provided:

(a) The Director or Dean of the school,

(b) An Administrative or Advisory Council.

*Conclusions — Schools of Hygiene — (concluded).*

(c) The teaching and research work of the school naturally falls into several sections. Each section should have at least one full-time permanent professor or lecturer, and such part-time teachers and assistants as may be required.

The experience of existing schools shows that the main subjects are: physiology, chemistry and bacteriology as applied to hygiene, sanitary engineering, vital statistics, epidemiology, social hygiene, public health administration.

Certain of these subjects may be grouped at the outset into a small number of sections, such a procedure facilitating the administration of a school in its early days; but, as the activities of the school develop, this number will doubtless increase.

The field work, whilst connected with each of these sections, is mainly incumbent upon the section of public health; it should, therefore, as a rule, be under the control of that section.

(d) It is desirable that as much as possible of the routine teaching of the school should be given by permanent full-time professors or lecturers, the functions of visiting lecturers being rather limited to instruction in specialised subjects.

(e) The teaching work of the School of Hygiene can in no case be limited to the training of medical officers of health. Every school should actively participate in the hygiene education of the entire medical profession, the auxiliary sanitary personnel, and the public in general. To this end it should at least place all its facilities — *e. g.*, its lecturers, laboratories, collections, museum, demonstration areas and other propaganda material — at the disposal of those concerned.

## B. TRAINING IN HYGIENE FOR THE MEDICAL STUDENT.

In the course of the discussion upon the programmes of Schools of Hygiene, the fact was repeatedly mentioned that the work of a School of Hygiene would depend to a very considerable extent upon the degree of hygienic instruction which had previously been given to the medical student. It was also emphasised that the training in public health and preventive medicine which is at present being given to the ordinary medical student in most European countries does not supply him with a sufficient amount of theoretical and practical knowledge for his future requirements as a medical practitioner.

Attention was directed to the fact that in most countries the medical student received only an outline of theoretical instruction in hygiene, whilst his clinical teaching did not take sufficient account of the social aspects of disease. It was quite exceptional

for the medical student to be required to do field work in social hygiene and preventive medicine. Yet all the members of the meeting were agreed that this exception represented the ideal which should be aimed at in every medical curriculum; for, nowadays, this knowledge is not needed only by the health officer appointed by the State or the Communes. Every general practitioner is constantly brought into contact with the social, industrial and preventive aspects of disease; social insurance in every country requires the general practitioner's intelligent help in these matters. He is called upon to take a considerable share in the fight against infectious diseases, notably tuberculosis and venereal diseases. It thus becomes necessary that, throughout the entire course of training, the attention of every medical student should be constantly directed to these problems, in order to influence his interest and inclinations and to prepare him for this part of his future duties. The meeting therefore felt it to be incumbent upon them to consider very carefully the question of the best method of instruction in public health and preventive medicine to be given to the medical student.

It was fully understood that any proposed reform of the study of public health and preventive medicine need not entail an increased course of lectures on these subjects, if, throughout the whole period of study, the other medical teachers would direct the attention of the students to the preventive aspects of medicine. Suitable arrangements must, however, be made for the effective correlation of the several subjects of study during the curriculum. Special help in the work could be given — *e.g.*, by the teacher of physiology, who, in lectures on applied physiology, would deal with standards of physical fitness, physical training, exercise and rest, clothing, national nutrition, ventilation, heating and lighting, etc. Opportunities for emphasising preventive medicine offered themselves in the teaching of every subject in the medical curriculum.

As regards the practical training of the student in public health and preventive medicine, this would chiefly fall within the province of the clinical teachers. The student would learn by working in the out-patient wards and dispensaries, especially of the hospitals for tuberculosis, venereal diseases, maternity clinics, etc. In universities and medical schools which did not as yet employ this method of teaching, its introduction would be greatly facilitated, if the professor of hygiene had himself received a thorough practical training, and if his institute was in intimate touch with social hygiene centres. It was, however, admitted that such arrangements would function best in smaller teaching units, whilst in large universities the carrying out of the plans outlined might be very difficult to organise.

In some cases, it would be practicable to make arrangements for the medical officers of health to take part in the practical instruction. Here, indeed, lay a chance for the participation of the School of Hygiene; it might not only lend its staff, premises and museums, but it could also aid in organising a certain amount of the students' field work.

The suggestions of the Dresden Conference were embodied in a series of resolutions, which were adopted after due discussion.

RESOLUTIONS.

*Training in Hygiene for the Medical Student.*

1. The number of specialised medical practitioners devoting themselves wholly to preventive work and to the administration of the public health services must always be comparatively small. It is therefore to the main body of general practitioners that the people must look for personal guidance in the prevention and detection of disease. Moreover, the work of the general practitioner cannot be limited to the treatment of the individual patient; it must also take due account of the effect of social and environmental influences upon the patient's state of health, and of the influence exerted by the patient himself upon his environment. Anything in the nature of a cleavage between curative and preventive medicine must at all costs be avoided. To this end, it is required that fuller instruction in preventive medicine and social medicine be given to the medical student.<sup>1</sup>

2. This part of the instruction given to the student should consist of the following *subjects*: elements of public health legislation and administration, and of vital statistics, personal hygiene, maternity, infant and child welfare, care of the school child, care of the adolescent and the adult (with special regard to industrial hygiene and occupational diseases), the control and prevention of communicable diseases, the influence of environment (with special reference to housing, air and water), the relations between food and the public health.

3. Regular medical supervision of all students from the beginning of their career is the best introduction to the teaching of hygiene. It serves to inculcate the notions and habits of hygienic life into their minds.<sup>2</sup>

4. The knowledge of preventive medicine required by the medical student will best be obtained by arranging for the instruction to be carried out from two points of view:

(a) Every professor teaching in medical faculties or medical schools should constantly emphasise the preventive aspect of his particular subject; *this aspect should, in fact, pervade the entire medical training.*

(b) After the student has thus been fully prepared, the final course, by the professor of hygiene, will become the keystone of these studies.

In order that this double form of instruction should be successful, it would be desirable for the professor of hygiene to use his influence in this direction with the other professors of his faculty, or school of medicine. This professor should, moreover, himself have a thorough experience of practical hygiene; but it is also desirable that he should have adequate experience of clinical medicine.

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<sup>1</sup> This training will also enable the medical practitioner to be better qualified for the many duties he is called upon to perform in the field of social medicine (social insurance and medical relief).

<sup>2</sup> This holds good, not only for the medical student, but for all students without exception.

*Resolutions — Training in hygiene for the medical student — (concluded).*

5. Instruction in hygiene should not be limited to theoretical teaching. The student should obtain *practical experience* by actually taking part in the practical work connected with all the subjects coming under this branch of his training. It is recognised that this will not be applicable with equal ease in all countries, and that it will be particularly difficult in those faculties or schools of medicine where the number of students is comparatively large. Yet, even in these instances, the student should at least be made acquainted with the types of practical work in all the subjects in question. This will be effected if he is required to take active part in the various branches of dispensary and medical relief work, and if arrangements can be made for him to work for a certain time under the supervision of a medical officer of health.

The purpose of the *Schools of Hygiene* is not to take part directly in the training of the medical student, but they will be able to render valuable help by placing their museums and other apparatus and facilities at the disposal of the medical faculties or medical schools concerned.

6. The provision of suitable *examination* tests is of far less consequence than the establishment of adequate courses of instruction. At the same time, it has not infrequently been shown that the only means of securing the regular attendance of the students has been by the rigid enforcement of examinations. It is especially desirable that the preventive aspect should be prominently considered in every subject of medical examination.

7. Thorough training of the medical student on the lines recommended will not only raise the efficiency of the general practitioner, it will also render the task of post-graduate instruction in public health easier, and will thus allow for a more intensified training of the future health officer.

### C. SUPPLEMENTARY INSTRUCTION IN SOCIAL AND PREVENTIVE MEDICINE.

Most careful and thorough training of the future physician and the future health officer carried out on the lines suggested will serve to raise the standard of work in public health and preventive medicine. Yet two points must be borne in mind:

1. There are in all countries both general practitioners and (older) health officers who have not received this training;

2. Even for those persons who have received a good initial training, subsequent courses of instruction should be provided which would aid in preserving the knowledge acquired and in keeping it up to date.

Two such forms of instruction should therefore be made available: "supplementary courses" and "refresher courses".

At the same time, it is evident that further subdivision of these courses is desirable, according to the type of person to be instructed — viz., general practitioners, health officers, and auxiliary sanitary staff.

In compliance with a recommendation of the Paris meeting of Directors of Schools of Hygiene, the Dresden Conference discussed this problem in some detail. Reports on the work at present being done in Germany and Hungary formed the basis of the discussion. The principles which emerged from this discussion were adopted in the following resolutions:

#### RESOLUTIONS.

##### *Supplementary Instruction in Social and Preventive Medicine.*

1. The object of supplementary training is two-fold:

- (a) Specialised instruction designed as training for special duties; and
- (b) Periodical courses designed to refresh the memory, to systematise knowledge already acquired and to teach the latest developments in the sciences underlying the practice of public health.

2. *For the general practitioner*, supplementary courses in public health and preventive medicine should take particular account of the social point of view, thus filling the gaps which university medical training may have left in his knowledge of social hygiene and social medicine.

3. The work of *medical officers of health* is of such a character as to require their regular participation in supplementary courses; these should therefore be *compulsory*. Social hygiene and preventive medicine should be the principal subjects of instruction. It is suggested that the participants should be assigned for duty to a certain number of medical institutions of different types, so that they would receive special practical training in the different branches of social hygiene work one after another. In addition, they should receive theoretical instruction in social hygiene.

4. For those *communal health officers* who are only appointed as part-time officers, post-graduate instruction in the various branches of public health and preventive medicine is urgently required, especially for those who have had no opportunity of obtaining specialised training prior to their appointment.

5. Supplementary courses for all public health officials, as well as for the general practitioner, should be given at sufficiently frequent intervals to ensure the maintenance of a high standard of efficiency.

The object aimed at can only be achieved by means of a special scheme of organisation, which may be planned in a variety of different ways:

- (a) In Germany, the main part of the work, so far as the medical profession is concerned, is performed under the auspices of the Reich Committee for Post-Graduate Medical Instruction (*Reichsausschuss für Ärztliche Fortbildung*) by the joint effort of the authorities of the Reich, States, provinces, and communes, the social insurance and welfare organisations, and professional medical organisations.

*Resolutions — Supplementary instruction in social and preventive medicine — (concluded).*

(b) In Hungary, this training is organised by the Committee for Post-Graduate Medical Training appointed by the Minister of Education.

The instruction should be entrusted to the universities or medical schools, academies of social hygiene, State institutes and schools of hygiene, the medical staff of general hospitals, health officers, etc.

In order to achieve the best results, the guiding principles should be the following — a limited number of participants and a sufficiently long course.

6. It is desirable that, for the various classes of auxiliary and technical personnel of the public health services — *e.g.*, factory inspectors, sanitary engineers, sanitary inspectors, health visitors, midwives — courses of supplementary training should be arranged on analogous lines.

In cases where the personnel of the health services may be inadequately trained — in particular, where the rapid expansion of these services has made it impossible to appoint adequately specialised staff — it is urgently necessary to organise such supplementary training as will bring this staff up to the standard required for the work.

7. Attendance at courses will be made easier for participants by giving them, as the case may be, board and lodging, or an allowance, or both.

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While there can be no doubt that the training given in Schools of Hygiene to the future health officers is suitable for the formation of a high standard of men, the fact must not be lost sight of that, in these modern methods of training, the length of the course must entail serious sacrifices on the part of candidates for the health services. Yet these sacrifices are not in most countries compensated by adequate payment to the health officer. Financially, he is almost always worse off than the average practising physician, even taking his pension into account. However high the level of teaching in the school may be, this teaching will only fulfil its object if the school succeeds in attracting first-rate men and women to the service. One part of the difficulty is overcome by the Polish system; this provides for a probationary period, during which the candidate receives a salary, and the regular course in the school forms part of this period. Professor Miyajima proposed that the questions of salaries, of the general applicability of the probationary period, and of the mode of recruitment of the health service in countries without Schools of Hygiene should be made the object of a special enquiry. It was agreed to submit this proposal to the Health Committee.

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## Part II.

# COMPARISON OF THE INSTRUCTION IN PUBLIC HEALTH AND PREVENTIVE MEDICINE GIVEN IN VARIOUS EUROPEAN COUNTRIES.

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In the first part of this report, an endeavour was made to state the views held at present by the experts of different countries with regard to the objects and methods of work to be recommended to Schools of Hygiene. The following part will be devoted to a review of what has been done in this respect in different European countries.

It should be borne in mind that the question of specialised instruction in hygiene is still in an early stage of development. Scientific hygiene is one of the youngest branches of medical science; chairs of hygiene in the universities have only been in existence for a few decades; compulsory training in hygiene of the medical student is still more recent.

But already a most important new problem of hygiene is developing — the application of the discoveries and teaching of science to the requirements of practice, with the object of bringing its advances into ever closer touch with the pressing needs of mankind. It is not a chance occurrence that this extension of science toward its practical application is in its inception in the present century. The industrialisation of mankind, the growth of social hygiene and social insurance, and, above all, the growth of civilisation and the effects of the war — all this explains the fact that, to-day, in every country of the world, both the Government and the people urgently demand practical hygiene. To this desire the majority of older hygienic institutions were not in a position to respond adequately. Thus the necessity became apparent for a new type of institution specially adapted to the new purpose — the training of a highly efficient and up-to-date corps of health officers, and the education of the general public in health matters. To this end, the *Schools of Hygiene* were established. The conditions under which they arose were, as may be recalled, very different; they therefore vary greatly in their organisation, their methods and the scope of their work. But at the present time, when a number of fresh schools are either planned or in course of construction in various other countries, it is possible to compare the experience gained and the work performed by the existing schools. It is not intended to accentuate the differences, but only to explain them in the light of local conditions. It is intended to show what principles and aims are *common to all of them*, for this will best serve as a guide for schools not yet in being or in process of organisation.

In the Annexes a more detailed description of each individual school is given<sup>1</sup>. In the following pages it is proposed to deal with the various aspects of the problem by an analytical method — viz., by examining separately each branch of work as carried out in the different schools. But, before entering into this question, the organisation of the State services must be compared, as well as the primary instruction in hygiene afforded to every medical student. For upon this depends much of what the schools are required to perform.

#### A. PUBLIC HEALTH ADMINISTRATION.

There is in every country a special Ministry or department of a Ministry at the head of public health administration. In most of the countries concerned, however, medical instruction as well as school hygiene is controlled separately by a Ministry of Education; industrial hygiene by a Ministry of Commerce, etc.; social insurance by a Ministry of Labour or Social Welfare.

Local health administration is mostly the duty of the local health authority. In all countries but France, provincial or regional authorities are interposed; but their influence is mostly limited to supervision, whilst actual routine public health work is performed by the local authorities.

The local authority normally has as its adviser a *medical officer of health*. Exceptions are afforded by some of the new European States, which are still establishing their public health services and have not yet been able to fill all the new posts required. A remarkable exception is also furnished by France where, in 1928, there were still twenty-six departments which had no medical officer of health (*inspecteur départemental d'hygiène*)<sup>2</sup>. In Great Britain and Germany, however, there is no district without a health officer. This officer is a State official in Germany, but in Great Britain is always appointed by the local authority. In Germany, medical officers of health are, practically without exception, whole-time officials, while in other countries many of them are still part-time officers. In Great Britain, there are still a number of smaller districts, chiefly rural, each of which is served by a part-time medical officer of health; endeavours are, however, being made to have one whole-time medical officer of health appointed by several such districts jointly.

The smallest administrative units are the *communes*, which may be urban or rural. Very small rural communes or parishes are, in some countries — e.g., Hungary and Yugoslavia — combined for the purpose of carrying out local administrative work. While the urban communes generally have a health officer, it is only in Czecho-

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<sup>1</sup> These descriptions were prepared on the basis of the memoranda submitted to the Paris Conference, supplemented by valuable information given by the Directors during the Conference and in the course of visits which I was privileged, through the courtesy of the League of Nations, to pay to all these schools. I desire to express my deepest gratitude for this help to the League of Nations. At the same time, I wish to thank the directors and staff of the various institutions most heartily for their valuable assistance.

<sup>2</sup> *L'Hygiène publique en France*, ouvrage publié à l'occasion du voyage collectif d'étude organisé par l'Organisation d'hygiène de la Société des Nations, Paris 1930 (document C.H./E.P.S.157).

slovakia, Hungary and Yugoslavia that every commune over 5,000 or 6,000 inhabitants is legally required to have a communal health officer. In Germany, rural communities frequently combine to appoint a health officer (Kreiskommunalarzt). In the rural communities of France there are no such officers. The communal health officer, except in larger towns, is mostly a part-time official.

The division of duties between the medical officer of health appointed by the State and the health officer appointed by the commune is, as a rule, arranged in such manner that the former is responsible for the State laws and Government regulations. The latter is chiefly concerned with work of a more local character, especially school hygiene, and practical social hygiene (tuberculosis and venereal diseases, dispensaries, maternal and child welfare, medical relief, etc.).

## B. MEDICAL TRAINING.

The medical curriculum in most countries is much the same. In Great Britain, five years' study is required; in France six years (including one year's science instruction). In both countries the latter years are devoted, to a great extent, to practical work in the hospital wards. In Czechoslovakia, Germany, Hungary, Poland and Yugoslavia the curriculum consists of five years' study, ending with a State examination; but, after this, one year's practical probationary work in hospitals and other institutions is required before the State grants the qualification.

Training in *practical* hygiene plays, on the whole, an unimportant part in medical education. However, in some universities of Czechoslovakia, France and Germany the students take part, to a certain extent, in social hygiene work. At Zagreb University, compulsory courses of practical hygiene have been established for medical students in their final year; they last for two months and consist of real field training. In Yugoslavia, there is, in addition, the regulation that half of the year of probation must be passed by every candidate in a fever hospital and social hygiene work; this represents actual field training. Apart from Yugoslavia, there is no general rule, and little is done to provide practical training in hygiene for medical students. The urgent need is thus evident of providing a very thorough hygiene instruction for the future health officer. This is one of the objects of the newly established Schools of Hygiene.

## C. THE SCHOOLS OF HYGIENE.

In Europe, Schools of Hygiene have been established in Warsaw, Budapest, Zagreb and London. New schools will be opened in Prague in 1930 and at Athens and Madrid in 1931. In France, the Diplôme supérieur d'hygiène is granted by several Universities to physicians who have undergone a special course of training and passed an examination; here, however, one is hardly entitled to use the term "School of Hygiene". In Germany, there are in the State of Prussia three "Academies of Social Hygiene", giving courses which must be followed by all physicians proceeding to the State examination for medical officers of health.

1. ESTABLISHMENT OF THE SCHOOLS.

The Schools of Hygiene proper are only three in number — Warsaw, Zagreb and London. The London school deals both with hygiene and with tropical medicine. The Warsaw school is a department of the State Institute of Hygiene. In Budapest, the actual state of things is similar, but there is no department set apart for instruction, each of the departments of the State Institute of Hygiene taking part in both the practical and the teaching work. The new State Institute of Hygiene at Prague will have a special department for instruction and propaganda, and will thus conform to the Warsaw plan.

These institutions are under immediate State control in Czechoslovakia, Hungary, Poland and Yugoslavia. In Great Britain, the school is part of the London University, its status closely resembling that of the Schools of Hygiene of certain North American universities. In France, post-graduate hygiene training is given by the Hygiene Institutes of some universities. The German Academies of Social Hygiene are merely associations of teachers in hygiene, etc., which have been established autonomously but are incorporated and supervised by the Government. It should, however, be mentioned that, as regards their internal administrative and teaching work, all institutions are autonomous.

All but the German schools (and, of course, the institutions taking their place in France) are organised in separate divisions or departments; but these divisions are not strictly comparable, because, in some cases, they form part of a school; in others, part of the institute which carries out the teaching. This is summarised in Table I.

TABLE I.  
*Divisions or Departments*

Schools of Hygiene.			Institutes of Hygiene.	
London	Warsaw	Zagreb	Budapest	Prague
Bacteriology and Immunology	Biochemistry	Teaching and propaganda	Bacteriology	Teaching and propaganda
Biochemistry	Epidemiology and statistics	Social hygiene and statistics	Serology	Social hygiene
Epidemiology and statistics	Social hygiene	Sanitary engineering	Chemistry	Bacteriology
Public health	Sanitary engineering	Manufacture and control of biological products	Pathohistology and parasitology	Drug control
Medical zoology	Physiology and industrial hygiene		Field work	
Tropical medicine			School of nursing	Food control
			(Planned: Cancer)	Manufacture of biological products
				Control of biological products
				Rabies and small-pox vaccines
				(Planned: Hydrobiology)

## 2. RELATIONS WITH OTHER AUTHORITIES.

### (a) *The Universities.*

Apart from those Schools and Institutes of Hygiene which form part of the university (France and Great Britain), the Prague Institute and the Prussian Academies of Social Hygiene are in closest touch with the universities, owing to a number of university professors being on their administrative councils. In Zagreb, the Institute of Hygiene of the university is housed in the building of the State School of Hygiene; this leads to close contact in their work and a valuable division of labour (the university institute being concerned chiefly in "pure" research, whilst the school deals mainly with "applied" research). In Budapest and Warsaw, on the other hand, the relations with the university are practically limited to the fact that certain members of the staff of the Institute or School of Hygiene are also on the staff of the respective universities.

### (b) *The Public Services.*

In all schools there is close connection with the State and municipal services. In London and Breslau, this is emphasised by the fact that several medical officers of health are permanent members of the teaching staff. In the Hygienic Institute of the University of Nancy, the technical work (bacteriology, serology, water analyses, epidemiological investigations) is performed for the medical officer of health; at the same time, the director of the institute is president of the departmental social services (these, however, are independent organisations). In the remaining four countries (Czechoslovakia, Hungary, Poland, Yugoslavia) the school or institute has established one or more Health Demonstration Centres, which are administered by the State or the local authorities (Czechoslovakia, Hungary, Poland), or even by the school itself (Yugoslavia). All this work naturally binds the school very closely to the various branches of public health administration.

## 3. THE PURPOSE OF THE SCHOOLS.

The purpose for which the Schools of Hygiene were established is always that of training the future health officer, and it often embraces the training of some or all of the auxiliary sanitary personnel (not in London). In one form or another, all schools are engaged in scientific work, and the majority of them in practical work. In Budapest, the control of sera and biological products is included. In Prague, Warsaw and Zagreb, sera are both produced and controlled (for the details, see heading 4 (c)). According to the Yugoslav programme, the school should be the centre of all public health work.

## 4. THE ORGANISATION OF THE WORK.

### (a) *Scientific Work.*

Research is carried on by all the schools to a greater or less degree. The extent and direction of the work will always depend on the director and his staff, as well

as upon local conditions. In all schools scientific interest is very much alive, as is evidenced by the work accomplished or in progress. The amount of scientific work which a school can carry out depends, of course, on the technical facilities and the number of workers present in the institution, as well as upon the time absorbed by teaching and practical work. In this respect, the London school is in a very favourable position; whilst in Budapest and Warsaw, and especially in Zagreb, the staff is still limited in comparison with the great demands made upon its time by practical work. But it must not be forgotten that, just as scientific research is the mainstay of all practical work, so the practical work often leads to scientific results of great value.

In the majority of the schools, research is predominantly of an "applied" nature; yet both in London and in Warsaw, where eminent scientists are year by year accomplishing most valuable "pure" research, much of the work is also performed with a practical objective.

(b) *Instruction.*

(i) *Medical Officers of Health.* — The length of the course of training for medical officers of health varies considerably. It is summarised in the following Table II:

TABLE II.  
*Length of course*

	Course in the School of Hygiene		Training outside the School
	Total length of course	Time devoted to practical work	
Czechoslovakia <sup>1</sup>	4 months	—	20 months under a local authority before entering the course
France (Nancy)	6 months	about 3 months	—
Germany (Breslau)	3 months	about 1 month	—
Great Britain	12 months (part-time)	about 6 months (part-time)	—
Hungary	9 months	4 months	—
Poland	9 months	3 months	Additional 3 months under local sanitary authority
Yugoslavia <sup>2</sup>	6 months	about 2 months	—

With regard to the details of the training in the schools, reference should be made to the Annexes. A short summary is, however, given in the following Table III:

<sup>1</sup> Planned for the future.

<sup>2</sup> This does not include the six months' field work which every medical student has to pass through during his one year's probationary period.

TABLE III.

*Curriculum of course for medical officers of health*

	Germany (Breslau)	Great Britain (London)	Hungary	Poland	Yugo- slavia
	(Number of hours)				
Epidemiology and vital statistics . . . . .	22	65	*108	91	80
Bacteriology, serology, parasitology . . . . .	50	168	*127	96	} 160
Chemistry (biochemistry) . . . . .	—	102	*50	74	
Personal hygiene . . . . .	6	25	15	12	} 60
Sanitary engineering and housing . . . . .	9	23	53	80	
Social hygiene and relief work . . . . .	165	45	57	48	240
Sanitary law and administration . . . . .	21	12	65	58	30
Industrial hygiene . . . . .	14	12	10	28	—
Social insurance . . . . .	26	2	5	6	—
Applied physiology . . . . .	—	10	—	—	—
Fever work . . . . .	—	26	— <sup>1</sup>	134	— <sup>1</sup>
Various . . . . .	119	16	33	—	126

The above table gives the number of hours devoted to the different subjects in each school; however, these figures are not absolute in every case, and an asterisk is placed where only approximate times could be calculated from the details given.

Some of the differences shown here are remarkable. They are, of course, explicable to a certain extent by different local requirements. Thus, in sanitary engineering, the medical officer of health needs more detailed knowledge of the practical side of the work (rural sanitation) in countries like Hungary, Poland and Yugoslavia, where planning and execution of the work in a large measure depend upon himself. In Germany, social insurance plays so prominent a part that it is dealt with in its schools to a greater extent than in other countries.

But, in some respects, critical remarks appear justified. Thus, the time allowed in Germany for epidemiology and vital statistics is too short; the time set apart in Great Britain, and Hungary for bacteriology seems rather long. Chemistry and physiology as applied to hygiene should form an essential part of every curriculum. Industrial hygiene certainly receives inadequate consideration everywhere except in Poland<sup>2</sup>.

Standardisation of teaching should not, of course, be aimed at in view of the great local differences which have been repeatedly noted; yet a certain harmony and balance of the chief subjects of instruction should in every case be achieved.

The hours given in Table III do not take account of field work, but include only lectures, "seminars" and laboratory work. With regard to the *field work*, columns 3 and 4 of Table II give a fair indication. Yet it must be borne in mind that the character of this work may be very different in the different schools. It is not quite evident in certain of the programmes how much of the field work consists

<sup>1</sup> For these schools, the time allotted to fever work is included in the heading epidemiology.

<sup>2</sup> With regard to Germany and Great Britain, this is explicable, since these problems are chiefly dealt with by the factory inspector and not by the medical officer of health.

in work performed by the student himself under adequate supervision, and how much of the time allotted is spent in visiting outside institutions and in observing their work. Here, again, the requirements differ markedly. The student in Hungary, Poland and Yugoslavia, immediately after passing the final examination for medical officers of health, may be called upon to carry out responsible work unaided and practically undirected. This is not the case in Germany and Great Britain, where a long period of work as an assistant medical officer of health precedes his appointment to a responsible post; yet, even here, a thorough practical training in the field is required, much of which should be active participation in public health administration and social hygiene services.

With regard to the final qualifying *examinations*, these are governed either by definite statutes or by fixed regulations of the schools. They are, in every case, written, practical and oral. In France and Germany, two theses are required to be presented by the candidate before entering the examination. On the whole, experts of the countries in question are agreed that the subjects examined and the amount of knowledge required in the examination allow a very fair estimate at least of the theoretical knowledge of the candidate.

(ii) *Sanitary Engineers*. — The training of sanitary engineers in the schools is limited to Poland and Yugoslavia; in the other countries, they receive their instruction in special schools of engineering.

(iii) *Sanitary Inspectors*. — This branch of the service was first developed in Great Britain, where thorough training is given in special institutions. The training of sanitary inspectors is performed by the School of Hygiene only in Poland and Yugoslavia.

In Czechoslovakia, Germany and Hungary, there is no service comparable to that of the sanitary inspector, but there are disinfectors who receive their instruction in special schools. The *agents sanitaires* of France do not, in every case, receive special training prior to their appointment.

(iv) *Nurses and Health Visitors*. — The Schools of Hygiene of Budapest and Zagreb have attached to them a special school for nurses and health visitors. In the other countries, instruction is given in special schools, in some of which (London and Warsaw) members of the staff of the School of Hygiene take part. The training is fairly uniform and extends, as a rule, over two or three years; it ends with an examination.

(v) *Midwives*. — Training is given in special schools attached to maternity hospitals. It is most desirable that the School of Hygiene should in every case participate in such instruction, at least in connection with the hygiene of mothers and infants; but as yet this has not anywhere been realised.

(vi) *School-Teachers*. — In all countries attempts are made to give the school-teachers some instruction in hygiene: but, on the whole, these attempts are still very inadequate. Several schools of hygiene give special short courses to persons who are already engaged in teaching. But the ideal is obviously to give them instruction in hygiene *whilst they are being trained as teachers*. The Pedagogic Academies recently established in Prussia are carrying out excellent work on these lines.



(vii) *General Public.* — A large amount of health education is being done by the health officers who have received their course of training in the Schools of Hygiene; some schools give them special practical instruction in this branch of work. But in most countries it has rightly been considered necessary to use other methods of driving home to the general public the lessons of hygiene. In this work, Yugoslavia takes the lead. The methods of the Zagreb School of Hygiene, consisting in holding *regular lectures by suitably qualified teachers* in the villages (illustrated with lantern slides, films, etc.) and in giving courses of several months' duration to peasants (men and women) in the school have passed out of the experimental stage and well deserve to be copied by all other schools.

A still wider form of instruction is afforded by the *cinema*. There, again, the Zagreb School of Hygiene is performing exemplary work. It has long given up the use of the "educational film" produced in other countries; it directs its activities to the production of films of local interest, prepared by local actors in real country villages under the control of the school. It is thus possible to interest intensely the uncultured and to bring home to them the lessons of hygiene.

(c) *The Practical Work of the Schools.*

The schools vary enormously in so far as this phase of their work is concerned. The bacteriological, serological and chemical investigations, as well as the production of sera and vaccines, need not here be dealt with. Naturally, in countries possessing no other efficient institution for these purposes, the School of Hygiene (Yugoslavia) or the Institute of Hygiene (Czechoslovakia, Hungary, Poland) will be called upon to perform all or part of these functions.

Of greater importance, and more or less applicable to all schools, are the activities developed by some of them in the way of advice and active work in sanitation, particularly in rural districts; yet only the schools of Hungary, Poland and Yugoslavia perform this work. There can be no doubt that this is one of the most efficient methods of increasing the influence of the school among every group of the population. Still more so is this true of the health demonstration centres that have been developed by the schools (or institutes) of hygiene in Czechoslovakia, Hungary, Poland and Yugoslavia.

## 5. THE STAFF OF THE SCHOOLS.

All those schools of hygiene which have received a definite organisation possess a permanent staff consisting of the director, the heads of departments and, in addition, a certain number of visiting lecturers who are not usually permanent members of the staff. In several schools this number is relatively high (forty to fifty) because of their desire to have every individual subject taught by a separate specialised lecturer. Owing, however, to the increasing importance rightly assigned by all schools to the "seminar" method of instruction, this number is gradually being reduced.

## 6. THE BUDGET OF THE SCHOOLS.

The figures available do not allow of comparison owing especially to the differences obtaining in the scope of work of the various schools. Thus, no comparison is possible between the budget of the Academy of Social Hygiene in Breslau, whose

expenses consist only of lecturers' fees, and the budget of the London school, which includes laboratory and research work as well as training in tropical medicine, and that of the school of Zagreb, which, besides its teaching, performs a great deal of practical work outside the Institute. The figures given in the following Table IV are, therefore, only intended to afford a general conception of the total expenses of the schools:

TABLE IV.  
*Expenditure (in Swiss francs).*

	Hungary	Poland	Yugoslavia
Lecturers' fees and salaries . . . . .	12,261	125,159	346,715
Upkeep and maintenance of the school . . . . .	—	53,488	
Laboratory expenditure . . . . .	12,928	27,002 <sup>1</sup>	328,467
Travelling expenses . . . . .	—	822	
Subvention to students . . . . .	9,081	802	
Various . . . . .	—	3,151	
Total . . . . .	34,270	210,424	675,182

The income of the Zagreb school is derived, one-half from a State grant and the other half from the sale of sera and biological products.

With regard to the London school, there are no details available as to expenditure. Its total budget is over £50,000 (1,250,000 Swiss francs), of which £40,000 are covered by a State grant.

#### D. FINAL REMARKS.

The European Schools of Hygiene are still in their youth, the oldest one (Warsaw) having been established only in 1926. But, from the experience gained in the four principal schools of Budapest, London, Warsaw and Zagreb, certain general ideas have already taken shape with regard to their organisation, their functions and — tentatively — their value.

Three of them were founded by the State, one by the university. But all of them preserve relations both with the university and the State Health Services, thus affording outward evidence of the two tendencies of their work — scientific and practical, research and teaching.

*Research* is the solid foundation of the whole work of the school; it inspires the staff and it supplies the guiding force for many of its activities.

The next function of the school is *teaching*. In the training of the future medical officers of health the programmes of the individual schools show many differences, but in their essence they agree. They give solid theoretical instruction in all the subjects required in the health officer's work; they supplement it with practical training in the field. In the instruction given to the auxiliary sanitary personnel, the school-teachers and the general public, they present considerable divergence.

<sup>1</sup> Including extraordinary expenses for laboratory apparatus.

It is, however, desirable to bring this branch of instruction to the highest possible level in every school, whilst taking due account of the work performed in this respect by the other institutions concerned.

The development of the *practical* work depends to some extent upon the needs of the country. The more primitive the hygienic conditions, the greater will be the necessity for the school to participate actively. Incidentally, attention may be drawn to the fact that some of the practical work (*e.g.*, serum manufacture) may serve to raise the revenue of the school, and thus afford the means for intensifying its work in other directions — *e.g.*, health demonstration centres and health instruction given to the public.

It is still too early to give a final reply to the question whether the Schools of Hygiene in their present state of organisation are the best or the only means of attaining the desired aim. Yet already some conception can be obtained of their value. Enthusiastic workers and scientists of repute are directing all their energies towards the object of fulfilling the duties and steadily increasing the field of action of the schools. Thus, year by year they are training an ever-growing body of men and women able and willing to aid their country by active work for preventive medicine.

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## Annex I

### THE TEACHING OF HYGIENE IN CZECHOSLOVAKIA.

#### A. THE SANITARY ADMINISTRATION OF THE STATE.

The *Ministry of Public Health* is responsible for sanitary administration, social hygiene (control of social diseases, child welfare), school hygiene, physical education, sanitation; it is also responsible for granting the qualification to students of medicine who have performed their regular course of studies.

The *Ministry of Education* is responsible for the instruction of the medical student and the final examinations ("M.U.Dr.").

The *Ministry of Social Welfare* is responsible for social insurance, factory inspection, housing, and the care of invalids, widows and orphans of the war.

The Republic is divided into four provinces, with 248 "political departments" (*okresní úřady*), each of which contains about 50,000 inhabitants. Each department is subdivided into sanitary districts containing about 6,000 inhabitants. In each provincial administration, there is a medical officer (*zdravotní referent*) with several subordinate medical officers (*zdravotní inspektori*); hospitals and pharmacies are, however, administered by an administrative officer with legal training.

Each political department has a medical officer of health, the *okresní lékař*, many of these officials being full-time workers.

The sanitary district has a medical officer of health, the *obvodní lékař*, who is a part-time officer. Among the 8,000 physicians in the Republic, there are about 2,000 district medical officers.

All these medical officers are State officials. With regard to their instruction and examinations, see page 35.

Laboratories for bacteriological and serological investigations and for examination of foodstuffs are attached to all medical faculties of the Republic (in Prague, two; in Brno and Bratislava, one each); there are also bacteriological laboratories connected with the Institutes of Pathological Anatomy in Olomouc, Mor. Ostrava, Trebova, Kosice and Uzhorod. Bohemia, however, is insufficiently provided for. It is here intended to erect independent divisions of pathological

anatomy in connection with the large hospitals<sup>1</sup> which are already in existence or being established in that country. Endeavours are being made to carry out this plan on a very extensive scale; the idea being to entrust the direction of these divisions to persons specialised in pathological anatomy, but possessing a sound instruction in bacteriology and serology. The divisions should subsequently become local centres for the control of infectious diseases, as well as the medico-legal work of the political department. For the future, they are intended to develop further in the direction of health centres; to this end, welfare centres would be attached to them. One such centre is at present in course of construction in Uzhorod.

## B. MEDICAL TRAINING.

In the universities, bacteriological instruction is given separately from that of hygiene, and in the majority of cases it is in the hands of the professor of pathological anatomy; he, too, is responsible for the examination in bacteriology. Neither the lectures nor the laboratory work are compulsory. Hygiene instruction is given by special professors who are also examiners in this subject. In some universities special attention is devoted to theoretical and practical instruction in social hygiene.

Thus, in the Czech Faculty of Prague, the lecturer on social medicine, Dr. Pelc (who is at the same time on the staff of the State Hygiene Institute), gives regular courses on social hygiene which are well attended by the students; with the aid of the Ministry of Public Health, he has established dispensaries in several university clinics, where he teaches social hygiene whilst "demonstrating" the patients attending the dispensaries. In the first term, he gave lectures on venereal diseases extending over one hour a week; in the following term, similar lectures were given on tuberculosis; in the immediate future, infant and child welfare and social insurance will be treated in similar manner; instruction is carried out by the "seminar" method and the students are required to write papers on their work. — In Brno, Dr. Roček, professor of hygiene in the University, gives his students instruction in field work, with special attention to epidemiological research; the Ministry of Education has given a grant for this purpose.

## C. THE STATE INSTITUTE OF HYGIENE (PRAGUE).

### 1. ESTABLISHMENT.

For the young Republic, which found itself faced with the difficulties of the post-war period and the grave danger of epidemics, it was one of the most urgent requirements to establish its own sanitary legislation and ordinances and to construct its sanitary administration, with efficiency, economy and speed. In this work, and in the campaign against infectious diseases, which had increased greatly since the war,

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<sup>1</sup> These large hospitals are intended to be still further extended, whilst the numerous small and insufficiently staffed local hospitals will in course of time be dissolved. This is possible owing to the good development of the ambulance services (Red Cross automobiles in connection with fire brigades). It is only necessary further to extend the service with regard to transport of infectious cases; at present, there is only one such service in each province, consisting of two vehicles for infectious cases, one automobile fitted out for disinfection and one as a laboratory; in future, similar cars intended for sterilisation of water and for disinfection are to be added.

the Government was efficiently aided by scientific advice and practical help given by the medical faculties and their hygienic institutes. In time, however, this was felt by the faculties to be an obstacle to their research and teaching work. Both medical faculties of Prague suggested the establishment of a special institute for the purposes of the State. The Government itself felt the need of such an institution, which would always and without limitation be at its disposal for giving advice and carrying out practical public health work.

In 1925, the construction of this new institute was decided and sanctioned by law. The funds were supplied half by the State and half by the Rockefeller Foundation. The institute is now finished, with the exception of structural details in the main building.

## 2. RELATIONS WITH THE UNIVERSITIES, ETC.

The Institute is immediately subordinated to the Health Ministry. At its head is an administrative director, government councillor Dr. Vacek, assisted by a scientific council. This council consists, besides the director, of professors of the four universities and the technical high schools of the State: Dr. Brdlik, professor of pediatrics in the University of Bratislava; Dr. Buliř, professor of food chemistry in the Technical High School of Prague; Dr. Ghon, professor of pathological anatomy in the German University of Prague; Dr. Honl, professor of bacteriology and serology in the Czech University of Prague; Dr. Pelnář, professor of internal medicine in the Czech University of Prague; and Dr. Roček, professor of hygiene in the University of Brno, as permanent adviser.

By this means, it was endeavoured to obtain close personal and scientific relations between the new State Institute and the universities and technical high schools and their hygienic institutes. Thus harmony is to be ensured between the different organisations, whilst the interests of the latter institutes will be sufficiently guaranteed. By virtue of their delegates in the council of the State Institute, the faculties obtain regular knowledge of its practical and scientific work; but at the same time it is an advantage to the State Institute to have the advice of leading experts of the country. This arrangement is peculiar Czechoslovakia; it differs widely from the method adopted by other countries in the solution of the corresponding problem, and it therefore deserves special attention.

## 3. THE PURPOSES OF THE INSTITUTE.

The purposes of the Institute were defined by a Law dated October 31st, 1925: "scientific and practical problems — research, teaching and production."

The Institute consists of a large group of beautiful and well-appointed buildings in Vinohrady, a suburb of Prague, and a farm in the country about 20 miles from Prague, where the serum horses are kept and the animals required in the Institute

are raised. The main institute consists of a central administrative building and several "pavilions" for the different departments, as well as a chief building nearing completion, in which the hygiene courses will be held and the museum is to be established.

The Institute is divided into the following departments:

Production of sera and bacterial vaccines (Director: Dr. Feierabend);  
Control of biological preparations (Director: Dr. Schubert);  
Smallpox and rabies vaccine (Director: Dr. Urbánek);  
Bacteriology (Director: Dr. Drbohlav);  
Pharmaceutical control, food examination (Director: Mag. pharm. Klapszuba);  
Social hygiene (Director: Dr. Pelc);  
Hygiene instruction and health propaganda (Interim Director: Dr. Pelc);  
Drug control (Dr. Skarnitzl).

A Department of hydro-biology is also planned.

The nucleus of hygiene instruction is formed by the sections for social hygiene' hygiene instruction and propaganda. The Social Hygiene Department is subdivided into the sections: epidemiology and statistics, child welfare and school hygiene, industrial hygiene, housing, nutrition; it is to be served by laboratories for bacteriology, physics, chemistry, physiology, biometrics, statistics, sanitary engineering. Intimately connected with the Social Hygiene Department is the establishment of the health demonstration centre (see page 36).

The Institute has three affiliated institutes in the State: laboratories for the examination of foodstuffs and for bacteriological and serological investigations in Brno, Bratislava and Kosice; the institute at Kosice also contains a unit for Pasteur treatment. Uniformity of working is secured by means of regular conferences of the directors of the different institutions.

#### 4. THE ORGANISATION OF THE WORK.

##### (a) *Scientific Work.*

By reason of the connection of the staff of the Institute with the universities, it was difficult in the past to obtain a clear distinction between the research work of these two categories of institutions. This is particularly the case with the numerous publications on questions of social hygiene by Dr. Pelc, who is both head of a department of the State Institute and lecturer on social medicine in the University. Since January 1st, 1930, the State Institute has, however, established a quarterly periodical which is to receive the publications of its members, *Les Travaux de l'Institut d'Hygiène Publique de l'Etat Tchécoslovaque*; the first number contains a history of the Institute, descriptions of its general organisation and of the department for the production of sera. In so large and well-appointed an Institute, problems both of theoretical and of more predominantly practical importance will always be to the fore. It is, however, the general object of the Institute to devote its work, so far as possible, to problems of practical importance with the aid of the best means of scientific investigation.

(b) *Teaching Work.*

(i) *Medical Officers of Health.*

At the present time, the only conditions of appointment for medical officers of health are: two years' practical experience in a hospital (or one year hospital and one year private practice) and the passing of a special examination (*zkouška fyzikální*) in toxicology, pharmacology, chemistry (especially food), bacteriology and serology, social medicine and forensic medicine; the examination is written, practical and oral in most subjects, but only oral in social medicine.

There is no special course of instruction in these subjects which candidates must have taken; but in point of fact most of them do take part in courses of about four months' duration, which are given by the examiners.

For several years, endeavours have been made to re-organise the teaching and examination of medical officers of health; probably the following procedure will soon be decided upon: Every State official will have to pass through a probationary period of three years; the time spent in hospital work to be counted as one year, whilst twenty months are to be spent in practical probation in the district to which the candidate is destined to be appointed; it is only in the *last four months* of his probationary period that he will be required to work in the State Hygiene Institute and subsequently to pass the *examination*. This examination will also be more adapted to the present state of public health. There is not as yet a definite plan for the course of training to be given in the Institute.

(ii) *Sanitary Engineers.*

Their instruction is not included in the programme of the School.

(iii) *Sanitary Inspectors, Disinfectors.*

There are no sanitary inspectors employed in the State. The training of disinfectors was hitherto carried out in the municipal school in Prague, but will in future be undertaken by the State Institute. It is planned that at a future stage persons possessing more thorough preliminary and specialised training will be appointed as sanitary inspectors.

(iv) *Health Visitors.*

At present, there exists in Prague both a Czech and a German school for *nurses* (two years' training) and, in addition, a private school for the instruction of *health visitors*, who are chiefly occupied in the different dispensaries and child welfare work. The defects of this one-sided instruction have become particularly evident since the dispensaries have begun to undertake generalised relief work, which requires every health visitor to be familiar with all aspects of social hygiene work. Endeavours



are being made to reform the health visitors' school in such manner that in their two years' course the pupils shall obtain a certain elementary training in nursing. The school is to be established in the grounds of the State Institute of Hygiene.

(v) *Midwives.*

Midwives are trained in certain special schools established by law for this purpose.

(vi) *School Teachers.*

In the training colleges for teachers hygiene instruction is given, but the State Institute of Hygiene is as yet not concerned with this work. It is, however, intended that after its completion the State Institute of Hygiene will take active part in all the branches of instruction above-mentioned.

(c) *Practical Work.*

(i) *Production.*

The production of the Institute chiefly consists in the manufacture of smallpox- and rabies-vaccine, this work being performed as a State monopoly. The Institute also prepares therapeutic sera and bacterial vaccines. The sera produced by the Institute already represent a considerable proportion of the total amount of sera used in the country; with anti-diphtheria serum, this proportion has risen to 55 per cent, the remainder being imported from abroad. The control department at present only carries out regularly the control of the sera and vaccines produced by the State Institute; in future, it will also exercise this function for all the sera and vaccines produced in the State, as well as for the various biological and endocrine remedies.

Chemical and toxicological examination of drugs is at present carried out in conjunction with the Pharmacological Institute of the Czech Faculty of Medicine in Prague; in the course of 1930, it is to be transferred to the State Institute. The Department of Bacteriological Diagnosis takes part in increasing measure in the epidemiological work of the State. Food control is at present performed only through institutions belonging to the hygienic institutes of the Czech and German faculties of Prague; these institutions will be joined to the State Institute of Hygiene in 1930 as a central institute for food control.

(ii) *Health Demonstration Centre.*

The centre is situated in the XIIIth District of Prague, on the outskirts of the town; it has 56,000 inhabitants and is partly municipal (houses for minor officials and factory workers, new houses for the lower middle class), the remainder being of a rural character.

Formerly, there were in this district eleven different relief organisations: the town was represented by its health department, a municipal "social department" and four municipal health officers. The other organisations in question were charitable; they were concerned with infant and child welfare, the care of orphans, juvenile criminals, relief work for tuberculosis, venereal diseases, etc. There was a great deal of overlapping and, in addition, all the organisations together had only six health visitors. Under these conditions, house visits outside the dispensary were not carried out with sufficient co-ordination, especially in the outlying parts.

Thanks to the well-directed and energetic efforts of Dr. Pelc, who for this purpose was placed at the town's disposal for a year, all these organisations have been co-ordinated in one central organisation; this is now under the direction of the chief municipal health officer and is administered by the local health officer, Dr. Prošek. It comprises pre-natal, infants' and children's welfare, control of tuberculosis and venereal diseases, a dental clinic, and offices for pre-matrimonial advice, professional guidance, campaign against alcoholism. School health work and visits play a prominent part; the organisation is also the centre for holiday camps. In addition, it is responsible for preventive inoculation against diphtheria and scarlet fever with anatoxin. In the centre, the municipal health officer and other physicians regularly give popular health lectures, which are well attended.

The six health visitors who had formed part of the previous organisation are now directed by a chief health visitor trained in the United States; they are occupied for half of the day in the dispensaries, the remainder of their time being spent in visits. It has thus been possible, chiefly owing to the introduction of the principle of generalised relief work, to extend the relief work to all parts of the district and to increase the number of house visits from 200 to 800 per month.

It is thus evident that the creation of the health centre was due to the initiative and organisation of the State Institute of Hygiene, whilst the technical work, the administration and payment of expenses is performed by the municipal authorities.

It has taken two years to complete these arrangements. Now the health visitors have received a sufficiently thorough training to allow of their being transferred to fresh districts, where they will aid in organising the work on similar lines.

Since 1930, the health demonstration centre has been serving for *field work instruction*. The Social School for Health Visitors sends its pupils there in groups of six for three months; they are taught by the permanent health visitors, whilst special teachers are appointed to instruct them in the theoretical subjects required.

Already several physicians have spontaneously come to the centre for instruction. In future, it is proposed to utilise it extensively for the practical field work instruction of the future medical officers of health.

### (iii) *Other Practical Work.*

After completion of the main building of the Institute, probably in the course of 1930, it is proposed to establish a museum and a health propaganda centre, which will deal with the production of posters, lantern slides and films.

## 5. THE STAFF.

In view of the organisation of the Institute, the permanent teaching staff will probably consist of members of the Institute as well as of teachers in the universities.

## 6. THE BUDGET.

### *Expenditure in 1929.*

	Czechoslovak crowns <sup>1</sup>
Personal Expenditure . . . . .	2,100,000
Material Expenditure. . . . .	1,900,000
Extraordinary Expenditure . . . . .	200,000
Total . . . . .	<u>4,200,000</u>

The entire expenses of the Institute are covered by a State grant; private donations do not play any important part.

## D. SUMMARY.

Since the State Institute of Hygiene in Prague is the most recent of the institutions discussed in this report, and since its department for hygiene instruction is not yet established, no comparison with the corresponding organisations of other countries is possible. One point, however, deserves to be emphasised: on establishing the State Institute, it was intended to secure close connection and mutual co-operation between this Institute and the hygienic institutes of the medical faculties; this object has been obtained by arranging for the work of the Institute to be guided by an advisory council composed to a great extent of university professors.

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<sup>1</sup> 100 czechoslovak crowns are approximately 15 swiss francs.



STATE INSTITUTE OF HYGIENE, PRAGUE.  
Main building.

## Annex II

### THE TEACHING OF HYGIENE IN FRANCE.

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#### A. THE SANITARY ADMINISTRATION OF THE STATE.

The central sanitary administration is at present in a stage of transition. A considerable part of it devolves on the *Ministry of Public Health*, created in 1930. After various changes during the last decade, the "Direction de l'Assistance publique et de l'Hygiène" now forms part of this Ministry. Its duties are the control of infectious diseases, public health, housing, sanitation, supervision of physicians, dental surgeons, midwives, control of sera and of poisons, social hygiene (medical poor relief, maternal and child welfare, campaign against tuberculosis), the control of hydropathic and climatic health resorts, and protection of mineral water springs. It also grants subsidies for the construction of water supplies.

The *Ministry of Education* is responsible for the training and examination of physicians, which is carried out by the medical faculties and medical schools.

The *Ministry of the Interior* is responsible for town-planning.

The *Ministry of Labour* is responsible for the supervision of factories, which is carried out by its factory inspectors, mostly not physicians; it is responsible also for social insurance.

The *Ministry of Agriculture* is responsible for the control of food and drugs and inspection of pharmacies; also for veterinary work.

The *Ministry of Public Works* is responsible for the sanitation of railway stations, ports and navigable water courses.

The duties of the different Ministries with regard to public health are, however, only administrative, not technical.

Strong endeavours are being made to bring as many as possible of the different subjects under the control of the Ministry of Public Health.

The Central Government is assisted in questions of hygiene by the "Conseil supérieur d'hygiène", whose work is carried out in several Sub-Committees. Its scope is limited; it does not concern itself with infant welfare, cancer, tuberculosis and venereal diseases; its functions are only advisory.

In 1924 a special institution was created, the "Office national d'hygiène sociale"; its functions are the collection of documents and scientific material and the organisation of health propaganda; it acts as an advisory organ to the Ministry.

France is primarily divided into ninety *départements*; the head of the *département*, the *préfet*, is responsible for the public health administration of his area. The *préfet* may have one (or occasionally more) hygienic advisers, the *Inspecteur départemental d'hygiène*. But it should be noted that, in spite of all efforts, still over twenty *départements* have not appointed such an officer; it should further be noted that, when these officers exist, they are not always physicians; even when they are physicians, they are not always whole-time officers, nor is any special training prescribed. ("Il n'y a pas une véritable carrière de médecin hygiéniste en France.")<sup>1</sup> There is thus a considerable variety in the efficiency of the public health work of the different *départements*.

Besides the *Inspecteur départemental d'hygiène*, the *département* is always provided with certain officers who take their share in public health work — *e. g.*, engineers, factory inspectors, food inspectors, etc.; some of these officers are not directly responsible to the *préfet*, but to their central administrative authority.

Several important developments have taken place of late years with the object of intensifying social hygiene work in the *départements*. Thus, on the ground of the tuberculosis legislation of 1916 and 1919, the creation of independent welfare organisations in the *départements* was permitted, the "Offices d'hygiène sociale". In 1927, there were 67 *départements* with such offices performing tuberculosis work, 18 with offices which, in addition to tuberculosis, carried out other branches of social hygiene work, whilst five were still without any "office". The connection of the office with the *Inspecteur départemental d'hygiène* is sometimes close — thus, he may be its secretary — but in other instances it is more or less loose, it may even be non-existent.

Another important development is presented by the fact that some *départements* have appointed one or more whole-time *Médecins de circonscription* — *i. e.*, physicians specialised in different branches of hygiene and social hygiene work. Thus in the Département Seine-et-Marne the duties of this officer comprise health statistics, sanitation, control of infectious diseases, vaccination, disinfection, control of child welfare, tuberculosis, venereal diseases and cancer; supervision of hospitals, etc.; co-ordination of the public and private health services with the members of the medical profession; health education of the general public. This officer carries out his work under the supervision of the *Inspecteur départemental d'hygiène*. He is therefore to all intents an assistant medical officer of health. There are already eleven *départements* organised in this manner.

In a number of *départements*, increasing stress is being laid upon the establishment of *Health Centres* and the appointment of a considerable number of health

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<sup>1</sup> "L'Hygiène publique en France", published by the League of Nations, C.H./E.P.S./157 (1930).

visitors. It should be noted that in France, health visitors are required to have been duly trained and qualified.

The above remarks will have sufficed to show that the present state of public health administration in the *départements* is not uniform; that in some instances its organisation is deficient, whilst in others there would appear to be lack of co-ordination.

The *département* is subdivided into *arrondissements*, these into *cantons*, and these into *communes*; the *arrondissements* and *cantons* are practically only electoral administrative areas. Local public health administration rests, therefore, with the *département* and the *commune*.

According to the Public Health Law of 1902, the establishment of a *Municipal Bureau of Hygiene* is compulsory for all towns with more than 20,000 inhabitants, also for thermal watering-places with more than 2,000 inhabitants. The duties of this Bureau comprise notification, control and statistics of infectious diseases, vaccination, disinfection, housing, sanitation, water supply. The Bureau may also undertake to prepare vital statistics, to carry out work on child welfare and school hygiene, surveillance of prostitution,<sup>1</sup> supervision of the food supply and of factories.

The extent and details of public health work carried out in the *commune* vary greatly; in larger and in industrial towns, it is mostly on a high level. In rural areas, any progress achieved is mainly due to the *médecin de circonscription* animating and advising the local authorities.

Whether the Law on Social Assurance, which came into force on July 1st, 1930, will in the future lead to a more harmonious development of the different branches of social hygiene is doubtful, for according to the last regulations, the "Conseil supérieur des Assurances sociales", constituted in connection with the Ministry of Public Health is provided with no health representative.

## B. MEDICAL TRAINING.

After passing the examination for the *Baccalauréat*, the medical student begins with one year's study of physics, chemistry and biology in the Faculty of Sciences. He then enters upon his medical studies, which are carried out in a Faculty of Medicine or a Medical School<sup>2</sup>. The medical study proper lasts for five years, the mornings being regularly passed in the "Stage" — *i.e.*, practical work in the different hospitals of the Faculty. The instruction ends with a final examination which gives the qualification to practise. Bacteriological training in the University consists in

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<sup>1</sup> In France, the question of "regulation" or "abolition" is decided by the Communal authorities.

<sup>2</sup> There are nine Medical Faculties and eleven preparatory medical schools in France.

lectures (one hour weekly for a year) and practical and laboratory work (two hours weekly for six months). The hygiene training consists in lectures (three hours weekly for a year) and practical laboratory work; in most universities it is not intimately concerned with practical work on social hygiene. The University of Nancy, however, affords an exception in this respect. Here practical hygiene work is compulsory and is carried out for two hours weekly for a year; the students are trained thoroughly, both in the laboratory methods of bacteriology and serology and in the chemical examination of water and sewage effluents; they pay a number of visits to places of hygienic interest; above all, they take active part in the work of the hospitals and dispensaries for tuberculosis, venereal diseases, maternity and child welfare relief. Here they become familiar with every aspect of public health work, including epidemiology and social hygiene. This is ensured by the "preventive medicine spirit" pervading the clinical teaching of this University; it may be mentioned that the entire instruction in tuberculosis, both clinical and social hygienic (two hours weekly for a whole year), is given by Professor Parisot, Director of the Institute of Hygiene of the University, who is also a tuberculosis specialist and Director of the Tuberculosis Hospital. Similar arrangements have been made so as to link up the teaching of the other branches of social hygiene with that of the corresponding clinical subjects.

#### THE EQUIVALENT OF THE SCHOOLS OF HYGIENE.

As has been pointed out previously, the medical officers of health (*Inspecteurs départementaux d'hygiène*) are not legally required to have received special public health training. Such instruction is, however, afforded by the Medical Faculties of Algiers, Lyons, Montpellier, Nancy and Paris. The preparatory courses given by these Faculties last for four to six months and end with a written, oral and practical examination, after which the successful candidate receives the *Diplôme d'Hygiène*.

In *Paris*, the course consists of two months' training in bacteriology and three months' in hygiene, comprising lectures, laboratory work, visits to places of hygienic interest, and practical work in fever hospitals. Special opportunity is given for the study of tuberculosis under the direction of Dr. Léon Bernard, Professor of Clinical Tuberculosis (formerly Professor of Hygiene) in the University of Paris. In *Lyons*, the course lasts for five and a-half months, but does not include fever work. In *Montpellier*, it lasts for four months and is really only an extension of the courses for medical students. In *Algiers*, two courses are provided, both lasting four months, one in hygiene, the other in "colonial medicine". With regard to the training in the Universities of Paris and Lyons, it should be noted that the instruction is given by a large number of lecturers, each of whom is highly specialised. This no doubt presents considerable advantages to those students who have already acquired a good grasp of the main subjects.



Particular interest attaches to the instruction given in *Nancy* owing to the special teaching facilities obtaining there with regard to all branches of preventive medicine, including social hygiene. The possibility of carrying out this work is due to special organisations which were established through the initiative of the Director of the Hygienic Institute of the Medical Faculty. For this reason, it is proposed to consider the complex of work performed here in comparison with, and under headings which correspond with those used in connection with the work of the schools of hygiene in other European countries.

### C. THE INSTITUTE OF HYGIENE (NANCY).

#### 1. ESTABLISHMENT.

The work which in some countries is performed by the school of hygiene is here carried out partly by the Institute of Hygiene of the University, partly by other institutions and welfare organisations; the common bond uniting them so as to form one organism is in this case a personal one. The Chair of Hygiene and Preventive Medicine in the Medical Faculty of Nancy until recently had only a small hygienic institute which was connected with a laboratory for the production of sera. Three years ago, Dr. Parisot was appointed to this chair; he had previously been professor of experimental pathology in the same University, as well as Director of the Departmental Tuberculosis Service. His interests therefore lay particularly in establishing a close connection between theoretical hygiene and the public health services, especially epidemiology and social hygiene. To this end, the Hygiene Institute gave up serum production, which is more economically dealt with by the Pasteur Institute in Paris. The old building was rebuilt, considerably extended and newly arranged; the following sections were developed: bacteriology; serology; chemistry (chiefly water and sewage effluents)<sup>1</sup>; epidemiology and vital statistics.

The present Institute is a three-storey building with extensive rooms for social hygiene administration on the ground-floor, and good laboratories, class rooms, a lecture theatre and library. The laboratories are well appointed with all necessary appliances, but withal simple and arranged without any needless expenditure.

#### 2. RELATIONS WITH OTHER AUTHORITIES AND ORGANISATIONS.

These relations may be judged from the fact that in the same building are housed, besides the Institute of Hygiene proper, the Laboratory of Bacteriology and Preventive

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<sup>1</sup> Food inspection is carried out by a separate institution not under the control of the Institute of Hygiene.

Medicine for the *départements* centred around Nancy, as well as the Office d'hygiène sociale of the *département*. These three services, of which the first belongs to the Faculty of Medicine, whilst the second works for the Departmental Inspector of Hygiene, and the third for the Co-operative Association of Private Welfare Organisations (*Office départemental d'hygiène sociale*), are all of them administered and directed by one man.

The Office d'hygiène sociale of the *département* (Meurthe-et-Moselle) comprises, besides tuberculosis work, the control of venereal diseases and cancer, maternal and child welfare, and health propaganda. It is aided in its work by grants from the Rockefeller Foundation and various industrial magnates of the neighbourhood.<sup>1</sup>

The connection between the organisations mentioned is clear from the fact that the Director of the Institute of Hygiene is at the same time President of the Office d'hygiène sociale of the *département*; in the Institute and under his personal supervision, the central administrative work of the Office d'hygiène sociale is carried out. The linking-up of the three services — Hygiene Institute, laboratory work for the Departmental Inspector of Health, Office d'hygiène sociale — is, however, still closer, as will be seen from the following remarks:

The *tuberculosis* service of the *département* has been organised in such manner that it consists of the Administrative Office, which is in the Institute, and the institutions performing the practical work. The centre of this practical work is represented by the dispensary attached to the Villemin Tuberculosis Hospital, which has thirteen tributary dispensaries in the town and country. The distribution of all patients is arranged by the central dispensary. Its importance has become fully recognised by the medical profession; this is well shown by the fact that the proportion of patients sent by their physicians, to the total number of patients consulting the dispensary has shown a remarkable increase during the last ten years and was 80 per cent in 1929; of the patients dying of tuberculosis, the dispensary had known and dealt with 86 per cent in 1929. It is considered that the work which the dispensary can do by means of its present methods is already nearing its limit. The dispensary directs the further treatment of the patients: persons with advanced tuberculosis are at once passed on to the Villemin Hospital, a recently constructed four-storey building (260 beds) facing south, with large verandas, adequately arranged for open-air treatment; the hospital is under the administrative control of Professor Parisot, who is at the same time its consulting physician. It is not intended to be an institution for incurables, but all the same the preventive work done as regards isolating advanced cases is shown by the fact that half of the deaths from tuberculosis in the *département* actually occur in this hospital and the special tuberculosis wards of the hospitals in the smaller towns of the *département*. Early cases are received without delay in the sanatorium which is situated in the country (150 beds).

Special mention is required of the *child welfare work*. This is also administered by the central office situated in the Institute of Hygiene. Infants and children under 5 requiring isolation from their families — *e.g.*, from tuberculous relatives — are sent to the *Centre du placement familial* in the village of Thoiry; here they are kept under medical observation for several days and then boarded out among families in the surrounding areas under control of the centre. Older children are sent to a preventorium in the village of Flaviigny. This consists of a large, well appointed and beautifully kept building, with accommodation for 400 inmates; the children arrive in batches of about 70 and are isolated for 21 days in a quarantine block before being admitted to the main institution; during this time, they are vaccinated against smallpox and diphtheria. For the greater part of the day the children are allowed to play in the large park of the preventorium and to bathe in the river. The children should be between 5 and 13 years of age,

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<sup>1</sup> The district served by the organisation, the Department Meurthe-et-Moselle, has 540,000 inhabitants, of whom 115,000 live in the town and suburbs of Nancy; in addition, much work is done for the neighbouring *départements* comprising a further million inhabitants.

but the girls are often considerably older. They are kept here for at least three, on an average six, months. Medical inspection is in the hands of the local practitioner, but the direction is also entrusted to Professor Parisot. Special attention is given to spirometric and blood pressure examination and to daily breathing exercises under the direction of the Institute of Physical Education of the University. Ten francs daily are paid for all expenses, but in case of very poor families a reduction is allowed, or the charges may even be waived. — Open-air schools for delicate children of school age have been established in different parts of the *département*.

The examination and treatment of *venereal diseases* as well as the *maternity* work is carried out according to very similar principles by the professors teaching these subjects at the University.

All the social welfare services are administered by the professor of hygiene in close and friendly co-operation with his clinical colleagues of the Faculty and by virtue of his being President of the Departmental Office of Social Hygiene. This Office has also been brought into touch with the newly formed social insurance services.

### 3. PURPOSES.

From the description of the work done, which was given in the previous section, the objects are evident which are aimed at by the organisations centred in the Institute of Hygiene. Their complex may be regarded as comprising a school of hygiene, its purposes being instruction as well as scientific work, both theoretical and practical, carried out in close connection with the social hygiene and relief services.

### 4. ORGANISATION OF THE WORK.

#### (a) *Scientific Work.*

This part of the work is concerned chiefly with epidemiology, methods of bacteriological investigation and serological diagnosis — *e. g.*, tuberculosis and syphilis; the Institute is, in addition, at present engaged in comparative investigations on the efficacy of different methods for the chlorination of water. From the social welfare work, a number of further questions of scientific and practical importance have evolved, among which mention may be made of interesting studies on extreme incubation periods in various infectious diseases. A special publication, *Revue d'hygiène et de prophylaxie sociales*, is edited jointly by the professor of hygiene and the professor for venereal diseases in the Faculty of Medicine.

#### (b) *Teaching.*

##### (i) *Medical Officers of Health.*

The training for the *Diplôme d'hygiène* is given by the University. It lasts for six months, but in future it is to extend over eight months. It consists in four months' mixed theoretical and practical instruction and laboratory work (bacteriology, serology, chemistry as applied to sanitary engineering, epidemiology and vital

statistics). During this time, the students are also required to participate regularly in the work of the various dispensaries, hospitals and other institutions under the control of the Directors and their assistants; the institutions involved in this work are those which have been described under heading (2) as belonging to the Office d'hygiène Sociale and as being administered by the Director of the Hygiene Institute. The instruction in these four months is "full-time". The last two months are solely devoted to practical work in the *département*; this is of a very varied nature, since it is carried out in the large town of Nancy, in smaller towns, in industrial and rural communities. During the last two months the students prepare their thesis. The object of the thesis is to give a complete sanitary and epidemiological survey of a given area — *e.g.*, a village. The student is required to draw a detailed map of the district giving all the points of hygienic importance — *e.g.*, wells, etc. Full description of wells and all other objects of sanitary interest is required. The disease history of the area is studied. The statistics of births and deaths of the local authority are carefully controlled and considered. Finally, the student makes and discusses recommendations — *e.g.*, proposals for better housing, for the construction of a central water supply, etc.

The *examination* lasts for six days. It consists of:

Two written papers, one on a question of hygiene and social medicine, the other on a question of applied epidemiology and bacteriology in connection with a practical problem;

A practical examination in bacteriology, parasitology and chemistry;

An oral examination on general hygiene, sanitary engineering, bacteriology, chemistry, epidemiology, social hygiene, sanitary law and public health administration.

It should be mentioned that the examination for the *Diplôme d'hygiène* is carried out on similar principles in the five Faculties mentioned previously; but the training in practical field work is a special feature at Nancy.

(ii) *Sanitary Engineers.*

Attached to the Conservatoire des Arts et Métiers in Paris there is an Institut de Technique sanitaire which, on the strength of courses and an examination passed, grants a diploma in sanitary engineering to engineers and physicians.

(iii) *Sanitary Inspectors.*

The *agents sanitaires* do not receive any special training in an institute; they learn their work on the spot under the control of their Medical Officer of Health. There is, however, a school of training for disinfectors in the Institut Lannelongue in Vanves, near Paris.

(iv) *Health Visitors.*

The health visitors are an important feature in French social hygiene work. For them uniform training of two years' duration is required; the training includes

sick-nursing and welfare work. Every health visitor must be in possession of the Diplôme d'Etat. A Law of 1922 established this degree and laid down definite requirements with regard to the schools, the training and the examination. In Nancy, a school of health visitors has been established which serves the surrounding *départements*. In its training, the professor of hygiene and other members of the Faculty take part; field work is done in the dispensaries, etc., of Nancy. The pupils are trained for generalised social welfare work.

(v) *Midwives.*

*Midwives* receive their training (two years) exclusively in special schools; there is one such school attached to the Maternity Clinic of Nancy University.

(vi) *School-teachers.*

The training of school-teachers in the *Ecole normale* includes compulsory instruction in hygiene consisting in lectures and visits to places of public health interest.

(vii) *Health Education of the Public.*

The Office d'Hygiène Sociale is specially interested in this branch of instruction in preventive medicine. The work was begun by distributing such copies of the periodical issued by the departmental Office d'hygiène sociale, *Revue d'hygiène et de prophylaxie sociales*, as contained matter of general interest to a large number of physicians, school-teachers and other persons engaged in public health work.

Mainly, however, propaganda work is of late years being carried out by means of the *cinema*. The *Office départemental d'enseignement cinématographique* was originally started for the purpose of providing useful instruction on agricultural subjects. Subsequently, it was brought into touch with the social hygiene movement; it then formed a special section for social hygiene education, and at the same time its administration was embodied as a section in the departmental Office d'hygiène sociale. Three kinds of educational films giving instruction in hygiene are represented:

Teaching of the younger school-children — *e.g.*, rules of cleanliness, etc. — the explanation being given by the school teacher.

Teaching of adults: films of about ten minutes' duration, with a short address given on lines laid down by the Office d'hygiène sociale; this is given as part of the ordinary programme at popular cinemas.

Longer films, partly intended to be shown in villages on Sundays, partly for towns. They are also accompanied by an address, film and address together occupying about one hour.

A third form of propaganda work deals with *Stamps*, which call attention to some branch of social hygiene work; they are intended to be affixed to letters, shop windows or motor cars; their sale brought over 250,000 francs in the last four years. Since the school-children are to a great extent engaged in their sale, this method is liable to interest not only the general public, but particularly the children, in the subject of public health.

Thus health propaganda work as carried out by the departmental Office d'hygiène sociale at Nancy is on an unusually high level, and it has recently been linked up with the work of the Institute of Physical Education of the University.

(c) *Practical Work of the Institute of Hygiene.*

(i) *Laboratory Work.*

A steadily increasing number of bacteriological and serological investigations is performed, the work being done gratis for the whole region. Besides this, the supervision of water supplies and sewage effluents is dealt with in the laboratory of the Institute of Hygiene.

(ii) *Epidemiological Work.*

The theses prepared by the candidates undergoing training for the Diplôme d'hygiène contain much valuable matter with regard to the sanitary conditions in towns and villages of the area; they are at the disposal of, and frequently made use of by, the Departmental Inspector of Hygiene.

(iii) *Welfare Work.*

The close connection between the Institute of Hygiene and the welfare organisations described previously entails a large amount of practical work being carried out by the Institute.

## 5. STAFF.

The teaching staff consists of the Professor of Hygiene, his agrégé, and two assistants. The entire personnel of the Institute takes part in the teaching.

## 6. THE BUDGET.

The income of the Institute is derived from various sources:

1. From the Ministry of Education for the Hygiene Institute of the University;
2. From the Ministry of Public Health for the practical work done for the Inspecteur départemental d'hygiène;
3. From other sources connected with the social hygiene work.

At present, the Ministry of Education gives through the Faculty of Medicine a yearly grant of 3,500 francs. The remaining 100,000 francs required for its working are contributed from funds derived from the Health Ministry and private health organisations.

#### D. SUMMARY.

It has thus become evident that both the administration of, and the instruction in, public health is not yet uniformly organised in France. The Ministry of Public Health is already responsible for much of the work and is steadily endeavouring to bring into its sphere the remaining portions.

The responsibility for local public health administration in the *département* lies with its head, the Préfet. But not every Préfet has a Medical Officer of Health (*Inspecteur départemental d'hygiène*), nor is this person always a physician, and where there is a medical *Inspecteur départemental d'hygiène*, he is not always a whole-time official. It is, however, obvious that even where a whole-time Medical Officer of Health has been appointed for the *département*, he will be unable to cope with the work of so large an area. In some *départements*, whole-time *Médecins de Circonscription* have been appointed who are subordinate to the *Inspecteur départemental d'hygiène*; they are usually concerned both with general and social hygiene.

One of the chief features in the social hygiene work of France is the law that no one may be appointed a *health visitor* without having received a specified course of instruction of two years' duration in an approved school and having passed a strict examination.

As there are no regulations in France as to the training required by a Medical Officer of Health, it is evident that there can be no real equivalent to the Schools of Hygiene existing in other European countries. However, five Medical Faculties give special courses of instruction which end with an examination, and successful candidates are awarded the Diplôme d'Hygiène, representing a special qualification in this subject. But as the length of the courses and the extent of the training vary somewhat, these diplomas do not represent a uniform standard of instruction. In Nancy, *e.g.*, the training is very thorough and has the advantage of providing considerable experience in social hygiene and field work. Owing to the personal initiative of the professor of hygiene, a close union has here been formed between the Institute of Hygiene of the University, the public health services pertaining to the *Inspecteur départemental d'hygiène*, and the *Office départemental d'hygiène sociale*. Thus the chief functions of a school of hygiene are united in this complex.

The result of this organisation is evident in the training of medical students and still more in that of candidates for the health service. The organisation is also in close contact with the teaching of health visitors and, in addition, performs much valuable work in health propaganda.

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## Annex III

### THE TEACHING OF HYGIENE IN GERMANY.

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The responsibility of the Reich with regard to preventive medicine is vested in the Medical Department of the *Ministry of the Interior* of the Reich, whose advisory bodies are the "Reichsgesundheitsamt" and the "Reichsgesundheitsrat". Social Insurance is administered by the Ministry of Labour of the Reich, whose advisory and executive body for this purpose is the "Reichsversicherungsamt".

The Reich is divided into *States*, each of which is autonomous with regard to its entire administration. Medicine and hygiene is therefore in the main administered independently by each individual State. But it should be noted that the regulations for training, examining and qualifying physicians, although carried out independently by each State, are by law uniform for the whole Reich, thus allowing persons qualified in one State to practise medicine in any other German State.

In the present description, it is intended only to deal with that part of the subject relative to Prussia; this may be considered to be fairly representative of the rest of Germany.

#### A. THE SANITARY ADMINISTRATION OF THE STATE.

The *Ministry of Public Welfare* through its Department of Public Health deals with the majority of the subjects connected with public health; this authority is also responsible for the State examinations<sup>1</sup> in medicine and for bestowing the qualification to practise ("*Ärztliche Approbation*").

The *Ministry of Education* deals with medical training, which is given by the Medical Faculties of the twelve Universities as well as one Medical Academy; all these are State institutions. The Ministry is also responsible for school education.

The *Ministry of Commerce* deals with factories and mines and therefore has considerable responsibility in matters of industrial hygiene.

The *Ministry of Agriculture* deals with food control, in so far as it relates to animal and plant diseases transmissible to man.

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<sup>1</sup> The university degree (Doctor of Medicine) is not essential for qualification. It can only be given subsequent to the passing of the State examination. The vast majority of German physicians possess it. It is given on the strength of a thesis and an oral examination.



For subjects coming under the joint control of more than one Ministry, orders are as a rule issued jointly by the Ministries concerned — *e.g.*, in questions of school hygiene by the Ministries of Public Welfare and of Education.

In the Ministry of Public Welfare, the Department of Public Health is administered by a Director who is a trained medical officer of health (formerly Professor Gottstein, the well-known authority on social hygiene), under whom is a permanent staff of trained medical officers of health.

The State of Prussia is divided into twelve *provinces*, each of which is administered by an Oberpräsident. Each province is subdivided into Regierungsbezirke (administrative departments), usually two or three for each province. The Regierungsbezirk is administered by the Regierungspräsident. For the medical administration of his area, he has as adviser a trained medical officer of health, the *Regierungs- und Medizinalrat*. The city of Berlin is a unit independent of provincial administration.

The Regierungsbezirk is subdivided into a certain number of districts (*Kreis*). The district may be either urban or rural; in the former case, the head of its administration is the Burgomaster; in the latter, it is the Landrat. The responsible medical adviser in either case is the Medical Officer of Health (*Medizinalrat*). In more important districts, there are attached to him one or more assistant medical officers of health (*Medizinalassessor*).

The Medical Officer of Health is as a rule at the same time the expert on forensic medicine and forensic psychiatry in his district. Only in more important places is this work performed by a medico-legal officer, the *Gerichtsmedizinalrat*.

Factory inspection is regularly carried out under the auspices of the Ministry of Commerce by factory inspectors, who are trained engineers and have in addition undergone several years' special training in the industrial and the industrial health aspects of their work. Besides these officials, the Ministry of Public Welfare has appointed for each of the provinces with a highly developed industry a factory *medical officer* (*Gewerbemedizinalrat*) and an assistant medical officer (*Gewerbemedizinalassessor*).

All medical officers hitherto mentioned are State officials; they must all have passed the Prussian State Examination in Public Health (*Kreisarztprüfung*) and are to-day, practically without exception, whole-time officials. Their salary ranges from 4,400 to 8,400 Reichsmarks yearly, in addition to which they receive a cost-of-housing bonus (about 1,000 Reichsmarks) as well as a small allowance for each member of their family.

In 1930, there were in Prussia 21 Oberregierungs- und Obermedizinalräte, 12 Regierungs- und Medizinalräte, 418 Kreismedizinalräte, 34 Medizinalassessoren, 8 Assistant Medical Officers attached to the Regierungsbezirke, 17 Gerichtsmedizinalräte, 8 Gewerbemedizinalräte, 8 Gewerbemedizinalassessoren.

The Medical Officer of Health is responsible by law (September 16th, 1899) for the whole medical administration of his district (*Kreis*), and his activities include the following: Supervision of public health and the application of health laws,

inspection of hospitals and other establishments of treatment, pharmacies, midwives, the assistant medical personnel and other auxiliary sanitary personnel, submission of reports on matters of public health at the request of the competent authorities, submission of proposals for the removal of abuses, and suggestions to the competent authorities concerning measures of public health.

### THE COMMUNAL HEALTH OFFICER.

With the passing of the years, the duties of the Medical Officer of Health have become more and more extensive, and especially in the spheres of social hygiene and relief work, with their many ramifications, it was often impossible for even the hardest-working Medical Officer of Health to keep pace with requirements. Moreover, the detailed execution of many of these duties are matters administered by the commune, although they are all under State supervision. This applies in particular to municipal hygiene, the management of hospitals, etc., the school medical services, medical relief and, since the promulgation of the law against venereal diseases, the application of that law. These decentralised tasks are now to a large extent performed by special *communal medical officers*. All the larger, and many of the medium-sized and small towns now have their municipal health officers, many of whom are assisted by other special school physicians and medical officers in charge of public relief. In most of the large towns, the municipal medical officer is at the same time a paid town councillor in charge of a special department, the Public Health Office. Many of the larger rural districts, or groups of them, have appointed district communal health officers (*Kreiskommunalärzte*) for the discharge of these special duties.

The distribution of public health work, and especially social hygiene, between medical officers of health appointed by the State, and health officers appointed by the Commune, is not quite clearly defined. In the opinion of the Ministry for Public Welfare (Decree of December 28th, 1919), it is possible for the Medical Officer of Health in rural districts to act as adviser to the communes in matters of public health and social hygiene besides fulfilling his administrative duties, both medical and sanitary. The medical side of relief work would mostly be entrusted to general practitioners, many of whom need not be whole-time workers. In the medium-sized and larger towns, this form of communal medical service would in most cases prove sufficient, especially if the Medical Officer of Health were relieved of his forensic work by special medico-legal officers. In places, however, where the work is too heavy for the Medical Officer of Health, special communal (municipal) health officers should be appointed.

It must be admitted that with this division of work it may occasionally not be easy to avoid disputes concerning competence. It has therefore been proposed in several quarters that in future the Medical Officer of Health should cease to be a State official immediately subordinate to the Regierungspräsident and that he should be an official of the commune, though still under the control of the Government. It is impossible within the limits of this memorandum to discuss the advantages and disadvantages of this reform or the probability of such a change being made.

### B. MEDICAL TRAINING.

The rules for the examination of physicians dated July 5th, 1924, applicable to the whole of Germany, lay down the following requirements under the heading "Hygiene":

(a) *Training*: The candidate must have attended a lecture on public health and have successfully taken a regular course of bacteriology.

(b) The *examination* is oral and is held on a single day. The candidate must show that he has acquired the knowledge of public health necessary for a medical practitioner, that he is familiar with the more important hygienic and especially bacteriological methods of examination and with the principles and technique of smallpox vaccination, and that he also possesses the necessary knowledge concerning the preparation and preservation of vaccine-lymph. As regards general hygiene, special attention should be paid to those branches of social hygiene which are of practical importance.

After passing the final State examination, all candidates are required to go through a probationary period of one year's duration. During this time, they must perform practical work in hospitals or institutions approved by the Government for this purpose. It is only after satisfactory and regular attendance during the whole probationary period that the Government grants the qualification. Of this probationary period, a portion extending to at most eight months may be taken at an institute of hygiene; on the whole, however, comparatively little use is made of this facility.

During the last few years, many attempts have been made, even in non-medical circles<sup>1</sup>, to extend this training and examination by separating social hygiene from other branches of public health and placing it in charge of a special professor and making it a separate subject of examination.

In the unanimous opinion of German professors of public health and, so far as is known, of all the medical faculties, this change would not be desirable. The subject of "public health" in Germany at present includes medical bacteriology and the control of infectious diseases. To separate "social hygiene" from the well-defined sphere of "hygiene and bacteriology" would simply be to create two fragments. It would also result in students being even more overworked than they are now. The instruction in public health given in German universities to-day satisfies reasonable modern requirements. At all universities the main lectures on public health, which every medical student has to attend, deal with all important questions of social and industrial hygiene. At Breslau, for example, these lectures deal in detail with the social hygienic aspects of housing, feeding, physical exercise, tuberculosis, venereal disease, alcoholism, also school hygiene, medical statistics and legislation against infectious diseases; there are, further, special lectures on social hygiene, school hygiene, industrial hygiene and some field work for medical students, also special lectures — *e.g.*, school hygiene for candidates for teaching posts. These lectures and exercises are regularly attended by the students. The *examination* in every case includes detailed questions concerning social and industrial hygiene, as well as bacteriology, infectious diseases, personal hygiene and care of public health. Social insurance ("social medicine") is dealt with in a course of lectures given by the professor of forensic medicine.

During the negotiations which are now pending concerning an amendment to the rules for medical examinations, the medical faculty at Breslau has proposed that all medical probationers should take a one-month's compulsory course in social hygiene and social medicine at an academy of social hygiene (see *infra*).

It is generally considered that the efficient training of doctors in personal hygiene, public health work, social and industrial hygiene is already guaranteed, and that

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<sup>1</sup> Petition dated November 15th, 1927, addressed to the Reich Ministry of the Interior by the representative trade-union organisations.

a further substantial improvement will be noted when effect has been given to the proposal just mentioned.

### C. THE ACADEMIES OF SOCIAL HYGIENE.

The manifold fields of work of the Medical Officer of Health require that he should receive a thorough training in all branches of preventive as well as forensic medicine. The course of training and examination prescribed by the State has for many decades been very thorough as regards both forensic medicine and hygiene (especially epidemiology, personal hygiene, sanitation, sanitary law and administration). The last decade, however, having brought forth a great many fresh demands in the field of social hygiene and welfare work, it was found necessary to increase considerably the demands made on this training.

In 1921, an order of the Minister of Public Welfare laid down the following regulations with respect to the State examination for medical officers of health:

1. The candidate must be a qualified physician;
2. He must be in possession of the degree of Doctor of Medicine obtained in a German university;
3. He must give evidence that he has during or since his student days:
  - (a) Attended lectures on forensic medicine at a German university;
  - (b) Regularly attended the clinical classes of the psychiatric clinic of a German university for at least one term;
  - (c) Regularly attended courses in pathological anatomy, forensic medicine, and bacteriology and hygiene, each of them lasting at least three months, at institutes of German universities;
4. *He must have taken a regular course of training in social hygiene for at least three months at an academy of social hygiene;*
5. He must have done three months' work as house physician at a psychiatric clinic.

The *examination* consists of:

1. Two scientific theses, the subjects of which are set by the examining board; one of these shall deal with public health or social hygiene, the other with forensic medicine, forensic psychiatry or medical insurance.
2. A final examination in:
  - (a) Medical jurisprudence and administration (written and oral);
  - (b) Public health (practical and *viva voce*);
  - (c) Forensic medicine (examination of accident cases, performance of a post-mortem examination, microscopical examination and oral test);
  - (d) Forensic psychiatry (clinical case and oral test);
  - (e) Social hygiene: a three-hours' paper on some practical aspect of social hygiene (any branch of public welfare, vital statistics) and an oral test, in which the candidate must show adequate knowledge of the organisation and laws of public welfare, and especially of public relief and the different branches of social hygiene, including practical experience of these subjects; he is also examined in vital statistics.

In addition to passing the examination, candidates for the post of medical officer of health must have been practising physicians for five years.

It is evident from these regulations that apart from the university teaching an additional training is required to have been obtained by the candidate at an *academy of social hygiene*.

### 1. ESTABLISHMENT OF THE ACADEMIES.

Prior to the issuing of the regulations mentioned in the previous paragraph, the Minister of Public Welfare had called together several professors and physicians interested in social hygiene from Breslau, Charlottenburg and Düsseldorf; at this conference the general requirements of new special schools of hygiene necessary for social hygiene training were agreed upon. It was decided to establish such schools in these three towns. The members of the conference then proceeded to form in their respective towns organisations for carrying out the recommendations of the conference. Practically, the new organisations were associations of medical men experienced in the theoretical and practical sides of the work. In each organisation a council was elected, consisting of representatives of the Government, the provinces, cities, the municipal health authorities, the teaching staff of the school and other health services concerned. In Breslau, the Oberpräsident of Lower Silesia and the Oberpräsident of Upper Silesia are the Chairmen of the Council, the Vice-President of the Oberpräsidium of Breslau being Acting Chairman. The statutes and training programmes, which in all major points were the same in each organisation, were approved by the Minister of Public Welfare, who in 1920 incorporated the organisations under the name of "*Academies of Social Hygiene*". In the following description, the work of the Breslau Academy will be almost exclusively considered; it is fairly representative of what is being done by the other academies.

### 2. RELATIONS WITH THE AUTHORITIES.

By permission of the Minister of Education, the Breslau Academy is housed in the Institute of Hygiene of the University; its lectures and courses are chiefly held in this institute, whilst some of them are given in other institutes and clinics of the University, as well as in certain institutions of the City of Breslau; the use of all these establishments is granted free of charge. There are thus very close relations between all these authorities and the Academy, the more so since the teaching staff is mainly drawn from these two services.

### 3. THE PURPOSES OF THE ACADEMY.

The aims of the Academy are first and foremost the instruction of future medical officers of health in all branches of public health and preventive medicine. In addition, all three academies have extended their teaching to other branches of the sanitary personnel (see *infra*).

#### 4. THE ORGANISATION OF THE WORK OF THE ACADEMY.

##### (a) *Scientific Work.*

As the Academy of Breslau is housed in, and chiefly staffed by members of, the University, it is impossible to draw a line of demarcation between the research work carried out by the Academy and that of the University. But it must be mentioned that several members of the teaching staff of the Academy are interested in research on questions of social and industrial hygiene, some accounts of this work having already been published.

The students taking the course for medical officers of health have no leisure for research work. But the theses required as part of their State examination have a purely scientific character. For their preparation, the facilities of the Institute of Hygiene of the University, and especially its extensive library, are provided free of charge.

##### (b) *Teaching.*

###### (i) *Medical Officers of Health.*

The course is open to qualified physicians only — *i.e.*, to those who have completed their State examination and subsequently performed one year's practical work as probationers. The period of training is three months. Instruction consists of lectures, laboratory and practical work on all questions of personal and public health, relief work, social pathology, sanitary law and organisation. The time devoted to the different subjects is shown in the following table :

	Hours
<i>General and Public Health Subjects :</i>	
Epidemiology and infectious diseases . . . . .	14
Personal hygiene (food, nutrition, heliobiology) . . . . .	6
Social hygiene (including about 20 hours "seminars") . . . . .	28
Industrial hygiene . . . . .	14
Problems of municipal hygiene and sanitary engineering . . . . .	9
Vital statistics . . . . .	8
Elements of political economy . . . . .	8
Eugenics . . . . .	11
<i>Welfare and Allied Subjects :</i>	
Pre-nuptial ("advice on marriage") . . . . .	2
Maternity . . . . .	4
Infant and child welfare (including clinical work) . . . . .	20
School hygiene and school medical service . . . . .	10
Psychopathology of childhood, and problems of modern education . . . . .	12
Physical education . . . . .	2
Vocational guidance . . . . .	6
Laws on child welfare, and juvenile courts . . . . .	2
Other forms of relief . . . . .	20
Hospital administration . . . . .	3

	Hours
<i>Social Pathology in its connection with:</i>	
Tuberculosis . . . . .	8
Venereal and skin diseases . . . . .	26
Gynæcology . . . . .	4
Paediatrics . . . . .	3
Eye diseases, diseases of the ear, nose and throat . . . . .	14
Nervous and mental diseases, alcoholism . . . . .	18
Accidents . . . . .	4
Dental diseases . . . . .	2
<i>Social Insurance:</i>	
Legislation and practical work, dealing with sickness, accident and invalidity insurance . . . . .	26
<i>Sanitary Administration and the Medical Services</i> . . . . .	18
<i>Practical Laboratory Work:</i>	
Bacteriology, serology and hygiene . . . . .	50
Pathological anatomy . . . . .	50
Forensic medicine . . . . .	50
<i>Visits to different Institutions of Hygienic Interest</i> . . . . .	60
<i>Field Work:</i>	
Work in rural districts with various medical officers of health and municipal medical officers . . . . .	14

The course is conducted, so far as possible, on the principle of "seminars" teaching and participation of the students in the practical work. It is therefore not possible to give exact figures of the number of hours spent in what may be termed field work in the City of Breslau. Probably it would be correct to say that at least 40 to 50 hours are devoted to this part of the training.

Candidates who have attended the entire course regularly and satisfactorily receive the certificate required for entering the State examination for medical officers of health. The fee for the entire course is 225 Reichsmarks.

(ii) *Communal Health Officers.*

From what was stated on page 54, it is evident that there is a considerable variety of tasks incumbent upon the communal health officers, especially those in the towns, but also those engaged in work in the rural areas. This demands not only great practical experience, energy, organising talent, knowledge of human nature and tact, but, above all, a *thorough training in social hygiene*. The Minister of Public Welfare in his Decree of December 28th, 1919, referred to this aspect of the work in the following words:

"It is desirable that communal health officers and those in charge of relief should be trained in social hygiene; still, as they are appointed not by the State, but by the communes, the Ministry has not laid down any compulsory provisions for their training, but only *guiding principles*: higher grade communal (municipal) health officers should take the same three-months' course at an academy of social hygiene, as is prescribed

for the medical officers of health. In the case of medical officers in charge of public relief — *e.g.*, tuberculosis relief, infant and child welfare, care of cripples and anti-alcoholism campaign — the candidate need only produce evidence of the necessary technical knowledge and have worked for six months as an assistant physician in these different branches; it is recommended that school medical officers should, in addition to their other training, produce evidence of the necessary technical knowledge and have completed a six weeks' course for school health officers."

Generally speaking, it may be stated that the majority of communal health officers appointed of late years have, at least in all more important communities, fulfilled these conditions.

(iii) *Special Courses for other Physicians.*

In addition to training new medical personnel for the State and communal health services, the Academies provide short courses of special instruction at which medical officers of health, school physicians and medical relief officers, as well as any other physicians interested, are given an opportunity of refreshing and extending their knowledge. During the last few years, courses of this kind have thus been held at Breslau — *e.g.*, on industrial hygiene (12 hours), venereal disease with reference to the care and relief of patients, for physicians and administrative officials (3 hours) social dentistry (a fortnight), etc.

It is also planned that all medical probationers (*i.e.*, those candidates who after passing the State examination are undergoing their one year's practical training) should be called upon to take part in practical courses of one month's duration dealing with Social Hygiene and Social Insurance in an Academy of Social Hygiene.

(iv) *Sanitary Engineers.*

The Academy does not afford any training for sanitary engineers. There is a comprehensive course of teaching on this subject in the technical high schools, which all engineers and architects have to pass through. There are also special lecturers of hygiene on the staff of these high schools, though, in point of fact, the special hygiene lectures given there receive far less attention than they deserve.

(v) *Disinfectors.*

The special profession of sanitary inspector is hardly represented as yet in Prussia, though several medical officers of health have urgently represented the desirability of establishing them.

The training of *disinfectors* is carried out in special "disinfectors' schools" under the control of the Ministry of Public Welfare. The training is theoretical and practical and lasts for 15 days; it ends with a State examination.



In addition, disinfectors are called in at intervals of several years to take part in refresher courses of five days' duration given in the schools.

The academies are not directly connected with this branch of the work.

(vi) *Health Visitors.*

The academies are not concerned with the training of nurses and health visitors. These latter receive their instruction in courses of two or more years' duration in schools specially established for this purpose.

The academies are not concerned with the training of *midwives*; this is done by special schools.

The Breslau Academy has, however, given special courses of instruction to classes of nurses, chiefly represented by the Red Cross nurses, in social hygiene and relief work (12 hours).

(vii) *School Teachers.*

The Academy of Breslau has not given attention in previous years to the training of teachers in hygiene, this having been done in occasional courses by the Institute of Hygiene of the University. But a special arrangement has been made between the provincial educational authority and the Academy for giving regular courses on hygiene to teachers in Breslau and the smaller towns situated in rural districts of Silesia.

One of the most important stages in the work of instruction in public health is represented by the *pedagogic academies* which have recently been established in Prussia and now are the sole training colleges for elementary school teachers. In them, training in personal hygiene and public health is compulsory. The students follow these hygiene classes with great interest and diligence, and there is reason to expect that when they enter into their duties as teachers, they will usefully contribute to the instruction of the general public in preventive medicine.

(c) *Practical Work of the Academies.*

The Academies have no areas under their supervision, and they do not perform any practical work besides their teaching.

## 5. THE TEACHING STAFF OF THE ACADEMIES.

With regard to this point, reference is made to the statement regarding the establishment of the Academies (page 57). There is still a fairly large number of teachers on the staff of the Breslau Academy, but this is constituted to a considerable extent by persons engaged in practical training. Endeavours are being made steadily to reduce their number.

## 6. THE BUDGET.

The expenses of the academies are, at least so far as Breslau is concerned, limited to the salary of the Director and the lecturers' fees. These are contributed to by grants from the Government, the province, the City of Breslau and by students' fees.

### D. OTHER TEACHING ORGANISATIONS.

A considerable number of organisations and associations in Germany is engaged in educational work on hygienic questions for the medical and general public. This work is carried out by lectures, pamphlets and exhibitions. Among such institutions may be mentioned, in the first instance, the insurance organisations, all of which are endeavouring by judicious instruction to diminish their risks; this method has received a specially high development in the anti-accident campaign carried out by the Accident Insurance Corporations.

Other examples are afforded by the Reich Committee for Instruction in Public Health in Berlin, the German Hygiene Museum in Dresden and the Academy of Hygiene affiliated to this museum.

### E. SUMMARY.

The methods of public health administration in the State of Prussia may be regarded as fairly representative of those in the other States of the Reich. In Prussia, the health service is mainly controlled by the Ministry of Public Welfare. Its local administration is entrusted to the Medical Officer of Health, who is appointed by the State and is almost without exception a whole-time official.

A considerable portion of the duties of the communes, especially with regard to the different forms of medical relief, is discharged by the communal health officers, who are appointed by the communes.

Only for the former branch of officials is the State examination in public health and preventive medicine prescribed; their examination demands a very thorough training in all branches of public health, including social hygiene. For the communal health officers, similar training is recommended by the Government; it is in point of fact realised to a considerable extent.

The training in social hygiene is given under the auspices of the Government by schools of hygiene, called "Academies of social hygiene"; they are three in number, all of them in Prussia.

The academies of social hygiene are independent organisations, but they have been established and are maintained by the Ministry of Public Welfare. The course of instruction given by them to future medical officers of health consists of theoretical, laboratory and field training; of this latter part, there is as yet far too little, but it is intended to place it on a wider basis.

In the academies, some teaching work is also done for other branches of the medical profession and for other services, but this part of its work is only in an early stage.

The auxiliary sanitary personnel obtains its training in other schools, all of which are also under Government control.

Special interest attaches to the regular courses of hygiene instruction which have been arranged by the new Prussian training colleges for elementary teachers ("pedagogic academies"); these classes are compulsory for all candidates for this service.

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## Annex IV

### THE TEACHING OF HYGIENE IN GREAT BRITAIN.

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#### A. THE SANITARY ADMINISTRATION OF THE KINGDOM.

The *Ministry of Health*, which was founded in 1919, is the Ministry mainly concerned in public health work since the Local Government Board was dissolved; it is responsible for all questions of municipal and personal hygiene — *e.g.*, general health (housing, water-supply, sewage), epidemiology (notification of infectious diseases, isolation hospitals, disinfection), social insurance, maternity and child welfare (especially the protection of infant life), medical inspection of school-children (not yet transferred from the Board of Education), tuberculosis, venereal diseases, all departments of medical poor relief, and the training of auxiliary health personnel.

The *General Medical Council*, constituted under the Medical Acts of 1858 and 1886, is responsible for seeing that sufficient examination tests are applied in the various medical schools and for placing on the Medical Register the names of those who pass such tests. The Council has no direct control over the training of medical students, although its recommendations in this respect are usually adopted. It is otherwise with diplomas and degrees in public health, for here the Council has the right to prescribe minimum requirements both of training and of examination. The Council consists of members appointed by universities, by medical corporations such as the Royal Colleges of Physicians and Surgeons, by the Privy Council and by the medical profession as a whole.

The control of midwives is delegated to the *Central Midwives Board*, which was established in 1902.

The care of the mentally deficient and insane is delegated to the *Board of Control*, which was established in 1913.

The *Board of Education* deals with the health of school-children and the sanitary condition of schools.

The *Home Office* deals, under the "Factory and Workshops Act", with factories — *i.e.*, "places where work is done for gain and where mechanical force is used" — mines, and workshops — *i.e.*, "places where work is done for gain and where mechanical power is not used". The supervision of health in factories and mines devolves on the factory inspectors appointed by the Home Office (some of whom are physicians, whilst others are engineers); whereas workshops are under the immediate control of the local authority — *i.e.*, its Medical Officer of Health.

The Kingdom is divided into administrative *counties*, and these are subdivided according to the urban or rural character of the districts, into:

Municipal boroughs (smaller towns);  
Urban districts (which have evolved from rural districts in course of time through the increasing density of the population); and  
Rural districts.

It will be noted that this list does not contain the large towns. Their special administrative conditions have led to their establishment as county boroughs; and ever since 1888 it has been possible for boroughs of a certain size to be constituted county boroughs, independent of any control by the administrative county. London represents an exception, since the communities forming the metropolitan area have been combined to form the County of London; this county is subdivided into metropolitan boroughs.

Each of these administrative areas is governed by a council, viz.: the County Council, County Borough Council, Metropolitan Borough Council, Borough Council, Urban District Council, Rural District Council.

These areas are again subdivided into parishes controlled by a Parish Council; for purposes of public health and preventive medicine, the parishes need not be considered, since their work is chiefly of a subordinate character.

The higher sanitary administrative units are represented by the County Councils and County Borough Councils: they administer, *e.g.*, the control of tuberculosis and venereal diseases, rivers pollution, midwives, mental deficiency, higher education, the former poor law hospitals, vaccination, registration of births and deaths, medical out-relief.

The Borough Councils, Urban and Rural District Councils are the local sanitary authorities responsible for the carrying out of all the remaining questions of public health.

Maternal and child welfare, elementary education, isolation hospitals and the administration of the Sale of Food and Drugs Act are dealt with either by the County Council or, in districts of sufficient size, by the local authority.

#### PUBLIC HEALTH OFFICIALS.

To the Health Ministry are attached as advisers, a Chief Medical Officer and a staff of medical inspectors who are trained medical officers of health.

Every administrative authority, except the Parish Councils, must appoint the necessary public health officials. Thus it has been enacted that every County Council must appoint a medical officer of health (1909), and every urban authority — *i.e.*, County Borough Council, Borough Council and Urban District Council! — and every rural authority (Rural District Council) must appoint a medical officer

of health and one or more sanitary inspectors (1875). Many larger authorities have, in addition, one or more assistant medical officers of health.

The *Medical Officer of Health* has the general duties of safeguarding the health of the area entrusted to his care and of generally advising his local authority on all questions having regard to public health. His specific duties relate to infectious diseases,<sup>1</sup> housing, maternal and child welfare, schools, food, offensive trades and nuisances. He is not concerned with forensic medicine which belongs to the duties of the coroner and the police medical officer.

The *Sanitary Inspector* works generally under the direction of the Medical Officer of Health; his work is concerned mainly with the inspection of the district and with the inspection of nuisances; house inspection and food inspection form a large part of his duties. In addition, in the larger districts much work of scientific value and practical importance with regard to water supply and sewage purification falls to the credit of the local authorities' *engineers*.

Medical Officers of Health were originally nearly all of them part-time officials; but it has long been recognised that satisfactory public health work can only be carried out by *whole-time officials*. Therefore, all important places and all progressive authorities to-day have whole-time medical officers of health. Furthermore, County Councils are required (1929) to make arrangements by combination of districts for securing that every Medical Officer of Health subsequently appointed to a district shall be a whole-time official.

In order to overcome delays and difficulties raised by any local authorities against the higher expenditure entailed, the Exchequer was empowered by the Local Government Act (1888) to pay part of the salary of a whole-time Medical Officer of Health and whole-time Senior Sanitary Inspector. This point is important in connection with the security of tenure of these officers; for whole-time Medical Officers of Health and whole-time Senior Sanitary Inspectors, part of whose salary is paid from Exchequer funds, can be dismissed by their Council solely with the consent of the Minister of Health. Thus, although these officers are appointed by the local authority, the Government is in a position to safeguard their interests.

The salary of a whole-time Medical Officer of Health depends chiefly on the population of the district entrusted to him; the minimum commencing salary being, with a population under 50,000, £800; with a population exceeding 750,000, £1,600, a further increase being given in the case of authorities doing educational and maternal and child welfare work. Assistant Medical Officers of Health are usually paid a commencing salary of £600.

Every Medical Officer of Health must hold a registered Diploma in Public Health — "D.P.H." — or its equivalent (a diploma or degree in sanitary science, public health or state medicine<sup>2</sup>), or he must have had not less than three years'

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<sup>1</sup> It is his duty to report to the Minister of Health and the County Medical Officer of Health, at weekly intervals, all cases of infectious disease that have been notified to him.

<sup>2</sup> These different degrees originate from a lack of uniformity in the different examining bodies in the past. They may, however, be considered as practically identical as regards the training represented by them (see page 68).

previous experience of the duties of a Medical Officer of Health (1926). Practically all Medical Officers of Health appointed of late years possess the diploma.

For Sanitary Inspectors, certain diplomas granted by the Royal Sanitary Institute are required (see page 75).

## B. MEDICAL TRAINING.

The curriculum and examination requirements for medical qualification have been laid down by the General Medical Council. They represent the basic requirements in every subject, but it must be admitted that, with regard to preventive medicine, these requirements remain at a comparatively low level. This has been recognised by the General Medical Council, which, in 1923, issued the following recommendations: that the medical curriculum should last for five years and should contain courses of elementary bacteriology, hygiene and public health; chief importance should, however, be assigned to preventive medicine: it should be a "pervading influence all through the curriculum, affecting every subject in it, so that the student naturally and almost unconsciously adopts in his daily practice of medicine the attitude and spirit of scientific prevention". It is obvious from a study of Sir George Newman's report to the Minister of Health on "Recent Advances in Medical Education in England"<sup>1</sup> that at that period a number of medical schools had in no way attained this standard of perfection. On the other hand, there are some medical schools which include in their curriculum, besides laboratory work in bacteriology and serology, practical "field work", which may comprise visits to maternity and child welfare centres, tuberculosis dispensaries, fever hospitals and other places of public health interest in which the medical practitioner is directly concerned. The Society of Medical Officers of Health has recently made very detailed suggestions as to the amount of public health training required, but which is as yet most imperfectly and insufficiently given to the medical student.

With regard to the *examinations*, no general rules have hitherto been laid down by the different and manifold examining bodies (Universities, Conjoint Examining Boards, Society of Apothecaries), as to the part to be assigned to bacteriology and hygiene.

## C. THE LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

### 1. ESTABLISHMENT.

It had for years been recognised that post-graduate training in hygiene, as given to the future medical officer of health, was deficient owing chiefly to its lack of uniformity; it was therefore decided to establish in London a central school of hygiene. To this end, the Rockefeller Foundation gave the sum of 2,000,000 dollars, on condition that the British Government should guarantee the sum required

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<sup>1</sup> A memorandum, addressed to the Minister of Health, London 1923.

for the maintenance of the school; this sum being at present fixed at £40,000 a year (see page 74). The school was incorporated by Royal Charter in 1924.

In view of the importance of tropical medicine and tropical hygiene for colonial work, it was decided in 1924 to unite the London School of Tropical Medicine, founded by Sir Patrick Manson in 1899, with the new school of hygiene. As a result, this school is now known as the "London School of Hygiene and Tropical Medicine".

A site near the British Museum was obtained and a fine four-storey building has been erected, containing lecture theatres, class-rooms, laboratories, a library and a museum, all of which are of a standard high even in comparison with the best institutions of the country<sup>1</sup>. The School was opened in 1929. It is administered, under the control of a Court of Governors, by a Board of Management. It is directed by Sir Andrew Balfour and is composed of the following divisions:

Division of Public Health, including physiology as applied to hygiene (Director: Professor Jameson);

Division of Bacteriology and Immunology (Director: Professor Topley);

Division of Bio-chemistry (Director: Professor Raistrick), with Department of Chemistry as applied to Hygiene (Professor Delafield);

Division of Epidemiology and Vital Statistics (Director: Professor Greenwood);

Division of Medical Zoology (Director: Professor Leiper), with Departments of Helminthology (Professor Leiper), Protozoology (Dr. J. G. Thomson) and Entomology (Dr. Buxton);

Division of Tropical Medicine and Hygiene (Director: Sir Andrew Balfour).

In addition, the School includes an Institute of Agricultural Parasitology financed by the Ministry of Agriculture, with field stations at St. Albans and Farnham Royal. The School also possesses a field station for the study of malaria and blackwater fever in Salisbury, Southern Rhodesia.

## 2. RELATIONS OF THE SCHOOL WITH OTHER ORGANISATIONS.

### (a) *The University of London.*

The University consists of a group of schools and colleges situated within the administrative County of London; it is under the jurisdiction of a central body, the Senate. The School of Hygiene and Tropical Medicine is a post-graduate school in the Faculty of Medicine of the University.

### (b) *The Public Health Services.*

The Minister of Health appoints three members of the Court of Governors and three members of the Board of Management of the School. In addition, close touch is established with the public health services, since two medical officers of health are permanent lecturers on the staff of the School, and other representatives of these services are amongst the School's special visiting lecturers and on an Advisory Committee attached to the Division of Public Health.

<sup>1</sup> See photographs and plans.



### 3. THE PURPOSES SERVED BY THE SCHOOL.

The School is intended "to create in London a complete school of preventive effort, capitalised by American benefaction, maintained by students' fees and a parliamentary grant, and open to all nations".<sup>1</sup>

The principal duties of the School are:

(a) The training of public health officers for the degrees and diplomas in public health — *e.g.*, the academic diploma of London University and the D.P.H. of the Conjoint Examination Board of the Royal College of Physicians in London and the Royal College of Surgeons of England.

(b) Courses of study in tropical medicine and hygiene; these conclude with an examination in the School, which is compulsory for medical officers belonging to the foreign and colonial services. The courses also serve as preparation for the examination of the Conjoint Board for the Diploma in Tropical Medicine and Hygiene.

(c) Special course for the M.D. in Tropical Medicine of the University of London and other special examinations, also teaching in the various branches of the scientific work of the School.

### 4. ORGANISATION OF THE WORK OF THE SCHOOL.

#### (a) *Scientific Work.*

This part of its duties embraces both pure research and such research work as is carried out with the object of solving national problems of public health. The work of the different divisions may be summarised as follows:

*Division of Epidemiology and Vital Statistics*: Laws of mortality from the biological point of view; statistical studies of diphtheria, scarlet and enteric fevers periodicity of influenza and other infectious diseases; various relations of motherhood and infant mortality; various studies on industrial hygiene; the graphic method of graduation in life tables; the official vital statistics of Scotland and Ireland.

*Division of Bacteriology and Immunology*: Continuation of Professor Topley's studies on epidemiology; investigations on the bacteria of the upper air-passages, pneumonia, the *Salmonella* group, *Bacterium morgani* and *Brucella abortus*, the bacteriophage, and the natural acquirement of immunity.

*Department of Entomology*: Studies on glossinæ, mosquitoes, lice and other insects.

*Department of Helminthology*: Studies on the influence of meteorological conditions on the spread of parasitic worms; investigations on various worm species.

*Institute of Agricultural Pathology*: Studies on parasites of domestic animals and plants.

*Department of Protozoology*: Investigations on malaria, leishmaniosis, trypanosomes, rat-bite fever and *Trichomonas vaginalis*. Successful experiments on the cultivation of *Leishmania* and *Schizotrypanum cruzi* were performed.

*Department of Tropical Pathology and Bacteriology*: Investigations on the *Brucella* group; study on the sedimentation rate of red-blood corpuscles.

In addition, a number of clinical papers chiefly devoted to the subject of tropical disease has been published in the year 1929, to which the above synopsis refers.

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<sup>1</sup> Opening address of Sir George Newman.

(b) *Teaching Work.*

(i) *Training of Medical Officers of Health.*

As stated previously, only medical men and women possessing the D.P.H. or corresponding degrees are eligible for appointment as Medical Officers of Health. The training and examinations requisite for granting the D.P.H. and allied degrees have been fixed as follows by the General Medical Council on May 29th, 1922:

At least two years must elapse between the attainment of a registrable qualification in medicine, surgery and midwifery, and the admission to the final examination for a diploma or degree in sanitary science, public health or State medicine. This interval may be spent in hospitals, private practice or laboratory work.

The curriculum preparatory to the D.P.H., etc., shall extend over a period of not less than twelve calendar months subsequent to the attainment of a registrable qualification.

The candidate must produce evidence of having attended for not less than five months, at an institute approved by the licensing body which grants the diploma or degree, practical instruction in:

	Minimum duration of course (Hours)	
	Practical work	Total
Bacteriology and parasitology (including medical entomology), especially in their relation to diseases of man and to those diseases of the lower animals which are transmissible to man . . . . .	150	180
Chemistry and physics in relation to public health . . . . .	70	90
Meteorology and climatology in relation to public health . . . . .	—	10
The principles of public health sanitation . . . . .	—	30
Epidemiology and vital statistics . . . . .	—	20
Sanitary law and administration (including public medical services)	—	20
Sanitary construction and planning . . . . .	—	10

Attendance on the clinical practice of a recognised hospital for infectious diseases,  
including instruction in the methods of administration (30 daily attendances of  
not less than two hours in each week). . . . . Months  
3

Acquirement of practical knowledge of the routine and special duties of public health  
administration, under the supervision of a Medical Officer of Health, who shall  
certify that the candidate has received practical instruction in these duties  
and the duties relating to:

- Maternity and child welfare,
- Health service for children of school age,
- Venereal disease service,
- Tuberculosis service,
- Industrial hygiene,
- Inspection and control of food, including meat and milk.

The candidate must attend this course of instruction during not less than three hours  
on 60 working days . . . . . 6

The *examination* consists of two separate parts, for each of which at least two days are required. In each part, the candidate must pass in all the specified subjects at one time:

*Part I.*

- Bacteriology and parasitology (including medical entomology);
  - Chemistry and physics, and meteorology and climatology, in relation to public health.
- (Candidates may not be admitted to examination for Part I until after they have completed the prescribed courses of instruction in the subjects thereof.  
The examination is practical, written and oral.)

*Part II.*

Hygiene and sanitation (including sanitary construction).  
 Epidemiology and infectious diseases.  
 Sanitary law and vital statistics.  
 Public health administration.

The examination is written and oral, and includes practical examinations in infectious diseases, food, inspection of premises, dwellings, factories, workshops, schools, etc. Candidates may not be admitted to the examination for Part II until after they have completed the prescribed courses of instruction in the subjects thereof.

In considering these rules, special attention should be drawn to the fact that even after obtaining the D.P.H. or corresponding degree, a physician is not immediately appointed to the responsible post of Medical Officer of Health; almost invariably he begins with an appointment as deputy or assistant Medical Officer of Health, and, in fact, a considerable number of men remain in such posts for many years or even for a lifetime. *Advancement in this service therefore depends mainly on the experience acquired and the ability shown in his work as Assistant Medical Officer of Health.*

The course of study prescribed by the General Medical Council is, in point of fact, very considerably exceeded in the regular D.P.H. course given by the London School of Hygiene and Tropical Medicine. Its course may be summarised as follows:

	Hours
Bacteriology . . . . .	118
Protozoology, 12; helminthology, 12; medical zoology, 7; entomology, 19 . . . . .	50
Chemistry in relation to public health . . . . .	102
Meteorology and atmospheric pollution . . . . .	8
Applied physiology . . . . .	10
Sunlight, clothing . . . . .	2
Food <sup>1</sup> . . . . .	15
Building, housing, town-planning . . . . .	10
Heating, lighting, ventilation . . . . .	4
Water supply and drainage . . . . .	9
School hygiene . . . . .	16
Psychology . . . . .	6
Mental hygiene . . . . .	2
Laws of heredity . . . . .	4
Epidemiology . . . . .	35
Fevers, control of infectious diseases, disinfection . . . . .	26
Vital Statistics . . . . .	30
Industrial hygiene . . . . .	12
Public health administration . . . . .	8
Port sanitation . . . . .	2
International hygiene . . . . .	2
Maternal and infant welfare . . . . .	12
Tuberculosis . . . . .	7
Venereal diseases . . . . .	6
Social insurance . . . . .	2
Cripples . . . . .	4
Public educational work . . . . .	4
Visits to factories . . . . .	15
Visits to schools . . . . .	9
Visits to various other institutions of public health interest . . . . .	61
District work . . . . .	39

<sup>1</sup> Food inspection is taught in a special miniature slaughter-house fitted up in the school.

The requisite time is allotted to laboratory work and practical training. Field training is organised in the following manner: attached to the school are two medical Officers of Health (one in charge of a London borough and the other of an extra-metropolitan area), the Medical Officer of the Port of London, and various other officers in whose areas or institutions students are afforded opportunities of studying problems connected with urban and rural public health work. The school is not itself responsible in any way for the executive control of a district or area.

The course extends over a year, as required by the General Medical Council. In order to allow candidates occupied in or near London to take part in the course without giving up their regular work, the prescribed training in the School and the practical work is planned to take place only on five afternoons of every week. Students who are able to devote their whole time to the School are given additional laboratory work, tutorial classes and opportunities for private study during the mornings.

The training has been arranged in such manner that, after an introductory period of six weeks, the teaching of the various divisions is grouped around certain public health problems, each division dealing with its own particular aspects of the problem under examination. It is thus intended to present to the students a well-balanced picture of the whole field of preventive medicine.

The inclusive fee for the whole course is £54. There are no scholarships for the ordinary students, but for those interested in special work of a scientific nature such scholarships are provided (see page 69).

It should be noted that, in addition to the London School of Hygiene and Tropical Medicine, there are a number of other institutions recognised by the General Medical Council as training organisations for the diploma in public health and the corresponding degrees. But, in view of the regulations prescribed by the Council with regard to courses and examinations, the courses of these other institutions may be considered as comparable, to a certain extent, with that given by the London School of Hygiene and Tropical Medicine.

#### *(ii) Training in Tropical Hygiene and Tropical Medicine.*

The necessity has long been recognised of giving special courses of training in hygiene and tropical medicine to candidates desirous of working in the tropics. To meet this end, courses of instruction are given by the London School of Hygiene and Tropical Medicine on these subjects. Before discussing them, it will be advisable to consider the requirements obtaining with regard to examinations.

For medical officers belonging to the Foreign Office and colonial services, the regular examination in the London School of Hygiene and Tropical Medicine is required, which ends of the normal course of instruction given in these subjects. In addition, there is a special examination which the majority of candidates for the public health and allied services in the tropical colonies are supposed to pass — viz., the Diploma in Tropical Medicine and Hygiene (D.T.M. & H.). This examination is provided by the Conjoint Examination Board of the Royal Colleges of Physicians and Surgeons and certain other boards in the country. The regulations of the Conjoint Board with regard to the examination are as follows:

Before entering for the examination, the candidate must present evidence of:

(1) Being in possession of a registrable qualification in medicine, surgery and midwifery;

(2) Of having subsequently received practical instruction in pathology, biochemistry, protozoology, helminthology, entomology, bacteriology, and hygiene in relation to tropical medicine, in an institution recognised for this purpose, during not less than five months; and

(3) Clinical practice in a hospital recognised for the study of tropical diseases during not less than five months.

The *examination* comprises written and oral questions and practical work in the following subjects: pathology, biochemistry, protozoology, helminthology, entomology, clinical medicine, clinical surgery and hygiene.

The regular course given by the London School of Hygiene and Tropical Medicine consists of 19 weeks' study and comprises the following subjects:

	Hours
Protozoology . . . . .	73 <sup>1</sup> / <sub>2</sub>
Helminthology . . . . .	73 <sup>1</sup> / <sub>2</sub>
Entomology . . . . .	54
Bacteriology . . . . .	60
Hygiene . . . . .	46 <sup>1</sup> / <sub>2</sub>
Vital statistics . . . . .	15
Clinical demonstrations . . . . .	36
Applied pathology . . . . .	25 <sup>1</sup> / <sub>2</sub>
Lectures on special subjects by visiting lecturers . . . . .	61

For clinical studies, the Seamens' Hospital is utilised.

The course concludes with an examination held in the School and extending over nine days.

The fee for the course is £34 5s.

In 1929, the course was attended by 147 students; 102 passed the final examination at the School and 71 gained the D.T.M. & H.

(iii) *Other Courses for Physicians.*

In addition to the two sets of courses described above, the School also gives a certain number of special courses and classes of instruction — *e.g.*, parasitology as applied to public health work in Great Britain — clinical instruction in infectious diseases and in tropical diseases, courses for medical officers of the Royal Navy, courses of instruction in malaria and its prevention for students sent by the Health Organisation of the League of Nations, etc.

(iv) *Teaching of Hygiene for Non-Medical Persons.*

Courses in tropical hygiene are also given, in a modified form, to men and women outside the medical profession, including Indian Civil Service officers.

The School carries out no training work of sanitary engineers, whose instruction is adequately dealt with by the technical and engineering colleges.

The School does not give any other training to persons outside the medical profession. But it should be noted that its facilities, particularly its well-appointed museum, are open to special classes given by other organisations for the purpose of training any groups of the population or the auxiliary sanitary personnel.

(c) *Practical Work of the School.*

A considerable portion of the scientific research work of the School is intimately connected with, and must therefore reflect on the requirements of practical hygiene. But, outside of the School and its field stations mentioned under section 1, practical work is not carried out by the School.

5. THE STAFF OF THE SCHOOL.

The Permanent Teaching Staff of the School consists of: the Director, who is at the same time Director of the Division of Tropical Medicine and Hygiene, ten other directors of divisions or departments, one assistant director of division, one reader, ten lecturers, one consulting pathologist, two assistant lecturers, six demonstrators,

In addition, there were, in 1929, 36 special and visiting lecturers not belonging to the permanent staff.

6. THE BUDGET OF THE SCHOOL.

The total expenses of the School are over £50,000, of which sum £40,000 is covered by a Government grant.

D. PUBLIC HEALTH TRAINING OUTSIDE THE LONDON SCHOOL  
OF HYGIENE AND TROPICAL MEDICINE.

1. MEDICAL OFFICERS OF HEALTH.

As mentioned above, the London School of Hygiene and Tropical Medicine does not have a monopoly for the training of Medical Officers of Health; a certain number of universities, medical schools and other institutions in the country are recognised by the examination boards as giving the courses of instruction required.

2. SANITARY ENGINEERS.

The training of sanitary engineers is carried out in special departments of the colleges and schools of engineering.

### 3. SANITARY INSPECTORS.

Uniformity of training of this important branch of the public health service is guaranteed by the standards laid down, according to the wish of the Ministry of Health, by the Royal Sanitary Institute and Sanitary Inspectors Examination Joint Board, which commenced its duties in 1926. This Board requires a certain amount of basic knowledge, as represented, *e.g.*, by the matriculation examination of London University. The actual training consists of a six months' part-time course of lectures and demonstrations given in one of the institutions approved by the Board. In addition, the candidates must have undergone practical training in the duties of a sanitary inspector, as a rule for a period of one year.

Besides the certificate granted by the Board on the strength of its examination, most sanitary Inspectors hold the certificate of "Inspector of Meat and Other Foods"; this is granted by the Royal Sanitary Institute after a course of two months consisting of lectures, demonstrations and training in meat inspection, concluding with an examination.

### 4. HEALTH VISITORS.

All women appointed as health visitors since 1928 must hold the Health Visitors' Certificate issued with the approval of the Ministry of Health by the Royal Sanitary Institute.

Candidates must present evidence of having fulfilled the following conditions:

*Either* they must have had three years' training at a recognised general hospital or a recognised children's hospital;  
they must have obtained the certificate of the Central Midwives Board;  
and have undergone an approved whole-time course in public health work lasting six months.

*Or* persons who are not trained nurses must have undergone an approved course of training in public health work for two years;  
and have obtained the certificate of the Central Midwives Board.

In all the approved teaching institutions, arrangements are made for practical training at the maternity and child welfare centres.

The Health Visitors' Certificate is only granted after a searching written and oral examination.

### 5. MIDWIVES.

Pupil midwives who are not trained nurses must undergo training for one year, while trained nurses pass through the same training for six months, before being admitted to the examination of the Central Midwives Board.

### 6. SCHOOL TEACHERS.

In the training colleges which all elementary school teachers pass through, there are courses on hygiene; but there is as yet no definite standard for the quality and the amount of this teaching.

Many secondary schools have a school mistress who must have passed a searching examination in school hygiene.

A fair amount of hygiene teaching is supposed to be given to all pupils of elementary schools between their twelfth and fourteenth years.

The Board of Education is exerting pressure upon the schools, particularly the girls' schools, that, during the last two school years, at least one hour a week should be devoted to hygiene teaching; but this is at present not carried out universally. On the other hand, the London County Council has arranged for some hygiene teaching to be given to the scholars in its area, especially to the girls.

### E. SUMMARY.

Public health administration in Great Britain has, during the last half century, developed rapidly in various directions, yet this development has to a great extent been autonomous; it is, so to speak, the essence of the culture of this country as well as of individual effort. Thus it is explicable that in many respects there is a lack of that uniformity which is so much in evidence in some of the younger States of Central and Eastern Europe. Of late, however, the Government, especially the Ministry of Health, has succeeded in obtaining considerable progress towards the standardisation of requirements. A marked instance of this is afforded by the establishment of the London School of Hygiene and Tropical Medicine.

This institution is a School in the University of London. Its work is devoted chiefly to research and post-graduate medical training. Its most characteristic feature at present would appear to be the prominent part taken by research — this is emphasised by the personalities of a number of leading scientists of the country who are on its permanent staff. The organisation of the school has, however, been placed upon so solid and so wide a foundation, its staff and teaching facilities are so highly developed, that it will doubtless in the near future occupy the leading position in public health teaching.

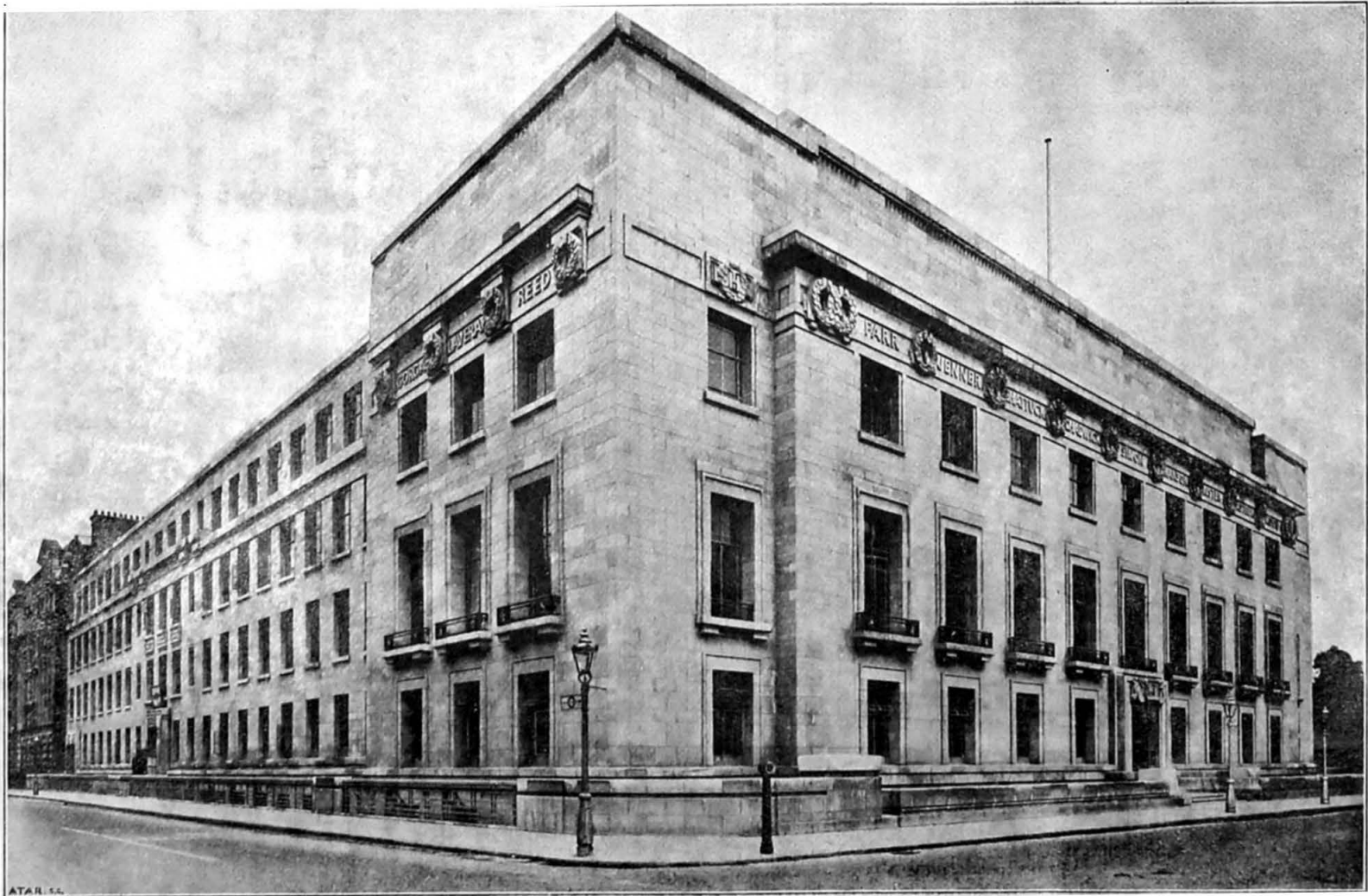
The teaching at the School is in the main limited to post-graduate medical instruction; it is given to future Medical Officers of Health and to persons qualifying for medical and port service in the tropics.

Practical work is not carried out by the School, but there are several medical officers of health on its teaching staff, and thus the School is able to afford its students the necessary practical field training.

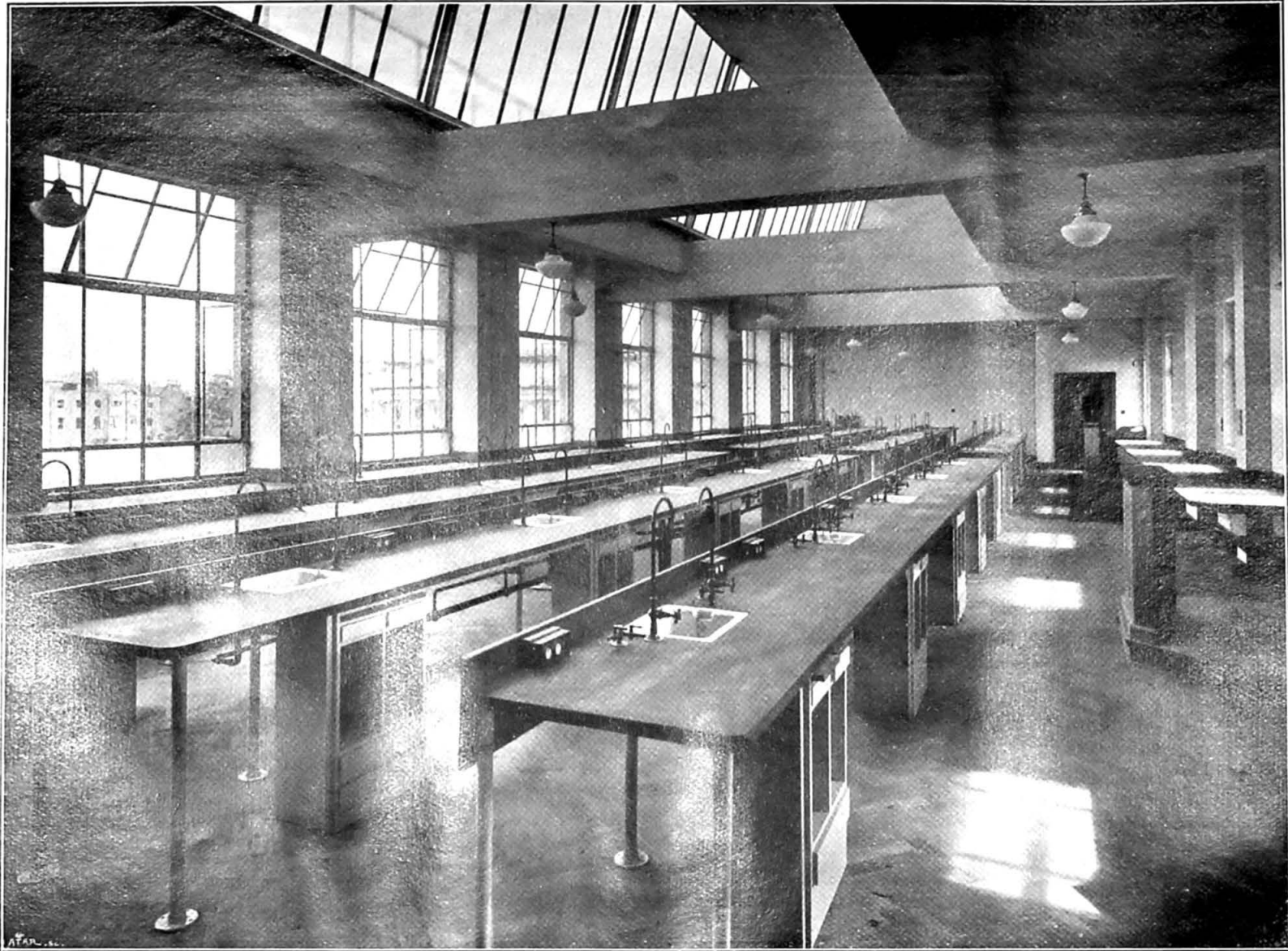
The training of sanitary inspectors, health visitors and midwives is organised by other institutions under the Ministry of Health; it includes all the necessary theoretical and practical teaching, and the results of the teaching are guaranteed by corresponding examinations.

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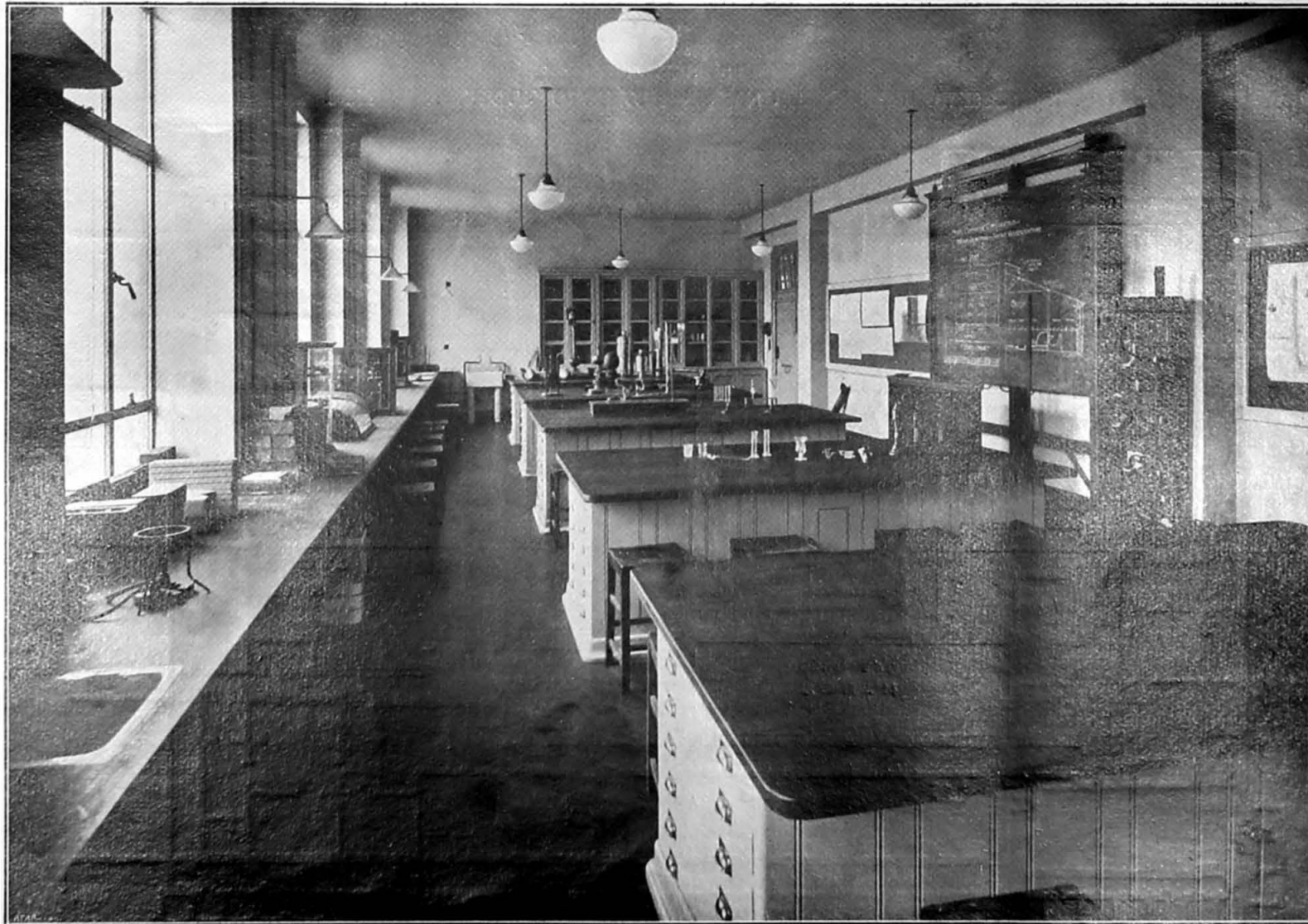




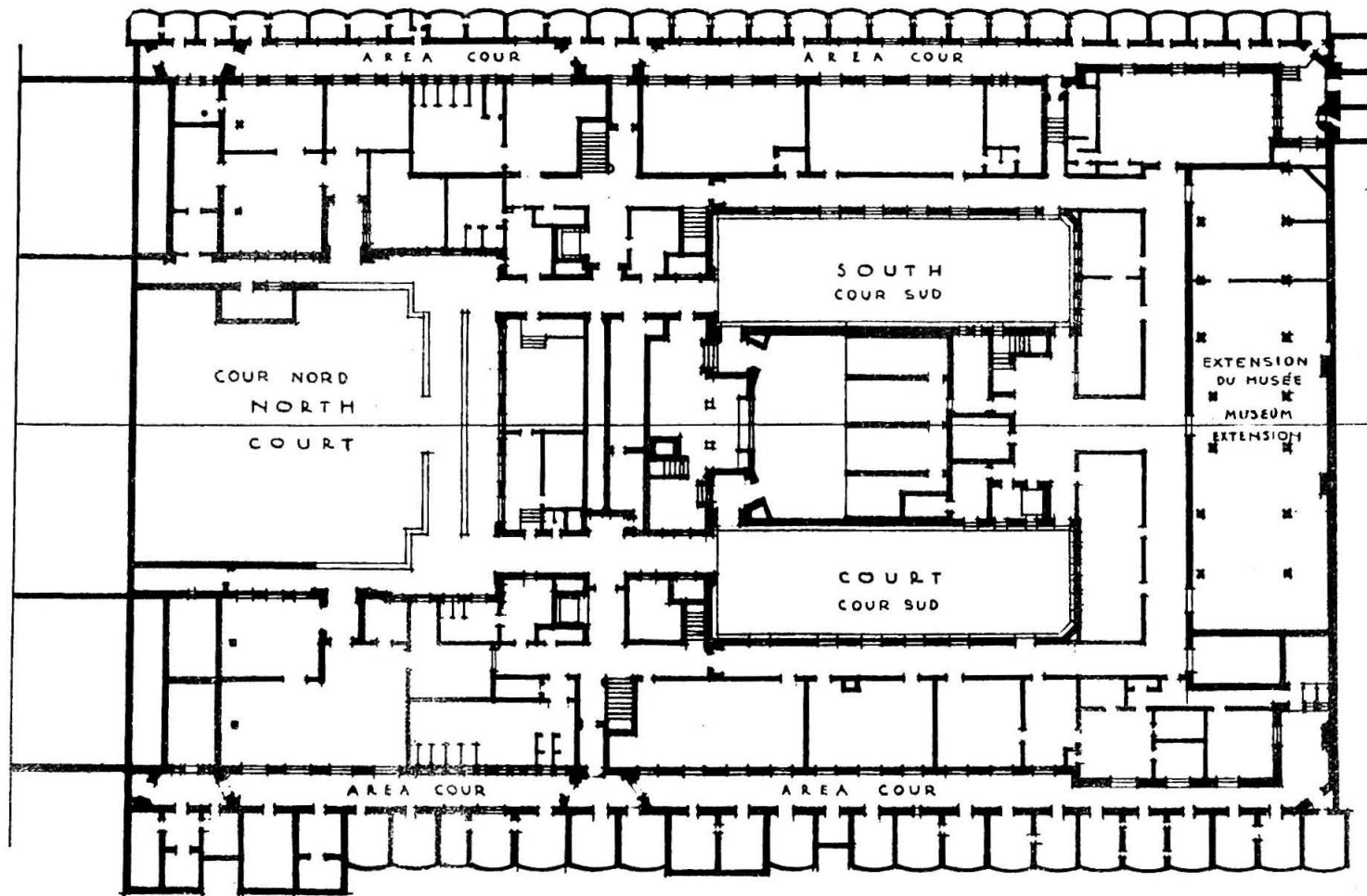
LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.  
General View.



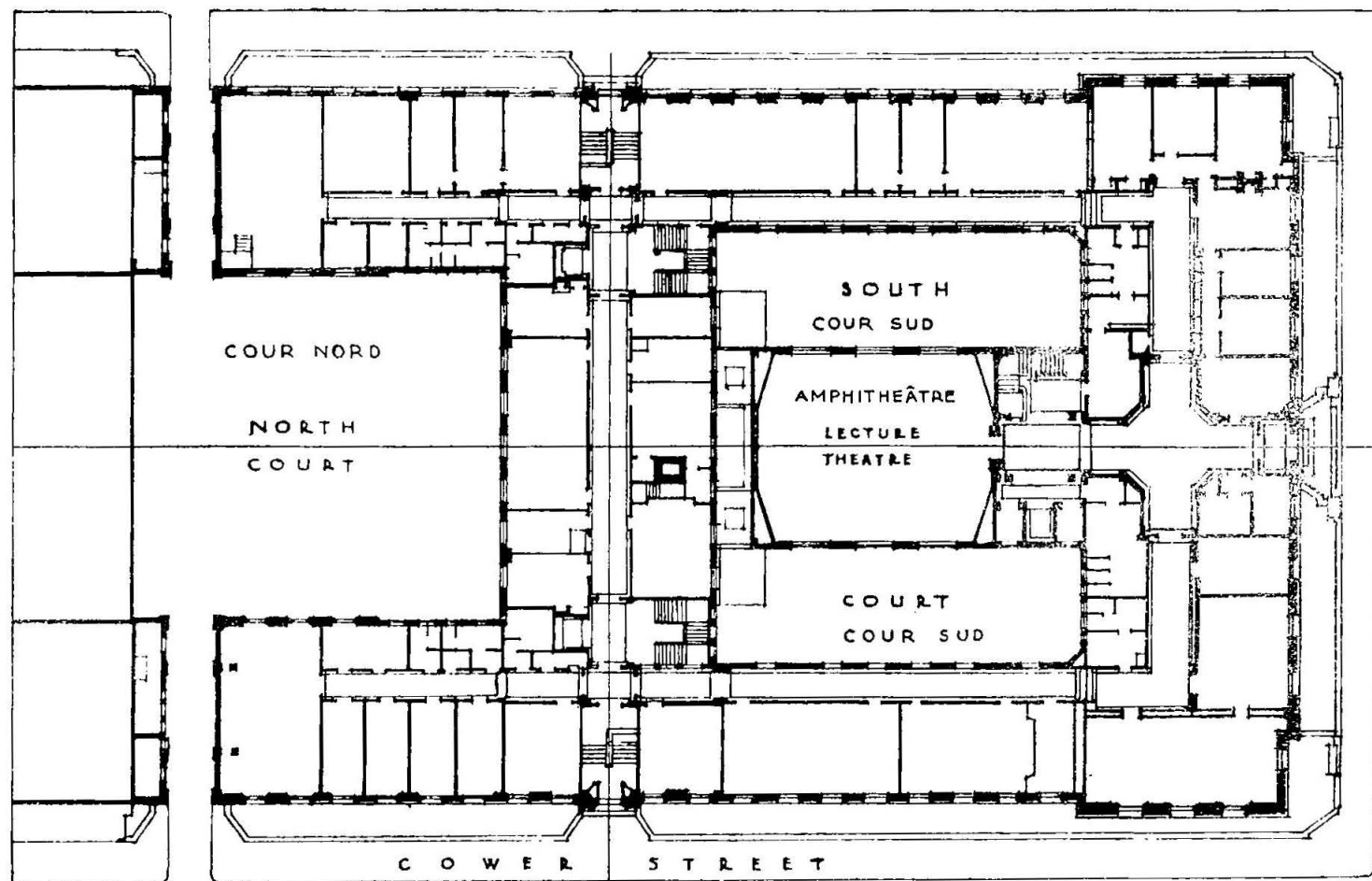
LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.  
Bacteriological class-room.



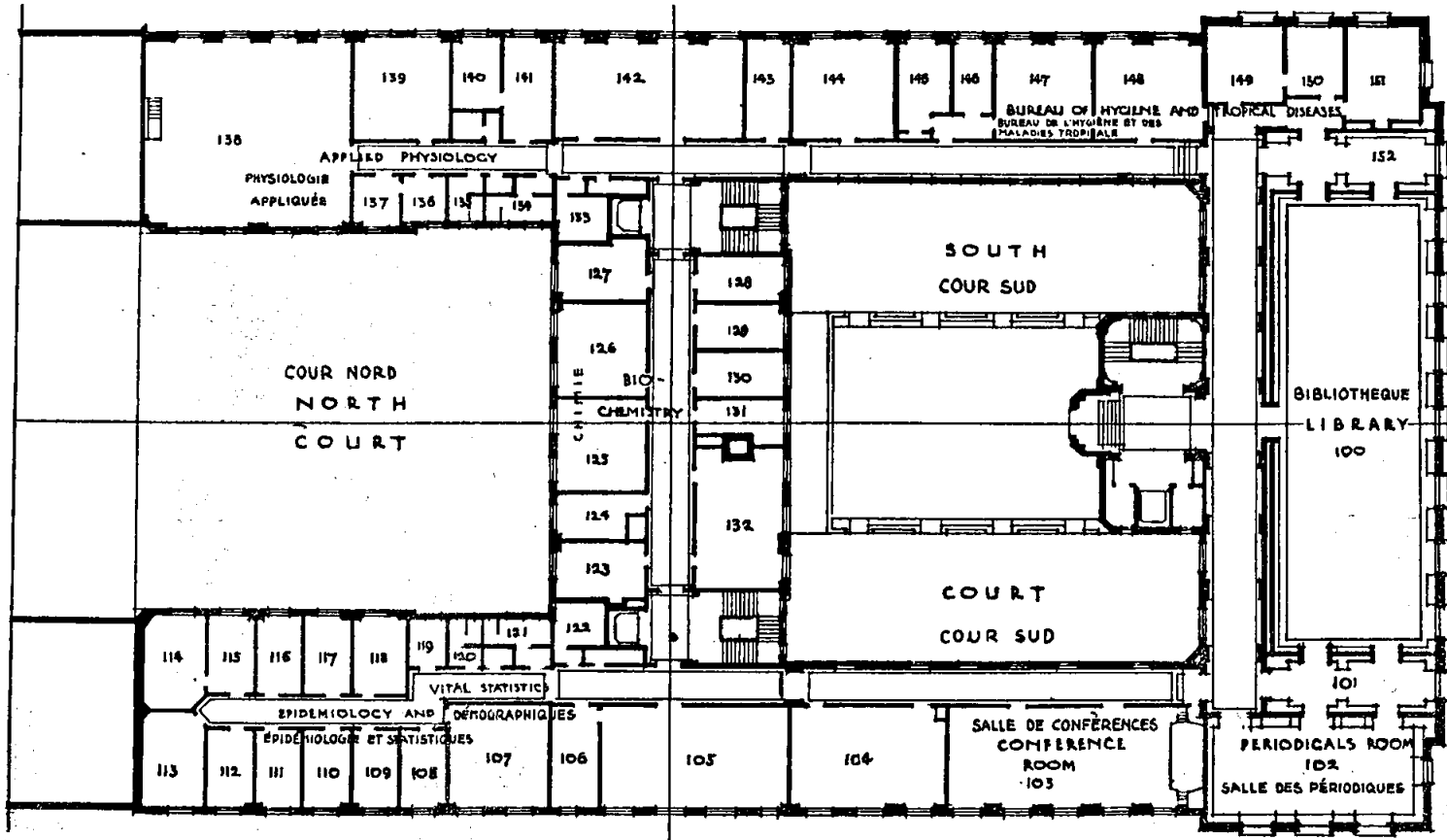
LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.  
Hygiene class-room.



LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.  
Basement plan.

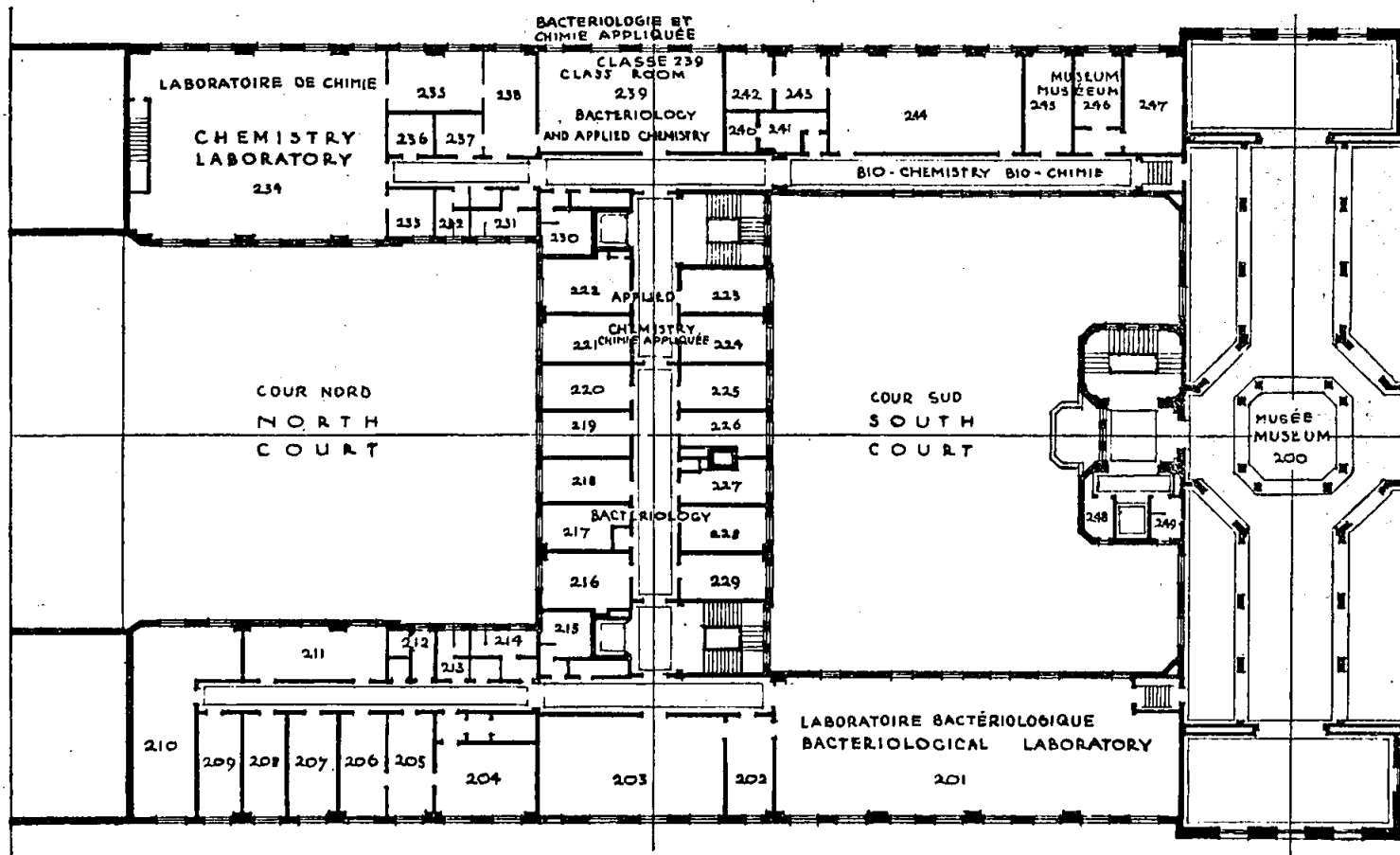


LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.  
Ground-floor plan.

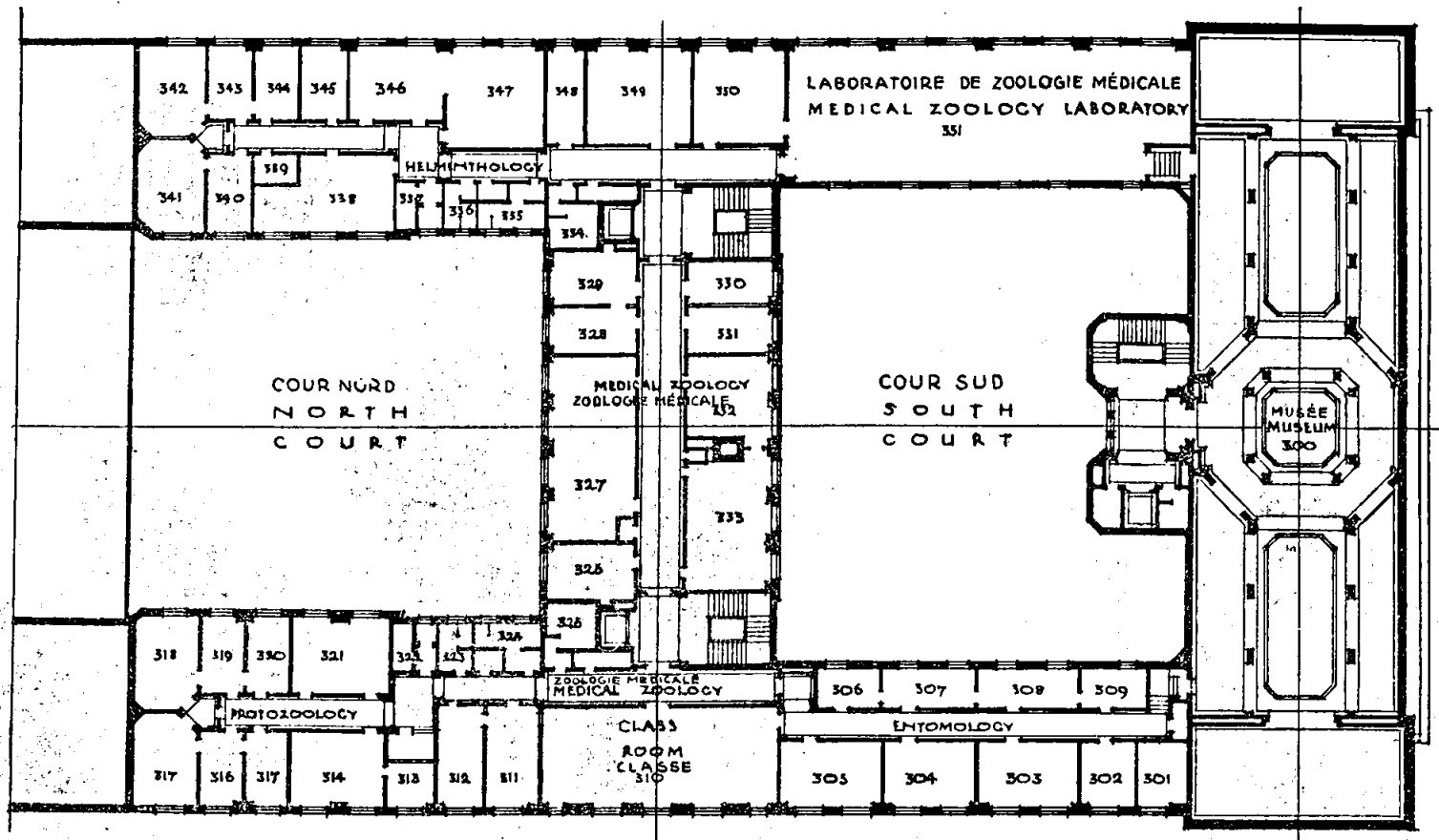


LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE  
First floor plan.





LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.  
Second floor plan.



LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.  
Third floor plan.



## Annex V

### THE TEACHING OF HYGIENE IN HUNGARY.

#### A. THE SANITARY ADMINISTRATION OF THE STATE.

The *Ministry of Public Welfare* consists of two departments. The first (Public Health) is under the direction of the Permanent Secretary of State, Professor von Scholtz. Here are administered hygiene of hospitals and housing, infectious diseases, disinfection, instruction and examination of medical officers of health ; in addition, the purely sanitary questions connected with food inspection (routine food inspection is administered by the Ministry of Agriculture). The second department is directed by a "political" Secretary of State<sup>1</sup>; it is responsible for Social Policy and Social Insurance. Industrial Hygiene is, however, administered by the Ministry of Commerce. Four chief medical officers are attached to the Ministry of Public Welfare.

The *Ministry of Education* is responsible for general medical training, post-graduate medical instruction, school hygiene and the training of midwives.

The Kingdom is divided into twenty-five *Vármegye* (representing provincial authorities) and twelve urban municipalities (representing the large cities); one of these is the capital. Each *Province* is subdivided into districts (*Járás*) (3 to 17); smaller towns with a constituted mayor and town council also rank as districts. The districts are further subdivided into communes.

Administration is decentralised to a great extent. The *Provinces* are autonomous in questions of sanitary administration; all decisions on these matters being entrusted to the Head of the *Province*, the *Főispán*, or his substitute, the *Alispán*; his medical adviser is the *Tiszti Főorvos* (Chief Medical Officer).

In the district, the corresponding officials are the *Főszolgabíró* and the *Járósorvos* (Medical Officer of Health).

Every commune with more than 5,000 inhabitants is required to appoint a communal health officer, this post being, like those mentioned before, a life position. This officer is in charge mainly of medical poor relief and vaccination, but he is also responsible for food control, school health, sanitation and water supply. Smaller communes are united to form "circles", and these must appoint health officers with corresponding duties for these "circles".

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<sup>1</sup> An officer who is appointed by the political party in power.

Both the provincial medical officers and the district medical officers of health must have passed the State examination for health officers, but the majority of them are only part-time officers. The communal health officers and those of the "circles" are not all graduates of the State examination; they are without exception part-time officers.

In the entire Kingdom, there are 26 provincial medical officers, 139 district medical officers of health, 327 communal health officers, 474 health officers of circles. In Budapest alone, there are one provincial medical officer and 21 district medical officers of health. The district medical officers of health are paid by the provincial authority; they receive about 240 pengö<sup>1</sup> as part-time officers; 600 pengö as whole-time officers. Strong efforts are being made to appoint all medical officers of health as whole-time officials, and this development will be the more easily brought about, as the income from private practice is steadily diminishing owing to the continual extension of social insurance.

## B. MEDICAL TRAINING.

Every physician is required to study for at least five years, after which he passes the "2. Rigorosum" examination in theoretical subjects, with exception of hygiene and forensic medicine. Then follows one year's practical training in the different hospital clinics, and at the end of each of these clinical subjects an examination. Finally, he is occupied as a hospital clerk for two months, after which time he is examined in hygiene and forensic medicine. He is then granted his qualification. Since practical hygiene and social medicine are not adequately taught in all universities, the endeavour is being made to employ the last two months for practical instruction in these subjects. This would be the more easily carried out if, as desired, medical study were prolonged for a further year; this measure could doubtless be instituted, since there is, at present, an excess of physicians<sup>2</sup> and medical students, so that Hungary has limited the number of students.

A special feature of medical instruction in Hungary is afforded by the *post-graduate courses*, which are centrally administered in the capital.

This form of instruction has developed out of private initiative. Since 1910, however, there is a Central Committee for post-graduate medical instruction nominated by the Ministry of Education; its President is Doctor von Grósz, Professor of Ophthalmology in Budapest; its Vice-President is the Permanent Secretary of State in the Ministry of Public Welfare, Professor von Scholtz, and the Secretary is the Director of the State Institute of Hygiene, Professor Johan. In every term a number of post-graduate courses of one to four weeks' duration are given in various subjects of medicine, including hygiene. Since 1910, 4,000 qualified physicians have thus been taught.

The Committee disposes of a fund originating from donations and grants of the Ministry. This serves to pay the lecturers' fees, to assist in the publication of a monthly periodical for post-graduate instruction, and to aid needy participants in the course. In addition, participants in the course receive board and lodging at a very low price (lodging, heating and lighting for 7 pengö monthly, board for 75 pengö monthly). A new students' house is in process of construction, which will in future serve this purpose (see Section C, 1),

<sup>1</sup> 100 pengö were approximately 90 Swiss francs in October, 1930.

<sup>2</sup> In Hungary (8½ million inhabitants), there are about 7,300 physicians; in Budapest (960,000 inhabitants), there are 3,100.

Apart from the different types of post-graduate courses, particular hygienic interest attaches to those given to medical officers of health who have been appointed at earlier dates (two weeks at present, one month in future). In addition, courses are given on maternal and child welfare (two weeks), control of tuberculosis (one to four weeks), industrial diseases and accident insurance (two weeks). Next year, it is proposed to establish post-graduate courses for communal health officers.

### C. THE STATE INSTITUTE OF HYGIENE (BUDAPEST).

#### 1. ITS ESTABLISHMENT.

The construction of the Institute was decreed by Law XXXI of 1925, and the building was begun the same year. The ground was given by the town of Budapest. The Rockefeller Foundation gave a grant of \$290,000, the Government contributed \$20,000 and also gave the furniture and apparatus of the old Institute where the work had hitherto been performed. The building was finished in July 1927; since then, an animal house has been erected. In 1930, a school for nurses and health visitors, as well as the students' home have been opened. In 1931, an institute for cancer research for stationary treatment with radium and X-rays is to be added.

#### 2. RELATIONS WITH THE AUTHORITIES.

The Institute is under the direct control of the Ministry of Public Welfare. It is not immediately connected with the University of Budapest, which is provided with a separate institute of hygiene. But the Director of the State Institute, Professor Johan, is at the same time assistant professor in the University, whilst other members of the teaching staff of the University take part in the training given to future medical officers of health in the State Institute of Hygiene.

The bacteriological work in the outlying districts of the country is carried out by seven branch institutions which are autonomous in their work, but are required to report their results for statistical purposes to the State Institute of Hygiene at Budapest. It is interesting to note that the bacteriological departments of the hygienic institutes of the Universities in Pécs, Debreczen, and Szeged act as branch institutes in the above sense.

#### 3. THE PURPOSES OF THE INSTITUTE.

The law by which the Institute was established defined as its purpose:

"Practical application of hygiene was to be extended, especially as regards measures against infectious diseases; the sanitary authorities were to be aided in their work; the sanitary personnel, especially the district medical officers of health, were to receive an adequate training."

Thus, the Institute forms a technical part of the sanitary service, but at the same time it is entrusted with teaching and scientific work. In order to carry out its aims, the Institute is divided into six departments:

Patho-histology and parasitology (Dr. Lőrincz);  
Bacteriology (Dr. Horváth);  
Serology (Dr. Tomcsik);  
Chemistry (Dr. Schulek);  
Field work (Dr. Szilágyi);  
School of Nursing (Miss Wacker).

To this will shortly be added the new cancer research department.

The whole Institute and each of its departments serve both for teaching and for research and current investigations. The lecturing theatre and classrooms are, however, in a different part of the building from the other laboratories.

The first four departments are housed in a fine four-storey building<sup>1</sup>, well built and excellently appointed, which also contains the offices of the director and the administration. Adjoining buildings contain the central heating plant for the whole block, the animal house, the school for nurses and health visitors, and the students' home.

#### 4. ORGANISATION OF THE WORK OF THE INSTITUTE.

##### (a) *Scientific Work.*

The scientific work of the Institute is concerned only with such problems as are in close connection with public health. The various departments of the Institute issue numerous scientific publications every year — *e.g.*, twenty-three papers in 1929. In addition, the members of the Institute at frequent intervals hold public lectures, and some of them from time to time undertake research expeditions abroad.

##### (b) *The Teaching Work (School of Hygiene).*

###### (i) *Medical Officers of Health.*

By a State decree dating from 1883, physicians can only be appointed as medical officers of health after passing a special examination; this was supplemented in 1893 by a ministerial ordinance requiring them to have been engaged for two years in hospital practice or for one year in a hospital and one year in private practice. A further Ordinance of 1919 added the requirement of a three-months' course in hygiene. Since the establishment of the State Institute of Hygiene, this course has been replaced by a compulsory course of nine months' duration. This reform has not yet received legal sanction, but, in fact, medical officers of health are now only appointed after having received their regular training and after having passed their examination in the State Institute of Hygiene.

<sup>1</sup> See photographs and plans.

For this instruction, candidates are only admitted in limited number every year — viz., as many as are expected to be required within the next two years. Before the opening of the Institute, fifty to seventy physicians were trained yearly, but since then the number has been kept at twenty-four. Among the applicants the following candidates are selected:

1. Persons who have been appointed as probationers to take up the work of medical officers of health deceased or incapacitated by illness;
2. Physicians whose appointment has been promised by the *Föispán* (page 77) on condition that they pass the examination;
3. Physicians whose appointment is stated by the provincial medical officer to be probable in the course of the following year.

The training is divided into two main parts: five months' instruction in the State Institute of Hygiene and four months' field work.

The instruction in the Institute is carried out as follows:

1. Lectures.	Hours
Bacteriology, parasitology, serology . . . . .	25
<b>Hygiene:</b>	
Epidemiology and infectious diseases . . . . .	38
Food control . . . . .	15
Air, soil, water, sewage . . . . .	29
Housing . . . . .	5
Schools . . . . .	8
Hospitals . . . . .	4
Urban hygiene . . . . .	4
Rural hygiene . . . . .	3
<b>Social Hygiene:</b>	
General social hygiene . . . . .	20
Principles of social relief . . . . .	8
Control of tuberculosis . . . . .	5
Control of venereal diseases. . . . .	5
Control of alcoholism . . . . .	2
Maternal and infant welfare . . . . .	5
Prophylaxis of rickets . . . . .	1
Industrial hygiene . . . . .	10
Sickness and accident insurance. . . . .	5
<b>Legal Questions:</b>	
Political administration. . . . .	20
Sanitary law and administration . . . . .	45
<b>Various:</b>	
Mental hygiene . . . . .	12
Police medical service and control of prostitution. . . . .	6
Health propaganda (including practical work) . . . . .	14
Vital statistics (including practical work) . . . . .	20
Auxiliary sanitary personnel . . . . .	2
First aid and ambulance service . . . . .	5
Public health history. . . . .	5
The technique of taking and sending specimens for bacteriological investigation . . . . .	2

## 2. *Laboratory Work.*

During their five-months' work in the school of hygiene, the candidates perform two hours' laboratory work on each of five days of every week, the time being divided among the subjects of bacteriology, serology, chemistry and vital statistics.

## 3. *Health Visits.*

Once a week, visits are paid to places of hygienic interest; on the day before, the Institution in question is described in detail to the candidates by the person in charge of the visit.

The first part of the instruction ends with an *examination* consisting of a five hours' written test and an oral and laboratory examination.

The *instruction in field work* lasts four months. It is carried out partly in Budapest, partly in a rural health demonstration centre (see page 85); the candidates are required to work in different institutions performing maternal and child welfare work; also in various dispensaries and a fever hospital. Physicians who already possess special knowledge in one or other of these subjects are exempt from this part of the field work. During the whole time of their practical training, the candidates are under the supervision of the State or communal health officer or hospital director, under whose guidance they are working. During their training in the rural area they are provided with board and lodging.

The practical training ends with an oral *examination* on social hygiene, vital statistics, sanitary law and administration. Candidates who have successfully passed the examination receive the diploma qualifying them for appointment as medical officers of health.

Special mention should be made of the fact that the text of each lecture is printed and handed to the candidates immediately; thus, at the end of their course, they are provided with a text-book of about 600 pages which comprises the essential part of their theoretical instruction.

*School Doctors.* The training of school doctors was already regulated before the establishment of the State Institute of Hygiene. It is performed in the Hygienic Institute of the University of Budapest. Elementary school doctors are only required to supervise the hygiene of the school house and the health of the school-children. Their training consists in courses of two weeks' duration, given by the University Institute of Hygiene in connection with the University clinics. For those doctors, however, who propose working as doctors in secondary schools, the training lasts for 6 months, at the end of which they receive a diploma qualifying them to teach hygiene in these schools.

## (ii) *Sanitary Engineers.*

There is no special training for this branch of the service, but all engineers receive instruction in hygiene in the Technical High School of Budapest.

(iii) *Disinfectors.*

The training of disinfectors is carried out in the well-appointed municipal disinfecting station of Budapest under the control of the Ministry of Public Welfare, which also finances it. The course lasts one month.

(iv) *Health Visitors.*

The training of Nurses until recently was carried out in different institutions in Budapest (Red Cross, municipal hospital, etc.). There are not as yet uniform rules for the training, either of nurses or of *health visitors*. Of the latter personnel, maternal and child welfare nurses have been taught for the last fourteen years by a private association aided by a Government grant. The length of the course has gradually been extended to one and a-half years. Six hundred candidates have hitherto been trained in this manner. Tuberculosis health visitors receive from two to three months' training through the Central Association for the Campaign against Tuberculosis.

In 1913, a nurses' school was established in connection with the medical clinic of the University of Debreczen; nominally, it is governed by the Ministry of Education, but on its Administrative Council the Ministry of Public Welfare is also represented. By arrangement with the Rockefeller Foundation, this school is now also concerned with the teaching of health visitors.

The chief progress in this branch of instruction has, however, only commenced since a central school was established in Budapest; this is housed in a special building which has recently been constructed in the grounds of the State Institute of Hygiene; the grounds were given by the town of Budapest, while the cost of building was shared by the State and the Rockefeller Foundation. The school will be under the administrative control of the State Institute of Hygiene. The school building, a five storey-house, is divided by the staircase into the part containing the dormitories and bathrooms and the part containing the classrooms, kitchen and diet kitchen, as well as the refectory, etc.

Pupils are at present required to have passed through four years of elementary and six years of secondary school; the requirements will in future be increased. In the new school, both nurses and health visitors are to be trained in courses of two and a-half years' duration; in the first half of the course, both groups will receive their instruction together (theoretical in the school, practical in the hospitals); in the second half, each group is to be instructed separately, either in hospitals or in relief and dispensary work; candidates desiring to receive both diplomas will have to study for three years.

The instruction will end with an examination before a commission, in which the Ministry of Public Welfare is represented.

The Government has decided that in future only nurses and health visitors trained according to this plan shall be appointed.

(v) *Midwives.*

The training of midwives is carried out in special schools under the control of the Ministry of Education. The Ministry of Public Welfare has established refresher courses, but the State Institute of Hygiene is not concerned with this work.

(vi) *School Teachers.*

The teachers in elementary schools receive teaching in hygiene in their training colleges, this instruction being given by college teachers, not physicians. With regard to hygiene teaching in secondary schools, see section (i), page 82.

In addition, it should be mentioned that *Kindergarten teachers* are now required to receive special health training in a child welfare clinic during their third year of instruction. The importance of this measure is evident from the fact that in Hungary legal protection of children ends with the third year of their life.

(vii) *Other Courses of Instruction.*

When required, the State Institute of Hygiene gives special courses in social hygiene, usually in connection with other organisations — *e.g.*, the Hungarian Red Cross.

(c) *Practical Work.*

(i) *Rural Water Supplies.*

In the great Hungarian plains, the water supply even nowadays is obtained mainly from shallow wells which are almost always open, the water being drawn by pail. Here and there, wealthy communes or individuals have had deep wells bored, which are usually artesian. These are adequate from the hygienic point of view, but so expensive that it is impossible to have sufficient number of them constructed. The State Institute of Hygiene has, in view of these difficulties, undertaken:

1. To prove that almost everywhere in the country shallow wells are to be found or can be constructed which only require proper covering and fitting with pumps in order to fulfil hygienic conditions;

2. To carry out propaganda for the construction of good wells in as many places as possible.

To this end, the Institute has appointed a sanitary engineer who supervises the constructive work. Usually, it is the Medical Officer of Health of the district or the communal health officer who prompts the commune to take the first steps; sometimes, the stimulus proceeds from the Institute. The Institute then promises the commune to supervise the construction of the well through its sanitary engineer, and, if all conditions are fulfilled, to contribute one-third of the costs. If, however, in the particular village, one of the public wells is shown to be in such condition that it only requires repairing and fitting with a pump to fulfil hygienic requirements, this measure is carried out. Within the last one and a-half years, 25 wells of the former and 120 of the latter type have been constructed or put into good condition. The commune gives an undertaking to the State Institute of Hygiene that it will preserve the well in good condition and send samples twice a year to the Institute for control. The wells are marked with a green cross and the sign "Good drinking water". This work has exerted considerable influence upon other communes and private individuals to improve their water supplies. These measures are enforced



by the arrangement made with the military authorities that the army surgeons are required in all military training marches to allow the soldiers only to use the "green cross" wells, so far as they are available.

(ii) *Control of Sera and Biological Products.*

The production of the chief sera (anti-diphtheritic, anti-tetanic, anti-meningococcic, anti-dysenteric) has since 1923 been performed by a State-supervised Association "Phylaxia", the direction of which was formerly in the hands of Professor Johan and is now entrusted to a former assistant of his. The control of all its products is carried out by the State Institute of Hygiene.

In addition, the State Institute performs the regular control of insulin according to the instructions of the Hungarian Insulin Committee, besides the control of other biological remedies — *e.g.*, digitalis.

(iii) *Health Demonstration Centres.*

The health demonstration centres, four of which are either already functioning or planned, arise from the initiative of the State Institute of Hygiene. They are, however, administered by the medical officer of the district under supervision of the *Komitat*, only their hygienic inspection being entrusted to the State Institute of Hygiene. The districts were selected under special consideration of the personality, knowledge and energy of the local medical officers of health and of their relations to the Institute. The sanitary improvement of each district was carried out according to the advice of, and with the aid of grants from, the Institute; in addition, the medical officer of health receives a regular supplement to his salary from the Institute, thus enabling him to give up private practice and to devote his whole energy to the work of the centre. The centres are financed by grants from the government (Ministry of Public Welfare), the province, the district and the Rockefeller Foundation.

The first centre has been established in the district of Gödöllő (17 communes, 70,000 inhabitants, about 20 miles away from Budapest). It is housed in a three-storey building specially constructed for the purpose; this includes public baths, maternal and child welfare stations, tuberculosis and venereal diseases' dispensaries, a dental school policlinic, a milk-distributing station and a crèche; in addition, rooms for the personnel, the candidates for the health officers' examination and the pupil health visitors — the latter groups being accommodated in rotation. The personnel consists of a head nurse and two health visitors; one for tuberculosis, one for maternal and child welfare work. In an annex there is a garage for the ambulance and the motor of the Medical Officer of Health. In an adjoining building, almost completed, a maternity clinic with 15 beds is being provided; this is to be controlled and administered by the maternity clinic of the University. In a neighbouring wood, an open-air school is to be established. The whole block receives an abundant and good supply of water from an artesian well of 118 metres' depth.

The dental school policlinic has proved a very suitable means of familiarising the population with the work of the health centre. All children who are not under private supervision are regularly examined and treated there on entering school and at yearly intervals. In addition, the policlinic is provided with movable apparatus allowing the dentist and his assistant to carry out their work in the other villages of the district. In other parts of the district, smaller dispensaries have been established. In one village a tuberculosis hospital with 15 beds and arrangement for open-air treatment is being built. The school medical service is dealt with by the Medical Officer of Health, assisted by specialists. During a period of destitution, the poorer children have received free meals. The work of the dispensaries is performed by nineteen health visitors, each of whom deals with one particular speciality.

A further centre has since then been established in Mezökövest (26 communes, 70,000 inhabitants). From 1930 onwards, part of the candidates for the health service examination will receive their field training in one, part in the other centre. In the latter, arrangements have

been made for the health visitors to carry out their work on the generalised principle, each visitor dealing with all parts of social hygiene and welfare. This will bring about a considerable saving, as it is expected to perform all the work with only seven visitors. The general view held in Hungary was, until recently, that for towns the specialised system is the best, whilst for rural areas the generalised method is preferable. There is, however, a growing tendency to utilise the generalised principle even in urban centres.

### 5. THE STAFF.

There is not a strictly permanent staff of teachers. The courses of instruction are under the direction of Professor Johan and are carried out chiefly by the personnel of the Institute; a number of university professors and other specialists figure in the list of the staff. Their total number is forty. Only the Director and members of the Institute should, however, be regarded as permanent members of the teaching staff.

### 6. THE BUDGET.

	Pengö <sup>1</sup>
Salaries, lecturers' fees, wages. . . . .	13,610
Cost of material for instruction, laboratory work, heating, lighting. . . . .	14,350
Financial subsidies to students of the course, given in the form of cheap board and lodging . . . . .	10,080
Total . . . . .	38,040

### D. OTHER ORGANISATIONS FOR HYGIENE INSTRUCTION.

Hygiene education of the general public is carried out by the Institute of Social Hygiene, which is also controlled by the Ministry of Public Welfare. One department of this Institute contains a large and valuable museum for scientific propaganda; among its collections, the sections dealing with baths, industrial hygiene and protection against accidents, as well as the statistical maps, deserve special mention. In the other department, short pamphlets, posters and educational films<sup>2</sup> are produced. A lecture theatre, with cinema, is connected with the Institute. The school-children of Budapest are brought there in regular rotation. From time to time, lectures for adults are also given there.

### E. SUMMARY.

The special features of the Hungarian system of hygiene instruction may be stated as follows: The State Institute of Hygiene is under the immediate control of

<sup>1</sup> See foot note 1, page 78.

<sup>2</sup> Recently, an excellent film on first aid to drowning persons has been prepared.

the Ministry of Public Welfare. The bacteriological, serological and pharmaceutical investigations of the region are carried out in the Institute, whilst tributary institutions in provincial universities are intimately connected with it.

A considerable part (about one-sixth) of the work of the State Institute of Hygiene is devoted to health teaching. The instruction which all future medical officers of health must have received is given by this school; it consists of a course of five months' teaching in the school (lectures, "seminar" work, laboratory work, visits to places of hygienic interest), and an additional course of four months' duration, which affords them instruction in field work (first in Budapest ; subsequently, in a rural health demonstration centre).

The instruction of health visitors lasts for two and a-half years. The theoretical part of it will, from the end of 1930, be carried out in a nurses' school attached to the State Institute of Hygiene, whilst the practical training is to be given in hospitals and dispensaries of Budapest and a rural health demonstration centre.

The health demonstration centres have been established at the initiative of the State Institute of Hygiene, which controls their work, whilst the administrative supervision is in the hands of the Medical Officer of Health.

Post-graduate medical instruction is carried out very extensively by the Central Committee for Post-graduate Education of Physicians. This includes training courses for medical officers of health who have held office before the new arrangements for training had come into force.

Hygienic education of the general public is performed by the Institute for Social Hygiene and Health Museum in Budapest, which is independent of the State Institute of Hygiene, but is also controlled by the Ministry of Public Welfare; this prepares lectures, pamphlets, posters and films.

The expenses incident to the visits of medical officers of health and candidates for the service will be considerably reduced when the State Institute of Hygiene has completed its students' house.

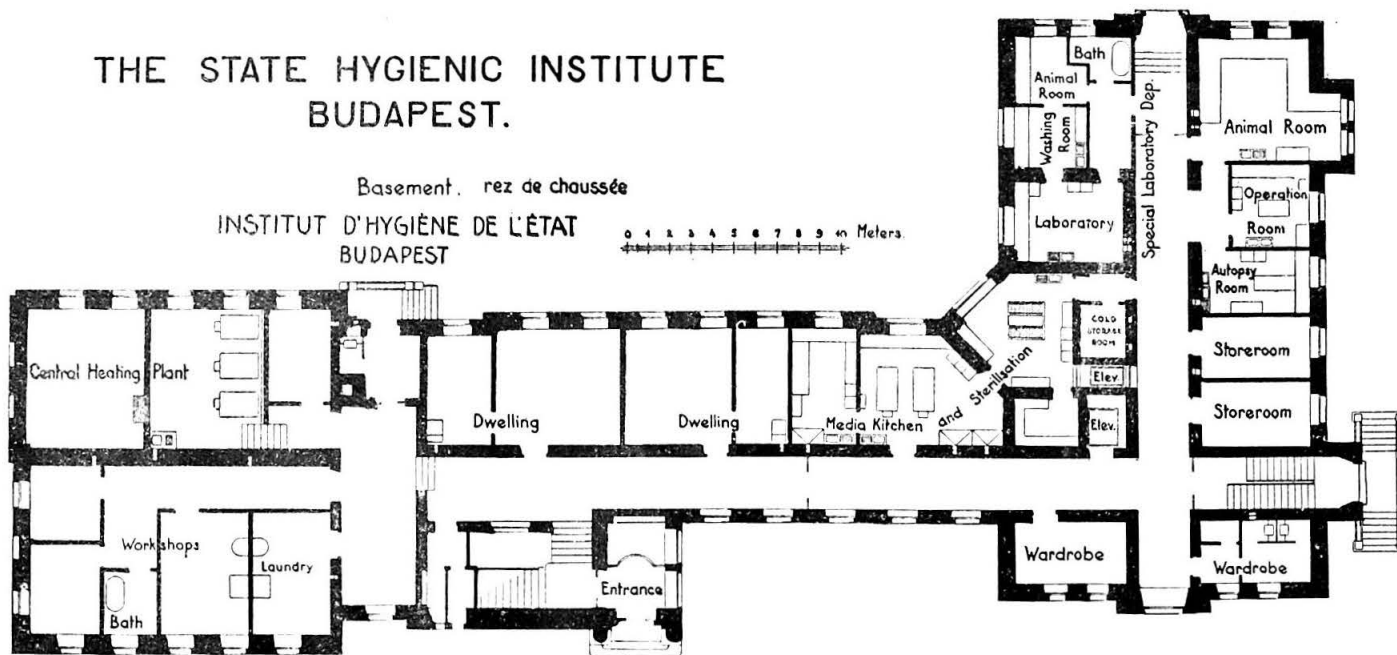
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*HUNGARY*



STATE INSTITUTE OF HYGIENE, BUDAPEST.  
General view of main Building.

# THE STATE HYGIENIC INSTITUTE BUDAPEST.



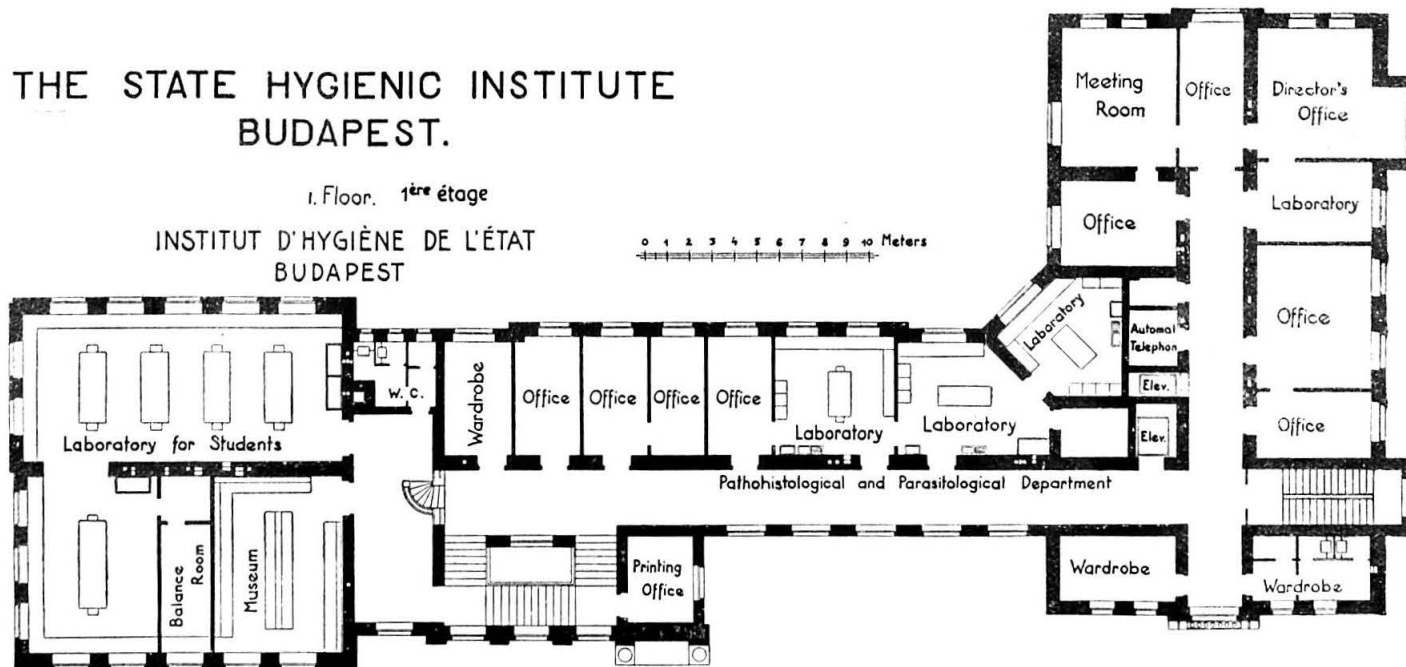
Plan 6.

# THE STATE HYGIENIC INSTITUTE BUDAPEST.

1. Floor. 1<sup>ère</sup> étage

INSTITUT D'HYGIÈNE DE L'ÉTAT  
BUDAPEST

0 1 2 3 4 5 6 7 8 9 10 Meters



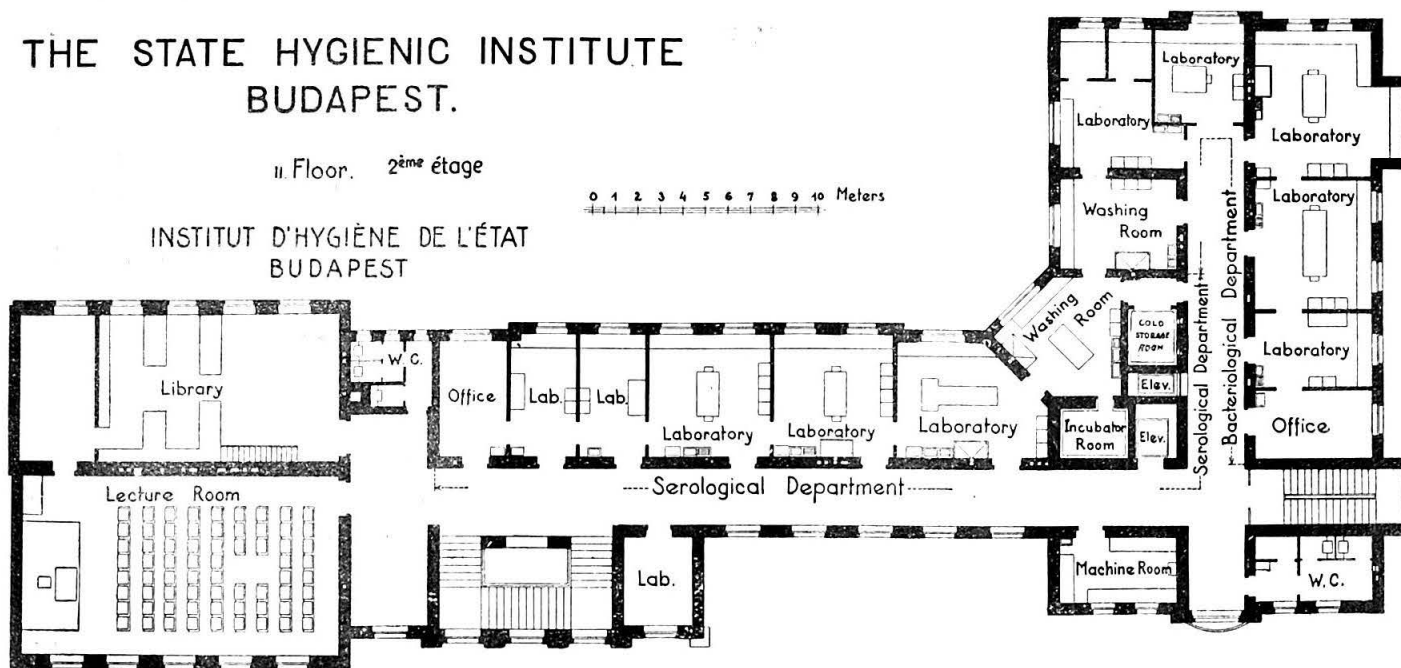
Plan 7.

# THE STATE HYGIENIC INSTITUTE BUDAPEST.

II. Floor. 2<sup>ème</sup> étage

INSTITUT D'HYGIÈNE DE L'ÉTAT  
BUDAPEST

0 1 2 3 4 5 6 7 8 9 10 Meters



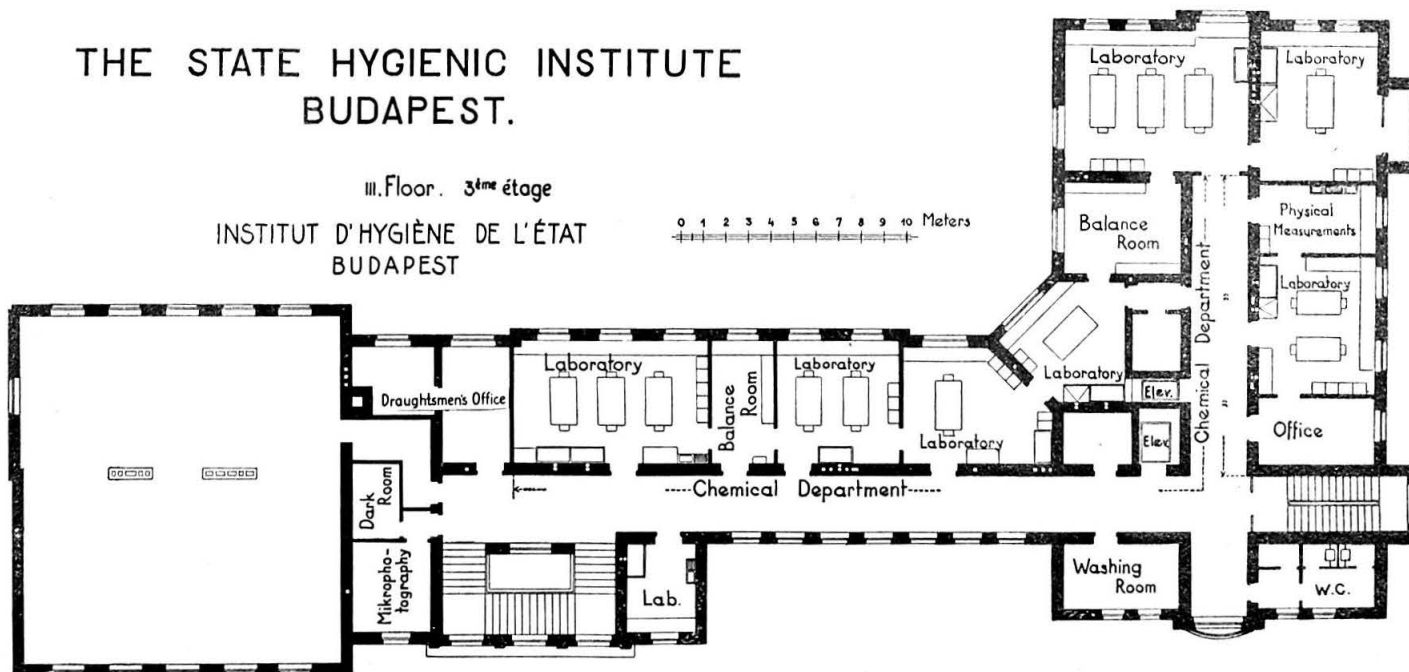
Plan 8.

# THE STATE HYGIENIC INSTITUTE BUDAPEST.

III. Floor. 3<sup>ème</sup> étage

INSTITUT D'HYGIÈNE DE L'ÉTAT  
BUDAPEST

0 1 2 3 4 5 6 7 8 9 10 Meters



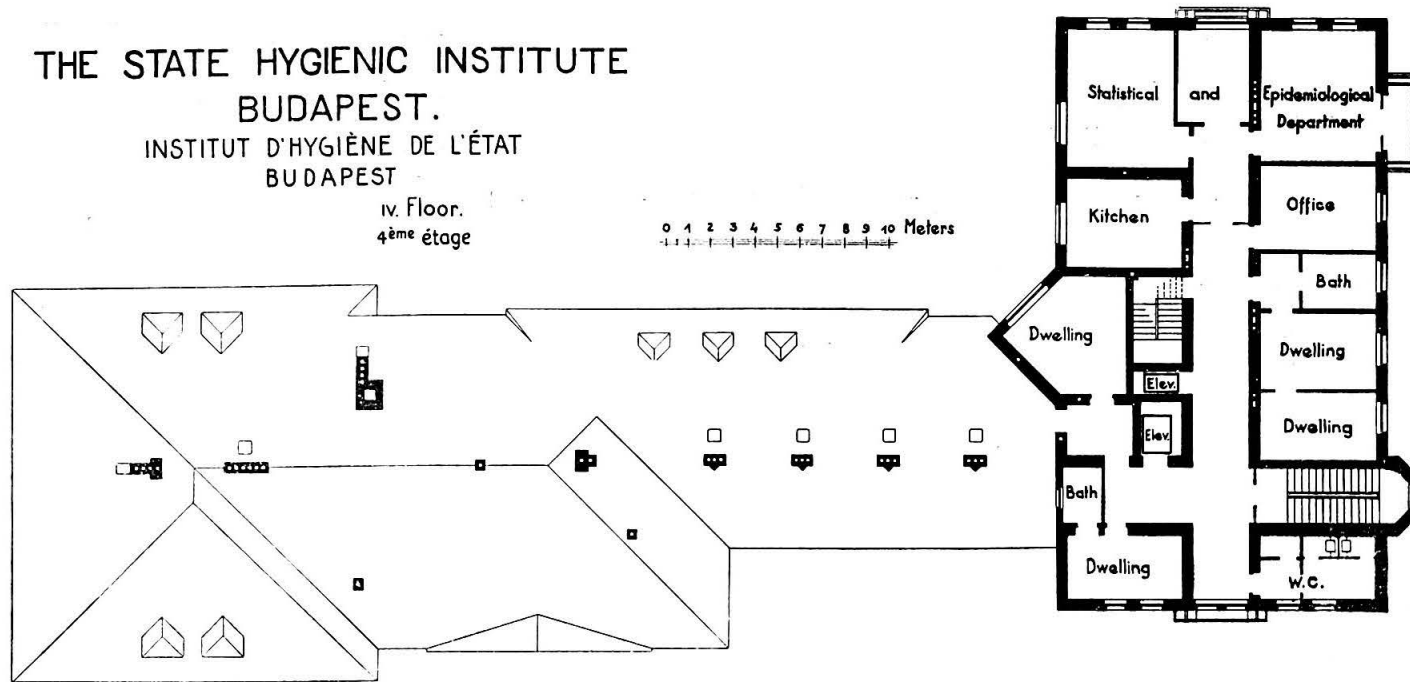
Plan 9.



THE STATE HYGIENIC INSTITUTE  
BUDAPEST.  
INSTITUT D'HYGIÈNE DE L'ÉTAT  
BUDAPEST

iv. Floor.  
4<sup>ème</sup> étage

0 1 2 3 4 5 6 7 8 9 10 Meters



Plan 10.

## Annex VI

### THE TEACHING OF HYGIENE IN POLAND.

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#### A. THE SANITARY ADMINISTRATION OF THE STATE.

In the first few years after the establishment of the Polish State, medical and public health questions were administered by a special Ministry of Public Health. Since then, however, this Ministry has been dissolved and its work has been distributed in the following manner among several other Ministries:

*Ministry of the Interior, Department of Public Health:* Hygiene, control of infectious diseases, also the duty of granting the qualification to medical practitioners.

*Ministry of Education:* Instruction and examination of medical students in the Universities; school hygiene.

*Ministry of Labour and Public Welfare:* Maternal and child welfare, industrial hygiene, social assurance.

In addition, different branches of public health administration are controlled by other Ministries; thus prison hygiene by the Ministry of Justice, railway hygiene by the Ministry of Railroads, physical education by the Ministry of War.

Poland is divided into seventeen *provinces (Województwo)*, one of which is formed by the City of Warsaw. Every provincial administration is provided with a medical department comprising two chief medical officers and one pharmaceutical officer.

The provinces are subdivided into *districts (powiat)* possessing a considerable amount of autonomy; a number of larger towns (especially those with over 50,000 inhabitants) have obtained by special law the rank of districts. The State comprises 280 districts. Every district has a Medical Officer of Health (*lekarz powiatowy*), certain larger districts in addition assistant medical officers of health. The medical officers of health numbered 300 in 1928; they are all of them permanent State officials.

In addition, many urban communes appoint health officers, who are entrusted with medical poor relief and the supervision of the hygienic and social hygienic institutions of the community. In rural areas groups of communes frequently combine to appoint regional health officers who are entrusted with corresponding duties.

For the last few years, every physician who is to be appointed as a State Medical Officer of Health (either for the *Województwo* or the district) is required to have passed through the prescribed course of training in the State School of Hygiene (see page 92). Medical officers of health appointed previously to this requirement are called in for short refresher courses given in the School of Hygiene.

Communal health officers need not have obtained the regular training in the School of Hygiene; in larger towns most of them, in rural areas only a few, are in possession of this qualification. All district medical officers of health, as well as the communal health officers of the larger towns, are whole-time officials.

The salary of the district medical officers of health commences with 400 zloty<sup>1</sup> monthly and increases up to about 600 zloty; to this is added a family allowance. The salaries of communal health officers are often higher; thus some of the whole-time health officers of Warsaw receive 1,200 zloty monthly and more.

## B. MEDICAL TRAINING.

The minimum period of study is five years; it ends with a State examination. Then follows one year's practical work as probationer in a hospital with not less than 200 beds, and after its completion the qualification to practice is granted. Teaching in bacteriology is recognised to be on a high level in all universities. On the other hand, the training in hygiene is stated not to take sufficient account of practical requirements, especially with regard to social and industrial hygiene.

## C. THE STATE INSTITUTE OF HYGIENE (WARSAW).

### 1. ESTABLISHMENT.

In 1919, a number of private institutions — the Serological Department of the Scientific Society, the Smallpox Laboratory and Pasteur Institute — were united to form the State Institute of Epidemiology. To this end, an unfinished large building on the outskirts of Warsaw was bought and adapted. In 1926, the State School of Hygiene was established with the help of the Rockefeller Foundation. In 1927, the Institute of Epidemiology, the School of Hygiene, the Pharmaceutical Institute and the Institute for Serum Control were united by a special law to form the "State Institute of Hygiene".

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<sup>1</sup> 100 zloty were approximately 58 Swiss francs in October, 1930.

The Institute is housed in a large and fine block of buildings, excellently appointed and provided with four lecture theatres, numerous laboratories and class-rooms, library and museum<sup>1</sup>. The Institute is provided with two animal farms in the country where the serum horses are kept and the small animals for the laboratories are raised. In addition, the Institute controls an experimental sewage purification plant in Kaskada on the Vistula, which deals with the sewage of Warsaw. Near the main Institute is a students' house with 50 beds.

## 2. RELATIONS WITH THE AUTHORITIES.

The State Institute of Hygiene is under the immediate control of the Department of Public Health of the Ministry of the Interior. There is no official connection with the University, but several professors and lecturers of the University teach in the School of Hygiene of the State Institute of Hygiene; on the other hand, several members of the Institute's staff are lecturers in the University.

## 3. THE PURPOSES OF THE INSTITUTE.

Its statute lays down that the State Institute of Hygiene "shall carry out scientific work in hygiene, so as to utilise the progress of science for public health".

The Institute is directed by Dr. Gustaw Szulc. It is divided into the following departments:

Department of Bacteriology and Experimental Medicine (Professor Hirszfeld);  
Production of sera and vaccines (Dr. Celarek);

Department of Chemistry and Pharmaceutics (Dr. Dominikiewicz);

*The School of Hygiene*: This is directed by Dr. Chodźko, and is divided into five sections: Industrial Hygiene (Dr. Nowakowski); Vital Statistics and Social Hygiene (Dr. Kacprzak); Epidemiology<sup>2</sup> (Dr. Kacprzak); Sanitary Engineering (Engineer Szniolis); Hygiene of Nutrition and Biochemistry (Engineer Lelesz).

Subordinate to the State Institute of Hygiene, from the point of view of administration, there are branch institutes of hygiene financed separately in Kraków, Lodz, Lublin, Lwów and Torun, as well as a branch institute in Wilno, whose expenses are paid out of the funds of the Warsaw Institute. In Poznan, all bacteriological and other investigations are carried out by the institute of hygiene of the University.

The State Institute of Hygiene in Warsaw is also the seat of the Association of Polish Organisations for Combating Tuberculosis.

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<sup>1</sup> See photographs and plans.

<sup>2</sup> This is provisionally combined with the Section of Vital Statistics and Social Hygiene.

#### 4. ORGANISATION OF THE WORK.

##### (a) *Scientific Work.*

Research forms an important part in the work of the Institute. It is concerned mainly with practical requirements.

In the last few years, a number of important papers have been published by Professor Hirszfeld and his collaborators on the serological diagnosis of cancer, blood groups, and the etiology of typhus fever. The Biochemical Department chiefly investigates problems of nutrition in Poland. Epidemiological papers are concerned with scarlet fever in Warsaw and the rest of Poland, statistical investigations on typhus fever in Poland, on tuberculosis in Bialystok. Other investigations on the state of health in Warsaw since the war, on alcoholism in Warsaw, on rural sanitation, on the relations of sickness assurance to the health of the working population have been published from the Section of Vital Statistics and Social Hygiene. In the Section of Sanitary Engineering, research is carried out with regard to the chlorination of water supplies and the purification of sewage. The Section for Industrial Hygiene is at present engaged in a survey of occupational disease and a study of the relations of ventilation and lighting to industrial work.

##### (b) *Teaching.*

###### (i) *The Training of Medical Officers of Health.*

After the establishment of the Polish State, it became necessary to train a large number of medical officers of health and auxiliary sanitary personnel. The training of new health officers was begun as soon as the School of Hygiene had been established. In the first two years, instruction consisted in refresher courses of six weeks' duration, which were given to medical officers of health already appointed. But since 1926 the School of Hygiene has organised regular courses of training for future medical officers of health. A Government Decree of January 16th, 1925, laid down that every medical officer of health must have passed through a six-months' course in the State School of Hygiene and have worked for six months in a public health administration; in addition, he must have passed an examination. In the training, advantage is taken of the general service regulation that every State official must have completed one year's service as a probationer (at a reduced salary) before being appointed to a permanent post: future medical officers of health are allowed to utilise this period for their special training, including the course in the State School of Hygiene.

The regular course of training of the future medical officer of health is composed of the following divisions: It begins with one month's training in forensic medicine, which is given in the Institute of Forensic Medicine of Warsaw University; this is compulsory, because the medical officer of health is required to fulfil forensic duties; then follows a five-months' course given in the State School of Hygiene, the details of which are shown in the following table:

<i>First Section (2 months).</i>			
	Theoretical	Hours Practical	Total
Bacteriology and immunology . . . . .	52	44	96
Vital statistics and statistical technique . . . . .	23		
Epidemiology (general and special) . . . . .	24		91
Laboratory work on epidemiology and statistics . . . . .		44	
Clinical instruction in the diagnosis of infectious diseases . . . . .		120	120
Disinfection and disinsection . . . . .	14		14

<i>Second Section (1½ months).</i>			
Chemistry and physiology of nutrition . . . . .	24	18	42
Chemical constitution of foodstuffs, laws relative to food-control, and their administration . . . . .	24		24
Chemistry of medicinal remedies and drug control . . . . .	8		8
Water supply (caption, purification, protection, inspection of water-supply plants, examination of samples, interpretation of results of examination) . . . . .	18	8	26
Sewage disposal and purification in town and country . . . . .	11	11	22
Cleansing of towns and refuse disposal . . . . .	4	3	7
Housing, schools, hospitals . . . . .	8		8
Town-planning . . . . .	3	2	5
Technique of heating and ventilation . . . . .	2		2
Public baths . . . . .	4		4
House inspection visits . . . . .	2	4	6
Physiology of work . . . . .	9	3	12
Ventilation, including dust prevention . . . . .	6	1	7
Lighting, radiant energies . . . . .	4	1	5
Occupational diseases . . . . .	10		10
Accident prevention, industrial legislation . . . . .	6		6

<i>Third Section (1½ months).</i>			
Social diseases, their prevention and control (tuberculosis, venereal diseases, trachoma, cancer, mental diseases, alcoholism) . . . . .	32		32
Maternal and child welfare, including eugenics . . . . .	16		16
General and sanitary legislation . . . . .	46		46
Social assurance . . . . .	6		6
Sanitary administration (seminary work) . . . . .		12	12

A considerable part of the teaching is reserved for "seminars", laboratory work and visits to places of hygienic interest; this is particularly the case with the teaching of vital statistics and epidemiology.

The course of instruction in the State School of Hygiene represents the first part of the training for medical officers of health; it concludes with a detailed *examination*, carried out in the School, which takes account of all the problems discussed.

The second part of the training is purely *practical*. The first three months of it serve mainly to widen the candidate's knowledge of social hygiene problems. This time is spent under the control of the School of Hygiene. The candidates successively have to carry out practical work in several health demonstration areas, viz.:

- In an area belonging to the town of Warsaw (in Mokotów);
- In a rural area adjoining Warsaw, and showing the particular problems of a district on the borderland of town and country;
- In the purely rural district of Skjerniewice; and
- In the district of Bendzin, which is in part industrial.

The last three months of the year of probation, which thus is in reality a year of instruction, may be spent in any public health institution; frequently the candidate passes them in the district to which he is to be appointed; thus he has the advantage of familiarising himself with his future sphere of work.

At the end of his year of training, the candidate is required to pass a second *examination*, which deals principally with sanitary administration.

The number of medical officers of health trained every year is about twenty.

In addition to these regular courses, refresher courses for older health officers who have not passed through the regular course of training are also being given; they only last for two or three weeks.

#### (ii) *Sanitary Engineers.*

The Technical High School in Warsaw in 1929 provisionally established a department for the training of sanitary engineers; but this experiment was subsequently given up. Recourse has therefore been had to the system previously employed, in which engineers, after completing their normal course of training, receive supplementary instruction in hygiene at the State School of Hygiene. This post-graduate course is attended chiefly by engineers belonging to the State or municipal services; it lasts from four to six weeks and comprises, *e. g.*, town-planning, construction of school buildings, health demonstration centres, hospitals, public baths, slaughter-houses; in addition, instruction is given in hydrology, caption of water, its purification and distribution, purification and disposal of sewage, street cleansing, disinfection and disinsection. The course consists of lectures and visits to a number of places and institutions of hygienic interest.

#### (iii) *Sanitary Inspectors.*

To this profession persons are only admitted who have at least passed through the whole elementary school course; many sanitary inspectors, however, have completed the entire secondary school course, some of them being former students of medicine who had been forced to give up their career. The training is given in the State School of Hygiene.

The course lasts for five months and comprises theoretical teaching in physics, chemistry, anatomy, physiology, as well as planning and designing; practical sanitary instruction, given by the personnel of the School, is concerned with wells and other water supplies, sewerage and disposal of sewage, disinfection and disinsection; also elementary teaching in infectious diseases, hygiene of nutrition, social hygiene, first aid in accidents and gassing. Supplementary training is given on the methods of taking samples of foodstuffs for chemical, and of infectious material for bacteriological, examination. About forty officials of this class complete their course in the School every year; most of them had already been in the service of a community which sent them to Warsaw for the course.

(iv) *Health Visitors.*

Nursing was formerly exclusively in the hands of Sisters belonging to religious orders, but without special training. At present, such training is given in five schools:

The State School of Nursing established in 1921; this is now housed in a magnificent building which was erected jointly by the Health Department of the Ministry of the Interior, the City of Warsaw and the Rockefeller Foundation;

Two other schools in Warsaw, one of which belongs to the Polish Red Cross, the other to the Jewish Organisation;

Two further schools in Kraków and Poznan.

Candidates wishing to enter the State School of Nursing must at least have passed through the sixth class of a secondary school; many of them have, however, completed the secondary school course. Every pupil is subjected to medical examination on entering the School, and at intervals throughout the course.

The training consists of four months' probation and two further years of instruction. It consists in lectures and practical training in hospitals. Hygiene teaching comprises 54 hours devoted to bacteriology and public health and 104 hours' instruction in various subjects of personal and social hygiene; part of this training is given by members of the staff of the State School of Hygiene. Three months of the time set apart for practical training are spent in the health demonstration centres (see Section c) where the pupils learn the elements of social welfare work.

The new School building was completed in 1930. Every year 50 nurses can now be trained there. Altogether about 300 nurses have graduated from the School.

The pupils pay 250 zloty<sup>1</sup> monthly. There are, however, twenty scholarships, half of which were given by the Ministry of Labour and Public Welfare, the other half by the Sickness Assurance Fund. Pupils enjoying these privileges undertake the obligation to serve as hospital nurses for five years; if they marry during this time, they are occupied in welfare work.

For the future, refresher courses are planned which will take special account of practical training in social hygiene and welfare work.

(v) *Midwives.*

Midwives are trained in special schools, three of which are controlled by the State, two by municipal authorities. The course of instruction lasts for two years. Postgraduate courses are compulsory. The School of Hygiene has in the past given refresher courses for midwives, but it has stopped this work for the present.

(vi) *School Teachers.*

Teachers in secondary schools are required to attend lectures in hygiene; in Warsaw, these are given by Dr. Kacprzak, of the State School of Hygiene. Even in elementary schools, some hygienic instruction is required to be given.

The State School of Hygiene has established supplementary courses of three weeks' duration for elementary teachers. These take account not only of the hygienic

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<sup>1</sup> See note, page 00.



requirements of school education, but also of the fact that in rural areas the school teacher is perhaps the only educated person in the village and is therefore best fitted to help and advise the adults in all questions of hygiene. The course lays particular stress upon enabling the future school teachers to instruct the school-children in hygiene, but at the same time a good deal of knowledge is provided on elementary questions of medicine and on the problems of rural sanitation. The courses are very well attended and are followed with great interest. They are given free of charge.

(vii) *Other courses Instruction.*

In the first place, the School is at the disposal of the medical profession. It organises any refresher courses that may be required, provided the minimum number of twenty participants is guaranteed. Courses have thus been given for school doctors, also on tuberculosis, trachoma and other special subjects, besides evening lectures on preventive medicine for practising physicians. In addition to the staff of the State School of Hygiene, a number of professors of the University and physicians of the general hospitals<sup>1</sup> take part in this work.

*Popular education* is chiefly carried out by the School, but outside its precincts. No lectures for the general population have hitherto been given in the School itself. It is, however, engaged in establishing a museum in the building, of which some sections have already been finished and contain excellent material for demonstration.

(c) *Practical Work.*

(i) *The internal Work of the State Institute of Hygiene.*

The Department of Bacteriology and Serology carries out all the current examination work for the City of Warsaw (over 70,000 specimens a year); in addition, Dick- and Schick-tests, as well as active immunisation against diphtheria, are performed.

The State Institute of Hygiene also produces the greater part of the sera and vaccines required by the country.

The Department of Sanitary Engineering is the central advisory authority in all questions of housing, street construction, water supply, privies and disposal of sewage, etc., public baths and rural sanitation. It acts through the experts on its staff. Its method consists in performing the different branches of this work practically in a village selected for this purpose, which serves as an experimental station. The Department having thus acquired the necessary basic knowledge, it is in a position to give the advice and plans desired to any communes, institutions and private individuals requiring help. The Department has published a treatise on sewage purification, and it plans the production of further pamphlets dealing with other sections of sanitary technique.

<sup>1</sup> Courses on venereal diseases have hitherto only been given in the hospital which treats this type of case, because it was entrusted with this work before the School was established.

The Department of Social Hygiene has produced a well-illustrated, popular book on rural sanitation (113 pages), which is sold for the moderate price of 1 zloty. The first edition of 40,000 copies is almost exhausted.

In 1929, this Department, together with organisations dealing with agricultural education, arranged a propaganda competition in rural sanitation. From a number of districts, 250 peasants' houses were selected; they were medium-sized, containing at least three rooms. The householder was supplied with the book above mentioned. Six months afterwards, a woman inspector prepared for this task in the School of Hygiene inspected them, and prizes were given to those households which obtained the greatest number of points in sanitation. This competition is to be repeated in the future.

(ii) *The Health Demonstration Centres.*

On the initiative of the State Institute of Hygiene, a number of *health demonstration centres* have been established in the City of Warsaw and in the rest of the country. They have almost always originated in social hygiene dispensaries existing previously. It was the primary aim of the Institute to concentrate in one building the administrative work of the different branches of welfare work, which previously had often overlapped to a considerable extent. In Warsaw, the best results have been obtained with the system in which one health visitor is appointed to deal with the entire social hygiene work in a limited area (generalised relief work).

The first health demonstration centre was established in Mokotów, a suburb of Warsaw (56,000 inhabitants). The State Institute of Hygiene, with the aid of the Rockefeller Foundation, bought a suitable building and adapted it to its purpose. The service is carried out under the supervision of experienced medical specialists by twelve health visitors; during the morning, each of them carries out house visits in the streets belonging to her area; in the afternoon, the health visitors are employed in the different kinds of work of the centre (pre-natal, maternal and infant welfare; tuberculosis, venereal diseases, mental diseases, alcoholism; laryngological and dental polyclinic, *crèche*, infants' milk kitchen). A good system of card indexing is employed for assembling all data required. The centre is provided with a series of public baths and an emergency disinfecting apparatus.

In the evenings, popular hygiene lectures are given, all of which are very well attended, especially those on alcoholism.

The centre of Mokotów serves for giving practical training both to future medical officers of health and to pupil-nurses.

Besides this centre, Warsaw now possesses eight other health centres, which have been designed according to the advice of the State Institute of Hygiene, but are run by the city authorities. The most recent establishment of this kind was opened in 1930 in the suburb of Grochów, in a building constructed for this purpose.

Similar institutions have been, or are being, erected throughout the country; the total number planned for the immediate future is 140, most of which are already functioning. Even under the most primitive conditions in remote mountain villages, every health centre is intended to deal at least with tuberculosis and maternal and child welfare, and to be provided with a room for the health visitor.

As far as possible, it is proposed that in future the district medical officer of health shall be the director of the health centre. This will serve to simplify administration and will have the further advantage of bringing the health officer of the State into intimate contact with all groups of the population.

### 5. THE STAFF.

The staff of the School consists of the Director, the librarian, the administrative personnel and the following persons:

Department of:	Teaching Staff:
Industrial Hygiene . . . . .	Head of Department and 1 assistant.
Vital Statistics and Social Hygiene . . . . .	Head of Department and 1 assistant, also 1 assistant for epidemiological work.
Sanitary Engineering. . . . .	Head of Department and 3 assistants.
Hygiene of Nutrition . . . . .	Head of Department and 3 assistants.

### 6. THE BUDGET.

The budget of the State *Institute* of Hygiene is over 1,000,000 zloty. A considerable part of the expense is due to the cost of bacteriological and serological investigations carried out free of charge, also the production of sera and vaccines. Part of the budget of the Institute is represented by the expenses of the State School of Hygiene; these amount to:

	Zloty <sup>1</sup>
Salaries of the permanent staff . . . . .	174,550
Lecturers' fees. . . . .	40,724
Subsidies . . . . .	1,380
Travelling expenses . . . . .	1,414
Office expenses . . . . .	4,885
Upkeep and maintenance. . . . .	92,000
Laboratory expenses . . . . .	38,444
Extraordinary expenses for laboratory apparatus . . . . .	8,000
Miscellaneous . . . . .	539
Total . . . . .	361,936

### D. SUMMARY.

In Poland, the difficulty of hygienic work at the outset consisted principally in the fact that the State had to reconstruct a great part of its sanitary administration and its public health services at the time when it was in the midst of serious epidemics. But, on the other hand, it was in the favourable situation of being able to organise its services according to a clear-cut plan without being impeded by superannuated traditions.

<sup>1</sup> See note, page 89.

One of the most important centres of hygienic work in Poland is represented by the State Institute of Hygiene and its branch institutes distributed over the country. The Institute is under the immediate supervision of the Health Department of the Ministry of the Interior. It is divided into several departments, each of which is engaged in important scientific research and in practical hygiene work. The latter consists mainly in educational activities which extend over a very great part of the population; in addition, it should be noted that from the State Institute of Hygiene the plan of the health demonstration centres originated. These centres have since been organised by the Health Administration both in the capital and in numerous other districts. One hundred and forty health centres are planned, the majority of them are already functioning. They are under the administrative control of the local sanitary authorities.

A very important department of the State Institute of Hygiene is the *State School of Hygiene*. Its work consists, in the first place, in the training of future medical officers of health; after passing through a one-months' course in forensic medicine, they receive five months' training in the School of Hygiene, consisting of lectures, seminars and laboratory work, as well as visits; subsequently, they are trained for three months in practical field work, both in urban and rural health demonstration centres; finally, they perform practical work in a public health administration for three months. Two examinations, one in the middle and one at the end of their training, ensure the candidates having attained adequate knowledge. Although this instruction is thus minute and extends over a whole year, its expense does not weigh heavily upon the candidates; for every State official is required by law to pass through one year's probation before being permanently appointed, and in the case of future medical officers of health, this salaried period is passed in the training described. Besides, further help is given to the candidates by the School of Hygiene, which has established a students' house supplying board and lodging at very reasonable prices.

The School of Hygiene gives refresher courses to sanitary engineers and full courses of training to sanitary inspectors; members of its staff take part in the training of nurses and health visitors; in all these groups of the auxiliary sanitary personnel, stress is also laid upon thorough instruction being given in practical field work.

The research work of the School of Hygiene and the other departments of the State Institute of Hygiene is on a high level, owing to the high qualifications of the staff. The chief objects of the research are a number of important problems closely connected with practical requirements.

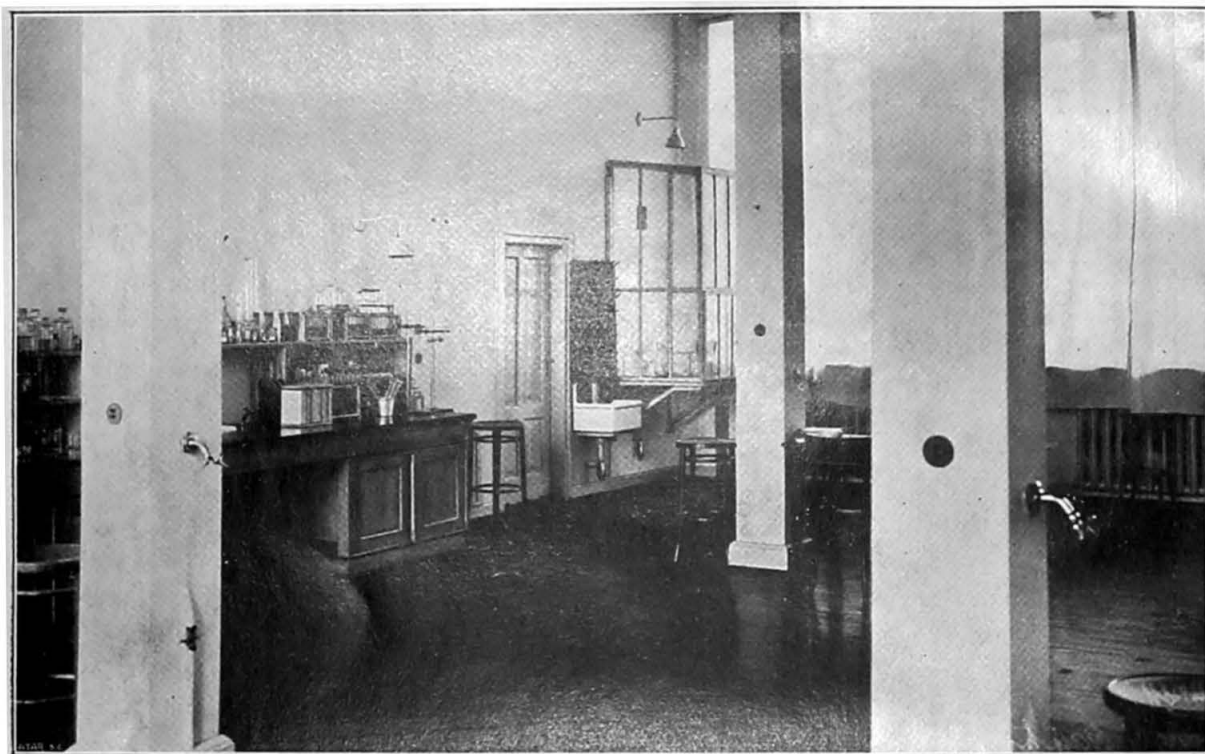
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*POLAND*

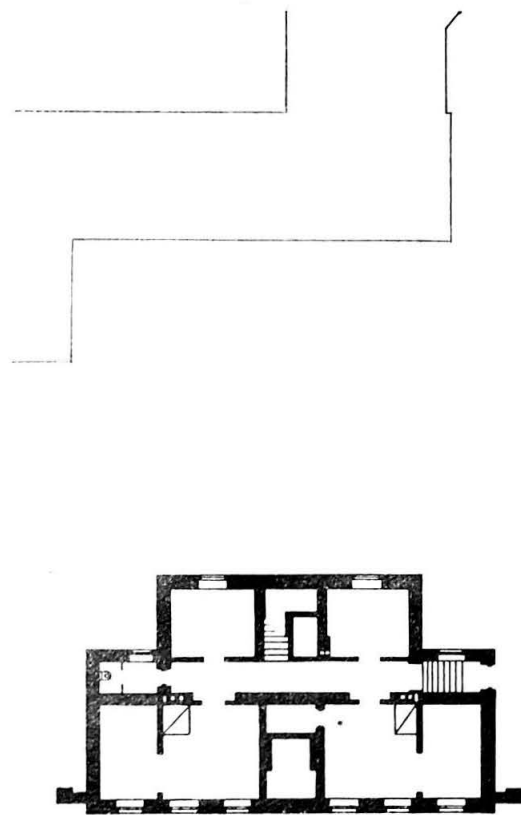


STATE SCHOOL OF HYGIENE, WARSAW.  
General view.

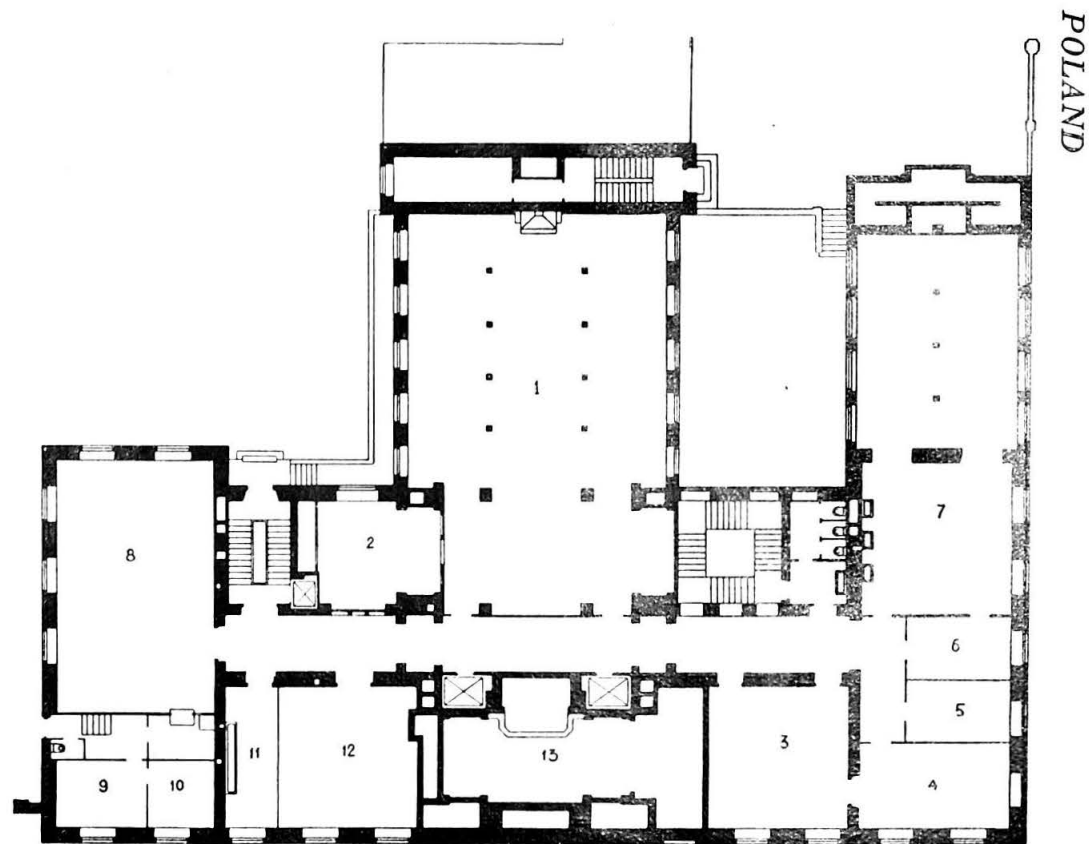
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STATE SCHOOL OF HYGIENE, WARSAW.  
Department of Industrial Hygiene, Laboratory.



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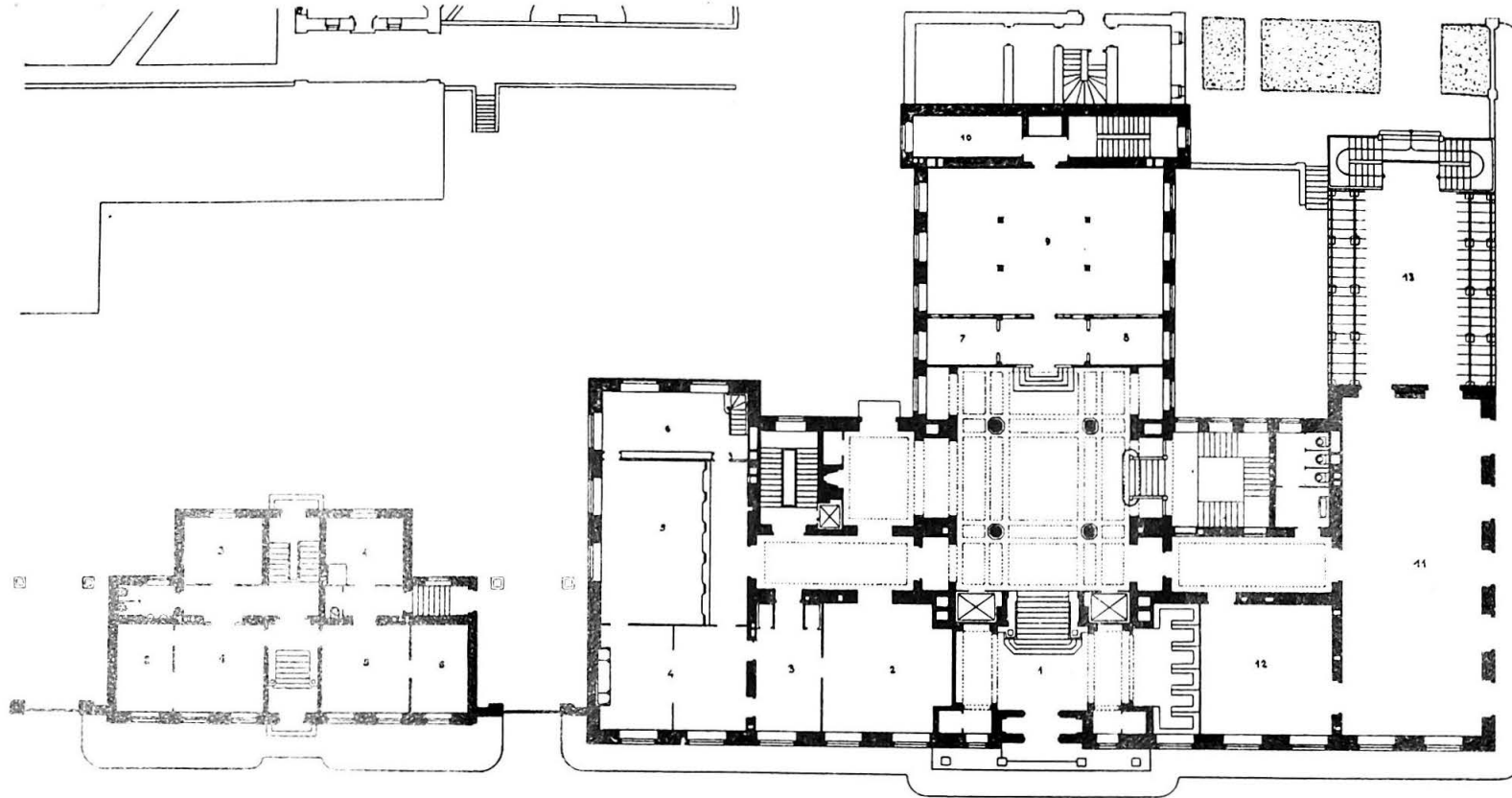


C.

STATE SCHOOL OF HYGIENE, WARSAW.  
Basement.

- 1-2 Museum.
- Department of Sanitary Engineering.*
- 3-4 Workshops.
- 5-7 Laboratories.

- 8 Lunchroom for the staff.
- 9-10 Housekeeper.
- 11-13 Machinery.



POLAND

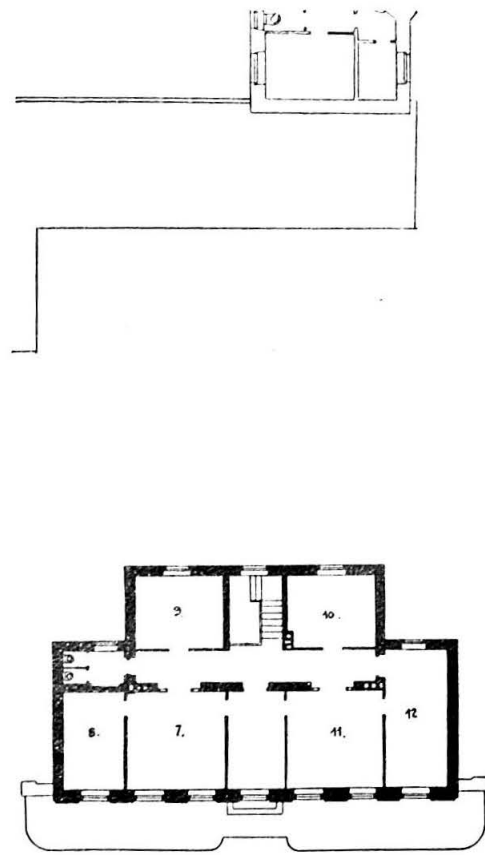
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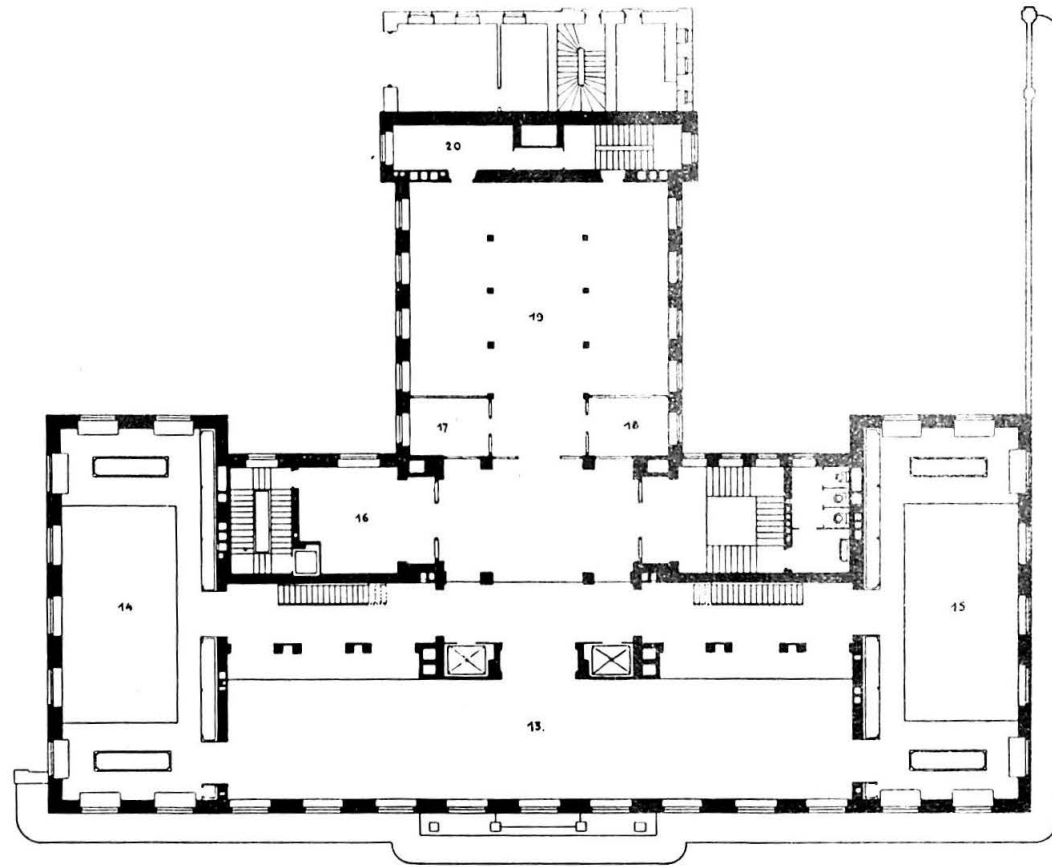
STATE SCHOOL OF HYGIENE, WARSAW.  
Ground floor.

- 1 Main Entrance.
- 2-4 Director's Offices.
- 5-6 National Tuberculosis Assoc.
- 7-10 Students' Microbiological Laboratories.
- 11-13 Library.





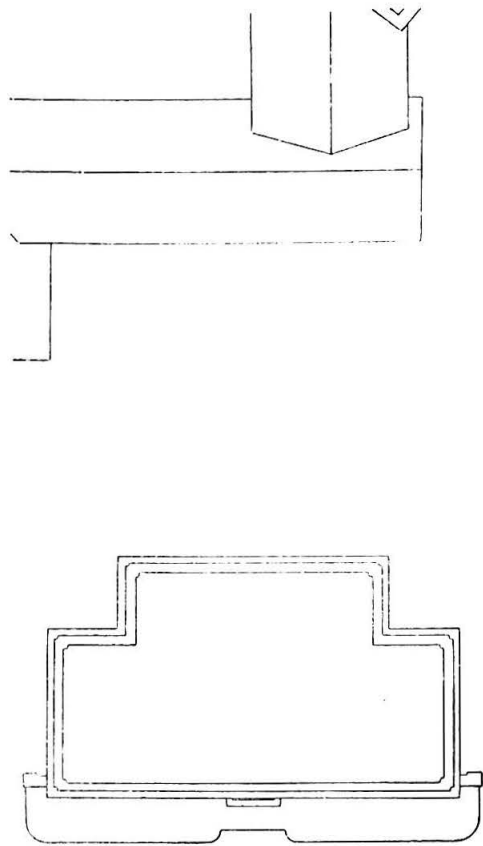
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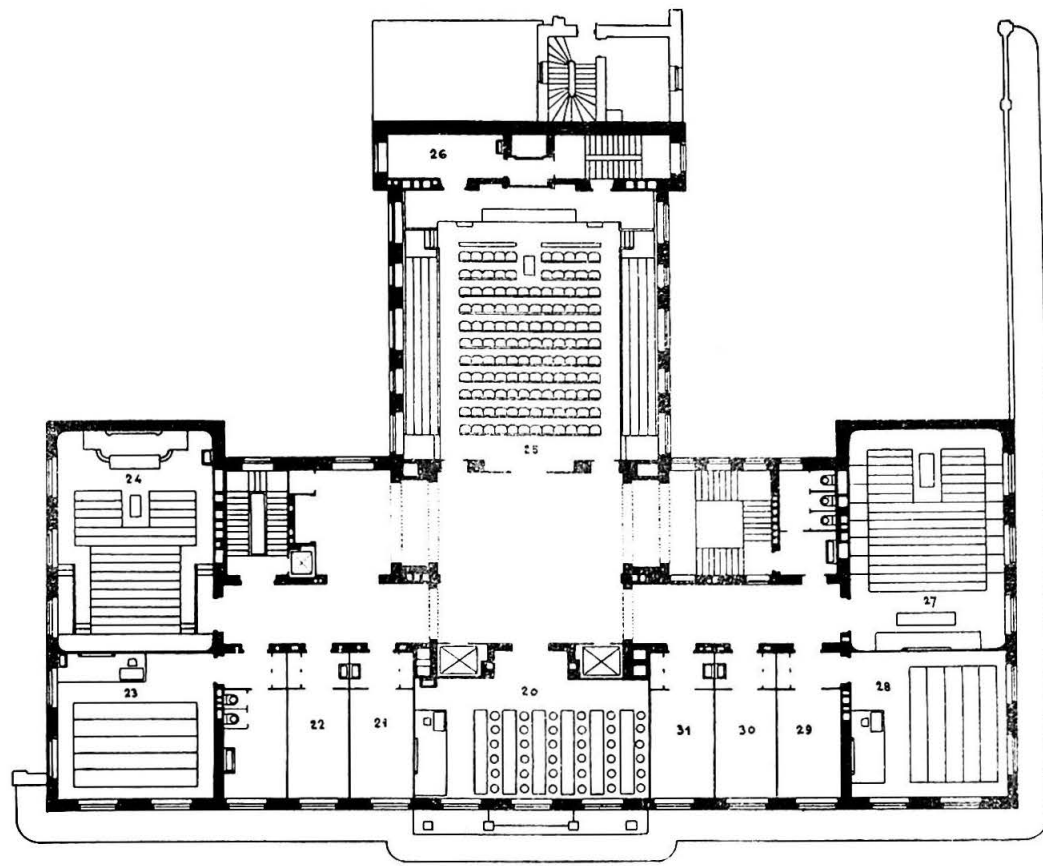
C.

STATE SCHOOL OF HYGIENE, WARSAW.  
First floor.

- 13-16 Museum.
- Department of Industrial Hygiene.*
- 18 Office.
- 17 and 19 Laboratories.
- 20 Dark room.



D

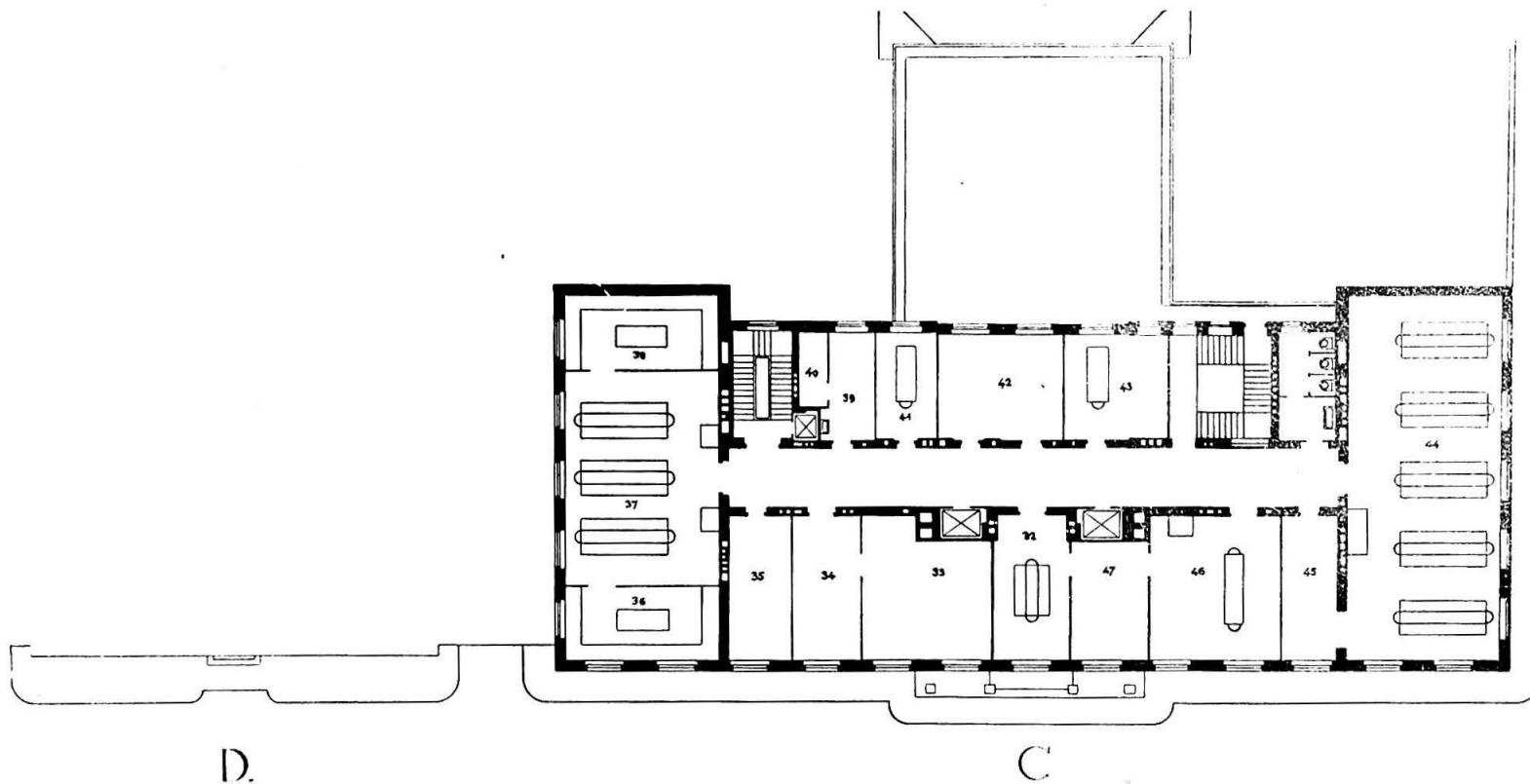


C

POLAND

STATE SCHOOL OF HYGIENE, WARSAW.  
Second floor.

- |       |                         |       |                            |
|-------|-------------------------|-------|----------------------------|
| 20    | Conference room.        | 25    | Lecture theatre.           |
| 21-22 | Offices.                | 26    | Deposit room.              |
| 23    | Statistical Laboratory. | 27    | Lecture room.              |
| 24    | Lecture room.           | 28-31 | Rooms for special workers. |



D.

C

## STATE SCHOOL OF HYGIENE, WARSAW.

Third floor.

*Department of Nutrition.*

- 47 Office.
- 32-35 Chemical Laboratories.
- 45-46 " "
- 39-40 Refrigerator. "
- 41-43 Experimental animals.

- 44 Students' Chemical Laboratory.

*Department of Sanitary Engineering.*

- 38 Office.
- 37 Chemical Laboratory.
- 36 Microbiological Laboratory.

## Annex VII

### THE TEACHING OF HYGIENE IN YUGOSLAVIA.

#### A. THE SANITARY ADMINISTRATION OF THE STATE.

The *Ministry for Public Health and Social Welfare* is responsible for:

“Encouragement and care of a steady increase in population and maintenance of the normal development of the older generations”;

Protection of public health;

Establishment of institutions for the cure and prevention of diseases;

Study of the normal and pathological living conditions of the nation;

Popular health education;

Industrial hygiene.

Its work is carried out in three departments — viz.: administration, social welfare and hygiene. The third department was for many years directed by Dr. Štampar, who is now Inspector-General of Hygiene for the Kingdom. It is particularly owing to his foresight and energy that, in spite of all difficulties, the practice of public health has been successfully established in the State in a methodical manner, speedily, and by most original methods.

The *Ministry of Education* is responsible for medical training in the universities. It is also responsible for school hygiene (with regard to exceptions see page 107).

Sanitary administration is organised with great precision. The Kingdom is divided into nine provinces (*Banats*). Each *Banat* has a Chief Medical Officer, who controls a staff of medical, and in some instances also of pharmaceutical inspectors.

The *Banat* is subdivided into districts. Each district, of which there are 480 in the Kingdom, is required to have a Medical Officer of Health, who is immediately subordinate to the Chief Medical Officer of the *Banat*. The Medical Officer of Health is entrusted with the responsible supervision of the local health bureaux and the communal health officers.

Every commune of more than 6,000 inhabitants must have a Communal Health Officer whose duties are mainly concerned with the hygienic improvement of the area; these officers are appointed and paid either by the commune itself or by groups

of communes. In poorer areas, each commune pays a yearly sum to the *Banat*; the sums paid by all the communes in question are collected in the central fund, which in the poorest areas serves to pay the salaries of communal health officers and midwives, also hospital expenses.

The *laboratories for bacteriological investigations* show a somewhat similar organisation: immediately subordinate to the Department of Hygiene of the Ministry for Public Health and Social Welfare are the Central State Hygiene Institute in Belgrade and the State School of Hygiene in Zagreb.

Each *Banat* possesses a *provincial institute of hygiene*, with sections for the diagnosis of infectious diseases, Pasteur treatment, chemical and other investigations dealing with technical hygiene. Some of these institutes are very important — for instance the Institutes in Novi Sad and Skoplje, the latter of which was established in view of the prevalence of malaria. The hygiene institutes of the *Banats* are subordinate for administrative purposes to the *Banus* (civic head of the *Banat*); but they have a certain degree of autonomy in questions dealing with hygiene and control of infectious diseases, where they are even allowed to give direct orders to the Medical Officer of Health.

Subordinate to the hygiene institutes of the *Banats* are secondary units, "*hygiene centres*", which have developed out of local bacteriological laboratories; each centre is provided with a bacteriological laboratory for carrying out the local campaign against infectious diseases.

Subordinate to these institutions there are in some parts of the country tertiary units — *e. g.*, school policlinics and smaller specialised institutions for the control of malaria, trachoma, etc.

Lastly, the endeavour is being made to establish in every village local health centres which are to be provided with first-aid, public baths, rooms for the health visitor, and in larger places with a lecture room and a few beds for urgent cases. In addition, where required, mobile laboratories and staff are made use of.

According to the law, the Medical Officers of Health should be whole-time officials. In fact, however, their payment is so small (on the average about 2,500 dinars monthly), that they usually give not more than three hours a day to their official work, the rest of the time being devoted to private practice. As yet, there are no whole-time medical officers of health and, in spite of the law, only a few who before the war had passed an examination for medical officers of health (the Austrian *Physikat*). But there is reason to hope that great improvement will be attained within the next few years. The officials and employees of the School and Institutes of Hygiene and health centres hold full-time appointments.

## B. MEDICAL TRAINING.

Medical instruction is carried out in the universities of Belgrade, Zagreb, and Liubliana; the latter University has, however, only begun teaching a few years ago and therefore its students are still in the less advanced stages. The

Hygiene Institute of Belgrade University is comparatively small and attached to a hospital clinic. On the other hand, the corresponding institute of Zagreb University is housed in the fine building of the State School of Hygiene (see *infra*).

Medical studies last for five years. They are divided into four sections, each of which ends with an examination; then follows one year of probation, before the qualification is granted. Instruction in bacteriology is given in the third or fourth year; it lasts for a whole year and comprises lectures and a compulsory course. Instruction in hygiene is given in the last year of studies and consists of five hours' lectures a week during that whole year. In Zagreb, Dr. Prašek, professor of hygiene in the University, has arranged a special course of field work for his students, which has been made compulsory by a resolution of the medical faculty in 1929. The course takes place in the summer holidays and lasts for two months. It is carried out in rural districts, which are under the care of the State School of Hygiene (see section c, iii, page 110).

Some of the areas employed for this work are in the *Karst* district, where there are great difficulties with the water supply, others in the coastal plains, where there is much malaria. The students are distributed in groups of six in such manner as to work for a fortnight in each of four different areas. They take part in all public health work — *e.g.*, sanitation, water supply, observation of epidemics (there is much scarlet fever), school inspections, house-to-house enquiries in the villages, control of malaria. Since most of the students come from urban districts, this method has the further advantage of bringing them into touch with rural problems and the rural population. Once a week, the professor of hygiene visits the groups and discusses their work with them. To the expenses the students contribute 300 dinars a month, the rest of the costs being paid by the Rockefeller Foundation.

As mentioned above, all medical students after having passed their final examination are required to work for one year as medical probationers; half of this time is devoted to public health work (see page 103).

## C. THE STATE SCHOOL OF HYGIENE (ZAGREB).

### 1. ESTABLISHMENT.

Whilst in several other countries the school of hygiene only forms part of a State institute of hygiene, the School of Hygiene in Zagreb is entrusted with scientific, training and practical work. The local institute of hygiene of the *Banat* of Zagreb also forms part of the School of Hygiene.

The State School of Hygiene is situated near the new University clinics. It was opened in 1927. It is housed in very beautiful and well-appointed buildings. The School of Hygiene also accomodates the Institute of Hygiene of the University mentioned above. Adjoining are the "pavilions" of the fever hospital (120 beds), which is also under the administrative control of the Director of the School

of Hygiene. The School is also provided with stables for the animals required in the production of sera and smallpox vaccine. In its immediate vicinity lies the municipal disinfecting station.

The entire cost of construction of the School of Hygiene was 25,000,000 dinars, of which sum the Rockefeller Foundation gave 10,500,000 dinars, whilst the State paid the remainder. (See photographs and plans.)

## 2. RELATIONS OF THE SCHOOL OF HYGIENE WITH THE AUTHORITIES.

The School of Hygiene is immediately subordinate to the Ministry for Public Health and Social Welfare. It is therefore independent of the University. But the fact that the hygiene institute of the University is housed in the building of the School of Hygiene is sufficient evidence of the close relations existing between the two institutions.

## 3. THE PURPOSES OF THE SCHOOL OF HYGIENE.

The School of Hygiene is entrusted with the training of all medical candidates during the second part of their year of probation. In addition, it is concerned in training medical officers of health and leading health specialists (see page 105), sanitary engineers, sanitary inspectors, health visitors, school teachers and the population in general.

To this end the School of Hygiene is divided into the following departments, which are directed by Dr. Borčić:

- Secretariat and administration;
- Hygiene instruction and popular health education (Dr. Brössler, *pro. tem.*);
- Research in social hygiene and vital statistics (Dr. Rasuchin);
- Sanitary engineering: (Engineer Petrik);
- Production and control of biological products, sera, etc. (Dr. Kalić).

In addition, the School building accommodates the Institute of Hygiene of the *Banat*, with divisions for bacteriology and epidemiology; parasitology; chemistry of food and drugs. This Institute, as well as the fever hospital, which for administrative purposes is subordinate to Dr. Borčić, may therefore be regarded as departments of the School of Hygiene in its widest sense.

The Institute of Hygiene of the *Banat* is destined for the practical solution of the various problems of the country connected with hygiene, epidemiology and social medicine. Therefore, it is the executive organ of the School of Hygiene; at the same time, it serves the purposes of the School, since it administers practically the methods elaborated by the School and since it obtains material for the research carried out in the School.

#### 4. THE ORGANISATION OF THE WORK OF THE SCHOOL OF HYGIENE.

##### (a) *Scientific Work.*

By a process of division of labour, the scientific work of the School of Hygiene has developed chiefly in the direction of applied research (see Section (c), page 109), whilst the institute of hygiene of the University is mainly interested in pure research. The School is, however, perfectly free to carry out whatever work it may wish; in the first years of its existence, the School, and especially its Director, have been occupied so intensely with teaching and practical work that the entire personnel has had to give almost all its time to this work and has had little chance of carrying out research. In spite of this, good scientific work is already being carried out in the different departments — *e.g.*, in biometrics, blood groups, vital statistics, epidemiology, ethnological questions (housing, conditions of labour, nutrition), parasitology and pathology of plants. It is indeed hardly correct to distinguish from the “scientific” work as purely practical all the work described under subheading (c). Where can a distinction be drawn between practical work and applied research, *e.g.*, in the hygienic survey of the country with regard to its water supply, the elaboration of the best types of houses, wells, etc. ?

##### (b) *Hygiene Training.*

###### (i) *Physicians and Medical Officers of Health.*

Mention has already been made of the thorough and exemplary field training which all medical students now undergo in Zagreb under the auspices of the hygiene institute of the University. During his year of probation, every future physician is required to work as a clerk for two months in the surgical, two months in the medical, and two months in the maternity clinic. The remaining six months serve for field training in hygiene and fever work, given under the supervision of the School of Hygiene, chiefly in institutions subordinate or attached to it:

Two months fever hospital, with practical work in the control of epidemics, also post-mortem work;

One month maternal, infant and child welfare and medical inspection of school-children in the corresponding dispensaries;

Two weeks in the tuberculosis dispensary, with actual participation in house visits in the company of the health visitors;

Two weeks venereal diseases dispensary;

Ten days policlinic and hospital for trachoma;

Seven weeks in the different laboratories of bacteriology, malarialogy, work on epidemiology, rural sanitation, in the Pasteur Institute and in the smallpox-vaccine laboratory.

Three or four days are spent in the Social Insurance Office.

During the whole period of training, short theoretical lectures are also given.

Candidates only receive their qualification if they can provide certificates of having done good work in the entire course of field training.



During his year of probation, the candidate is supposed to decide whether his inclination and his capacity fit him better for practice or for the work of a health officer. In the latter case, a very detailed course of instruction is prescribed. The career may be either that of a State official (Medical Officer of Health) or of a communal health officer. Both are life positions. In each case, three years' probation is required by law.

During this time, candidates for the health service are required to take part in a six-month's course given in the School of Hygiene and consisting of the following subjects:

*Hygiene*: General and personal hygiene, chemistry, bacteriology, serology, immunology, parasitology (160 hours, half of this time being devoted to lectures and seminary, the remainder to practical work).

*Epidemiology and control of infectious diseases*: General epidemiology, diagnosis and treatment of infectious diseases, control of epidemics, disinfection, vaccination, epidemic statistics; (80 hours, one-third of which are lectures and seminary, the remainder practical work).

*Sanitary engineering*: Sanitation of towns and villages, hygienic condition of school buildings, factories, houses, baths, drinking-water (60 hours, one half lectures and seminary, the remainder practical work and demonstrations).

*Social medicine*: Social pathology and social therapy, maternal, infants', children's welfare, school hygiene, school clinics, dental school clinics, mental hygiene, intelligence tests, nutrition, tuberculosis, venereal diseases, malaria, trachoma, goitre, cancer, alcoholism; industrial hygiene and professional diseases, social insurance, protection of the poor, invalids, blind, deaf and dumb, and insane; vital statistics, biometrics, health propaganda (240 hours, of which three-tenths are devoted to lectures and seminary, the remainder to practical work and demonstrations).

*Pathological anatomy* (40 hours' practical course).

*Forensic medicine and toxicology* (30 hours' course).

*Forensic psychiatry* (15 hours' course).

*Pharmacology* (5 hours' course).

*Sanitary law and administration*; hospital administration, international health work, professional medical associations (30 hours).

*Various*: History of medicine, political economy, laws governing population, eugenics, certain legal questions, medical ethics (36 hours).

At the end of his instruction, the candidate is required to pass an *examination*, which embraces written tests, laboratory and practical field work. The first course began in the autumn of 1930. It is intended that in future this programme will be carried out by every new physician appointed as Medical Officer of Health; it is also decreed by law that all health officers who had been in their posts for less than ten years in 1927, must also comply with these regulations.

A special class of *leading health officials* (specialists in hygiene) is being prepared to cope with the great hygienic wants of the country. In addition to the courses described previously, they are required to work for a year and a-half in the different branches of social hygiene and in the State School of Hygiene.

The programme outlined here is doubtless the most detailed and thorough scheme of training which has hitherto been undertaken in any country. The great demands made upon every health officer by the backward state of the country; especially in its predominantly rural areas, fully justify the programme. Experience will have to show whether it can be carried out in this strict form. The greatest obstacle to this programme of instruction is represented by the inadequate payment of all health officers.

(ii) *Sanitary Engineers.*

Hitherto only six-weeks' refresher courses have been given for persons already occupying the post of sanitary engineer; here only the most important questions were discussed. In future, it is planned to give mixed courses for engineers and architects in the service of the State and the communes, and to attach these courses to those for health officers; it is thus hoped to interest the engineers in questions of social hygiene.

In future, yearly courses of instruction for future sanitary engineers are to be given, in which some persons already holding the post of sanitary engineer will also take part. It is hoped in this manner to obtain useful discussions upon the relative value of the different methods of sanitation, and finally to arrive at their simplification.

(iii) *Sanitary Inspectors, Disinfectors.*

Disinfectors formerly received their training in six-months' courses. This has been stopped, because it is intended in future only to appoint sanitary inspectors who will supervise disinfection, control of infectious diseases, food control, and general sanitation so far as this is not in the hands of the health visitors. This class of officers will be required to have had at least four years' elementary and four years' secondary school training. Their special instruction, which has begun in the School of Hygiene in 1930, will last for a year.

Special courses of six months each are intended to be given by the School of Hygiene for food inspection chemists and for inspectors of foods and markets.

(iv) *Health Visitors.*

Nursing was hitherto practised in the Roman Catholic part of the country almost exclusively by Sisters belonging to various religious congregations; in the "Orthodox" part of the country, it was in the hands of uneducated men and women

without any special training. After the war, a Red Cross school was established for training nurses, but it has not been able to carry on its work.

A new scheme has been developed in Zagreb, where a *nursing school* has been established in the immediate neighbourhood and under the administrative control of the School of Hygiene. It is directed by Dr. Šimec, who, after obtaining her medical qualification, received a thorough nurse's training in the United States. Her outlook on the work expresses the double training which she has mastered.

The nursing school was established with the aid of the Rockefeller Foundation. It consists of seven large wooden huts in a neighbouring wood; in them, there are the livingrooms, dormitories, bathrooms, students' class-rooms, as well as kitchens and laboratory rooms. In 1930, 42 lay pupils and 14 religious Sisters were being trained. The lay pupils are required to have passed through at least four years of elementary and four years of secondary school. The age of entry is between 18 and 28 years, but for women who have already had several years' experience as school teachers the age-limit is 32. All pupils are examined medically on admission and during the course of training.

The instruction lasts as a rule for two years, four months of which form a probationary period. The special training given to *health visitors* includes in the first year the principles of nursing and diet cookery, in the second year the different branches of social welfare work. The course ends with an *examination*.

Religious Sisters who have had at least five years' hospital practice receive one year's training at the same school; candidates passing the final examination obtain the chance of a superior post in a hospital.

The courses of the school have now been extended over three years, so as to give all candidates a complete instruction both in nursing and in welfare work.

Each pupil has to pay 700 dinars monthly; this represents only half of the total costs. Needy pupils, after passing their probationary period, are partially or entirely freed from all payments on condition that they serve the State for at least twice as long as the time they were excused payment.

In the near future, special training for *school health visitors* will be given.

#### (v) *Midwives.*

The training of midwives lasts for eighteen months. At present, it is carried out in special schools not connected with the School of Hygiene; but the School of Hygiene is endeavouring to obtain control of this branch of the service also.

#### (vi) *School Teachers.*

In order to carry out its practical work in rural districts, the School of Hygiene requires more helpers; to this end, special three weeks' courses are given in the summer

holidays to elementary school teachers; the instruction differs somewhat for men and women, and therefore separate courses are given for each group. The persons taking the course are lodged in a special house belonging to the School. Instruction is not only concerned with school hygiene, but comprises all questions of rural hygiene and sanitation. Its object is to interest the teachers and to make them capable of influencing the adults in the village. Seminars, discussions and lectures given by the members of the course form an important part of the work. The women teachers are specially instructed in house-keeping and take part in a cookery course, for they will be required to supervise or carry out the feeding of the children coming to school from remote villages. They are also intended to instruct and advise adults in practical housekeeping. With regard to "propagandist teachers" see section viii, *infra*.

In the higher schools, hygiene instruction is compulsory for the scholars; it is given by the school physician.

(vii) *Other Officials.*

The next stage planned by the School of Hygiene for the extension of its teaching work deals with the *priests*, municipal officials and police officers.

(viii) *The "Peasants' University".*

There can, of course, be not the slightest doubt as to the great value of the methods previously described. Yet they are far from fulfilling all that is needed in order to bring home speedily to the entire population the sense of hygiene. In order to obtain this result, the School of Hygiene has developed further methods of coming into contact with the population.

As a preparatory stage, emissaries of the School of Hygiene began to perform *health education in the villages*. To this end, the School appointed experienced teachers to whom it had given special hygiene training; every winter each of these teachers travelled to twenty or thirty villages and gave series of lectures in each of them on problems dealing with hygiene and with agriculture; these lectures were supplemented by addresses on human diseases given by the Medical Officer of Health and on animal diseases by the district veterinary officer.

The School of Hygiene has also established *travelling classes* given by health visitors who have received special instruction in housekeeping; these too travel from village to village and teach housekeeping, the care of infants and the principles of rational nutrition. Special interest centres in this latter point because the food of the rural population is very deficient, particularly in winter, and the use of vegetables is limited, the culture — *e. g.*, of spinach being practically unknown.

It has thus been possible in numerous villages to awaken interest and to bring about relations between the School of Hygiene and the peasantry. Several thousands

of lectures were given in 1929, the School of Hygiene paying all expenses and lending the lantern and the necessary material for demonstrations. There is a constantly increasing demand on the part of the rural communities for this type of lecture.

The second method which the School of Hygiene has been practising for two years is that of the "*Peasants' University*". Somewhat like the Danish method, peasants, men and women, are received into the School of Hygiene where they obtain detailed training. Thus from villages where the School of Hygiene has already taken some root by means of the lectures held there, thirty to forty peasants are gathered together in a course given in the School of Hygiene. Together with four or five village school teachers the pupils are housed in the dormitory building of the School. The men are trained for five months in the most important subjects of agriculture and hygiene; at the same time, they receive a certain amount of general instruction; in short, they learn all the subjects necessary for their life and their profession of which the fragmentary village school teaching of their childhood had taught them practically nothing. It should be noted that in Yugoslavia about 50 per cent of the inhabitants are still unable to read or write. During the course, they also learn about co-operative enterprise, the employment of agricultural machinery, etc. But the dominant note of the entire training course is the teaching of hygiene — housing, sanitation, safe water supply, prevention of infectious disease, etc. They are taught that it very soon repays them to carry out the necessary hygienic improvements. Thus the School has gradually succeeded in overcoming the resistance of the peasantry against all innovations and to bridge the chasm between it and the educated part of the population.

For the women, the length of the courses has hitherto been only nine weeks, but in future they are also to be extended. Here the requirements of the household and the family are chiefly taken account of: cleanliness, cookery, housekeeping, the care of the mother and the child; <sup>1</sup> in addition, they are taught machine-sewing, modern methods of weaving, embroidery.

The cost of the whole instruction is 2,000 dinars for the men, 1,000 dinars for the women, including board and lodging. The course ends with a diploma granted to each pupil. Only one condition is attached to the training, namely, the obligation undertaken by all pupils that at the end of the course they will not remain in the town but will return to their village and there use all their energy in the service of the hygienic efforts of the School.

More than half of the men returning home have signed the pledge as total abstainers.

The peasant students have formed an association which edits a newspaper with a thousand subscribers; here the subjects learnt in Zagreb are elaborated further, to a great extent by contributions from the students themselves. A lively correspondence is carried on between the teachers in the School of Hygiene and the former pupils, which serves to bind them more closely to one another.

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<sup>1</sup> To this end, they are trained for two days in the dispensary at Zagreb (see Section c. ii, page 112).

The pupils returning to their villages form local men's and women's associations, which are not only devoted to social intercourse, but which by lectures and debates do active work for the hygienic improvement of the rural conditions of life.

Besides these two functions, the School of Hygiene proposes to institute *winter schools* for juvenile peasants (15 to 18 years); this institution has already received legal sanction; it will consist of courses held on two or three days of each of twenty weeks in the winter.

(c) *The Practical Work of the School of Hygiene.*

(i) *The Work done within the School.*

All the different departments of the School are concerned: bacteriological, serological and parasitological investigations, production and control of sera, production of vaccine against smallpox. The rabies vaccine is prepared in Novi Sad according to the etherised method of Hempt and is distributed to the local Pasteur institutes by the Zagreb institute.

The work of the sanitary engineering department deserves special mention; it has elaborated a number of *plans and models* of cheap houses, school buildings, rural dispensary stations, baths, wells, privies (the approved "Kentucky" system), manure pits, etc., all of which are in full accordance with hygienic principles. The plans and models are given to all communes and individuals interested in the work.

The department is also concerned with the improvement of the *water supply* in the *Banat*; every fairly important spring is examined and, if it is good, it is protected against contamination; wells are repaired and kept under control. This work has been carried out on a particularly large scale in the Karst district, where the water is notoriously scarce, and here great improvements have been attained. Springs and wells which have thus been improved are examined regularly twice a year by the School of Hygiene. The communal health officer is required to supervise every water supply in his area; he is legally entitled to force the commune to carry out any repairs required. It must, of course, be admitted that all this work is still in a very early stage. For this very reason, the educational work of the School of Hygiene in the villages is of particular value, since it paves the way for obtaining the assistance of the communes in getting the work performed.

The greatest interest, however, centres in the department which produces *propaganda material* — e.g., hygiene pamphlets for schools, posters, lantern slides and, especially, popular films<sup>1</sup>. Importation of foreign hygiene films has proved unsuitable, since the peasants are not accustomed to draw the necessary inference to their own conditions of life unless the actors' appearance, clothes, and general habits correspond to rural life in Yugoslavia. Therefore the School of Hygiene arranges for the preparation of the film manuscripts by experienced Yugoslav writers; it produces the films with Yugoslav actors in the popular dress and the accustomed rural

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<sup>1</sup> See photographs.

environment. The films are short and easily understood. A special law decrees that every cinema must at least once a week run a hygiene film in the course of its ordinary programme.

(ii) *The Work of the School of Hygiene in the Town of Zagreb.*

It is obvious that the School of Hygiene must exercise particular influence upon the Sanitary and social hygienic conditions of the town of Zagreb. As examples, two institutions may be mentioned:

1. The *Central Dispensary for Maternal, Infant and Child Welfare*, social relief for illegitimate children and their mothers, and holiday camps; in addition, the dispensary has a stationary department for twenty infants. It has developed from the co-operation of the School of Hygiene and the town; the School pays the salary of two doctors and eight health visitors, the town of two doctors and three visitors; of the running expenses, the School of Hygiene pays 50,000, the town of Zagreb about 500,000 dinars a year. Through its participation in the costs, the School of Hygiene has obtained the possibility of making extensive use of the dispensary for its practical training work.

2. The School of Hygiene has also established a well-organised *policlinic for the scholars* of the twenty-four secondary schools of the town; here all the school recruits are systematically examined and treated by dentists and specialists for diseases of the eyes, ears, nose, throat and lungs. Attached to the policlinic is a school bath. In 1929, about 8,500 children were examined and treated by the Institution. Those children who have to come to Zagreb daily from places outside the town here receive a substantial and well-prepared dinner for 3 dinars. The establishment of this school policlinic was carried out in the teeth of the strong opposition of the educational authorities; it was only owing to the energy of Dr. Borčić that these obstacles were overcome. But now that the value of the policlinic has been proved, its work is accepted even by its former adversaries.

(iii) *The Work of the School of Hygiene in Rural Districts.*

The practical work of the School in rural areas is closely connected with its educational work in the country, described previously. For only since interest in hygienic problems was awakened among the peasants, has it been possible to establish the foundation for their practical co-operation, and thus resistance has been overcome and often part of the money required has been obtained from the commune. The details of this work will be understood by reference to the following section dealing with the health demonstration area.

(iv) *The Health Demonstration Area.*

For the establishment of this area, the village of Mraclin (1,400 inhabitants) was chosen, because among the villages in the circuit of about 20 miles round Zagreb it most needed hygienic improvement. When the work was begun there, three years ago, the majority of the houses was filthy; in many of them the arrangement of the rooms was bad, twelve, sixteen and even more people of both sexes and all ages living and sleeping in one big room; since tuberculosis is very prevalent, the opportunity

for its transmission was particularly great. There was not a single uncontaminated water supply in the whole village, but only uncovered shallow wells without pumps. There were but few a privies in the whole place. Large heaps of manure lay in the yards and the liquid manure overflowed into the roads.

The School of Hygiene opened negotiations with the village; the Director, his departmental chiefs, teachers, sanitary engineers spent much of their time there; a young peasant woman who had had four years of elementary and four years of secondary school instruction was sent to the United States and trained as health visitor; this woman, energetic, resourceful and courageous, was appointed health visitor to the village. Thanks to the persuasive power of these persons and the example of the more intelligent members of the community, the influence of the School has steadily grown. And thus the present state of affairs has been attained. A swamp in the middle of the village has been dried and filled up with earth by the villagers; to this end the School lent them a set of rails and lorry-trucks. In the centre of this reclaimed ground, there now stands the two-storeyed "House of the Commune". The ground floor contains the dispensary, where twice a week a Zagreb physician attends, it also contains shower-baths; the health visitor has at length succeeded in persuading not only the school-children, but also numerous adults, to make regular use of it! On the first floor, there is a large hall which serves for parish meetings, *lectures* and on Sundays is used for social intercourse; adjoining are rooms for the health visitor and the nursing school's *pupils*, who in rotation obtain their *practical training* in rural work here.

Most of the houses are now clean and well kept. The distribution of the sleeping- and living-rooms shows considerable improvement. Almost everywhere primitive spittoons are arranged and, apparently, used.

Many of the wells have been fitted with a vaulted cement covering and Carruelle pump. There is hardly a house now without a privy (Kentucky system); richer peasants have even gone so far as to construct privies on the first floor of their houses; they are all well-kept and it is evident that the peasants take pride in Keeping them clean. Almost all yards are now provided with cemented manure pits, and most of them have wooden pumps for the liquid manure. All these improvements have become popular, because *the peasants recognise that they pay*. That is one of the greatest lessons which the School of Hygiene has taught. Peasants — men and women — have formed associations which compete with the corresponding associations of the neighbouring villages in regard to cleanliness of the houses and streets. Greatest achievement of all: the whole mental status of the population has been correspondingly raised.

##### 5. THE STAFF OF THE SCHOOL OF HYGIENE.

The permanent staff is formed by the members of the School of Hygiene proper and the chief of the departments for social medicine, sanitary engineering, hygiene, bacteriology and epidemiology. A number of special subjects are taught by specialists belonging to the University.



## 6. THE BUDGET OF THE SCHOOL OF HYGIENE.

The School has a budget of its own out of which it pays:

	Dinars <sup>1</sup>
The salaries of its Staff and employees . . . . .	3,800,000
Total current expenses . . . . .	3,600,000
Total . . . . .	7,400,000

Its income is derived from:

The sale of sera and other biological products . . . . .	3,600,000
The fees for bacteriological, serological, and chemical examinations . . . . .	200,000
Various donations . . . . .	100,000
State grant . . . . .	3,500,000
Total . . . . .	7,400,000

### D. SUMMARY.

The distinctive feature of the work of hygiene instruction in Yugoslavia is to be seen in the definitely centralised administration which begins with the Ministry of Public Health and Social Welfare and ends with the communal health officer and his local health centre; an organisation built up afresh and arranged logically so as to prevent any overlapping.

In this organisation, special interest attaches to the School of Hygiene in Zagreb. It is immediately subordinate to the Ministry and not hampered by relations with other authorities.

The training in the School of Hygiene, in the first place, concerns the medical profession. Here every future physician must pass through six months' field work under the supervision and control of the School. In addition, the training of the future health officers is, in effect, a further extension of this training: it aims at providing the future health officer with the highest degree of efficiency as soon as he has completed his course of training.

The school does not limit its teaching to these officers, but it also trains sanitary engineers, sanitary inspectors, school teachers and health visitors. In all its instruction the "seminar" principle and field work are employed extensively.

Finally, the School has established direct relations with the population, especially the peasantry. To this end, pamphlets, posters, lantern slides and films are prepared

<sup>1</sup> 100 Dinars were approximately 9 Swiss francs in October, 1930.

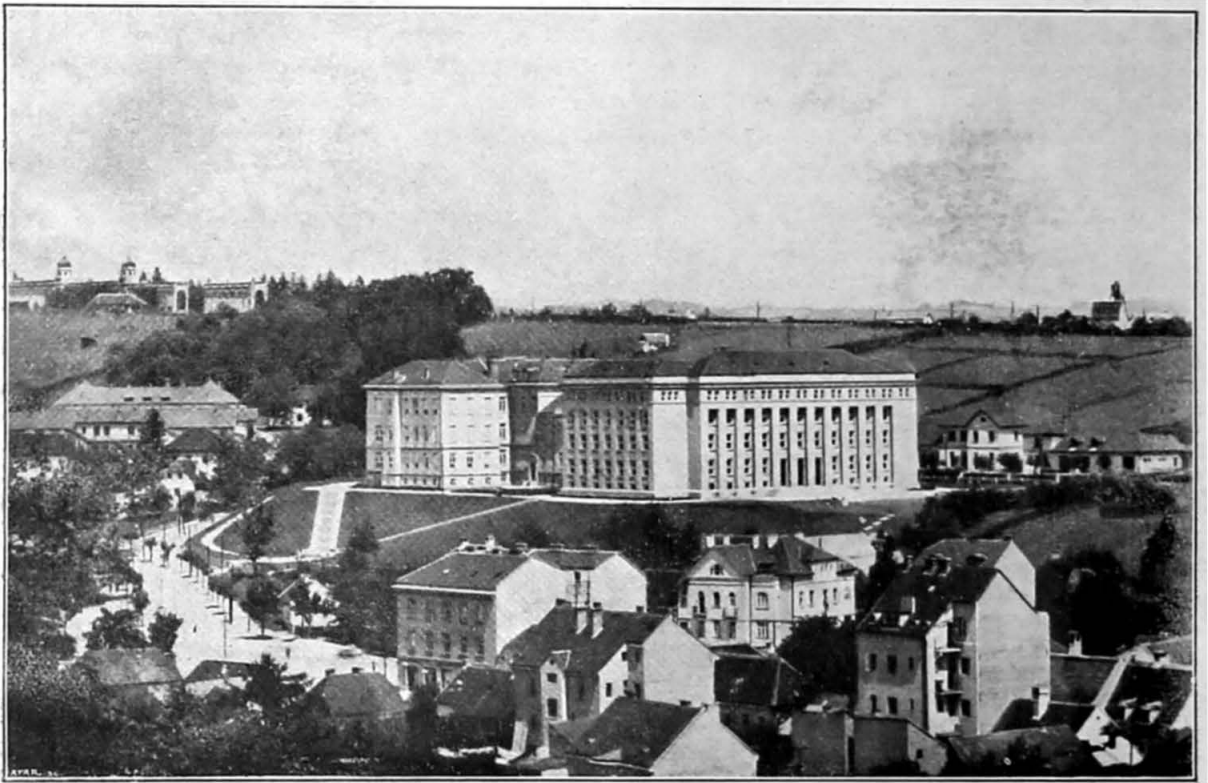
by the School in such manner as to appeal to the intelligence of the uncultured. On the other hand, it has organised courses which are given in the villages by teachers and health visitors especially trained for this purpose. And, lastly, peasants receive courses of several months' duration in the School, where they are taught the essentials of hygiene as well as of agriculture.

The practical work of the School of Hygiene is, however, not limited to work within the School, but it embraces the whole country: in the town of Zagreb, the School takes an important part in the foundation and maintenance of the welfare centre and the policlinic for secondary school-children. In rural areas, improvement of the water supply and general sanitation is to a considerable extent performed by the personnel of the School. Special mention should also be made of the plans and models of good wells, properly protected springs, privies, manure pits, simple houses, and rural school buildings, all of which are put at the disposal of communes free of cost. A good instance of this work, and of the energy and efficiency with which it is carried out by the School, is afforded by the health demonstration centre at Mraclin.

Apart from the School of Hygiene, attention may be drawn to the excellent field training given by the Institute of Hygiene of the Zagreb University to every medical student. This also well deserves to be imitated in other countries.

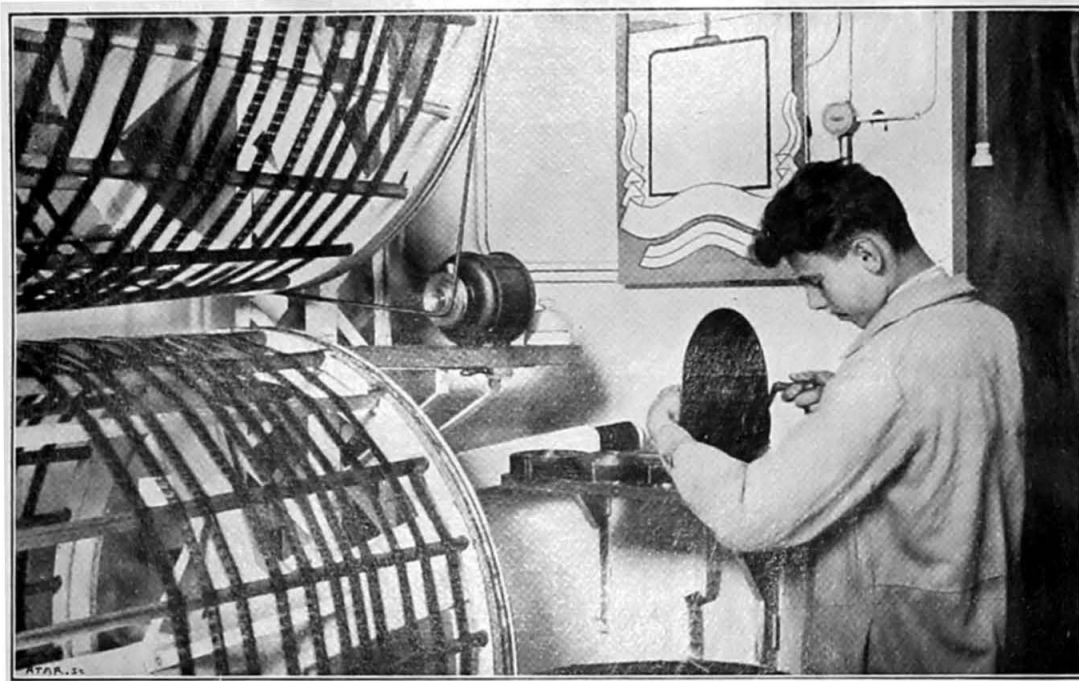
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YUGOSLAVIA



STATE SCHOOL OF HYGIENE, ZAGREB.  
General view of main building.

YUGOSLAVIA

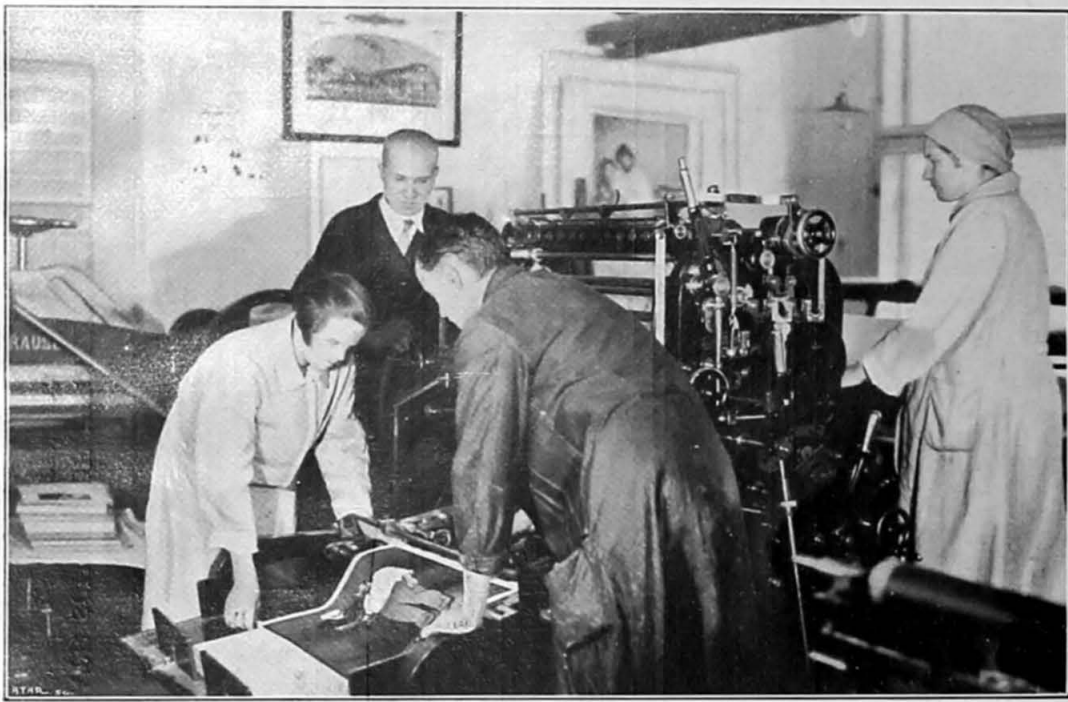


STATE SCHOOL OF HYGIENE, ZAGREB.  
Cinematographic studio.

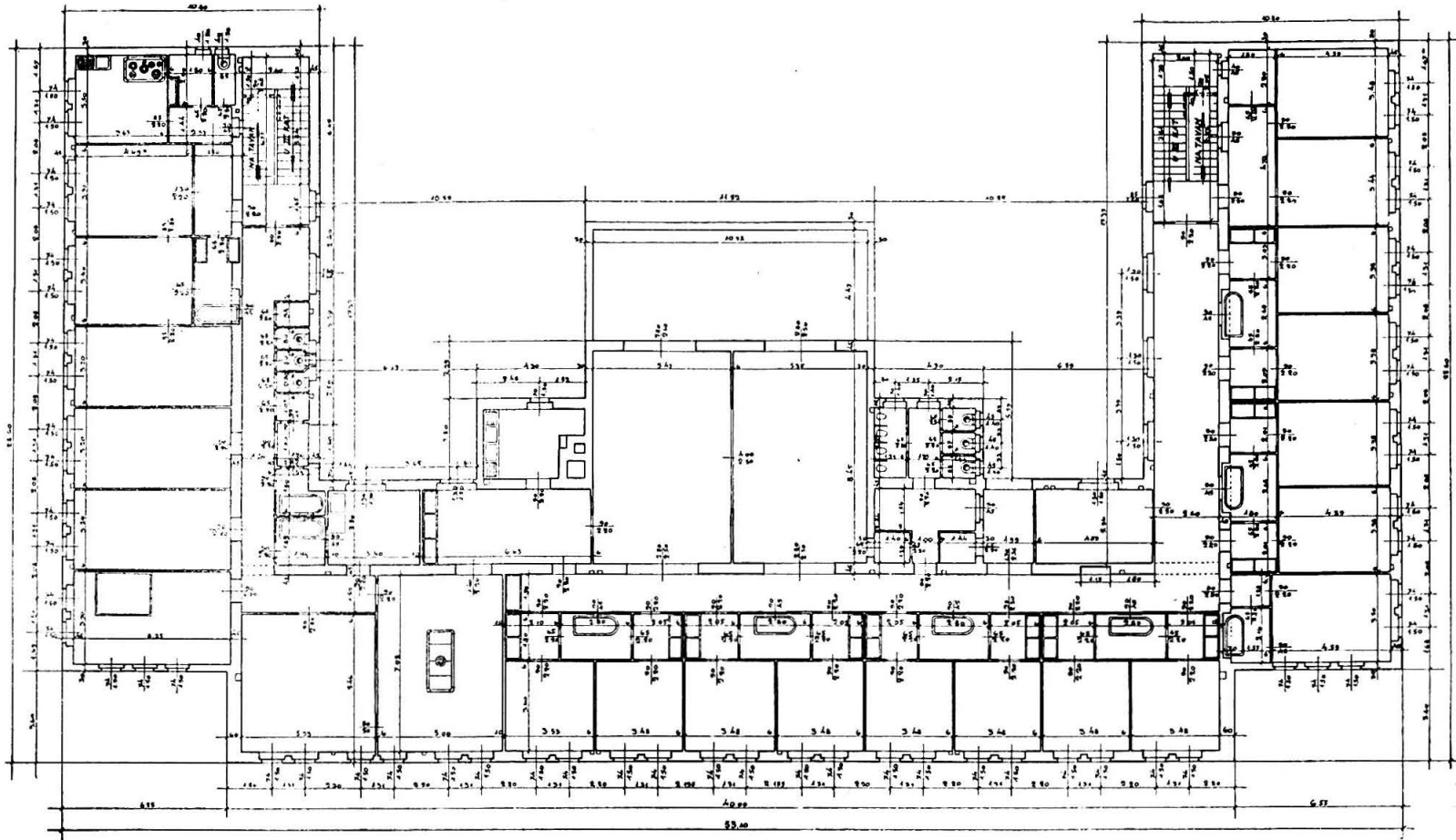


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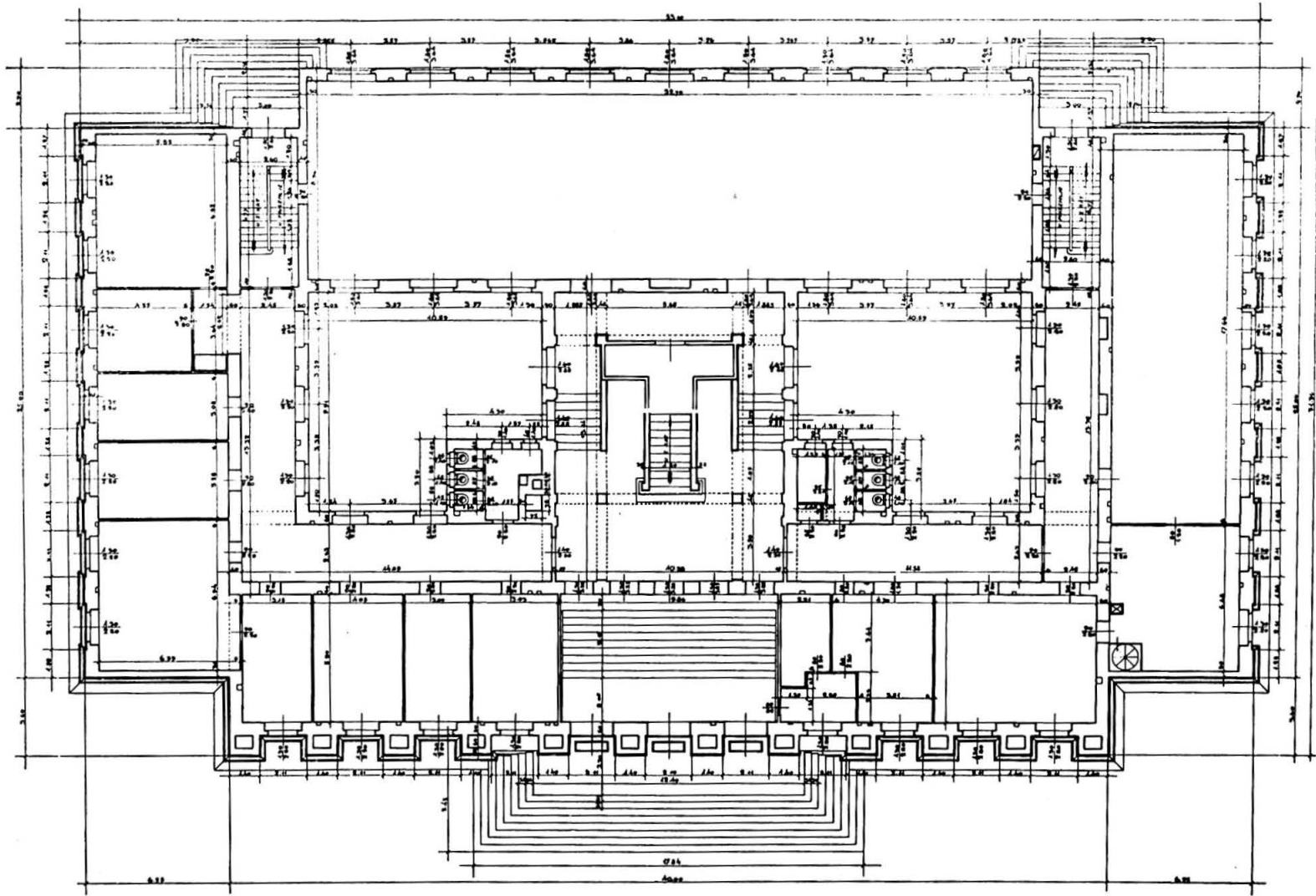
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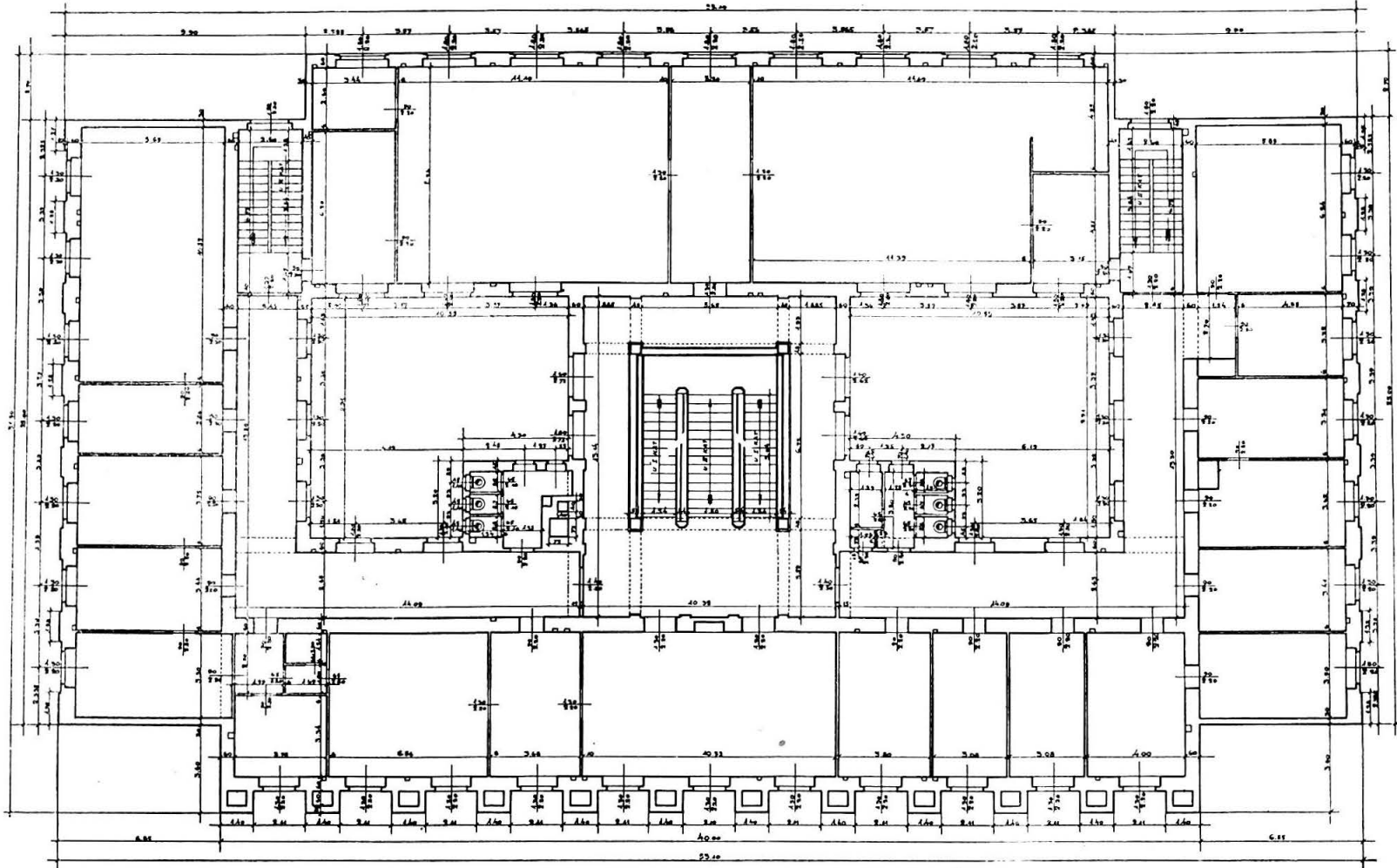
STATE SCHOOL OF HYGIENE, ZAGREB.  
Printing room for posters, etc.



STATE SCHOOL OF HYGIENE, ZAGREB.  
Basement.



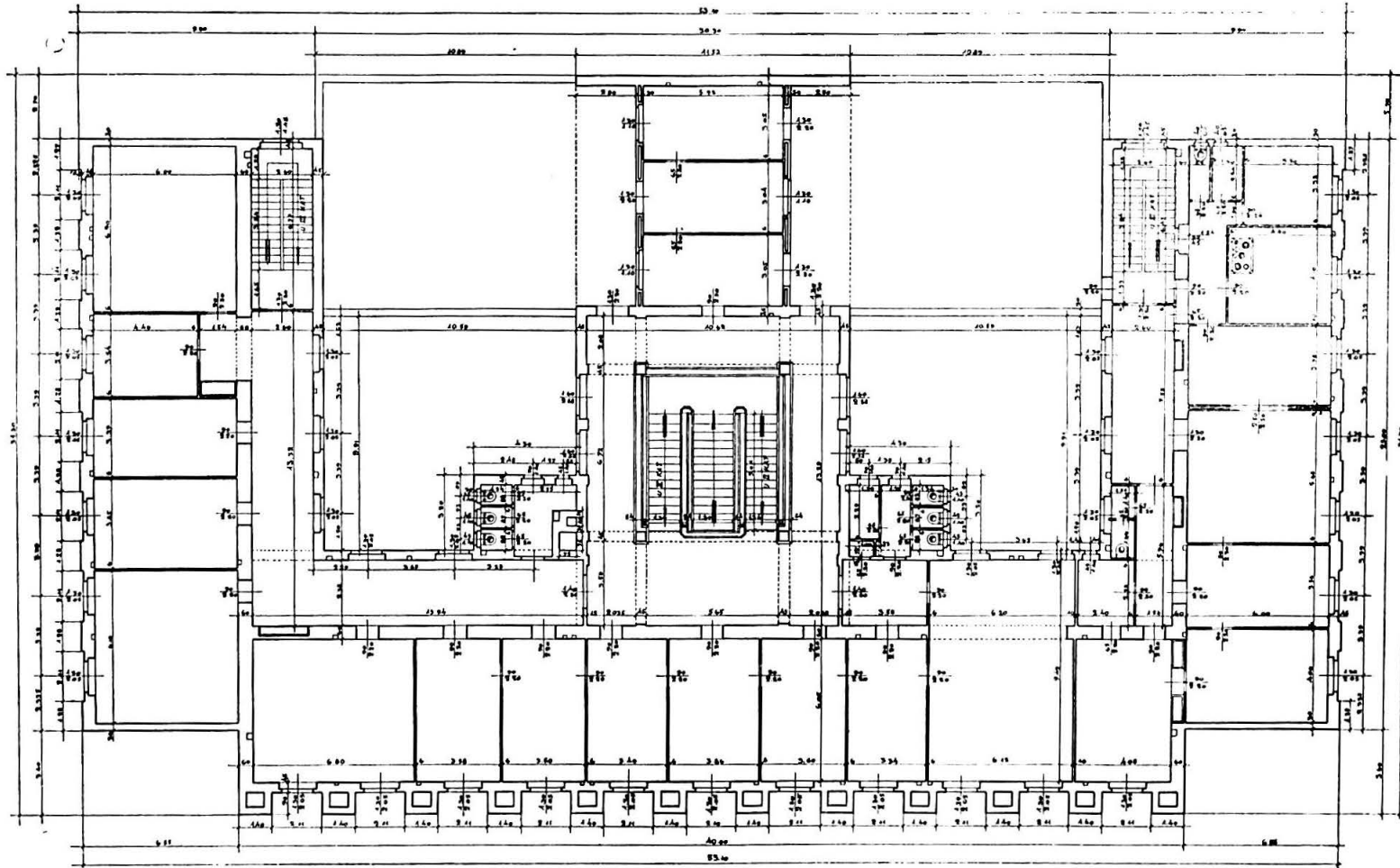
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Ground floor.



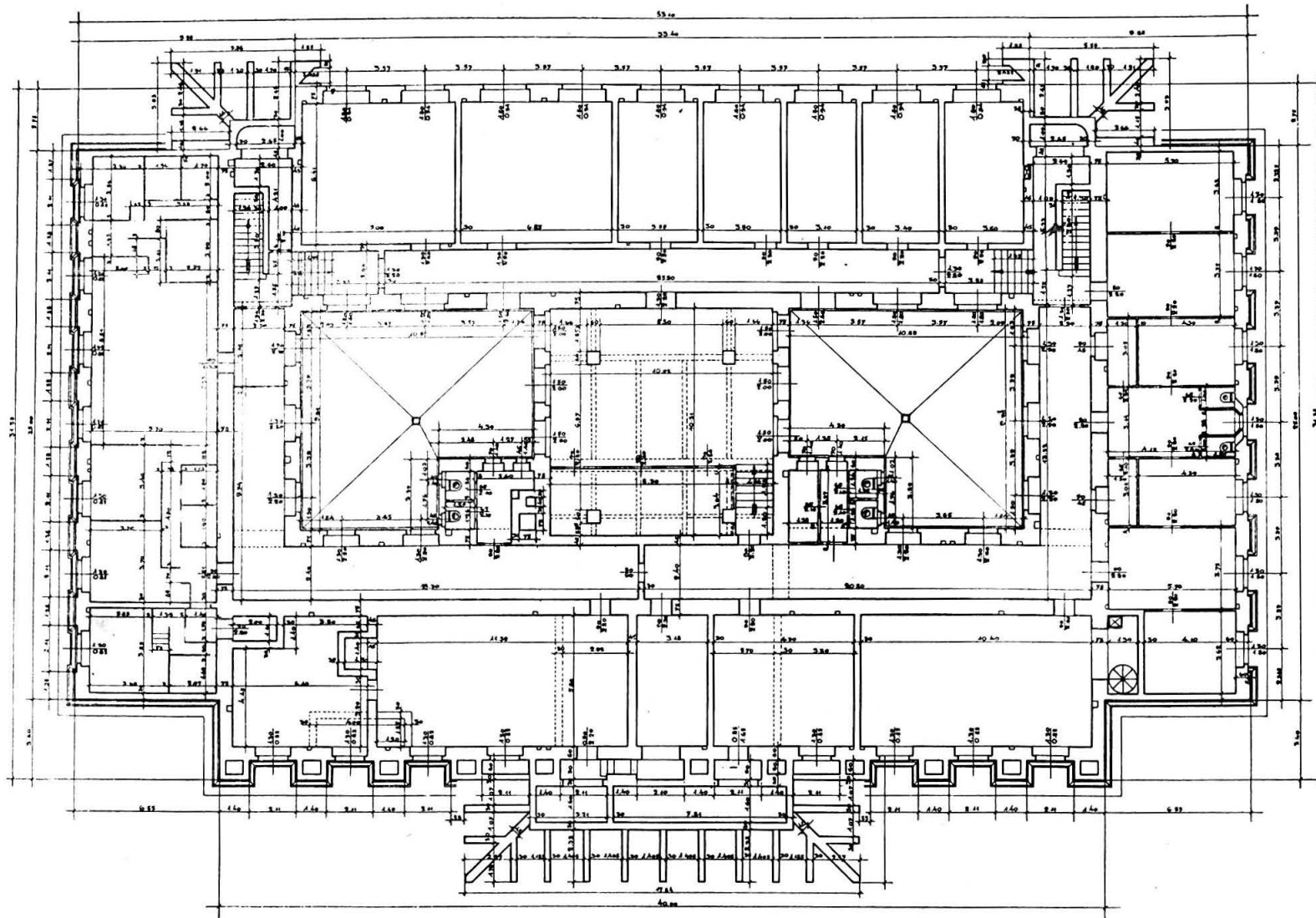
STATE SCHOOL OF HYGIENE, ZAGREB.

First floor.





STATE SCHOOL OF HYGIENE, ZAGREB.  
Second floor.



YUGOSLAVIA

STATE SCHOOL OF HYGIENE, ZAGREB.  
Third floor.