LEAGUE OF NATIONS

Health Organisation

EUROPEAN CONFERENCE ON RURAL HYGIENE

(June 29th to July 7th, 1931)

Volume I

RECOMMENDATIONS

on the

Principles governing the Organisation of Medical Assistance, the Public Health Services and Sanitation in Rural Districts

GENEVA, 1931

Price : 2/- $ 0.50

PUBLICATIONS OF THE HEALTH SECTION

EUROPEAN CONFERENCE ON RURAL HYGIENE

Report of the Preparatory Committee on the Principles governing the Organisation of Medical Assistance, the Public Health Services and Sanitation in Rural Districts. (Ser. L. o. N. P 1931. III. 7) . . . . . 2/— $0.50

MONTHLY EPIDEMIOLOGICAL REPORT

(French and English texts.)

The Service of Epidemiological Intelligence and Public Health Statistics, Health Section of the Secretariat of the League of Nations, receives current official reports on the prevalence of notifiable diseases from nearly all countries where such information is available. The information at present being regularly received and published in this periodical relates to 68 per cent of the world's population.

Annual subscription, 12 numbers 18/- $4.50
Per number 1/6 $0.40

Specimen copy sent free of charge on application.

WEEKLY EPIDEMIOLOGICAL RECORD

(French and English texts.)

The *Weekly Epidemiological Record* appears every Thursday evening; it averages 12 pages and contains information regarding the movement of plague, cholera, yellow fever, smallpox, typhus and any other diseases which may be an international menace at the time, such as influenza.

Annual subscription, 52 numbers . . 20/- $5.00

Specimen copy sent free of charge on application.

INTERNATIONAL HEALTH YEAR-BOOK 1929

Fifth Year.

REPORTS (WITH VITAL AND PUBLIC HEALTH STATISTICS) ON THE PUBLIC HEATH PROGRESS OF FORTY COUNTRIES AND COLONIES IN 1928. (Ser. L.o.N. P. 1930. III.8.) 1504 pages.

In wrappers. . . 24/- $6.00
Bound in cloth . 32/- $8.00

INTERNATIONAL HEALTH YEAR-BOOK 1928

Fourth Year.

REPORTS ON THE PUBLIC HEALTH PROGRESS OF TWENTY-NINE COUNTRIES (Thirty-five Public Health Administrations) in 1927. (Ser. L.o.N.P.1929.III.6.) 1172 pp.

In wrappers . . . 20/- $5.00
Bound in cloth . 25/- $6.00

INTERNATIONAL HEALTH YEAR-BOOK 1927

Third Year.

REPORTS ON THE PUBLIC HEALTH PROGRESS OF TWENTY-SEVEN COUNTRIES IN 1926. (Ser. L.o.N.P.1927.III.7.) 802 pp. . . . . Price: 16/- $4.00

INTERNATIONAL HEALTH YEAR-BOOK 1925

Second Year.

REPORTS ON THE PUBLIC HEALTH PROGRESS OF TWENTY-ONE COUNTRIES. (Ser. L.o.N.P. 1926.III.26.) 638 pp. . . . . Price: 16/- $4.00

INTERNATIONAL HEALTH YEAR-BOOK 1924

First Year.

REPORTS ON THE PUBLIC HEALTH PROGRESS OF TWENTY-ONE COUNTRIES (C.H.349). 501 pp. Price: 12/- $3.00

[*Distributed to the Council and the Members of the League*]

Official No.: **C.473.M.202.1931.III.**

Geneva, July 31st, 1931.

LEAGUE OF NATIONS

Health Organisation

EUROPEAN CONFERENCE ON RURAL HYGIENE

(June 29th to July 7th, 1931)

Volume I

RECOMMENDATIONS

on the

Principles governing the Organisation of Medical Assistance, the Public Health Services and Sanitation in Rural Districts

Series of League of Nations Publications

III. HEALTH

1931. III. 11[1]

CONTENTS

S. D. N. 1.315 (F.) 1.160 (A.) 8/31. Imp. Atar.

FOREWORD.

The *report* of the proceedings of the European Conference on Rural Hygiene is contained in two volumes.

Volume I is devoted to the *recommendations* made by the Conference.

Volume II contains the Minutes of the plenary meetings and committees of the Conference.

The present volume (*recommendations*) consists of an introductory chapter on the origin, objects and immediate results of the Conference and a series of chapters giving the resolutions of the Conference together with commentaries.

The resolutions adopted by the Conference are printed *in italics*.

The commentaries are printed in roman type. In drafting them, account was taken of the observations made during the discussion that took place in the *Report of the Preparatory Committee* (document C.H.1045).

CHAPTER I. — ORIGIN; OBJECTS; IMMEDIATE RESULTS OF THE CONFERENCE.

SUMMARY: 1. Historical. — 2. Problems. — 3. Methods. — 4. The Conference. — 5. Resolutions: (*a*) Principles of General Administration; (*b*) Means of Action; (*c*) Realisation; (*d*) Minimum Standards; (*e*) Subjects for Study; (*f*) Tendencies.

1. HISTORICAL.

In September 1930, the Spanish Government proposed to the Council that the League of Nations should convene at Geneva a Conference of representatives of European States for the purpose of a technical international study of rural hygiene, considered as one of the most important factors in the organisation of agricultural areas in Europe.

The Council accepted the proposal, and referred it to the Health Committee for technical study and report.

The Health Committee proposed that the provisional agenda of the Conference should be:

1. Guiding Principles and Suitable Methods for ensuring Effective Medical Assistance in Rural Districts.
2. The Most Effective Methods of organising the Health Services in Rural Districts.
3. The Sanitation of Rural Districts: the Most Effective and Economical Methods.

It also suggested that a Committee be set up to prepare for the Conference, and proposed the members of this Committee.[1]

These suggestions received the approval of the Council, and the Preparatory Committee met in October and December 1930 and in May and June 1931.

On its proposal, the Council decided that the Conference should meet at Geneva on June 29th, 1931, and that Professor Gustavo Pittaluga, member of the Health Committee and Director of the National School of Hygiene at Madrid, should be its President.

The Council also decided to invite the Governments of non-European States which had a special interest in rural problems to send observers to attend the Conference and hear the discussions.

On the proposal of the Preparatory Committee, the Council decided that its members should be at the disposal of the delegates during the Conference.

[1] The members of this Committee are:
Professor G. PITTALUGA (*Chairman*), Director of the School of Hygiene, Madrid;
Dr. H. CARRIÈRE, Director of the Federal Public Health Service, Berne;
Dr. A. LUTRARIO, former Director-General of Public Health, Rome;
Professor J. PARISOT, Director of the Institute of Hygiene, Nancy;
Dr. A. STAMPAR, Inspector-General of Health, Belgrade;
Dr. CHODZKO, Director of the School of Hygiene, Warsaw;
Professor Th. MADSEN, Director of the State Serum Institute, Copenhagen;
Mr. M. HESELTINE, Assistant Secretary, Ministry of Health, London;
Dr. C. HAMEL, President of the *Reichsgesundheitsamt*, Berlin;
Professor J. G. FITZGERALD, Director of the School of Hygiene and Connaught Laboratories, Toronto;
Professor V. PUNTONI (representing the International Institute of Agriculture), Rome;
M. A. TIXIER, Chief of the Section of Social Insurance, International Labour Office.
Dr. BOUDREAU, member of the Health Section of the League of Nations, acted as Secretary.

2. PROBLEMS.

The following subdivision of the items on the agenda was recommended to the Conference:

First Item.

Guiding Principles and Appropriate Methods for ensuring Effective Medical Assistance in Rural Districts.

A. *Personnel:*

1. The Doctor:

(*a*) The number and distribution of doctors in rural districts;

(*b*) Methods for ensuring an adequate number of doctors in rural districts:

(1) The law of supply and demand — no State or public regulation;
(2) Public medicine — every doctor a public official;
(3) Inducements offered to doctors to settle in rural districts;
(4) Organisation of social groups for medical treatment — health insurance, co-operatives, etc.;

(*c*) Economic and financial, transport and social conditions as they affect the distribution of physicians.

2. The Nurse.

3. Other Auxiliary Medical Personnel.

B. *Medical Institutions:*

Number, distribution and capacity of hospitals, dispensaries, etc., in rural districts.

Second Item.

The Most Effective Methods of organising the Public Health Services in Rural Districts:

A. *Form of Organisation:*

1. A complete State health service.
2. Local autonomy in health services.

B. *Method of Organisation:*

1. Older form (ordinary administrative form).
Part-time health officers in all political subdivisions with restricted legal powers and duties.
2. The "modern" form.
Full-time health officers in large districts with full responsibility for all health work.
The health centre and county health unit plans.

C. *Subjects to be considered under the Item:*

1. The most important health problem in the rural area (malaria, infectious diseases, etc.).
2. Infant and maternal welfare.
3. Welfare of the child of pre-school age.
4. School hygiene; welfare of the child of school age.
5. The campaign against tuberculosis.
6. The campaign against venereal disease.
7. Sanitation.
8. Popular education in hygiene.
9. Provision of medical treatment, including first-aid in urgent cases and supervision of transport of sick and accident cases.

D. *The Milk Supply:* Limited strictly to considerations which affect rural districts.

Third Item.

The Sanitation of Rural Districts: the Most Effective and Economical Methods.

A. *Water Supplies:*

1. Collective water systems for two or more villages.
2. Water supply systems for individual villages.
3. Water supply systems for individual houses: wells, springs, cisterns.

B. *Sewage and Refuse Disposal:*

1. Systems of sewerage and drains.
2. Night soil — the latrine, cesspool, sewers, sewer effluents.
3. Manure — pits.
4. Garbage and other refuse.

C. *Housing*, including living-in conditions of agricultural labourers:

1. Public buildings, schools, sanitary institutions (hospitals, etc.).
2. Private houses.
3. Settlements — model villages.
4. Administration; financial and economic aspects — loans, legislation, etc.

D. *Land Improvements* (Bonifications):

Minor and major sanitary improvements. — Drainage.

Limit of Studies:

These problems had to be studied in relation to rural districts only and, for the purposes of the Conference, the Preparatory Committee adopted the following definition:

> *"The term 'rural' refers to an area or a district where agriculture is the chief or even the sole industry, and where all other industries are of small importance and, in the main, dependent on agriculture."*

3. Methods.

The Committee referred to three groups of experts [1] the preparation of reports on the principles which should govern the provision of medical assistance, the organisation of the health services and the sanitation of rural districts.

These experts prepared and discussed some sixty reports on hygiene and health conditions in various European countries. The work of more than fifty experts in different branches of hygiene was thus brought together.

The Preparatory Committee drafted a printed report (document C.H.1045) based on all the work and reports of the Committees of Experts, and this served as a basis for the discussions of the Conference.

The Committee had recommended that the members of the various delegations to the Conference should be experienced in social questions, and representative of all the interests involved in rural hygiene — sanitary, agricultural, economic and social; including those of the agricultural employer and labourer. Each delegation had one vote. [2]

4. The Conference.

The Conference met on June 29th, 1931 in Geneva, under the presidency of Professor Pittaluga (Spain). Twenty-three European countries sent delegations [3]: Austria, Belgium, Czechoslovakia, Denmark, Finland, France, Germany, Great Britain, Hungary, Iceland, Italy, Latvia, Luxemburg, Netherlands, Norway, Poland, Portugal, Roumania, Spain, Sweden, Switzerland, Turkey, Yugoslavia.

Eight countries sent observers: [3] Bolivia, China, Colombia, Cuba, India, Japan, Mexico, United States of America.

The International Labour Office and the International Institute of Agriculture, Rome, given the Conference their co-operation.[3] The League of Red Cross Societies and the International Professional Association of Medical Practitioners were represented. [3]

The delegations of the European countries proceeded, in plenary meeting, to elect six Vice-Presidents and, in the Committees, a Chairman for each of the three Committees to which the three items of the general programme were referred. [4]

---

[1] The names of these experts are given in Volume II (Minutes).

[2] The full text of the Committee's proposals may be found in the documents: C.L.301.1930 (Annex); C.H.952; C.H.1037 and C.H.1045.

[3] The list of delegates is given in Volume II (Minutes).

[4] The following were the Vice-Presidents of the Conference and Chairmen of Committees:

Vice-Presidents:

Professor Konrich, Member and Adviser of the *Reichsgesundheitsamt*, Berlin;
Professor Léon Bernard, President of the Higher Council of Public Health, Paris;
M. Lutrario, Member of the Health Committee of the League of Nations and of the *Office international d'Hygiène publique* (Italy);
Dr. Chodzko, Director of the National School of Hygiene, Warsaw;
Dr. Carrière, Director of the Federal Public Health Service, Berne;
M. Fierlinger, Permanent Delegate of Czechoslovakia accredited to the League of Nations.

Chairmen:

First Committee (Medical Assistance): Dr. A. Shearer, of the Scottish Health Department;
Second Committee (Health Centres): Dr. B. Johan, Director of the National School of Hygiene, Budapest;
Third Committee (Sanitation): M. Vignerot, Chief Engineer of the *Génie rural*, Paris;

Dr. Rajchman, Medical Director of the Health Section of the League of Nations, assisted by Dr. Boudreau, member of the Health Section, acted as Secretary of the Conference.

The reports were read in plenary meeting and, after a general discussion, the three Committees met and took as a basis for their work the report of the Preparatory Committee.

At the request of the Conference, the Health Organisation of the League of Nations convened at short notice a meeting of the Directors of European Schools of Hygiene and requested them to consider to what extent these schools might undertake certain studies among those to be recommended by the Conference and to make suggestions on this subject to a fourth committee, which was at once set up under the chairmanship of Dr. Chodzko (Poland).

In accordance with the wishes of the Conference, the meeting of the Directors of European Schools of Hygiene, under the chairmanship of Professor Léon Bernard, decided to request the Schools of Hygiene and various research institutions to study certain problems of a technical and practical nature connected with rural hygiene (see Chapter V).

The reports of the four Committees were adopted unanimously and, taken together, constitute the resolutions of the Conference, which was closed on July 7th, 1931.

5. Resolutions.

The resolutions really constitute a series of *recommendations*. They are thus, in a very summary form, a valuable and practicable guide to efficient and economical rural health administration.

This guide will be useful, not only to health administrations, but also — and its value is thereby increased — to general administrations and to all circles concerned with carrying out health policy: public authorities, agricultural associations, the medical profession, social insurance institutions and private organisations. It defines the part played by each of these in the promotion of public health.

(a) *Principles of General Administration.* — Although they do not form the subject of any special chapter and are even not always formally expressed, there are certain fundamental principles on which all the resolutions of the Conference are based. They are at the basis of every administration. The first is the principle of the greatest efficiency combined with the greatest economy. This *principle of maximum efficiency* was the notion which governed the whole Conference. Its corollary is the *division and technical value of the work done.* Division by area is intended to bring into direct touch with the scattered rural population a staff and institutions which are as many-sided as possible. A functional division is intended to place at the disposal of such a population over a wider area a specialised staff and specialised institutions. The technical value of the work calls for a qualified staff and an up-to-date and complete equipment.

Another corollary of the principle of maximum efficiency is the *principle of co-ordination and unity of action,* which presupposes the existence of the organisation (staff and institutions) necessary to avoid the waste and inefficiency due to duplication and gaps.

Finally, all the recommendations of the Conference were inspired by the *principle of adaptation to local conditions,* with the notion of the expediency of the action undertaken and the effort to discover the best solution in each particular case.

(b) *Means of Action.* — Like the *principles of administration,* the *means of action* recommended by the Conference are few in number and are not the subject of a special chapter. Nevertheless, they are an essential consideration in the whole of the *resolutions.* Reference is continually made to them, whether the subject is the provision of medical assistance, the organisation of public health services or sanitation.

Three of these fundamental means of action are, in a certain sense, specific:

(1) *Education*; (2) *Financial and technical assistance*; (3) *Supervision and sanctions.*

Education — and more particularly health and technical education — is recommended in all its forms: school instruction, propaganda, model buildings, health installations (shower-baths) at the disposal of the public, etc. It concerns the child, the future farmer and the future schoolmaster, as well as the population as a whole, and the technician (health personnel, engineers, building contractors, well-sinkers, etc.). The discussions brought out the importance of education and *general instruction* in rural centres (professional schools and continuation schools in Denmark).

Financial assistance also assumes many forms — *e.g.*, subsidies and long-term loans at low rates of interest. It concerns the local authorities as well as associations and individuals. It should be given in such a way as to stimulate the efforts made by local authorities or associations and also individual efforts (self-help). If it is to be efficient, it must be combined with *technical assistance* and *technical supervision* — and supervision that is not backed by sanctions is valueless.

A judicious system of *legislation* must rely on these three fundamental means of action to hasten practical results in the health sphere.

A few other means of action, less direct but not less important, are mentiond in the *resolutions*. The Conference recognised, for instance, that *economic conditions* constitute a preponderating factor in public health matters, and specially stressed the hygienic value of the land improvements known as *bonifications* (the double object of which is the improvement of a district from both agricultural and health points of view). This is an example of the law of mutual action and reaction, for a raising of the standard of life influences public health, and the improvement in public health reacts on the working capacity of the people and on their way of life.

The *resolutions* frequently draw attention also to the way in which *means of communication* influence the efficient organisation of different health services.

(c) *Practical Organisation.* — On the practical side, the Conference recommended the application of the principle of unity of action and solved the problem of *unity o-direction* by suggesting the co-ordination and, in certain cases, even the marked *centraf lisation of the responsibilities* falling on the medical officer of health.

To determine the relationship between the *central authority* and the *local authorities*, an *optimum equilibrium* between centralisation and decentralisation was recommended. *Gradual decentralisation*, corresponding to their stage of evolution, is approved in favour of the local authorities, but the central authority always retains its *right of supervision.*

There are two preliminary stages before any rational and effective action can be taken: (1) the *study of local conditions* and (2) the *preparation of the scheme.* The recommendations define the object of, and lay down certain rules for, the *preliminary study* (survey) and the *programme of work* in health matters.

The parts played by the different groups concerned in the study, preparation and execution of the health programme were considered by the Conference, and its recommendations define the respective duties of the *public authorities*, the *medical profession*, *health insurance institutions* and *private agencies* in the promotion of public health. Co-operation between the public authorities and these different groups is recommended by the Conference, which defined the procedure for such co-operation as a very effective and economical means of health organisation.

(d) *Minimum Standards.* — Subject to the application of the principle of adaptation to local conditions, the Conference prescribed certain minimum standards. Most of these standards relate to the *number, distribution and technical ability of health personnel and*

institutions (practising physicians and hygienists, nurses, sanitary engineers, sanitary inspectors, laboratory technicians, etc.; hospitals, centres of diagnosis, health centres, laboratories, etc.). Definite standards were also prescribed in connection with questions relating to sanitation, and in particular certain *rules were given for the purification of water supplies and the disposal of sewage.*

(e) *Subjects for Study.* — Amongst the subjects the study of which was recommended by the Conference, some relate to *the training of health personnel* and others to the *housing conditions of agricultural workers,* whilst one, less general in scope, is concerned with the *rapid transport of the sick.*

Special reference must be made to the problems the study of which was entrusted to different schools of hygiene and research institutions, since they direct the work of those organisations towards the essentially practical aims of the Conference itself. These schools and institutes will, for instance, study the *cost of public health services* in relation to their efficiency in several rural districts, the object being to show that economies can be effected by the rational application of the principles of organisation recommended by the Conference.

Problems connected with *milk, typhoid infections, manure and flies,* will be approached along the same lines — that is to say, their solution will fall into three stages: (1) *observation of the facts*; (2) *remedies proposed*; (3) *demonstration* by experiment on the spot of the efficiency and economy secured by the application of the remedies suggested.

(f) *Tendencies.* — The foregoing clearly shows the tendency towards *rationalisation* of health organisation based on that *utilitarianism* which was the primary object of the Conference. This appreciation of the utilistarian goes beyond the mere effort to secure maximum efficiency with minimum outlay. During the discussion, the idea was advanced that rural hygiene "pays" — that is to say, its rational organisation should result in real economies being achieved by public bodies.

The Conference recommended that the public authorities and groups concerned should take action for the solution of health problems. Such action is a duty, and this *interventionist* tendency increasingly limits the application of the doctrine of *laissez faire,* which even recently found many supporters. At the same time, there is a tendency to *extend the health responsibilities of public bodies and of individuals,* and, although the idea was not formally expressed, it cannot be doubted that the Conference recognised that rural populations have as good a *right to health* as children or urban populations. The Conference thus constituted one of the many manifestations of the international interest that is being shown in rural populations as a result of the crisis in agriculture.

* * *

Amongst the immediate results of the Conference, the fact that it directed the attention of public authorities and public opinion to the conditions of rural populations is not one of the least important.

Moreover, in each country taking part, the preparation for the Conference led to investigations and efforts to find new solutions for health problems and, finally, it resulted in valuable co-operation between the various services and groups concerned. Much valuable information was thus collected. The work of the experts and of the Preparatory Committee, followed by the discussions in the Conference, made it possible to compare the experience of different countries. The recommendations of the Conference are, in a very condensed form, the essential result of that comparison. These recommendations were

adopted *unanimously*, and thus have a moral weight and authority which will constitute a valuable support for the action of national and local health administrations.

In point of fact, the recommendations go far beyond the European limits originally assigned to the Conference, and their value for certain oversea countries was recognised by the observers appointed by those countries (Japan).

The Conference was both a happy attempt at co-operation between the representatives of the different professions and groups concerned and also a proof of the value and possibility of such co-operation. For the first time on such a scale, collaboration was witnessed between the representatives of public assistance, health insurance, agricultural associations, the medical profession and scientific agriculturists, architects, hygienists and engineers. "The Rural Hygiene Conference has furnished a striking illustration of the fruitful results of such collaboration, and this collaboration, begun under the auspices of the League of Nations, should be continued and extended."

The Conference was anxious to ensure the continuance of its work and the development of the first results of its recommendations. Before closing its discussions, it recommended that a new Conference on rural hygiene should be convened in five years' time to examine the results achieved and to adopt its recommendations to current problems and to the progress of public health technique.

CHAPTER II. — MEDICAL ASSISTANCE.

"Guiding Principles and Suitable Methods for ensuring Effective Medical Assistance in Rural Communities."

SUMMARY: 1. Definition. — 2. Number of Doctors. — 3. Pharmacists. — 4. Nurses. — 5. First-aid Personnel. — 6. Centres of Diagnosis; Liaison. — 7. Hospitals; Means of Transport and Communication. — 8. Laboratories. — 9. Specialists; Liaison. — 10. Means of Realisation: (*a*) Collaboration; (*b*) Part played by Public Authorities; (*c*) Health Insurance; (*d*) Public Assistance.

1. *"In the largest sense, effective medical assistance may be considered as indicating a medical service organised in such a way as to place at the disposal of the population all the facilities of modern medicine in order to promote health and to detect and treat illnesses from their incipiency."*

Medical assistance must be concerned with the promotion and preservation of health as well as with the treatment and cure of disease. The importance of both aspects was emphasised by the Conference, which agreed that prophylaxis of disease was destined to receive more and more consideration.

2. *In order to furnish effective medical assistance to the rural population, the Conference is unanimous in the belief that* 2,000 *is the maximum number of persons who can be given proper medical attention by a duly qualified medical practitioner, on the understanding that, in proportion to the growth of the health services and the needs of the people, this number may be reduced to* 1,000.

The Conference recognised that the number of persons and the area which a physician might serve would vary considerably in accordance with local conditions, such as the distribution of the population, means of communication and transport, etc. As far as the number of persons was concerned. it was guided by information furnished regarding European countries. In Germany, for example, there is, on the average, one physician to 2,317 persons in rural districts, while in cities the proportion is one physician to 786 persons. In Italy, there was in 1930 one *medico condotto* to 3,603 inhabitants (not exclusively rural). This proportion is established in relation to the population of the whole country; but, when account is taken of that part of the population which has no recourse to the *medici condotti,* the number of persons served by each *condotta* is far less and approaches the standard proportion.

In Spain the *medico titular* cannot assume charge of more than 300 families (indigent). In extending the German system of health insurance to rural districts in 1914, insurance institutions and physicians agreed that one physician might suffice for the needs of 1,000 members.

In spite of the motor and the telephone, the average area served by a physician in rural districts in Germany declined from nearly 40 square kilometres in 1876 to about 10 in 1929.

Local conditions play such an important part in determining the area which a physician is able to cover, and this varies so considerably, even in a single country, that the Conference did not consider it feasible to make any general recommendation on this subject.

In making this recommendation, the Conference took into consideration only physicians duly licensed to practise medicine according to the laws of the State.

The need for the physician practising in rural districts to keep pace with the progress of modern medicine was emphasised, and various methods of making this possible were discussed. In one German State, a number of young doctors are employed to act as *locum tenens* for the rural practitioner who desires to take a post-graduate course. Lectures for physicians are also broadcast by wireless. Rural doctors who have access to hospitals are enabled to keep in touch with the progress of medical science by this means. The training of doctors in hygiene is insured in Yugoslavia by compulsory lectures and work at the Institutes of Hygiene before graduation. In Italy the *medici condotti* are entitled to periods of leave for the purpose of postgraduate courses. Scholarships are sometimes given for the study of certain "social" diseases.

The recommendation as to the number of persons who could be cared for by a rural doctor assumed that the district was suitably provided with medical and health institutions and that the morbidity was normal. The absence of medical and sanitary personnel and facilities would, of course, reduce the potentialities of the doctor, while an abnormal sickness rate would necessitate a larger number of physicians.

The effective work of a properly organised public health service would increase the demand for the doctor's services, and so reduce the maximum number of persons to whom he could give proper attention. This would result from the increased popularity of measures of personal prophylaxis (vaccination against various diseases, for example) as well as the reference to doctors of persons discovered by the Health Services to require treatment for incipient disease and defects.

3. *It is desirable that the number and distribution of pharmacists, and doctors who dispense their own drugs in rural districts should be such as to ensure that all medical prescriptions may be furnished rapidly to the rural population.*

In France, in the communes not possessing pharmacies, the law authorises doctors to deliver medicines to their patients, but they are not allowed to keep open laboratories.

The Conference merely emphasised the importance of prompt and accurate execution of medical prescriptions, whether of a pharmaceutical nature or not.

4. *Such medical assistance also requires a technically qualified auxiliary personnel comprising one or more nurses, or, provisionally, in the absence of qualified nurses, other persons possessing the minimum necessary technical training. However, it is essential that this auxiliary personnel abstain from all medical treatment, such treatment being only permissible under the direction of a qualified medical man.*

This recommendation refers to certificated public health nurses (health visitors), bedside nurses, midwives, etc.

Public health and visiting nurses are becoming increasingly numerous in nearly all countries. In 1930, there were 2,403 public health nurses in France of whom 894 were tuberculosis nurses, 1,053 child-welfare nurses, and 456 "generalised" nurses. Nurses employed by industries are not included in these figures.

In Germany, there are public health nurses (*Fürsorgeschwestern*) in the rural districts (*Kreis*) and visiting nurses in even the smallest rural communes (*Gemeindeschwestern*). The latter assist the former in their health work, but their principal task is to nurse the sick. The visiting nurse is employed by the commune and voluntary associations, but health insurance institutions contribute largely to their support.

In England, nurses are employed by the local authorities at such institutions as infectious diseases hospitals, hospitals and dispensaries for tuberculosis, treatment centres for venereal diseases, maternity hospitals and consultation centres for infant welfare, and at general hospitals when provision is not made by voluntary bodies. They are also employed for school medical work; nursing service is provided as part of the maternity and child-welfare scheme, and home nursing is arranged for certain infectious diseases in young children. Nursing service for members is also one of the additional benefits which approved insurance societies may provide out of surplus funds. In sparsely settlep rural districts the duties of district nurse and midwife have been combined.

The recommendation that there should be one or more nurses refers to the number of persons attended by one physician in rural districts.

Midwives. — In 1930, there were 1,376 midwives of the first class and 10,026 of the second class in France. This is nearly half the number of practising physicians. Only in a few of the most remote rural districts in France are trained midwives lacking.

The annual report of the (English) Ministry of Health for 1929-30 states: "Eighty-two per cent of the rural population of England is now provided with the services of trained midwives, as compared with 68 per cent in 1921 ".

In Spain, every municipality is obliged to employ a midwife for the care of indigent pregnant women. In Italy, the midwife *condotta*, duly qualified, is employed by the commune, which is required by law to provide obstetrical care to women on the list of indigents. Midwives have performed good services in Italy in pre-natal care and in the prevention of puerperal fever, which occurs much less frequently to-day. They must take a three-year university course before becoming certificated, and are specially trained in child welfare by the *Opera nazionale per l'infanzia.*

In Germany, private practice is almost the general rule, but the commune frequently guarantees the midwife a minimum salary. The heavy decrease in the birth-rate in Germany, even in rural districts, has led to a decrease in the number of midwives from more than 33,000 in 1876 to 27,484 in 1929, or from 7.72 to 4.29 per ten thousand inhabitants. There is a larger proportion of midwives in Germany in rural districts than in cities: 2.92 in cities, 5.93 in rural districts per 10,000 inhabitants.

All midwives referred to above are duly qualified and licensed according to the law of the State in which they practise. In many European countries, the midwife is an employee of the commune. In view of the recommendation of the Budapest Conference[1] concerning the aid which midwives may render to the public health nurses in certain specified nursing activities (the new-born), the practice in England of combining the duties of nurse and of midwife is of interest.

The last phrase of the recommendation, in regard to less qualified personnel, refers to temporary conditions in remote rural districts and less well-developed countries. In nearly all European countries, untrained midwives have disappeared or are disappearing.

---

[1] Conference on Rural Health Centres. See the composition of Chapter III of Annex I of the second volume (Minutes)

5. *It is recommended that, in the smallest rural settlement, the patient should be able to find a person capable of rendering first aid and of carrying out the doctor's orders.*

Doctors and nurses are not stationed in remote and inaccessible rural settlements (mountain villages, etc.) and frequently these settlements have high accident rates on account of the occupations of the inhabitants. The first aid required can be furnished by persons with some slight training, such as former stretcher-bearers (Germany), students of Red Cross classes, etc. The Conference considered that such a service should be organised systematically in every rural settlement in such a way that it could be made available immediately the need arose.

6. *The rural population and rural doctors should be in a position to utilise the services of centres of diagnosis and, if necessary, of specialised treatment; such centres should be suitably equipped and provided with a qualified staff; anti-tuberculosis and anti-venereal dispensaries, etc.*

These services should maintain liaison with the patient's physician, who should be informed of the results of the examinations, or, if necessary, kept in touch with the treatment and its results.

These centres exist in nearly all European countries, for various purposes, maternal and infant welfare, tuberculosis, venereal diseases, cancer, school hygiene, etc. They are organised by the health authorities as a rule, but sometimes by private agencies. They are equipped with X-ray and other special apparatus and staffed by specialists. The Budapest Conference[1] considered that these and other rural health activities should be combined and co-ordinated in the interests of economy and efficiency.

There was no divergence of opinion in the Conference concerning the value of the services rendered by these centres, but the discussion revealed fundamental differences in the different countries concerning the part they should play in giving treatment. In Germany, for example, they give no treatment whatever; in France, anti-venereal treatment alone, while, in some countries, all necessary specialised treatment is furnished.

In Italy, the centre of diagnosis is often annexed to a dispensary or a sanitary station as well as to a hospital. Once the diagnosis is made, the patient receives appropriate treatment.

The representatives of health insurance institutions laid special stress on the necessity for the staff of these centres to keep in touch with the patient's physician, and to inform him of the results of the examinations and treatment, so that, when the patient came under his care again, he would be in a position to continue the treatment properly.

7. *Rural medical assistance also implies facilities for hospitalisation in appropriate suitably-equipped institutions.*

It is recommended that there should be such a hospital for a population of from twenty to thirty thousand people, a rational organisation requiring about two beds per thousand of the population.

However, each such institution should have not less than some fifty beds.

Permanent means of communication (telegraph, telephone, etc.) and constantly available means of transport should be at the disposal of patients and doctors to permit of rapid hospitalisation in urgent cases.

In the view of the Conference, suitable equipment for hospitals should include X-rays, a small laboratory, sterilisation apparatus, isolation, dressing and operating-rooms and

[1] Conference on Rural Health Centres. See the composition of Chapter III of Annex I of the second volume (Minutes).

instruments. These hospitals should have outdoor departments to which doctors could refer their patients for special examination and treatment. The question of small hospitals was thoroughly debated. There was agreement on the need for one hospital bed for every four or five hundred inhabitants, but it was the opinion of all that hospitals with less than approximately fifty beds are too small to function properly and the overhead cost is too great.

Obviously, the restriction of hospitals to institutions with not less than fifty beds would make difficult the provision of hospital facilities in certain remote rural districts. This difficulty is overcome in certain countries (Yugoslavia) by having a few beds at the health centre in districts where hospitals are not available, a practice which received general approval.

Methods of communication in the rural districts of European countries have progressed rapidly in recent years. Special arrangements are made in France for the use of the telephone in case of sickness or accident at night or on days when the exchange in remote rural villages is closed. In Germany, a public telephone is almost always available. In Italy, the "sanitary stations" of the *Agro romano* and of the Red Cross are equipped with several beds for preliminary attention, a vehicle for transporting the patients, and a telephone for communication with the town.

The Conference stressed the importance of having suitable means of transport instantly available, not only for purposes of hospitalisation, but also to bring the patient to the physician's consulting-room in case of accident or sudden illness. It particularly emphasised the utility of telephonic communication being always available, even at night and on public holidays.

8. *Rural medical assistance should utilise the services of laboratories.*
Simple examinations and analyses may be carried out in the hospital laboratories.
More complicated examinations and analyses (bacteriological, pathological, serological, etc.) should be carried out in large, specially-equipped laboratories.

Examples of the simple examinations and analyses referred to are: Examination of sputum for tubercle bacilli; analysis of urine for albumen and sugar; blood counts, etc. In France and one or two other countries, these are frequently carried out by qualified pharmacists. In Italy, the examinations are usually carried out in laboratories situated in the provinces or in the towns or those annexed to clinics, hospitals, dispensaries, "sanitary stations", etc. Recourse is sometimes had to qualified pharmacists.

The Conference agreed with the recommendation of the Conference at Budapest[1] that, instead of attempting to provide for the carrying out of more complicated laboratory work in rural districts, it would be better to concentrate such work in large, properly equipped, suitably staffed laboratories at a few centres. Specimen containers should be available to doctors throughout the rural districts and rapid means of transporting these to the laboratories should be provided. Such containers should be placed where they would be most accessible to doctors — for example, in health centres and pharmacies. In Italy, specimen containers are distributed throughout the country for the sending of samples (water, food matter, etc.) to the laboratory. Special facilities are granted for the rapid transport of these samples.

---

[1] Conference on Rural Health Centres. See the composition of Chapter III of Annex I of the second volume (Minutes).

The cost of laboratory examinations should be as low as possible, so that their use may be encouraged, and, in the case of examinations of public interest, the health authorities should bear the cost.

The Conference emphasised the importance of living tissue (biopsy) and post-mortem (autopsy) examinations in the interests of better diagnosis (cancer, for example) and the education of physicians.

Large, well-equipped laboratories are established in one group of countries by the public authorities (Germany, for example) and in another group (France, the United States of America) by private initiative. In Italy, no laboratory may be opened without the special authorisation of the prefect after a favourable inspection by the county doctor.

There is a laboratory in each county town in the provinces of Italy (92). In the big towns, there are also municipal laboratories which serve small communes within a certain radius. There are also laboratories annexed to university institutes, hospitals, "sanitary stations", etc., as well as private laboratories approved by the State. The general health administration possesses travelling chemical and biological services which can be used in time of need (epidemics). In Spain, there are institutes of hygiene in each province, which are equipped and staffed in such a way as to make laboratory diagnoses available in rural districts. These institutes have also a number of branches.

9. *Rural medical assistance should also be able to utilise medical specialists. The specialists should keep in touch with the patient's doctor, informing him of the results of the examination and of the treatment and its results.*

The difficulty of providing specialist medical service to rural populations was appreciated by the Conference. Specialists cannot be expected to settle in sparsely-populated rural districts. Special measures must be applied to provide for such services.

This is done by the health authorities in the case of certain diseases — tuberculosis, venereal diseases, diseases of infancy and maternity, cancer, etc. The provision of specialist service in hospitals serving rural districts is another method, calculated to supplement the services provided by the health authorities, by the provision of surgeons, gynæcologists, oculists, aurists, dentists, etc. Specialists in these diseases may come from large cities to the hospitals at fixed periods.

The *governatorato* of Rome has established periodical consultations given by specialists (ophthalmology, oto-rhino-laryngology, venereal and nervous diseases) in the surrounding districts, and throughout the whole country anti-venereal, anti-trachoma, anti-malaria, etc., dispensaries give special treatment.

In view of the fact that such specialists come to rural districts only occasionally, it is essential that the general practitioner should be informed of the results of specialist examinations and treatment.

10. *Means of Realisation.*

A. Principles of Collaboration. — *The realisation of effective medical assistance in rural districts demands the collaboration of the public authorities — health and welfare (assistance) — of the medical profession, of health insurance institutions, of mutual benefit associations (sanitary, co-operative, etc.), of private agencies, etc.*

B. The Public Authorities. — *The public authorities should ensure that the entire population benefits from an effective medical assistance. By means of a rational organisation of the health services, adequately staffed with specialists, they should attempt to develop the preventive tendencies of rural medical assistance.*

In the interest of effective medical assistance, it would also be desirable for the public authorities to seek to organise a rational and co-ordinated health programme on a territorial basis, taking account of local conditions.

The public authorities should stimulate, assist and co-ordinate the efforts of agencies and groups which attempt to realise effective medical assistance. They should seek to fill the gaps and avoid the duplications which may occur in the organisation of this assistance.

C. Health Insurance.[1]— *The Conference considers that, when health insurance applies to the entire body of agricultural labourers, it permits the realisation of effective medical assistance in rural districts under the best conditions.*

D. Public Assistance. — *Nevertheless, where health insurance has not yet been established, rationally organised free medical assistance may intervene usefully in completing a system which partially satisfies the needs of rural populations.*

Economy and efficiency require that the work of the agencies concerned in the provision of medical assistance should be co-ordinated.

The public authorities have the general responsibility for the provision of effective medical assistance, and it is their duty to organise the health services.

Health Insurance.[1] — The important rôle played by health insurance institutions in providing effective medical assistance in rural districts was emphasised. In countries where such a system applies to all agricultural labourers:

(1) A sufficient number of qualified physicians is attracted to rural districts and they are assured of a sufficient compensation; the insurance institutions employ only qualified doctors.

(2) As the insurance institutions pay all hospital expenses and their members occupy 80 per cent of the beds, the financial support of hospitals is assured.

(3) Reserve funds of insurance institutions are used to enlarge hospitals when necessary, and are loaned to build new hospitals when public funds do not suffice.

(4) These institutions also pay the expense of the necessary laboratory examinations, thus aiding in the support of laboratories.

(5) The cost of transporting the assured to the hospital is borne by the insurance funds.

These advantages refer specifically to German rural health insurance, but they also apply in general to other countries with similar systems.

(6) Health insurance institutions give the mass of the population an interest in medical assistance and prophylaxis which makes of them admirable agencies for popular education in hygiene.

Public Assistance. — In almost all European countries, there are systems of public assistance providing medical attention gratuitously to the indigent. In France, the system, which is on a communal basis, permits free choice of physician, transport and laboratory expenses, treatment in the home or in the hospital, specialised treatment, etc.

[1] See in the Annexes to Volume II (Minutes) the report submitted to the Conference by the International Labour Office: "Sickness Insurance as a Factor in Rural Hygiene ".

In 1928, more than three hundred million French francs were spent for such assistance by communes, departments and the State.

When rationally organised, and in the absence of health insurance, this system is useful in providing medical assistance to a part of the rural population.

Methods of ensuring Effective Medical Assistance to the Entire Rural Population. — In some countries, this is done by means of health insurance — Germany (60 per cent of the population), England, France, etc. Public assistance in all three cases applies to non-insured indigents. In other countries, reliance is placed on public assistance alone.

In Italy, the system of *medici condotti* is employed; these are doctors appointed by examination to treat the indigent, who alone are entitled to free medical treatment and medicaments. Out of 20,000 doctors, more than 10,000 were *medici condotti* in 1930. In Spain, there is the *medico titular*. Spain is predominantly agricultural; there are 14,367 doctors living in 5,700 of the 12,000 communes. There are also assistant practitioners of medicine and surgery who are given two-year courses and must work under the direction of qualified doctors.

Methods of attracting physicians to rural districts in various European countries are:

(1) Employment by health insurance institutions;

(2) Employment by public assistance to treat the poor;

(3) Employment by the health authorities for vaccinations and other preventive work — maternal and infant welfare work, school inspections, etc.;

(4) Employment by the authorities to treat the people in remote rural districts (highlands and islands of Scotland);

(5) Provision of minimum salary — lodging, transportation, payment of mileage, payment of medical school fees on condition that the recipient will undertake rural practice for a given period;

(6) Employment by private agencies.

Some of these methods are also used to ensure sufficient nurses and midwives in rural districts.

The distribution of physicians in nearly all European countries is also affected by the law of supply and demand.

In Italy, an endeavour was made to attract doctors to the country by raising their salaries and by limiting free treatment to the indigent. The doctor is entitled to a pension on retirement, and, in case of death by an infectious disease contracted during service, orphans are provided for by the State.

The Conference considered that the rôle of the central health authorities in respect of the provision of effective medical assistance must vary with the development of the country — the less developed the country, the greater the need for intervention.

The public authorities should have the principal responsibility for establishing hospitals and laboratories where none exist; if prices for laboratory examinations are too high, the authorities should intervene by means of subventions, etc. The greater the number of doctors, the less need will there be for auxiliary medical personnel apart from nurses and midwives.

CHAPTER III. — PUBLIC HEALTH SERVICES.

"The Most Effective Methods of organising Health Services in Rural Districts."

SUMMARY: A. General Considerations: 1. Gradual Decentralisation. — 2. The Medical Officer of Health; His Status. — 3. His Field of Action. — 4. His Responsibility: Unity of Direction. — 5. Minimum Personnel. — 6. The Sanitary Engineer. — 7. The Health Programme. — 8. Committees for Propaganda and Co-ordination. — 9. Budget. — 10. Source of Funds. — 11. Co-operation with Health Insurance Institutions. — 12. Co-operation with the Medical Profession and Private Agencies. — 13. Co-operation with Agricultural Advisers and Associations. — 14. Education.

B. Rural Health Centres: 1. Definition. — 2. Relations with the General Health Organisation. — 3. Adaptation to Local Conditions. — 4. Two Chief Types: Primary and Secondary. —

I. *The Primary Health Centre:* Functions: 5. Health Information. — 6. Health Action. — 7. Treatment. — 8. Personnel: (*a*) Director: (*b*) Public Health Nurses; (*c*) Midwives; (*d*) Sanitary Inspector. —

II. *The secondary Health Centre:* 9. Definition. — 10. Programme. — 11. Personnel: (*a*) Doctor, (*b*) Nurses; (*c*) Midwives; (*d*) Sanitary Engineer; (*e*) Sanitary Inspectors; (*f*) Laboratory Technicians. — 12. Committees for Administration and Patronage. — 13. Equipment. — 14. Liaison.

A. General Considerations.

There are two principal forms of rural health organisation: the form in which the State administers the local services, and the form in which the State has only supervisory functions, the local authorities being responsible for the local health administration.

Both may give good results, and the form best suited to the rural districts of a given country depends on the manner in which the general administration of that country is organised.

When it is necessary to organise the rural health service, there is need for a State organisation which will assume control over local health work. As the country develops, its local administrative organisation becoming sufficiently strong to carry out public health work, and the education of its people in hygiene being sufficient to cause them to support the local health service, there may be a gradual decentralisation in health matters until the responsibility can be assumed safely by the local authorities.

Even when such a decentralisation has taken place, the State should preserve its right to frame the health policy which it is the duty of the local authorities to carry out, as well as its right to supervise the work and remedy the deficiencies of the local health service.

Sometimes the medical officers of health are appointed and paid by the State while funds for the work are drawn from local sources In other cases, the health officers are appointed by the State and paid by the local authorities; while in still others, part of the salary is paid by the State, part by local authorities.

The advantages of a complete State Health Service are: Uniformity of programme throughout the country, stability of the service, continuity of policy and security of tenure for the staff.

The advantages of a decentralised health service are that the members of the staff are welcomed and aided in their work by the people, the local health problems are apt to receive more intelligent consideration, and, as health work is brought closer to the

people, they take more interest in its competent performance. In view of the greater interest taken in health work when administered locally, funds in support of the programme may be raised more readily.

In Hungary, it is proposed to substitute a State for the present local system, while in Yugoslavia, which had a purely State system in the beginning, the tendency is towards decentralisation.

The above recommendation does not apply necessarily to the method of financing the health services. There was general agreement that, in this respect, the local units, communes and provinces, for example, should participate, otherwise the financial burden would be too great for the State.

2. *The public health officer fully responsible for the promotion of the health work in a rural district should give his whole time to his official duties; the practice of medicine* [1] *in particular is incompatible with the work of such an official. He should be a doctor trained in hygiene and preventive medicine according to the recommendations of the Conferences of Directors of Schools of Hygiene at Paris and Dresden (document C.H.888). His compensation should be sufficient to assure him a comfortable living. He should enjoy security of tenure in office, subject to the proper discharge of his duties, and have the right to a reasonable pension when age or the completion of a fixed number of years of service makes it necessary for him to retire.*

The Conference was unanimous in recommending that the health officer should devote his whole time to his duties. An experience of four years in certain Hungarian districts demonstrated the great superiority of the full-time over the part-time health officer, particularly in respect of school hygiene work. The Danish delegate stated that it was hoped to transform the present part-time system in Denmark to a full-time system, by increasing the size of the rural health district. In Italy, the full-time medical officer of health is the rule. In small rural communes the prefect may provisionally charge the *medico condotto* with the duties of health officer. In that case, he becomes a part-time official.

The tendency to require full-time service of responsible health officers is growing fast in European countries, and whole-time officers are found in England, France, Germany, Hungary, Yugoslavia, etc. In some countries, the law provides for whole-time service, but the compensation is not sufficient, and the health officer is forced to undertake private practice.

The requirement of whole-time service does not necessarily apply to other doctors in the health services, such as specialists in tuberculosis, infant welfare, etc.

3. *The optimum size of a rural district* [2] *for which one full-time health officer may be responsible will vary with the density of the population, the means of communication, the prevailing diseases, and other local conditions. Subject to these variables, a population of from twenty thousand to one hundred thousand, or an average of fifty thousand, may be fixed,*

---

[1] This recommendation refers to the *private* practice of medicine. In some countries where medical assistance is a responsibility of the public health service, work in the field of medical practice may be a duty of the medical officer of health.

[2] In some countries the law requires every commune to employ a doctor. This recommendation deals only with the *district*. The Budapest Conference decided that village doctors might be employed in primary health centres. There is no implication in this report that the practising physician should do no health work. Indeed, the Conference considered that the services of the practising physician should be utilised wherever possible.

it being understood that one or more full-time assistant health officers will be needed for populations in excess of fifty thousand.

The rural health district should preferably correspond with the administrative district in view of the difficulties which would otherwise result. As, in European countries, such administrative districts almost always have populations in excess of fifty thousand, they may be suitably staffed by the appointment of one full-time health officer with the proper number of assistants.

The principle of a sufficiently large district combined with full-time service provides for efficiency and economy in administration.

In certain countries — the Netherlands, for example — the health officer or medical inspector is specialised, and, his work being restricted to certain subjects, he can serve a larger territory. In Italy, there is no subdivision corresponding to the rural health district defined above, and the health services are organised on a territorial basis (one commune or several adjacent communes constituting a district).

The Conference did not consider it possible to adopt a recommendation as to the area of the rural health district in view of the varying conditions in the different countries. In Denmark, the plan is to have districts of from 700 to 800 square kilometres.

4. *The Conference considers that the health authorities of the rural districts described above should be responsible for the protection and promotion of the public health in all its aspects. The district health officer, as executive officer of the health organisation, should be entrusted with the realisation of the entire programme in order to ensure the economy and efficiency resulting from unity of direction.*

5. *The minimum staff for such a rural health district should consist, in addition to the health officer, of one or more public health nurses, a sanitary inspector, and a clerk.*

The nurse should have a diploma in generalised public health nursing from a recognised school of health nursing or its equivalent. The Conference considers that the programme of such nursing-schools should be studied by the competent commission of the League's Health Organisation.

The sanitary inspector should have received suitable training at a school or institute of hygiene. Under the direction of the health officer, he should be able to inspect foods, investigate and abate nuisances and carry out the work of rural sanitation planned by the sanitary engineer.

The fact that the public health nurse should do generalised work in rural districts was also emphasised at the Budapest Conference. Such work is more suited to rural conditions for reasons of economy in addition to other advantages.

The qualifications of the sanitary inspector vary widely in different countries. In England, he may be a qualified engineer, while, in other countries, he may have received little or no technical training. Courses for such inspectors are now given in many schools of hygiene, and the required qualifications are being raised considerably. In Italy, these duties are discharged by the *vigili sanitari*, who receive special training and are often full-time officials. Sometimes, however, when they are officers of the municipality (which is also responsible for this work), they hold part-time appointments.

6. *Although, in many European countries, the rural district as defined above cannot alone afford to employ a sanitary engineer, the services of such an engineer should be available in all rural districts. Such engineers may be employed by the Central Health Organisation, the State or the province. Their work should be that described by the Conference at Budapest.*

It is important that the programme and methods of training these engineers in all countries should be perfectly adapted to the work they are required to do. The Conference believes that the study of this subject should be undertaken by the Health Organisation of the League of Nations.

7. *The programme of the health services in such a rural district.*

A. Branches of Work. — *The programme of the rural health services should include measures for dealing with all the health problems which a survey of the district has revealed to be of real importance; in particular, it should relate to:*

(1) *Infectious disease control;*
(2) *The campaign against the so- called social diseases;*
(3) *Maternal and infant welfare and school hygiene;*[1]
(4) *Sanitation;*[2]
(5) *Hygiene of milk and foods;*
(6) *Education in hygiene;*
(7) *Sanitary supervision of medical institutions;*
(8) *Where there is no legislation providing for the supervision of medical practice*[3], *the public health officer might be entrusted with the registration of medical personnel*[4].

Provision should also be made for first aid and for the transportation of the sick in urgent cases.

Laboratory facilities should be available in accordance with the recommendations of the Budapest Conference.

The social diseases referred to include tuberculosis, the venereal diseases and all others which constitute important health problems in the district. Attention was directed to the fact that, in certain districts of some countries (the Netherlands, for example), non-tuberculous pulmonary diseases assume greater importance than tuberculosis.

B. Notifiable Diseases and Vital Statistics. — *The effective work of rural health services depends on the completeness of their information on the prevalence of infectious diseases and on the accuracy with which causes of death are certified.*

All doctors practising in rural health districts should be required by law to notify the health authorities immediately of every case of an infectious disease [5] *which they have examined. In special cases (absence of doctors), head of families, teachers and local officials should be required to notify suspected cases to the health authorities.*

---

[1] Including the supervision and protection of sickly children (and sometimes the aged).

[2] Including the supervision of small rural industries (brickyards, vegetable-fibre work, etc.) that may be dangerous to health.

[3] This paragraph does not apply to most countries in Western Europe, particularly England. In England, the practice of medicine is regulated by the General Medical Council, which is a statutory body composed of representatives of the teaching bodies, of the medical profession and of the State. It determines the course of study, supervises the examinations, places on the Medical Register all who are duly qualified and regulates their professional conduct.

[4] The Medical officer of health might be entrusted with the supervision of private nurses.

[5] Diseases required by law to be notified. Compulsory notification might be extended to include the auxiliary health staff (nurses, midwife, sanitary inspector, laboratory technicians).

The attending physician should be required by law to fill in a standard certificate of the cause of death and to transmit that certificate to the local health authorities without delay.[1]

The health officer should utilise every means to keep in touch with the prevalence of infectious diseases in his district—routine epidemiological investigations of cases and contacts, charts and graphs, a diagnostic (consultation) service. The returns of causes of deaths should be studied regularly to the end that the general health programme may be suitably adapted to local needs.

C. Statistics on Social and Economic Conditions. — *In addition to vital statistics, which permit the health authorities to appraise the results obtained and to adapt their programme to local needs, statistics relating to social and economic conditions (composition of the population, housing, hospitals and other medical institutions, etc.) collected by various agencies, in particular by health insurance institutions, should be utilised by such authorities.*

The representatives of rural health insurance institutions at the Conference emphasised the importance and scope of the statistics collected by such institutions.

8. *In order to ensure the interest and enlist the support of the public, the Conference considers it advisable to set up advisory councils or consultative committees, composed of leaders in the community or of representatives of agencies*[2] *which carry on health work.*

In the latter case this Committee should co-ordinate the work of the agencies concerned, and there is every reason to emphasise this recommendation.

The Conference considered that the *Zweckverband* system, utilised in Bavaria, was particularly useful. It is a union of the various agencies concerned, and the expenses are divided among them in proportion to the membership of each. This system permits the co-ordination of the work of these agencies and provides larger credits for health work.

9. *In view of the wide variations in health programmes in the different countries and the considerable differences in local conditions, it is not possible at present to recommend a model budget for a rural health district, or to state what should be the* per capita *expenditure for health purposes. It is also impossible to decide on the percentages of the budgets of States, provinces, districts and communes which should be allocated to the health services.*

The Conference considers it advisable to secure further information on the cost of rural health services and, to this end, recommends that studies on a uniform plan should be carried out in rural districts under the auspices of the Health Organisation of the League of Nations.

The purpose of these studies should be to determine which effective form of rural health organisation is most economical and, in particular, the cost of the method described by the Budapest Conference in comparison with other methods in use.

10. *Official funds for health work in rural districts are derived in varying proportions from the State, the province, the county, the district and the commune. While the State may have to provide the largest proportion when the rural health services are being organised,*

[1] Attention should be drawn to the system followed in Switzerland for notifying causes of death. (See document C. H. 669.) This system, which protects professional secrecy, has been adopted in Western Flanders (Belgium) and in certain departments in France.

[2] This recommendation does not apply to health insurance institutions, which are treated in paragraph 11.

or in the case of poor districts, it is essential that the proportion contributed locally should gradually increase.

This recommendation embodies the experience of European States which have developed effective rural health services.

11. *In order to avoid deficiencies and prevent duplications in the promotion of the health of the rural population, it is desirable that collaboration should be established between the public health services and social insurance institutions.*[1]

This collaboration might relate particularly to the following work:

Joint study of plans for the provision of sanitary equipment in rural districts;

Establishment of vital statistics;

Campaign against tuberculosis, venereal diseases, cancer, mental diseases, alcoholism, etc.;

Maternal and infant welfare;

Child welfare;

Education in hygiene of the rural population.

The collaboration might be realised by means of "Committees of Co-operation" composed of representatives of the public health service and insurance institutions.

The term "sanitary equipment" is not used in its narrow sense, but is meant to include the facilities necessary for the effective performance of health work.

12. *Collaboration between the health authorities, the medical profession and private health agencies (particularly the Red Cross) is indispensable in the interests of economy and efficiency. The work of private agencies is of great value in view of the interest they arouse in hygiene, and their contribution to the available health resources and equipment.*

Useful collaboration between the health authorities and private health agencies within the fields of activity mentioned above presupposes:

(1) *The existence of an effective rural health service and a health programme adapted to local needs.*

(2) *That the work of private health agencies should be set out in the programme adopted by the responsible local health authorities. In this way, the health officer will play an important rôle in the technical direction of the work of these and other similar agencies, as he is responsible for all public health work in his district.*

(3) *That, in each rural district, it would be preferable to have a single private health agency or at least a co-ordination of such agencies, thus avoiding dispersion of effort.*

In making the last recommendation (3), the Conference referred particularly to districts in which private health agencies were to be organised. The economy and efficiency of a single private health agency were emphasised.

With regard to Red Cross organisations, Article 25 of the Covenant of the League of Nations should be borne in mind:

---

[1] See in the annexes to Volume II (Minutes) the report submitted to the Conference by the International Labour Office: "Sickness Insurance as a Factor in Rural Hygiene".

"*Article* 25. — The Members of the League agree to encourage and promote the establishment and co-operation of duly authorised voluntary national Red Cross organisations having as purposes the improvement of health, the prevention of disease and the mitigation of suffering throughout the world."

Attention should also be directed to the value of co-operation by the medical profession in the work of promoting public health.

13. *Co-operation between the public health authorities, the various agricultural technical advisers and the agricultural associations of all kinds is also highly desirable. Inspired by the desire to raise the standard of life in rural districts, these associations offer a valuable means of securing the co-operation of the rural population. The results of their work are reflected in health as well as in economic and social conditions, and they are concerned with housing and sanitation as well as with other hygienic measures.*

14. *The Conference desires to draw attention to the higher health standard in rural districts which is obtained by the improvement of general education by such means as the folk high schools in Denmark. Raising the general level of education by such means results in a greatly increased appreciation of hygiene and provides a fertile soil in which to implant ideas of health and sanitation.*

Schools of domestic economy and housewifery and professional schools play a similar part (Denmark).

B. Rural Health Centres.

1. *Definition. — The rural health centre may be defined as an institution for the promotion of the health and welfare of the people in a given area, which seeks to achieve its purpose by grouping under one roof or co-ordinating in some other manner, under the direction of the health officer, all the health work of that area, together with such welfare and relief organisations as may be related to the general public health work.*

In rural districts where such public health work has been organised for some time, it may be difficult to group all health activities under one roof or in the same organisation. Nevertheless, an attempt should be made to co-ordinate the work of existing agencies in the most effective way.

On the other hand, where a modern public health organisation is to be created in new territory,[1] *the health centre, as defined above, is the best method of attaining the desired result.*

There are two chief methods for the organisation of modern health services: the method known in England as the "*county health unit method*" and the method of health centres. Both give good results. The objects of both methods are fundamentally the same, but it is clear that each country will adopt the method that is best adapted to its system of local administration.

In England, the local administrative unit is the urban or rural district. Each urban or rural district has its own health committee and, either alone or with one or more other districts, it has a full-time medical officer of health. As a general rule, the district councils (urban or rural) are responsible for health conditions in their district.

---

[1] The term "new territory", as employed here, implies that an effective *health service* in the modern sense does not exist.

The county is a group of urban or rural districts and may comprise a large number of those districts. The county council has a county medical officer of health with a staff of assistants. This council is responsible for organising school medical inspection services, maternal and infant welfare, child welfare, the campaign against tuberculosis and venereal diseases, mental prophylaxis, etc. Each county council, therefore, has a large number of health centres of varying size; but these centres are not concerned with sanitation, which is a matter for the urban and rural district councils. The greater the number of urban and rural district councillors on the county council, the closer is the co-operation between the county and the districts. In many counties there are large towns which are, either in theory or in fact, completely autonomous as regards health services. These towns have primary and secondary health centres.

In Italy, a similar system has been in force since the law of 1888. The health officer is paid by the commune, and, after two years' probation, is permanently appointed by the prefect. Health officers are found even in the smallest districts and their duties vary with the size of the district. As small health centres grow in importance, they still retain their connection with organisations of increasing complexity (laboratories, centres of diagnosis, isolation hospitals, dispensaries, "sanitary stations", etc.). They thus constitute a closely knit system which co-ordinates and directs towards the same object the work of all units engaged in the promotion of public health.

In Germany, every rural health district has its own district medical officer, who is the real head of the health service and is responsible for the promotion of public health. He is particularly concerned with the prophylaxis of infectious diseases, school hygiene, the sanitary inspection of houses, drinking-water, etc.

Approximately, the same duties are discharged by the *médecin délégué sanitaire de circonscription* in France.

The same is true of Austria, where there is a medical health officer *(Bezirkarzt)* for each rural health district, Latvia, Norway, etc.

2. *It is necessary at the outset to specify that rural health centres, considered as agencies particularly adapted to the promotion of public health in rural districts, constitute an integral part of the general health organisation. They are, in consequence, closely related to and dependent on all the elements which form that organisation—in particular, the State or Provincial Institutes of Hygiene, which, in several countries, constitute the most fully developed centre on which all others may depend for technical guidance.*

It became evident that the two main types of health centres, designated hereafter as primary (village, communal) and secondary (district, *arrondissement*) must vary greatly in size, personnel, equipment and scope of work in the different countries and in the different parts of the same country.

3. *It is to be understood that the considerations which follow relate to average centres, and that, in addition to these, there may be a large number of different types, the development of any particular centre being necessarily conditioned by local exigencies.*

In view of the confusion in the classification of the two main types of health centres, the Conference decided to adopt the following nomenclature:

4. *There are two methods of classifying rural health centres; they may be designated as small or primary centres and as larger or secondary centres, according to their varying*

organisation and development; or they may be divided into village or communal, corresponding to primary, and district (arrondissement), *corresponding to secondary, centres, according to the administrative subdivisions in which they work.*

The Conference expressed its preference for the first of these classifications — that is, their subdivision into primary and secondary health centres.

There should also be branch health centres of the most simple type to enable the work of such primary centres to be carried into the smaller villages.

I. The Primary Health Centre.

5. *In the general public health armament of a given country, the primary health centre with its branch centres represents the terminal stage; it is the smallest agency adapted to serve the public health needs of the smallest rural area.*

The working programme of this centre should be established on the basis of a preliminary survey concerning:

1. *The topographical conditions of the district — density of the population, distribution (dispersion) of homes, means of communication. This information will facilitate the selection of the sites, and the determination of the number of health centres and branch health centres required.*

2. *The health and epidemiological conditions among the people; this information will be equally useful in establishing the centre's programme of work.*

The minimum programme must vary according to the importance of the health problems brought to light by the survey. Should one health problem overshadow all others in the area, the centre would naturally give it first consideration. Among such health problems the following might be mentioned: malaria, tuberculosis, hookworm, acute infectious diseases, etc.

6. *The Minimum Programme of a Rural Health Centre.*

In addition to the campaign against those diseases which the survey has shown it to be of the first importance to prevent, the minimum programme of work will consist of:

(a) *Maternal welfare;*

(b) *Infant welfare, including pre-school and school hygiene;*

(c) *Popular health education; a practical example may be furnished by the provision of shower-baths;*

(d) *Sanitation; in general, the centre should deal with all the sanitary conditions affecting the people;*

(e) *Finally, provision of first aid in urgent cases.*

The primary health centre is of an educational character, and its work is of great value for propaganda purposes.

The first essential is to secure the help of the population by all possible means (the provision of medical treatment in case of need, the installation of shower-baths, the use of the cinema, museums, etc.).

It was not thought necessary to specify that the primary centre should undertake tuberculosis work. The general conception of the duties of a primary health centre

in this respect was that it would act as a rough filter, sorting out suspected cases of tuberculosis and sending them on to the more fully equipped secondary centre

In connection with infant welfare, the advisability of providing a "social consultation" to gain supplementary information concerning the environment of the infant and child was emphasised.

Sanitary work was considered to be of first importance. The Conference felt it would have to be planned and guided technically by the sanitary engineer attached to the secondary centre, the work of the primary centre being to locate the problems, bring them to the attention of the sanitary engineer and carry out his recommendations.

The Conference considered that no public health agency of this character could afford to ignore the provision of first aid in urgent cases, as such indifference would result in public criticism.

The Conference believed that health centres generally would do well to follow the example set in the Netherlands, where such institutions are provided with equipment for the sick, to be loaned out to families in their homes.

7. *In areas where the absence or insufficient number of physicians prevents the adequate provision of medical treatment, and in the case of patients unable to receive proper treatment elsewhere, the health centre should undertake this work.*

On the other hand, in areas where medical care and treatment are adequately provided, the centre should limit itself to such treatment as may be necessitated by the requirements of social prophylaxis.

The adoption of this policy by the health centre will assist in securing the co-operation of the practising physician, who will be all the more disposed to co-operate, as the centre, in view of its equipment, is in a position to provide him with valuable assistance in his daily practice.

In discussing the phrase "necessitated by the requirements of social prophylaxis", the Conference had in mind such diseases as tuberculosis, malaria, syphilis, trachoma, hookworm, etc., in which treatment bears an important relation to prevention.

Every attempt should be made to bring the practising physician within the influence of the health centre. It would be to the interest of the population, as well as of the physician, if the latter were to be provided by the primary or secondary centre with X-ray and laboratory facilities for the diagnosis of tuberculosis In any case, a close connection should be established between the practising physician and the health centre.

Provision of Medical Treatment. — The question as to whether health centres should give medical treatment was discussed from various points of view and different opinions were expressed. There was the danger that the centre might be overwhelmed by chronic cases, that the emphasis would shift from prevention to treatment, that the medical profession might refuse to co-operate. On the other hand, the Conference recognised that one of the first responsibilities of a governmental health agency was to make provision for the treatment of the sick where such provision did not exist or was inadequate — that is to say, in cases which are exceptional in Western European and German speaking countries. In districts far removed from hospitals it was felt that the centre should have a few hospital beds.

8. *Personnel.*

(a) *The Director. — The primary health centre, like all other health organisations, is under the general direction of the public health officer and of the health administration of the State.*

Its actual administration may be entrusted either to an expert medical officer of health (trained in a school of hygiene) or to a general practitioner with a satisfactory knowledge of medicine and the necessary supplementary training (refer to the reports and conclusions of the Conferences of Directors of Schools of Hygiene). This training should, in particular, relate to social hygiene and preventive medicine on the one hand, and on the other to the knowledge required to meet the specific needs of the centre he directs.

In most instances the smaller primary health centres and branch health centres will be directed by the village general practitioner. In order to ensure that he will administer the centre properly, he must have a sound knowledge of general medicine and have received supplementary training in public health. The Conference of Directors of Schools of Hygiene which met at Dresden in July 1930 directed attention to this matter in the following recommendation:

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

Finally, he must have special knowledge concerning the principal health problems with which the centre has to deal.

In the different countries, various methods of providing such training have been adopted. Courses are given for this purpose in schools of hygiene, and these are supplemented in some cases by practical work, sometimes at secondary health centres (Yugoslavia). In Hungary and Warsaw, special courses are given to medical officers in charge of health centres, but these have been restricted mainly to officers in charge of larger secondary centres.

(b) *The Public Health Nurse* (*Health Visitor*). — The Conference emphasised the value of public health nursing-work. In regard to the question of generalised and specialised health nursing in rural districts, it was unanimous that the generalised type of nursing should be the rule — in particular, because of its greater efficiency and economy in budget and personnel.

No organisation concerned with social hygiene can afford to dispense with the services of the public health nurse.

Generalised (polyvalent), rather than specialised, public health nursing should be the rule in rural districts.

No final conclusion was reached concerning the area and population to be served by a primary health centre; these vary in each country and are determined in each case by the preliminary survey. Nevertheless, population figures were given in respect of several countries, and these varied from 400 to about 4,000, the average being 2,000.

Useful information on the population which a general health nurse could serve in rural districts was supplied by the health nursing-service in Hungary.

This was based on the following conditions:

(*a*) Birth rate 25 (150 births a year in a population of 6,000);

(*b*) Tuberculosis death rate: 200 per 100,000 of population (48 patients);

(*c*) Number of elementary school-children: 600;

(*d*) Suitable means of communication;

(*e*) An 8-hour day and a 44-hour week.

Her work would consist of:

(1) Visits to homes of the new-born and infants;

(2) Visits to homes of the tuberculous;

(3) Visits to infectious-disease patients;

(4) Assisting the physician in the examination of school-children;

(5) Holding infant welfare and tuberculosis conferences once a week.

Of her time, 48.2 per cent would be spent in home visiting, 25.9 per cent in schools and clinics, 14.8 per cent in travelling and 11.1 per cent in office work, keeping records, etc.

If more than 20 per cent of her time is spent in travelling, the nurse's district is too large (either because of the size of the area, the population, or because of lack of proper means of communications — good roads, motors, etc.).

Under these circumstances, a nurse might serve a population of not more than six to eight thousand. In Denmark, a visiting nurse deals with numbers as low as 1,600 to 2,000, whereas the child-welfare nurse (specialised) can serve 10,000.

Naturally, the size of the population served effectively by a nurse depends on the health conditions obtaining and the work she undertakes.

Depending upon the various activities of the centre, and the amount of work to be done, one nurse may serve one or more centres.

By means of an intelligent adaptation of her work to the minimum programme of the centre, and taking into consideration such varying factors as the number of families and of patients requiring her attention, the density of the population, the distribution (dispersion) of homes and the means of communication, a nurse may undertake to serve a population of between six and eight thousand.

Nurses whose training and experience have been acquired solely in cities lack knowledge of rural districts and sometimes experience of the conditions of rural life and knowledge of the dialects spoken in those districts.

The nurses employed in the primary and secondary centres should be in possession of diplomas as general public health nurses (from a recognised or State school) and should have received, during their professional education, theoretical and practical training which would fit them for their rural work.

In several countries, the demands for the organisation of modern public health work have been in excess of the supply of suitably trained public health nurses.

When it becomes necessary to organise or extend the rural health service, in the absence of sufficient graduate nurses possessing diplomas in general public health nursing to fill all the vacancies, is it wise to resort as an emergency measure and only temporarily to the services of a personnel which has received only elementary and partial training?

Without doubt, but this method should be applied only on condition that it is altogether provisional, and on the understanding that the personnel so employed shall leave the service at the end of a fixed period (at the latest as soon as such personnel can be replaced by graduate public health nurses), unless they undertake to complete the training leading to the award of the diploma mentioned above.

The Conference felt that the health authorities themselves were morally bound to provide such supplementary training in the case of temporarily employed nurses, so that there is a reciprocal obligation.

(c) *The Midwife.* — The Conference felt that the midwife might be utilised to supplement the work of the visiting nurse, providing she had received proper training and her work was strictly defined. The danger of permitting a midwife to come into contact with infectious cases was pointed out.

Should the services of midwives be utilised in the work of the centre, and, if so, under what conditions and in what way ?

The fact that the midwife is in a position to render important services to the centre in the care of pregnant women (pre-natal care), as well as in the supervision of the infant during the first days of life, is beyond question.

In these respects, the midwife will become a useful assistant to the nurse entrusted with this work, solely on the condition, however, that she possess the proper qualifications, not only as a result of her training (diploma in midwifery), but also on account of the special instruction she has received in the work entrusted to her.

Under these conditions, the midwife may be attached to the personnel of the centre, to carry out these well-defined tasks, under the direction of the medical director of the centre. The possibility of utilising her services in this capacity will be facilitated in the case of midwives already in the employ of villages (communes).

(d) *The Sanitary Inspector.* — Experience has shown that the resources of the primary health centre do not permit the employment of trained sanitary engineers. It is essential, however, that the sanitary inspector should be under the technical direction of such experts, while working under the general direction of the chief of the centre.

In some countries, the sanitary legislation provides for the employment of *disinfectors*, and these, after receiving supplementary instruction, may be utilised as sanitary inspectors.

The sanitary inspector will be entrusted with the supervision and execution of minor sanitary improvements (under the technical supervision and direction of the sanitary engineer attached to the secondary centre) as well as of the measures having to do with general health work, such as disinfection, etc.

II. The Secondary Health Centre. [1]

9. *The secondary health centre is a more fully developed organisation than the primary centre on account of its greater completeness of equipment, its larger personnel and the wider scope of its work.*

[1] In some countries in Europe, there are provincial or county health officers who have jurisdiction over areas larger than those served by secondary health centres. Such health officers may co-ordinate the work of the secondary health centres.

The secondary centre directs and co-ordinates the work of primary centres and, at the same time, ensures liaison between them and all other health and welfare agencies — in a word, with all agencies connected with the promotion of public health.

10. *Programme. — In addition to its work as a primary centre (in its immediate neighbourhood) and to the prevention of those diseases which have been shown to be important problems by the preliminary survey already mentioned, the secondary centre should deal with the following:*

(1) *The campaign against tuberculosis;*

(2) *The campaign against venereal diseases;*

(3) *Maternal welfare work;*

(4) *Infant welfare work (including the child of pre-school age) with special emphasis on the welfare of the child of school age (school polyclinics);*

(5) *Health education — first, for the general population; second, by means of special courses and field work for* (a) *doctors,* (*b*) *nurses,* (c) *midwives,* (d) *sanitary engineers and inspectors;*

(6) *Sanitation;*

(7) *Laboratory analyses, of a simple and routine character.*

The Conference was of the opinion that, in addition to this work, the centre might undertake the provision of first aid in urgent cases and ensure the prompt transport of sick and accident cases by supervising the proper organisation of this service.

The Conference noted with approval that secondary centres in some countries (Yugoslavia, etc.) made use of museums of hygiene (stationary and mobile) and the cinema, and that these centres were utilised for giving practical training to public health personnel.

The outline of the sanitary work to be undertaken by the two classes of centres was considered by the *Conference on Health Centres.*

This outline (document C.H.942) may be summarised as follows: Rural sanitary work should include supervision of:

(*a*) Water supplies, individual and communal; wells, springs, cisterns, water purification;

(*b*) Sewage disposal — latrines and excreta disposal in unsewered districts, drainage of villages with sewers, treatment and disposal of sewage to prevent pollution of water-courses;

(*c*) Disposal and utilisation of garbage, and other solid sewage;

(*d*) Dairies and milk production, food factories; their cleanliness, sanitary efficiency, suitability of machinery;

(*e*) Laundries and laundering-facilities; where streams, etc., are used for this purpose in rural districts, facilities should be supplied and the installations supervised;

(*f*) Drainage (bonification) of the soil to prevent malaria; draining and filling of marshes and pools, correction of water-courses, etc.;

(*g*) Bathing-facilities — school, public, open-air and covered baths;

(*h*) Housing — damp prevention, ventilation, illumination, heating, material utilised in construction, sanitary fittings, etc. (this includes schools and other public buildings, hotels, shops); housing of animals;

(*i*) Factories and workshops — sanitation and prevention of risk;

(*j*) Transport facilities; sanitary condition of public conveyances, etc.;

(*k*) Settlements in general — choice of site, orientation, water supplies, sewage and waste disposal, playgrounds and parks;

(*l*) Sanitary institutions, such as construction of health centres, dispensaries, preventoria, sanatoria, hospitals, etc.;

(*m*) Enforcement of all sanitary laws.

11. *Personnel.*

(a) *Medical Director. — The medical director of the secondary centre should be a full-time physician trained in public health; this work should preferably be entrusted to the medical officer of health in charge of the district.*

(b) *Nurses. — The rules set out above concerning public health nurses also apply here, it being understood, however, that, in view of the greater development of the secondary centre, the nursing staff attached to it should be in proportion to the work.*

(c) *Midwives. — The considerations set out above concerning the employment of midwives apply also to the secondary centre.*

(d) *The Sanitary Engineer. — Sanitary engineering work forms an integral part of the work of the secondary centre.*

This service should be directed by a sanitary engineer with special training for rural work who will be attached to the staff of the centre or seconded for that purpose from the Central Institute, according to local conditions.

The sanitary engineering work in the district served by the secondary centre will, in general, deal with all matters concerning major and minor sanitation, such as provision of pure water, sewage and refuse disposal, housing, etc.

(e) *The Sanitary Inspector. — As many as may be necessary, in view of local conditions (see the considerations above respecting these inspectors).*

According to the sanitary engineers invited to attend the Conference on Health Centres, sanitary engineering work should be divided as follows among the different classes of centres (including here the State Institute of Hygiene) (document C.H.942).

The Sanitary Engineering Division of the Central Institute would be responsible for:

(1) The general organisation and supervision of sanitary engineering, and its co-ordination in the whole of the Institute's territory;

(2) Direction and policy of that service;

(3) Collection of main data, study of existing conditions, definition of problems to be solved;

(4) The solution of such problems; preparation of standard schemes for the main problems, such as water supply, sewage disposal, housing, manure storage and disposal;

(5) Preparation of material for educational purposes, such as photographs, lantern slides, models, exhibitions, etc.;

(6) Preparation of model plans for public health institutions, such as health centres, hospitals, etc.;

(7) Laboratory work connected with sanitary engineering, routine of control of water supplies, sewage disposal, etc. Studies of special scientific and practical problems;

(8) Training of sanitary engineering staff;

(9) Study and approval of plans made by public and private agencies for sanitary work — water supplies, etc.;

(10) Preparation of draft laws and regulations governing sanitary matters for the use of State, provincial or communal legislative bodies;

(11) Research into problems of sanitation.

The engineer in the secondary health centre is to be charged with the actual executive work. He is the supervising and law-enforcing agent of the service, in control of the territory served by the centre, under the direction of the head of the centre.

(f) *Laboratory Technicians. — In the administration of the public health services, it should be emphasised that, as a general rule, the laboratory investigations (which not only necessitate the most careful technique, but also a fully experienced staff and the most complete equipment) should be undertaken at the Institute of Hygiene, and that only analyses of the most elementary and routine character should be made at the secondary centre.*

Consequently, it will not be necessary in most cases to secure for the centre the services of an expert laboratory technician, as it should be possible to utilise the existing staff for the elementary work which may have to be done.

The State Institute or central hygienic laboratory will utilise the secondary centre as a depot and centre of distribution for its sample containers.

* * *

This is the personnel essential for the administration of such a centre, but in case of greater development of one or more of its sections, it may become necessary to secure the services of other technicians (for X-rays, etc.).

Naturally, a suitable subordinate personnel will be required for its internal administration.

12. *Committees which might assist the Primary and Secondary Health Centres. — The Conference was of opinion that the work of these centres might receive greater support through the establishment of committees; first, the official health committee provided for by the sanitary legislation of the State; secondly, a non-official committee, including in its membership representatives of the local administration, the medical profession, social insurance organisations, the teaching profession, the clergy, private welfare agencies, and, in general, of all who might contribute to the development and the prosperity of the centre on account of their moral, political or financial influence.*

The present health laws of Yugoslavia provide for the establishment of the official committees which are usually constituted as above.

The attention of the Conference was directed to the value of certain committees in connection with public health nursing work, in bringing the nurse into close touch with certain classes of the public and in enlisting their interest and support in her work. Such committees might be: *pre-natal* (to refer pregnant women to the nurse; help with the household work of lying-in mothers, etc.), *child hygiene* (to bring sick infants to the clinic, assist at the clinic, etc.), *school hygiene* (assist during health examination of school-children, etc.), *tuberculosis, social work, health education,* etc. (document C.H.940).

The following principles concerning *equipment* and *relationship* were adopted.

13. *Equipment. — The secondary centre should be fully equipped in accordance with the requirements of public health and modern medicine. In particular, there should be: a standard Rœntgen ray outfit (a mobile outfit as well, if necessary); shower-baths; motors for the transport of the staff.*

The Conference considered that failure to provide the staff with the means of transport to enable them to do their work rapidly and to reach all parts of their district would reduce greatly the scope of their technical work.

14. *Relationship of the centre to other health agencies. — Certain of the agencies with which the primary health centre should be in relationship (secondary health centres, specialised dispensaries, institutes of hygiene) also form integral parts of the general health organisation of the country. In such cases, the proper relationship already exists. With others (establishments for treatment and prevention, hospitals, sanatoria, preventoria, social insurance institutions) relationships should be established which will permit the centre to obtain their help either directly or through the secondary centres.*

CHAPTER IV. — SANITATION.

"Sanitation in Rural Districts: The Most Effective and Economical Methods."

SUMMARY: General Considerations.

A. Disposal of Sewage and Refuse : 1. Dangers of Sewage. — 2. Sewerage Systems. — 3. Disposal of Sewer Effluents. — 4 and 5. Purification of Sewer Effluents. — 6. Disposal of Sewage and Refuse in Unsewered Districts. — 7. Disposal of Manure. — 8. Disposal of Garbage. — 9. Animal Carcases.

B. Water Supply: 1. Public Water-Supply Systems. — 2. Purity of the Water. — 3. Supervision. — 4. Individual Water Supplies. — 5. The Central Organisation. — 6. Financial Assistance.

C. Housing: 1. Needs. — 2. Housing Defects. — 3. Methods of improving Housing. — 4. Housing of Agricultural Workers. — 5. Reconditioning of Existing Houses.

D. Land Improvements or Bonifications : 1 to 3. Definition. — 4. Results. — 5. Drainage by Water-courses.

GENERAL CONSIDERATIONS.

The Conference considers that the improvement of rural sanitation which tends to raise the standard of life in rural districts is dependent, in the first instance, on economic conditions and education in hygiene.

School-children in rural schools and students in agricultural and normal schools should receive health instruction adapted to rural needs and conditions.

The health authorities, whose work may be facilitated by the private propaganda organisations, should strive to spread the knowledge of hygiene among the people by every available means.

The Conference recommends particularly the practice of providing examples of good hygiene and sanitation, which should be located where their advantages may be seen and appreciated by the people — e.g., *model houses.*

Courses in hygiene for builders, contractors and leaders among the rural population are particularly effective.

Education stimulates the desire for sanitary improvement; suitable legislation provides the means by making cheap credit accessible by grants, bonuses and loans.

Legislation is not effective without proper enforcement and competent and enlightened supervision.

While the local authorities may be responsible for sanitation, there should be central direction, supervision and stimulation.

It is essential that there should be co-ordination of the work of all agencies concerned in rural sanitation. This co-ordination implies the co-operation of the technical personnel concerned (agricultural experts, architects, hygienists, engineers, medical men, doctors of veterinary medicine, etc.).

The work of rural sanitation should be based on a close study and appraisal of all the factors at play.

Particular emphasis should be laid on the necessity for rapid and constant means of transport and communication (telephone) in rural districts for the purpose of rural housing and health services.

Associations and institutions for the improvement of rural life in many fields and, in particular, associations organised on a technical agricultural basis are potent means of

paganda and achievement and should be led to take an interest in water supply, good housing and other aspects of rural sanitation. The health authorities should co-operate with such associations to this end.

A. Disposal of Sewage and Refuse.

1. Dangers of Sewage and Other Wastes.

Sewage and other wastes are not only objectionable but dangerous, because they frequently contain organisms causing disease in man (chiefly intestinal disease). This is also true of liquid household wastes. The danger is in inverse proportion to the age of the material.

These wastes should either be removed rapidly from human habitations by drains so as to prevent danger of contamination or they should be retained for a sufficiently long period to ensure the destruction of pathogenic organisms.

2. Sewerage Systems.

The Conference is of opinion that a water-carriage sewerage system is, in principle, the best method of removing sewage.

Sewers are usually installed in rural communities only where public water supplies exist.

The practicability of installing sewerage systems depends on the density of the population, the character of the soil and the existing economic conditions.

Open drains, intended to remove rain water and street washings, may, under special conditions and when no better system is possible, be used for slop water and other house wastes. Excreta must be excluded from such drains.

Such conditions are found in industrial rural areas where wastes like phenol exert a disinfecting action on the contents of the drains. Open drains may also be used for this purpose in rural districts other than industrial when nothing better offers, providing they are properly fenced off, regularly supervised and the configuration of the surface of the soil permits of a rapid flow (hilly districts).

In making these and other recommendations, the Conference gave due recognition to practicability and economy as well as to efficiency. It would be too costly in many instances to instal sewers in rural districts where the formation is rocky, or where the houses are scattered.

3. The Disposal of Sewer Effluents.

Sewer effluents may be disposed of by permitting them to flow into a water-course, lake or tidal basin.

Such a method of disposal is satisfactory, providing:

(a) *That the quality of the water at a given distance below the sewage outfall is equal to the quality of the water above the point where sewage enters;*

(b) *That the dilution is sufficiently great: the rule that the volume of the stream should never be less than* 100 *times the volume of the sewage previously cleared of solid matter gives good results in practice.*

The system of disposing of sewer effluents described above is the simplest and may be used under the prescribed conditions. Obviously, unpurified sewage should not be permitted to flow into a stream above or in the neighbourhood of the point at which water is taken for drinking-purposes.

4. Purification of Sewer Effluents.

When it becomes necessary to purify sewer effluents as in:

(a) *Closely populated rural districts;*

(b) *Districts without an abundance of surface water;*

(c) *Districts where it is desirable to limit stream pollution to a certain maximum,*

a number of methods may be adopted in rural districts. These should be simple, adapted to local conditions and require a minimum of care by unskilled staff. These methods are mechanical and biological.

A. Mechanical Methods. — *The simplest mechanical method is the use of fixed racks intended to retain the solids.*

Settling-tanks also effect a certain amount of purification depending upon the condition of the sewage and the velocity of flow in the tank.

With these methods, only matter in suspension is removed. If the water-course which receives the effluent is not too small, this treatment is generally adequate, particularly in rural districts where the volume of sewage is slight. It should be remembered that the most harmful substances passing into the water-course consist of matter in suspension.

The simplest mechanical method is to retain matter in suspension by means of fixed racks.

A higher degree of purification may be obtained by using settling-tanks. The time required for settling depends on the kind of sewage, but two hours is generally sufficient. To avoid evil-smelling fermentations, the period should not exceed four hours. In practice, a tank with a capacity of 0.62 of the daily volume of the dry-weather flow, the width equalling one-third of the length, gives good results. Care must be taken to avoid sludge being carried from the settling-tank into the water-course which receives the effluent (production of hydrogen sulphide).

The disposal of sludge offers a difficult problem in towns, but is a simple matter in small rural installations.

B. Artificial Biological Methods. — *These are always preceded by mechanical methods. The principal artificial biological methods are:*

(1) *Sprinkling filters: this is one of the methods best adapted to rural conditions, being inexpensive to instal and maintain, requiring little attention and no trained personnel and being capable of easy repair;*

(2) *The remaining methods — such as activated sludge (as at present constituted), contact beds or sand filters — are not adapted to rural conditions.*

The biological methods (both artificial and natural) remove matter in suspension from the effluent, partly dissolve such matter and prevent the putrefaction of the sewage.

Moreover, the number of disease germs is much more reduced than with mechanical methods. Nevertheless, the effluent may still be infectious.

In addition to the use of sprinkling filters, certain recent filters known as aerobic filters (Emscher) may be recommended. Their chief advantage is that they give a partial biological purification, if desired and may be adapted to very varying conditions.

5. Other Methods.

The following methods may also be mentioned:

A. Subsoil Irrigation; Leaching Cesspools: — *These methods can only be used where there is no possibility of contaminating the ground water which may be used as a source of water supply.*

Subsoil irrigation should be limited to the treatment of small amounts of sewage (effluents from single houses, institutions or small settlements) and should not be used where there are fissures in the soil.

Subsoil irrigation should be preceded by some form of mechanical or biological purification.

When the soil is very fine, it is recommended that sludge should be removed from sewage water, so as to maintain the permeability of the soil.

B. Surface Irrigation. — *This method is one of the best for rural conditions if the soil is suitable, the area sufficiently large, the treatment properly supervised and the cultivation of vegetables and fruits, which grow close to the ground, prohibited.*

The main consideration should be the proper disposal of the sewage rather than the raising of good crops.

C. Use of Fish-ponds for Sewage Purification. — *This method might be of some value in rural areas.*

The Conference confined its recommendations to simple methods, as the more complicated ones require expert supervision and considerable attention, both of which are beyond the reach of many rural districts.

6. Disposal of Sewage in Unsewered Districts.

The main objects of proper sewage disposal in unsewered districts are:

(1) *The protection of the surface of the soil;*

(2) *The protection of the subsoil water;*

(3) *The protection of the sewage from access of flies.*

These objects can best be attained by the use of water-tight receptacles in a fly-proof superstructure.

As fresh excreta may contain pathogenic micro-organisms and intestinal parasites, provision should be made for storage of sufficient duration to destroy such organisms.

Methods of providing for such storage are water-tight tanks with two compartments for alternate use, or double compartment tanks of which only the second can be emptied.

Another method is the use of pails. As these contain fresh material, some form of disinfectant should be used, or the contents should at least be covered with dry earth, peat or other deodorant.

The pail system operates more satisfactorily when there is a public system of collection under proper supervision. As such a system is difficult to maintain in rural districts, the disposal of the material must unfortunately be left to the householder, whose education in hygiene is not usually sufficient.

Single-compartment tanks may be used in villages where a proper system of collection exists. The contents should be transported in water-tight containers to a suitable distance and properly treated, as, for instance, by placing alternate layers of sewage and dried peat in a large open tank.

In rural districts where it is not necessary to prevent the contamination of ground water, ordinary unlined pits may be used.

The Java type of privy, consisting of a deep hole of small diameter, into which basket work is inserted, is apparently suitable. It requires further study.

Whatever the method of sewage disposal adopted for individual houses, the privy should be located as far as possible from the well or other source of water supply.

Methods of sewage disposal in unsewered rural districts are the subject of regulations in many countries. In some cases, the central health authorities prepare model codes suitable for adoption by the competent local authorities. The study of the most suitable methods and the preparation of plans and construction of model privies have given good results.

These codes should regulate the minimum distance of the privy from the source of individual water supply. In existing codes, this varies from five metres (Netherlands) to ten metres (Prussia).

7. Disposal of Manure.

Solid and liquid stable manure should be stored in water-tight pits situated as far as possible from the house and arranged in such a way as to expose only the smallest possible surface to flies. The pits should also be so arranged as to prevent the contents being subject to the washing action of rain-water.

Manure pits should be provided with a special water-tight compartment for the liquid manure.

The Conference recommends that the prevention of fly-breeding by measures tending to promote the development of heat in manure piles should be made the subject of further experiment and study.

In Germany, a process known as *Heissvergärung* (heat digestion) has been developed. The pit is of smaller area, and the manure pile is thus built up more rapidly and to a greater height than usual, the sides being protected by boards. The temperature in the interior due to fermentation reaches from 50° to 60° C., which is sufficient to destroy fly larvæ. This and other methods of preventing fly-breeding require further study. Attention was drawn to the need for covering liquid manure pits (danger of drowning).

8. Disposal of Garbage.

In built-up rural villages, the regular collection and systematic disposal of house garbage and refuse is the most effective method.

This material may be disposed of by dumping frequently in thin layers and covering with earth, ashes or other dry refuse. Such a method of collection and disposal requires careful and competent supervision.[1]

Garbage is also a prolific source of flies, and measures should be taken to prevent fly-breeding.

A safe rule to adopt is to treat garbage as infectious matter and to dispose of it in such a way as to prevent the pollution of the surface of the soil, the subsoil by percolation (ground-water) and the houses in the neighbourhood by flies which breed in the garbage and to avoid bad odours.

The Conference draws the attention to methods of treating garbage by tanks permitting of the development of heat.

Incinerating and utilisation plants, while satisfactory, hardly come within the means of rural communities. Home incinerators give satisfactory results.

At Florence, a special concrete tank has been devised which is easy to build and can be made in various sizes. The cell is filled with garbage and refuse, moisture is added and digestion is allowed to go on for from four to six weeks. Temperatures of from 50° to 60° C. are developed.

The Conference draws attention to methods of treating manure by high temperature digestion, which prevents the breeding of flies, and it recommends that this subject should be studied.

9. Animal Carcases.

The Conference also draws attention to the necessity for treating carcases of animals in accordance with veterinary regulations.

Veterinary questions were not included in the agenda, but the Conference desired to emphasise the importance of animal carcases as sources of contamination of ground water, the soil and the neighbourhood (flies). Attention was also drawn to the need for destroying rats.

B. Water Supply.

An abundant supply of pure water in rural districts is not only an important factor in the protection of the health of human beings and of cattle, but is also of great value in the promotion of agriculture.

The more immediately accessible the supply, the more freely will it be used by consumers. The best solution is to connect the house or farm to the water supply or, more generally, to bring the supply within easy reach.

An abundant supply of pure water has a direct influence on the public health, as it prevents the spread of water-borne disease It has also an important influence due to the cleanliness it promotes in houses, stables, dairies, etc.

Water-supply systems aid the farmer by permitting the watering of market-gardens, and furnishing means for irrigation and for extinguishing fires.

---

[1] Another method of disposal is to feed the garbage to pigs, either collectively or on the individual farms. When this method is adopted collectively, the collection and disposal is usually let out to a contractor whose sole object is the fattening of the pigs and who is apt to neglect sanitary considerations.

1. Public Water-Supply Systems. [1]

(*a*) For a Number of Settlements. — *The central water-supply system distributed to a number of settlements is, when practicable, to be preferred to a smaller system. This system is to be recommended, particularly in the more populated areas, and for districts in which suitable water sources are few, as it permits of the most advantageous utilisation of the potable water.*

The co-operation of a number of villages to secure a joint water-supply system permits of a more adequate plant, gives the opportunity to employ skilled personnel, and also permits the use of methods of purification when necessary. In the case of these central water supplies, any modern method of purification may be adopted, as it will be carefully applied and supervised.

Collective water-supply systems for groups of villages have developed rapidly in recent years in a number of European countries.

These regional or collective water-supply systems are especially numerous in the Netherlands, where nearly five million persons, or 63 per cent of the population, benefit from the use of a water-supply system. There are twelve collective water systems in operation supplying more than 350 communes and two more systems for seventy-seven communes are being installed. In addition, plans for reclaiming the land now under the Zuider Zee provide for large collective water-supply systems.

This system is also being applied in France ; the plant at Santerre in the Aisne, which supplies eighty-nine communes, is one of many.

In Germany, a good example is found in the State of Saxony where the development of sources on the rivers Mulde and Wilzsch will, in the first instance, provide running water for fifteen communities.

At the end of 1929, there were forty-three group supplies in Czechoslovakia supplying 214 communities, with a combined population of 206,000.

The province of Brabant in Belgium has a group supply for eleven communities.

Group systems are also being constructed in other countries, including Yugoslavia.

A typical example of a great rural aqueduct is furnished by the "Acquedotto Pugliese".

The water for this aqueduct is drawn from springs in "Capo Sele" on the Tyrrhenian slope of the Apennines, and it is carried to the opposite slope, the Adriatic slope, passing through the Apennines by means of tunnels 100 kilometres in length. The chief canal is 254 kilometres long, and there are eighty- seven reservoirs.

This aqueduct serves districts (Puglia, the Basilicate and Irpinia) with an area of 20,000 square kilometres and a population, chiefly agricultural, of 2,200,000.

In Italy, also, the law of 1928 has encouraged the construction of rural aqueducts. Among those the construction of which was made possible through the provisions contained in the law on the *Bonifica Integrale*, the following should be mentioned: the aqueducts of Istria, Monferrato and Sarcidano. The State contributes 75 per cent when the cost of constructing the channels exceeds the cost of tapping the supply. Otherwise, the State contributes only 40 per cent.

(*b*) For Individual Settlements. — *The source of the village water supply should be selected after appropriate investigations in order to secure a water free from the possibility of any dangerous contamination.*

---

[1] Volume II (Minutes) contains a report by M. Krül, which gives considerable information on water supplies in many European countries.

The necessity for any system of purification is to be avoided, as such systems require technical supervision, which is not usually available in rural districts.

Village water supplies should be constructed with due regard for simplicity of design, economy and ease of operation and maintenance.

2. Purity of the Water.

When treatment is necessary, it must be safeguarded in every possible way. The lines of defence to ensure the purity of the water should be, in order:

(1) *Protection of the source;*
(2) *Mechanical purification (sedimentation, filtration, etc.);*
(3) *Chemical purification (disinfection);*
(4) *Inspection and supervision.*

Protection of the source and supervision of the supply are necessary in any case.

When the water is drawn from rocky formations in which fissures exist (limestone, karst), it should be adequately purified. Disinfection by chlorine is at present a practical solution.

When contamination occurs only at rare intervals and for short periods, it is advisable to apply chlorine throughout the year, otherwise, when the occasion arises, the apparatus may be out of order. When no danger threatens, very small amounts of chlorine may be used, and these may be increased when necessary.

When there is any possibility that a water supply may be responsible for an outbreak of intestinal disease, chlorine should be applied immediately as an emergency measure and continued until the investigation is completed.

Portable chlorinating plants should be available at central institutions for use in case of emergency (such as the threatened pollution of a normally pure water supply).

3. Supervision of Water Supplies.

Constant supervision of all public water supplies is necessary. This supervision should relate to the source of the supply, the plant and the distributing system, as well as to the effluent, and should be closest during the seasons when the supply is most likely to be contaminated (dry season, floods, etc.).

The personnel engaged in this supervision should be trained in the hygiene of water.

Water-supply systems for individual villages in European countries have also developed rapidly in recent years. Thus, in the county of Essex, England, the number of houses supplied from water mains increased from 2,801 in a total of 6,897 in 1925 to 3,735 out of 8,270 in 1929.

In Czechoslovakia, from 1918 to 1928, 1,287 kilometres of mains were laid in Bohemia, Moravia, Silesia and Slovakia, excluding those in large cities. In 1930 and 1931, 304 water supplies were constructed in the whole country.

In Denmark, the number of rural waterworks increased from 62 in 1900 to 1,200 in 1924. As ground water is abundant and electric power available everywhere, small systems are the rule.

In France, in 1930, 8,604, or 23 per cent, of the communes had waterworks in operation or under construction, and new requests are being received so rapidly as to overwhelm the competent services.

In accordance with the law of December 24th, 1928, on the *Bonifica Integrale*, the Italian Government has given subsidies to the extent of 75 per cent for constructing rural aqueducts, the cost of which amounts to 210,000,000 lire.

These examples suffice to show the great development of water-supply systems in European countries in recent years. Progress in the matter of waterworks has followed closely the spread of electricity to rural districts. The use of electric current and machinery permits of the use of sources otherwise difficult to develop, and it is cheaper and simpler to maintain, requiring practically no skilled supervision.

4. Individual Water Supplies.

These may take the form of wells, springs and cisterns. They should be constructed by qualified persons who have received proper instruction in the elements of hygiene of water; otherwise, they are apt to be dangerously located, badly constructed and improperly protected.

The competent authorities should adopt regulations providing for the location, construction and protection of individual supplies, and these regulations should be adequately enforced.

For the guidance of local authorities, a model code should be prepared by the central health services.

Even in the most highly developed countries, most of the rural population must depend on individual water supplies — wells, springs and cisterns. It is a very serious undertaking for the health authorities to supervise such supplies. Their first attention might well be given to individual supplies, which are used by numbers of people — school wells, public wells, water supplies of shops which deal in food products, etc. The construction of model wells at places where they will be seen and used by large numbers of people is to be recommended. The example of the Prussian Institute for the Hygiene of Soil, Air and Water, which gives courses in the hygiene of water to contractors who construct wells, might well be followed.[1] Where resort must be had to cisterns, the use of lead conduits is to be avoided.

5. The Central Organisation.

Progress in matters of water supply must be based on scientific research centralised in a suitable organisation, which thus constitutes a hydrological and geological intelligence service for the purpose of locating suitable sources of water supply and for the collection of all other relevant data.

Such an organisation should, as far as possible, have jurisdiction over all matters affecting water supply in the State or administrative unit.

It would be difficult to overestimate the advantages of a central organisation of this kind. In view of the information at its disposal for the entire State or province, and the expert knowledge of the specialists attached to it, such an organisation would be in a position

---

[1] The grant of a diploma for these studies would be desirable.

to ensure that the existing water sources are utilised to the best advantage and that partial solutions of water-supply problems are avoided.

Such an organisation would place at the disposal of individuals, societies and communities technical information and expert advice on matters of water supply and would act as a centre for the education of the people in the hygiene of water.

Examples of the central water-supply organisation recommended by the Conference are the Netherlands Government Office for the Supply of Drinking-Water and the Prussian Institute for the Hygiene of Water, Air and Soil. Institutes of hygiene in other countries do much the same work.

The Netherlands Government Office advises the Government on all matters relating to the water supply — the grant of subsidies, the examination and preparation of plans, supervision over construction and operation of subsidised water systems, the preparation of legislation, etc.

The office also places its services at the disposal of the provincial and municipal authorities in matters of water supply ; it acts as a centre for propaganda and education in hygiene and carries out hydrological and geological enquiries.

The Prussian Institute carries out similar work. The courses it gives annually to contractors who construct wells have been mentioned.

There is no doubt that central organisations of this kind promote safety, economy and efficiency in matters of water supply.

One of the most valuable services they can render is to impress upon rural populations the necessity for abundant supplies of pure water.

6. Financial Assistance.

Many countries have encouraged the installation of rural water supplies by affording financial assistance, and have secured excellent results by this means. In the absence of such assistance, many municipalities could not have secured a public water supply. Account should be taken of this experience.

C. Housing in Rural Districts.

1. Needs.

There is urgent need for improvement in the housing conditions of rural districts. Progress in this respect is hindered by the lack of cheap credit and the fact that education in hygiene in rural districts has not reached a sufficiently high level.

The housing shortage in cities has led in most countries to concentration on the housing problem in industrial areas, and the needs of rural districts have not always received the attention they deserved.

Good housing is a fundamental requirement for rural hygiene. It is influenced by social and economic conditions and in its turn exerts a strong influence on these conditions, resulting in better health and a general elevation of the standard of life.

2. Housing Defects.

The principal defects of rural housing from the point of view of hygiene are :

(a) *Overcrowding. — Good houses are too few. There are too few bedrooms in the existing houses. The house may be too small or, in planning it, the existing space may have been insufficiently utilised. Apart from considerations as to the necessary cubic space, attention should be drawn to the height required for living purposes.*

(b) *There is inadequate provision of toilet and sanitary facilities.*

(c) *The living-quarters are insufficiently protected from the stables.*

(d) *Manure and other sources of pollution and odours are in too close proximity.*

(e) *The house is so located and constructed as to be damp.*

(f) *There is a lack of proper ventilation, lighting and heating.*

(g) *There is insufficient protection from mosquitos, flies and dust.*

(h) *There is insufficient exposure to the sun.*

There should be sufficient bedrooms in the houses to permit of separation of adults and children, as well as of the sexes.

Stables may be under the same roof as the house, providing there is proper protection or separation. The custom of having the living-quarters over the stables is not to be recommended.

If the building is not properly constructed, capillary attraction will cause dampness of walls and floors.

The area of the windows in proportion to that of the floors is not usually sufficient for the admission of light and air.

Open fires without vents are unsatisfactory and should be replaced by other methods of heating. The use of closed stoves in fire-places, as in Belgium and the Netherlands, makes for better heating, less air pollution and economy in fuel, while the advantages of fire-place ventilation are preserved.

Shady trees are often placed so as to prevent the access of sunshine.

Water supplies, cesspools and privies are sometimes lacking and frequently inconveniently situated and badly constructed. If properly planned and built, there is no reason why they should not be situated nearby or even adjacent to the house.

Systems of individual water supply under pressure, if properly designed, are not expensive and offer many sanitary advantages.

The entrance of mosquitos and flies may be prevented by screening windows and doors, planning the house without recesses where mosquitos may shelter, placing the stables between the house and breeding-places, etc.

3. Methods of improving Rural Housing

These are:

(a) *Education;*

(b) *Cheap credit and improvement of the economic condition of the farmer;*

(c) *Co-operation;*

(d) *Legislation, by-laws and regulations, and their proper enforcement.*

The practice of making public buildings models from the point of view of hygiene and sanitation is highly recommended.

The construction of model houses at numerous strategic points encourages imitation.

Good housing will appeal more readily to the rural population if the plans are prepared after a study of local customs and social and economic conditions, so as to preserve features characteristic of the district.

Loans at low rates of interest, grants, as well as freedom from taxation, may be provided by legislation, and are potent means of improving rural housing. The award of bonuses for proper construction yields a large return for the investment of small sums.

There should be building codes prescribing minimum requirements in respect of sites, exposure, lighting, ventilation, etc. Technical supervision and enforcement are required to make these effective, as well as proper preparation by measures of education.

Such enforcement should not be left altogether to the local authorities.

The health authority should have jurisdiction over all sanitary aspects of housing.

The preparation and distribution of standard plans satisfying sanitary requirements and local needs has given good results and should be encouraged. Such houses should be of simple design and economic construction.

In ascribing to education an important influence on good housing, one has in mind general culture as well as education in hygiene. The folk high schools and professional schools of Denmark furnish a particularly striking example of the influence of general education on rural housing.

Legislation which provides for grants, bonuses and loans has played an important part in the promotion of good housing in all important European countries.

In England, in 1926, the Housing (Rural Workers) Act was passed "to secure a contribution to the improvement of housing conditions for agricultural labourers and other country workers by facilitating the reconditioning of old houses in such a way as to bring them up to modern standards of comfort and sanitation".

At the end of 1928, 2,070 requests for grants or loans had been received and more than £100,000 disbursed.

An Agricultural Credits Act was passed in 1928 providing for advances towards the construction of cottages, and a new Housing Act adopted in 1930, which entitles County Councils, which undertake rehousing, to grants from the Exchequer repayable in forty years.

The Act of 1902 (Woningwet) regulates housing in the Netherlands. This requires every commune to adopt by-laws regulating housing, contains provision for the elimination of houses unfit for habitation, and provides for advances for the purchase of land and the building of houses to companies, societies and institutions. Up to the end of 1923, these advances amounted to about 1,400,000,000 gold francs for 121,595 houses.

In 1916, a law was passed providing loans to agricultural workers for the purchase of small holdings and the construction of houses. From 1919 to August 1929, 3,164 loans were granted for these purposes.

The Central Authorities in 1925 prepared a model by-law for adoption by the local authorities.

The Central Health Service has prepared a series of plans of small houses, substantial but economical, which satisfy the requirements of the law.

The effect of all these measures may be judged from the following:

In communities with less than 10,000 inhabitants in December 1899, 36.2 per cent of all houses had three or more rooms, while in December 1927 the percentage had risen to 57.

As far back as 1886, the problem of proper housing conditions for agricultural labourers was made the subject of legislation in Germany. From 1921 to July 1929, loans for this purpose in Prussia alone were granted for 41,534 houses. In 1930, thirty million Reichsmarks were provided for this purpose by the Central and State Governments.

Between 1923 and 1930, some 472,200,000 Reichsmarks were utilised for the colonisation of agricultural workers, 26,343 colonies being established. In 1930, the "Deutsche Siedlungsbank" was created to facilitate financial transactions in connection with such colonisation.

In France, the "Loi Loucheur" of 1929 provides for the construction or rebuilding of 260,000 houses in a five-year period; one-third of the credits are reserved for rural districts.

The Law of 1929 also deals with housing for agricultural workers.

In Italy, the budget of the Ministry for National Economy for 1929-30 contained a credit of 2,500,000 lire for payment of interest on loans for the construction of houses in colonies and for agricultural labourers. The various institutions for agricultural credits granted loans of nearly 100,000,000 lire for these purposes between 1922 and 1928. In connection with "bonifications", Italy has made other important contributions to good housing in rural districts.

In 1919, a law was passed in Belgium creating the "Société nationale des habitations et logements à bon marché", which advances at 2 per cent credit to local and regional societies. In 1927, there were 274 such societies, with a capital of about 36,000,000 gold francs. The State has advanced the sum of 100,000,000 gold francs to the National Society, and the credits available have been utilised for the construction of 29,877 houses.

The Government of Czechoslovakia, in 1930, adopted a law to facilitate the construction of 20,000 small houses before the end of 1931, by guaranteeing second mortgages at low interest, and by additional grants in certain cases. Both forms of assistance may also be obtained for reconditioning and repairs. New houses are tax-free for a varying number of years; this measure is common to a number of countries.

In almost all the European countries there are building codes and by-laws regulating methods and details of construction. The value of such regulations depends entirely on the methods of supervision and enforcement. Supervision by the health authorities appears to give the best results.

An excellent method of improving housing conditions is illustrated by the work of the "Génie rural" in France. Plans for a series of improved types of rural buildings for properties of various sizes and for different districts were published by the Ministry of Agriculture in 1913. Similar work has been carried out in Germany, Italy, the Netherlands, etc.

Agricultural associations in various countries have done excellent work along this line.

The Institutes of Hygiene in several countries have played a prominent part in the promotion of good housing by educational measures, the construction of model houses, the preparation of model plans, etc.

4. Housing of Agricultural Workers.

The improvement of housing for agricultural workers presents difficulties which cannot be solved by education and persuasion alone. The agricultural worker is in a particularly weak position in this respect, and suitable legislation, with proper enforcement, as well as public financial assistance, are needed to cope with this problem.

Poor housing for this class accelerates the exodus of the best workers to the cities, where in many cases more attention has been given to housing for industrial workers, and this in turn lowers the standard of rural life and prevents hygienic improvement.

The organisation in the different countries of sanitary inspection services is desirable. Such services should have the authority necessary to secure satisfactory housing conditions for agricultural workers and to enforce the relevant regulations.

The Conference draws attention to the recommendation of the International Labour Office (1921) on this subject.

The following is the text of this recommendation, which was adopted by seventy-four votes to twelve with four abstentions on November 15th, 1921, by the third session of the International Labour Conference:

"The General Conference of the International Labour Organisation recommends:

"I. That each Member of the International Labour Organisation, which has not already done so, take statutory or other measures to regulate the living-in conditions of agricultural workers with due regard to the special climatic or other conditions affecting agricultural work in its country, and after consultation with the employers' and workers' organisations concerned, if such organisations exist;

"II. That such measures shall apply to all accommodation provided by employers for housing their workers either individually, or in groups, or with their families, whether the accommodation is provided in the houses of such employers or in buildings placed by them at their workers' disposal;

"III. That such measures shall contain the following provisions:

"(*a*) Unless climatic conditions render heating superfluous, the accommodation intended for workers' families, groups of workers, or individual workers, should contain rooms which can be heated;

"(*b*) Accommodation intended for groups of workers shall provide a separate bed for each worker, shall afford facilities for ensuring personal cleanliness, and shall provide for the separation of the sexes. In the case of families, adequate provision shall be made for the children;

"(*c*) Stables, cowhouses and open sheds should not be used for sleeping-quarters;

"IV. That each Member of the International Labour Organisation take steps to ensure the observance of such measures."

Full information in regard to this recommendation may be found in the report of the International Labour Office on Agricultural Workers' Housing (document C.H. 1020).

5. Reconditioning of Existing Houses.

Rural housing may sometimes be improved by suitable reconditioning of existing houses. When properly directed and supervised, such reconditioning may yield excellent results, sometimes at comparatively small cost.

The construction of model villages and agricultural colonies is of particular interest and importance in respect of rural housing. The tendency to locate industrial plants in rural districts should be encouraged, such new construction offering opportunities for the building up of model villages and the application of all sanitary safeguards.

In the planning of these villages and colonies, the Health Authorities should have jurisdiction over all matters of hygiene and sanitation.

The Conference recommends the further study of this problem.

D. Land Improvements or Bonifications.

1. *Bonifications may be defined as the complete sanitary reconditioning of the land in areas where the general living conditions of the people are bad, more especially on account of malaria and other endemic diseases which endanger the vitality of the people.*

2. *This complete sanitary reconstruction is not limited to land drainage, but includes all measures required to bring the land under cultivation, and the provision of hygienic living conditions for the population by means of a network of good roads, suitable rural housing, a good water supply, sewage and waste disposal.*

3. *Under certain conditions it also includes the irrigation necessary for farming purposes, which enables the cattle to be housed throughout the year, this practice being indicated in view of the campaign against malaria.*[1]

4. *Bonifications thus bring about a marked improvement in the standard of living, both economic and hygienic, and should accordingly be regarded as one of the most striking examples of rural hygiene.*

The application of the system of bonifications requires the help of the hygienist. This is particularly necessary during the execution of the work.

5. *The Conference draws attention to the importance of proper drainage by water-courses, and to the serious consequences resulting from the neglect to maintain these properly, not only in respect of agriculture, but also in regard to hygiene.*

The term "bonifications" is borrowed from the Italian, as it was in Italy that this idea originated, and the word has no exact equivalent in French or English. Bonifications are utilised primarily as a means of combating malaria, but this method might also be applied against other endemic diseases which act as a serious drain on human vitality.

Beginning simply as drainage of marshy areas, bonifications have developed into the complete sanitary and agricultural reconstruction of a given area, the Italian authorities having found that the prevention of malaria required a radical transformation of the living conditions of the people in an area where malaria prevails. The combination of intensification of agriculture with the application of all necessary prophylactic measures is known as *bonifica integrale*. This includes engineering work on a large scale and all measures necessary to render the area fit for agriculture — roads, good water, electricity, good housing and sanitation in general.

Various laws on this subject have been passed in Italy to define the object, regulate the procedure and provide financial assistance in respect of bonifications. The Law of December 24th, 1928, provided the necessary credits and set out the programme from 1930 to 1944 as follows:

	Lire
Hydraulic bonification with complementary work such as construction of roads, aqueducts, irrigation, etc.	4,500,000,000
Irrigation	800,000,000
Rural settlements and housing	500,000,000
Rural aqueducts	210,000,000
Roads and water supply (not aqueducts)	1,000,000,000
Total	7,010,000,000

[1] By irrigation the pasturage may be improved and the cattle may accordingly be kept on the farm during the malarial season. The mosquitos, which convey the malaria, attack the cattle in preference to human beings. The latter are thus protected to some extent.

The State will contribute a total of 4,300,000,000 lire. The law provides that rural water supplies may be subsidised by the State in the amount of 75 per cent, and that the construction of rural houses in regions subject to bonification may be subsidised by the State up to 30 per cent of the cost. The amounts to be paid by the State in subsidies is fixed at over four billion lire. From the beginning until 1928, a total of 2,720,000,000 lire was expended for bonifications. This work not only assists in bringing malaria under control, but also results in the reclamation of large areas of waste land, and promotes good housing and other sanitary improvements.

In Italy, great importance is attached to "small scale bonifications". These are minor anti-larva measures (drainage of canals and the keeping in order of their banks and beds; sprinkling of "paris green" in stagnant waters; weeding and cleaning; breeding of mosquito-eating fish — *e.g.*, the gambusia). These measures enable the campaign against malaria to be carried into the smallest districts. They are subsidised by the State, and are carried out either by the local authorities or by the landowners.

In Belgium, about six per cent of the area requires improvement on account of marshes or periodic flooding. Some 200,000 hectares have been reclaimed from the sea or protected from invasion by the sea. There are laws on these subjects which are now in course of amendment and improvement.

Agricultural associations, such as the Belgian "Boerenbond", have done much to assist in this work by furnishing technical advice, giving examples of the value of this work, educating landowners, etc. The work itself is done by associations of landowners. The result of such land improvements is seen in improved agriculture, better economic status of the rural population, better housing, the possibility of draining sewage and the improvement of public water supplies.

In France, a distinction is drawn between collective measures and individual measures. Collective measures are carried out by the communes with the financial assistance of the State. The plans are prepared by private experts or by engineers attached to Government departments (roads and bridges department, highways department, rural hygiene department) when the communes apply for this assistance. It is paid for in accordance with scales of charges, or sometimes is entirely free (rural engineering service). Plans for work carried out by the communes must be approved by the competent ministry after consultation with the Higher Council of Public Health. On the other hand, the persons concerned may form associations for carrying out such work. The State assists and supervises such associations in the same way as it does the communes. Individual work is planned and carried out by the person concerned, subject only to the condition that it is in conformity with the regulations. For purposes of example and propaganda, private individuals may obtain the free assistance of the rural engineering service in preparing and carrying out schemes of work. The *Conservatoire des Arts et Métiers* provides advanced theoretical and practical instruction in sanitary technique, and grants a diploma on the results of an examination.

The Netherlands is famous for such reclamation projects and is now engaged on the drainage of the Zuider Zee, which will provide for a population of some 400,000. The plans provide for collective water-supply systems, regional planning, and a high level of general sanitation.

In Spain, the problem is one of irrigation rather than of drainage. Special organisations have been created for the drainage areas of each of the principal rivers, and these organisations are concerned with the most effective utilisation of the available water, and problems of agriculture, sanitation, etc. Malaria exists in these areas and must be

combated. Water supplies are being constructed where none existed previously, housing is being studied and improved, and, in general. the opportunity is being taken to raise the general level of sanitation. The results obtained by the organisation in charge of the drainage area of the Ebro have been particularly good on account of the co-operation which exists between this organisation, the sanitary administration and the agricultural services.

These will serve as examples of work of this kind which has been carried out in many European countries. When competent sanitarians are consulted and due regard is paid to hygienic considerations, such work results in important sanitary improvements in rural districts.

CHAPTER V. — SUBJECTS FOR STUDY.

SUMMARY: 1 and 2. Training of Health Personnel (Public Health Nurse. Sanitary Engineer). — 3. Problems studied by the Schools of Hygiene: (*a*) Cost of Medical-Social Services; (*b*) Manure and Flies; (*c*) Typhoid Infections; (*d*) Milk. — 4. Study of Housing Conditions. — 5. Rapid Transport of the Sick.

After stressing the importance of the technical qualifications of public health personnel and asserting the need for public health nurses and sanitary engineers, the Conference dealt with the question of their professional training.

(1) *The Conference considers that the programme of public health nursing-schools should be studied by the competent commission of the League's Health Organisation, and suggests that the Council of the League of Nations should refer this study to the Health Committee.*

(2) *The Conference considers that the programme and methods of training of sanitary engineers in the different countries should also be studied by the Health Organisation, and suggests that the Council of the League of Nations should refer this study to the Health Committee.*

The chief object of the Conference was to discover economical and effective forms of health organisation; it was naturally bound to recommend investigations as to the cost of medical-social services in relation to their efficiency.

(3) *The Conference considers it would be advisable to secure further information on the cost of rural health and medical services, and recommends that such studies on a uniform plan should be carried out in rural districts by the various schools of hygiene under the auspices of the Health Organisation of the League of Nations.*

The Conference dealt with other subjects of a technical and economic character relating to sanitation: (*a*) the disposal of human excreta, (*b*) the campaign against flies coming from manure and (*c*) the expert examination of drinking-water and sewage.

4. *The Conference recommends that the study of the following subjects of particular interest to rural sanitation should be undertaken under the auspices of the Health Organisation of the League of Nations by the various schools of hygiene and institutes for the hygiene of water:*

(1) The treatment of excreta of human origin (types of privies, particularly[1] *the Java type privy);*

(2) *Heat treatment of garbage and manure to prevent fly-breeding;*

(3) *Methods of testing and analysing water and sewage in use in the different countries.*

The meeting of the directors of European schools of hygiene considered these different suggestions and decided to take up (under the auspices of the Health Organisation of the League of Nations) the study of the following problems with the collaboration of the different schools of hygiene and research institutions:

[1] The text in italics is the only one formally approved by the Conference.

(*a*) The cost of rural health services as compared with their efficiency. — This amounts to a practical demonstration, on the spot, of the economic value of the recommendations made by the Conference;

(*b*) Manure and flies. — This is a big problem connected with the housing problem and comprising the disposal of human excreta, experiments in high temperature digestion of solid sewage and all methods employed for preventing the breeding of flies in manure and garbage.

(*c*) Milk in rural districts. — This problem is connected with the hygiene of foodstuffs, infant mortality and many diseases (infectious or due to weakness). This problem was not included in the agenda of the Conference, but is sufficiently important to deserve special study.

(*d*) Typhoid infections. — This important rural problem is connected, on the one hand, with the problem of milk and, on the other hand, with those of water supplies and flies.

(*e*) Methods used for the analysis and expert examination of water supplies and sewage. Description and comparison of the standards employed in different countries; improvement of methods.

5. *The Conference adopts the report of the meeting of directors of schools of hygiene, which proposes that, under the auspices of the League of Nations, the following problems should be studied by various schools and institutes:*

(a) *The cost of health services;*

(b) *Manure and flies;*

(c) *The milk problem in the countryside;*

(d) *Typhoid infections;*

(e) *The expert examination of drinking-water and sewage.*

6. *The Conference recommends that the study of housing conditions in rural districts proposed by the Third Committee should be referred to the International Labour Office and the International Institute of Agriculture, in collaboration with the Health Organisation of the League of Nations, when questions of hygiene are involved.*

7. *The Conference draws attention to the importance of the rapid transport of the sick in rural districts, and considers there would be advantage in the international adoption and use of a special sound signal for motor ambulances. The Conference suggests that the Council of the League of Nations might refer the study of this subject to the League's Organisation for Transit and Communications.*

CHAPTER VI. — VALUE OF COLLABORATION BETWEEN THE PROFESSIONS AND GROUPS CONCERNED.

8 *The Conference desires to emphasise the importance for rural hygiene of close collaboration between administrators of public health and assistance, agricultural experts, engineers, architects, medical officers and practitioners, representatives of health insurance institutions, agricultural associations and private health agencies.*

The Rural Hygiene Conference has furnished a striking illustration of the fruitful results of such collaboration, and this collaboration begun under the auspices of the League of Nations should be continued and extended.

PUBLICATIONS OF THE HEALTH SECTION

STATISTICAL HANDBOOKS:

No. 1.	The Official Vital Statistics of the Kingdom of the Netherlands. (C.H.159.)	2/6	$0.60
No. 2.	The Official Vital Statistics of the Kingdom of Belgium. (C.H.162.)	2/6	$0.60
No. 3.	The Official Vital Statistics of England and Wales. (C.H.270.)	2/6	$0.60
No. 4.	The Official Vital Statistics of the Kingdom of Spain. (C.H.271.)	2/6	$0.60
No. 5.	The Official Vital Statistics of the Republic of Austria. (C.H.348.)	2/6	$0.60
No. 6.	The Official Vital Statistics of the Scandinavian Countries and the Baltic Republics. (Ser. L.o.N.P.1926.III.8.)	2/6	$0.60
No. 7.	The Official Vital Statistics of the Republic of Portugal. (Ser. L.o.N. P.1926.III.9.)	2/6	$0.60
No. 8.	The Official Vital Statistics of the Republic of Czechoslovakia. (Ser. L.o.N.P.1926.III.27.)	2/6	$0.60
No. 9.	The Official Vital Statistics of the French Republic. (Ser. L.o.N.P. 1927.III.2.)	4/–	$1.00
No. 10.	The Official Vital Statistics of the Kingdom of Hungary. (Ser. L.o.N. P.1927.III.3.)	3/–	$0.75
No. 11.	The Official Vital Statistics of Ireland. (Ser. L.o.N.P.1928.III.14.)	2/6	$0.60
No. 12.	The Official Vital Statistics of Switzerland. (Ser. L.o.N.P.1927.III.16.)	2/6	$0.60
No. 13.	The Official Vital Statistics of the Kingdom of Scotland. (Ser. L.o.N. P.1929.III.2.)	2/6	$0.60
No. 14.	The Official Vital Statistics of the Dominion of Canada. (Ser. L.o.N. P.1930.III.1.)	2/6	$0.60

HANDBOOKS FOR THE INTERCHANGES OF PUBLIC HEALTH PERSONNEL:

L'ORGANISATION SANITAIRE DES PAYS-BAS. Vingt-neuf conférences données à l'occasion du voyage d'études organisé par l'Organisation d'hygiène de la Société des Nations, avril-mai 1924. (French text only.) (C.H./E.P.S. 48.)	4/–	$1.00
HEALTH ORGANISATION IN DENMARK. (C.H. /E.P.S. 49.)	8/–	$2.00
HEALTH ORGANISATION IN DENMARK. (C.H. /E.P.S. 49 *(a)*. 1926. III. 4.) (Suppl. to Doc. C.H. /E.P.S. 49.)	1/3	$0.30
HEALTH ORGANISATION IN JAPAN: THIRTY-SIX CONFERENCES GIVEN IN JAPAN ON THE OCCASION OF THE INTERCHANGE STUDY TOUR ORGANISED FOR MEDICAL OFFICERS OF HEALTH FROM THE FAR-EASTERN COUNTRIES by the Health Organisation of the League of Nations. October to December 1925. (C.H.332.)	5/–	$1.20
HEALTH ORGANISATION IN BRITISH INDIA. Articles written on the Health Organisation of British India on the Occasion of the Interchange Study Tour organised for Medical Officers of Health from the Far Eastern Countries by the Health Organisation of the League of Nations, January-February 1928. (C.H.691.1928.III.5.)	12/–	$3.00
COLLECTIVE STUDY TOUR organised by the Health Committee of the League of Nations in the Baltic and North Sea Ports, from September 12th to October 13th, 1926. General Report by Dr. N. M. Josephus Jitta and Dr. C. Stade. (Ser. L.o.N.1928.III.7.)	9d.	$0.20

Complete catalogue sent free on application to

PUBLICATIONS DEPARTMENT, LEAGUE OF NATIONS, GENEVA

Authorised Agents for the Publications of the League of Nations

ARGENTINE
Libreria "El Ateneo", calle Florida 371, BUENOS AIRES.

AUSTRALIA (Commonwealth of)
H. A. Goddard, Ltd., 255A, George Street, SYDNEY.

AUSTRIA
Manz'sche Verlags- und Universitätsbuchhandlung, Kohlmarkt 20, VIENNA I.

BELGIUM
Agence Dechenne, Messageries de la Presse, S. A., 18-20, rue du Persil, BRUSSELS.
Albert Dewit, Rue Royale, 53, BRUSSELS.

BRAZIL
Livraria Vieira Souto, Praça Mauá 7, Sala 620, RIO DE JANEIRO.

BULGARIA
Librairie Française et Etrangère, J. Carasso & Cie, Bd "Tsar Osvoboditel", No. 8, SOFIA.

CANADA
League of Nations Society in Canada, 389, Wellington Street, OTTAWA.

CHILE
Carlos Niemeyer, Librería Universal, Cas. 293, VALPARAISO.

CHINA
Commercial Press Ltd., 501, Paoshan Road, SHANGHAI.

CZECHOSLOVAKIA
Librairie F. Topic, 11, Narodni, PRAGUE.

DANZIG (Free City of)
Georg Stilke, Buchhandlung, Langgasse, 27, DANZIG.

DENMARK
Levin & Munksgaard, Publishers, Norregade, 6, COPENHAGEN.

DUTCH EAST INDIES
Algemeene Boekhandel G. Kolff & Co., BATAVIA-WELTEVREDEN.

ECUADOR
Victor Janer, GUAYAQUIL.

ESTONIA
J. G. Krüger, Ant.-Ges., 11, Rüütli t., TARTU.

FINLAND
Akateeminen Kirjakauppa, HELSINKI.

FRANCE
Librairie universitaire J. Gamber S. A., 7, rue Danton, PARIS (VI^e^).

GERMANY
Carl Heymanns Verlag, Maucrstrasse 44, BERLIN, W.8.

GREAT BRITAIN, NORTHERN IRELAND and the CROWN COLONIES
George Allen & Unwin, Ltd., 38, Gt. Ormond Street. LONDON, W.C.1.

GREECE
"Eleftheroudakis", Librairie Internationale, Place de la Constitution, ATHENS.

GUATEMALA
Goubaud & Cia., Ltda. GUATEMALA.

HAITI
Librairie-Papeterie Mme. D. Viard, angle des rues du Centre et des Casernes, PORT-AU-PRINCE.

HUNGARY
Librairie Grill. Dorottya utca 2, BUDAPEST.

ICELAND
Peter Halldorsson, REYKJAVIK.

INDIA
The Book Company, Ltd., College Square 4/4A, CALCUTTA.

IRISH FREE STATE
Eason & Son, Ltd., 79-82 Middle Abbey Street, DUBLIN.

ITALY
Anonima Libraria Itallana, Direzione Generale, Via Palermo, 12, MILAN. Branches: FLORENCE, GENOA, NAPLES, PADUA, PALERMO, PAVIA, ROME, TRIESTE, TURIN.

JAPAN
League of Nations Tokio Office, Marunouchi-C.-13, TOKIO.
Maruzen Co., Ltd. (Maruzen-Kabushiki-Kaisha), 6, Nihonbashi Tori-Nichome, TOKIO.

LATVIA
Latvijas Telegrafa Agentura, K. Barona Iela, 4, RIGA.

LITHUANIA
Librairie de la Société Lithuano-Française, Laisvés Aleja, 22, KAUNAS.

LUXEMBURG (G.-D.)
Librairie J. Heintzé, M. Hagen, Successeur, Place Guillaume, 8, LUXEMBURG.

NETHERLANDS
Martinus Nijhoff, Boekhandelaar-Uitgever, Lange Voorhout, 9, THE HAGUE.

NEW ZEALAND
The Clarté Bookshop, Walter Nash, 126 Vivian Street, P.O. Box 310, WELLINGTON.

NORWAY
Olaf Norli, Universitetsgaten, 24, OSLO.

PANAMA
Isidro A. Beluche, Apartado 755, Avenida Norte No. 49, PANAMA.

PARAGUAY
Librería Internacional Santiago Puigbonet, Casilla de Correo 581, ASUNCIÓN.

POLAND
Gebethner & Wolff, ulica Zgoda 12, WARSAW.

PORTUGAL
J. Rodrigues & Ca., Rua Aurea, 186-188, LISBON.

ROUMANIA
"Cartea Românească", 3-5, Boul. Academiei, BUCHAREST I.

SAAR BASIN
Gebr. Hofer A.-G., Sortimentsabteilung, SAARBRUCK.

SOUTH AFRICA (Union of)
Maskew Miller, Ltd., 29, Adderley Street, CAPE TOWN.

SPAIN
Centro Editorial "Minerva", Apartado 555, Tudescos 39-41, MADRID, E. 12.

SWEDEN
C. E. Fritze, Hofbokhandel, Fredsgatan 2, STOCKHOLM.

SWITZERLAND
Librairie Payot & Cie., GENEVA, LAUSANNE, VEVEY, MONTREUX, NEUCHÂTEL, BERNE, BASLE.
Librairie Dr. H. Girsberger & Cie, Kirchgasse 17, ZURICH.

TURKEY
Librairie Anadolou Méarif, Boîte postale 45, ANKARA.

UNITED STATES OF AMERICA
World Peace Foundation, 40, Mt. Vernon Street, BOSTON, 9. Mass.

YUGOSLAVIA (Kingdom of)
Librairie Internationale François Bach, 8, rue Knez, Mihallova, BELGRADE.
Librairie de l'Université et de l'Académie Yougoslave, St. Kugli, Ilica, 30, ZAGREB.
Knijgarna "Schwentner", Presernova ulica, LJUBLJANA.

For other countries apply:

Publications Department of the League of Nations, Geneva (Switzerland).