LEAGUE OF NATIONS

Health Organisation.

MEMORANDUM

relating to the

Enquiries into the Causes and Prevention of Still-births

and

Mortality during the First Year of Life.

AUSTRIA, FRANCE, GERMANY,
GREAT BRITAIN,
ITALY, NETHERLANDS, NORWAY.

GENEVA, 1930.

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Geneva, May 31st, 1930.

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CONTENTS

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INTRODUCTION

The enquiries conducted under the auspices of the Health Organisation into the causes and prevention of still-births and of mortality under one year have been completed in several European countries : Austria, France, Germany, Great Britain, Italy, the Netherlands and Norway, and also in the following South American countries : the Argentine, Brazil, Chile and Uruguay. [1]

At their last meeting, when the results of their enquiry were presented, the European experts invited by the Health Organisation to co-operate in these investigations recommended that similar enquiries should be carried out by the health authorities of the various countries. Such enquiries are, in fact, contemplated, or are already proceeding, in the following European countries : Czechoslovakia, Denmark, Roumania, Spain, Yugoslavia and in several countries of South America and of Asia. It is probable that their example will be followed by other countries.

Since the method employed enables the relative importance of the different medical, social and health factors influencing infant mortality in the districts investigated to be estimated, it should greatly assist the various health authorities in determining the causes of infant mortality in their country and deciding upon the most suitable means for its prevention. The data, which will then be available for all countries, will finally make it possible to formulate an international doctrine regarding infant mortality and its prevention.

The Health Section is anxious that a description of the methods employed and of the results obtained in the first European countries in which they have been applied should immediately be placed at the disposal of health authorities, and has accordingly prepared this memorandum for their guidance.

[1] The results of the enquiries carried out in these four South American countries will be published later.

Memorandum relating to the Enquiries into the Causes and Prevention of Still-births and Mortality during the First Year of Life.

Austria, France, Germany, Great Britain, Italy, Netherlands, Norway.

I. PREVIOUS HISTORY.

Of the many problems affecting public health, *infant mortality* is one of the most important for all countries. The Health Committee, desiring to make a thorough investigation of the various problems connected with child welfare, decided at its sixth session, held in April-May 1926, to invite a certain number of experts to draw up a scheme for an international enquiry. This decision of the Health Committee was taken in pursuance of a resolution of the Sixth Assembly of the League of Nations, adopted in 1925 on the basis of a proposal made by the Netherlands delegation.

The first Conference of these experts was held at Geneva in September 1926 and was attended by the following :

Dame Janet CAMPBELL, Senior Medical Officer, British Ministry of Health, London *(Chairman)* ;

Dr. T. CLARK, of the United States Public Health Service, Paris ;

Professor A. COLLETT, specialist in children's diseases, Oslo ;

Professor R. DEBRÉ, Médecin des Hôpitaux, Paris ;

Professor C. GINI, President of the Central Statistical Institute of the Kingdom of Italy, Rome ;

Professor E. GORTER, Director of the University Child Clinic, Leyden ;

Professor C. PIRQUET, Director of the University Child Clinic, Vienna ;

Professor ROTT, Director of the State Institute for the Prevention of Infant Mortality, Berlin-Charlottenburg.

After the death of Professor Pirquet, which was deeply regretted, the enquiry in Austria was continued by Professor E. NOBEL, his senior assistant.

Up to the present, investigations into infant mortality have been mainly based on statistics ; the experts accordingly agreed to employ a special method which should make it possible to analyse the causes of infant mortality in the various countries or districts, not merely from the statistical, but also from the social, medical and hygienic standpoint.

After preliminary studies, this method was decided upon at a second Conference held in Paris in January 1927.

II. ORGANISATION AND PURPOSE OF THE ENQUIRY.

In studying the complex problem of infant mortality, it is necessary to take into account the widely different local conditions and large number of individual factors influencing this mortality. The enquiry was therefore organised in such a way as to include the very varied conditions prevailing in each country, as well as all details which might throw light on the cause of each death observed.

Certain circumscribed areas were selected in the countries to which the experts belonged ; these areas included urban and rural districts, in each of which precise data relating to the medical, social and hygienic causes of death were collected for each death under one year.

As the causes of still-birth are still so obscure, a thorough investigation of each still-birth was included in the enquiry.

SELECTION OF DISTRICTS.

In making their selection for the purpose of the enquiry, the organisers endeavoured to choose districts of the same type — *i.e.*, urban districts or rural districts — which should be comparable as regards population and the number of infants included in the enquiry. A population of from 100,000 to 200,000 inhabitants was considered necessary for each district in order that the number of deaths under one year and of still-births should be sufficient for the purposes of the enquiry. Where this was impossible, several similar districts were grouped together, so as to include approximately this number of inhabitants.

For each district, a thorough investigation was undertaken of infant mortality statistics for the years preceding the enquiry and also of the climatic, geographical, social and health conditions ; by this means full knowledge of the general situation in the various districts was obtained and formed a valuable complement to the data furnished by the actual enquiry.

PERSONS WHO ASSISTED IN THE ENQUIRY.

In each country, the expert invited by the Health Organisation took charge of the enquiry, which, in every case, dealt — on a uniform basis for all districts and countries — with the problem from a three-fold point of view — medical, social and hygienic. One or more investigators were appointed by the experts in each district, and, in view of the primary importance of medical causes, the assistance of children's specialists[1] was in every case enlisted for the purpose of throwing light upon this important

[1] The collaboration of an obstetrician is also indispensable.

part of the problem. In the majority of cases, the investigators were themselves children's specialists or general practitioners. They were usually assisted by visiting nurses.

It is obvious that an ideal enquiry would be one in which, during the given period, all confinements and infants were observed and attended by the investigators themselves in the respective districts. This ideal could not be attained save in exceptional cases, and, as a rule, it was necessary in the course of our enquiry to reconstruct the diagnosis after death. It was therefore indispensable to obtain from the competent authorities rapid notification of deaths, and, in order to collect all the necessary information and to arrive at accurate conclusions, the investigators were obliged as soon as they received this notification :

For the medical part of the enquiry : To apply to the doctor attending the case, the family, midwife, staff of the maternal and infant welfare centre, hospital, maternity hospital, pre- and post-natal consulting clinic, etc ;

For the social and hygienic part of the enquiry : To visit the child's home, to obtain information from the visiting nurse, the officials in the registrar's office, clergymen, school-teachers or any other person acquainted with the immediate environment of the deceased infant.

UNIFORMITY OF THE METHODS OF ENQUIRY.

With a view to making the data collected as comparable as possible, the particulars were obtained by uniform methods.

INDIVIDUAL ENQUIRY FORM.

The same form was drawn up in the language of each of the countries participating in the enquiry, for the compilation of ample and complete medical, hygienic and social data for each death observed (see inset form, between pages 12 and 13).

NOMENCLATURE OF CAUSES OF DEATH UNDER ONE YEAR AND OF STILL-BIRTHS.

In view of the differences in classification employed in the various countries, a uniform nomenclature for diseases of early infancy and for the causes of still-birth was drawn up and used by the experts (Annexes III and V).

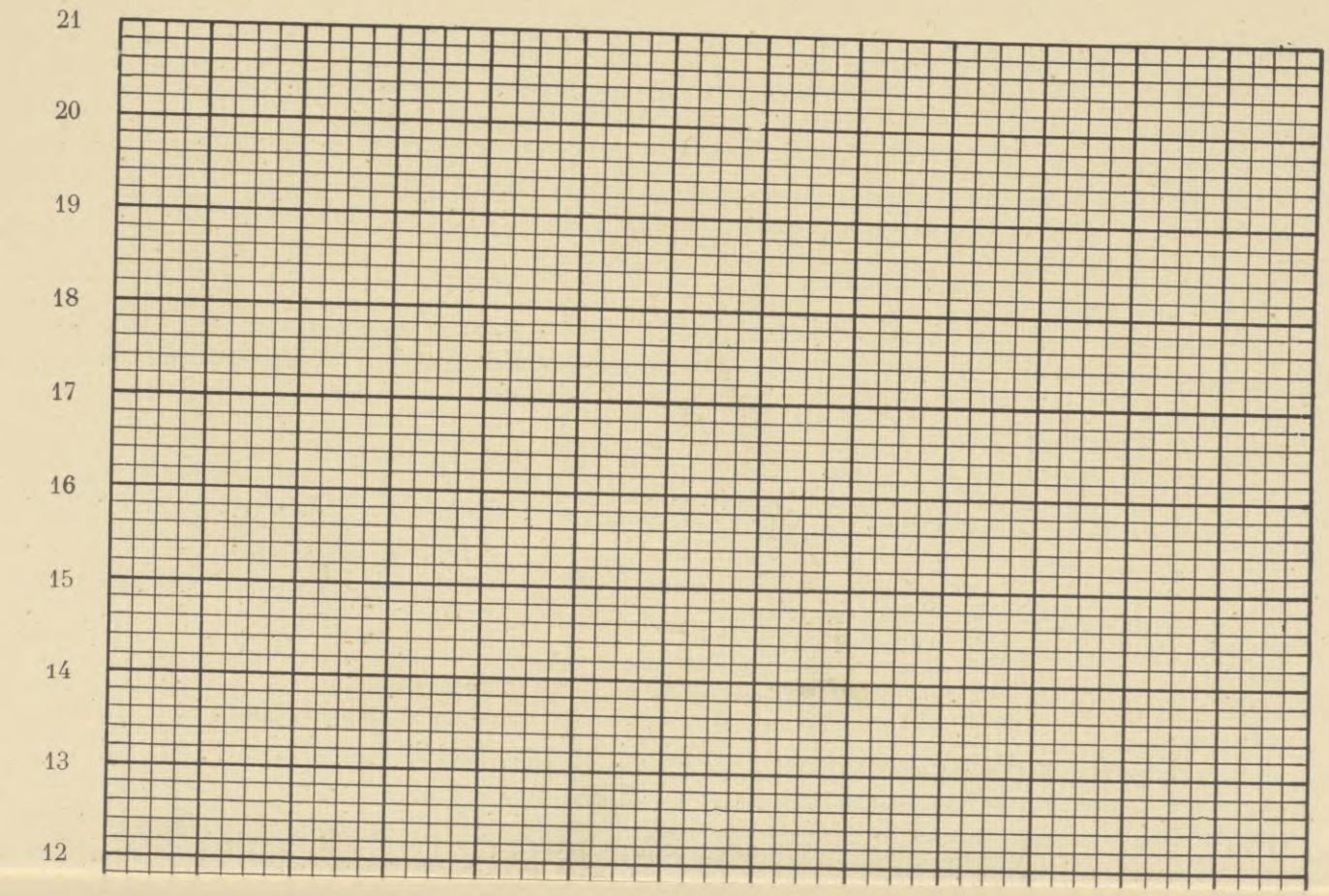
DEFINITION OF STILL-BIRTH.

In view of the different interpretations given in the various countries to the term " still-birth ", the definition of still-birth proposed in March 1925 by a Committee of the Health Organisation was adopted by the experts (see Annex II).

WEIGHT CARD (WEEKLY)

Name (or Identification No.)..... Born on the .....

Pounds



II. CHILD'S FAMILY *(concluded).*

4. *Father:*
   - (*a*) Age: .....
   - (*b*) Health: .....
   - (*c*) Nature of occupation (employer or employee, regularity, unemployment): .....
   - (*d*) Does he live with child's mother? .....
     If not, cause of separation (illegitimate child, death, hospital, divorce, separation, journey, military service): .....

5. *Mother:* Dead or living: .....
   - (*a*) Date and cause of her death: .....
   - (*b*) Age: .....
   - (*c*) State of health: .....
   - (*d*) Town or country bred: .....
   - (*e*) Occupations:
     - (*i*) Before marriage, at home or outside: .....
     - (*ii*) After marriage: .....
     - (*iii*) Work during last pregnancy: .....
     - (*iv*) Previous pregnancies: .....
   - (*f*) Previous pregnancies:

	Mis-carriage, Still-birth, Living	Healthy or ailing	If dead, cause and age		Mis-carriage, Still-birth, Living	Healthy or ailing	If dead, cause and age
1st pregnancy				6th pregnancy			
2nd »				7th »			
3rd »				8th »			
4th »				9th »			
5th »				10th »			

How many surviving children has the mother to look after ? .....

III. THE BIRTH.

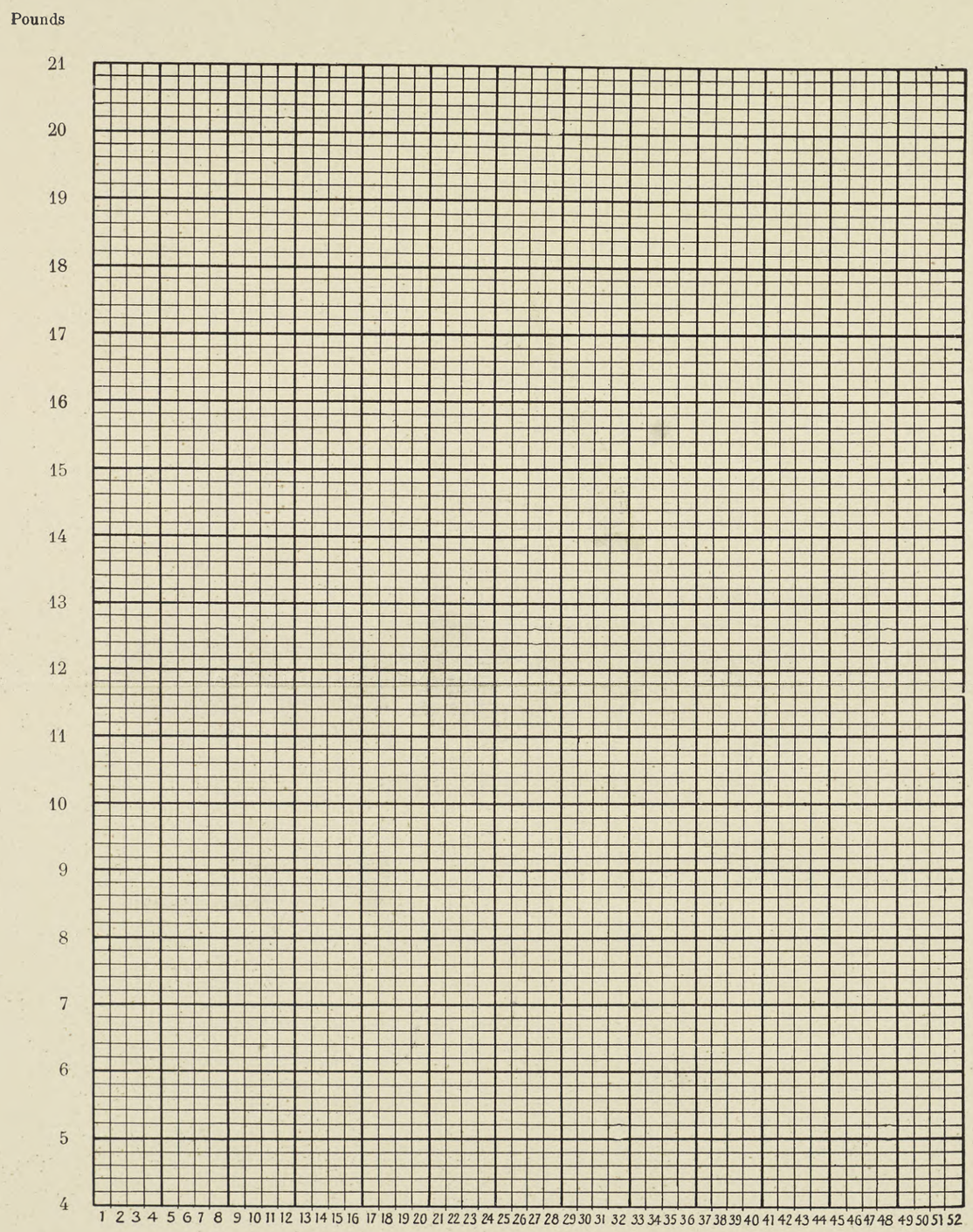
1. *Pre-natal supervision* (doctor, midwife, institution): .....
2. *Birth:*
   - (*a*) Place of birth (at home, elsewhere — maternity, midwife, hospital): .....
   - (*b*) Attendance: doctor, midwife, unqualified person: .....
   - (*c*) Character of labour (presentation, duration, obstetric complications, operative treatment, etc.): .....
   - (*d*) Lying-in period (normal, febrile, special nursing or medical treatment): .....

IV. THE INFANT.

1. *Child at birth* (twin):
   - (*a*) Still-born: fœtal age: .....
   - (*b*) Live-birth, whether premature: .....
   - (*c*) General condition (normal, weakly, any congenital defects): .....
   - (*d*) Weight at birth: .....
2. *Civil status:*
   - (*a*) Born in wedlock: .....
   - (*b*) Born out of wedlock: .....
   - (*c*) Recognised as legitimate: .....
3. *Method of upbringing:*
   - (*a*) In family; if elsewhere, with whom, why, where and since when? .....
   - (*b*) Quality of general management of infant: .....
   - (*c*) Efficiency of mother: .....
   - (*d*) Medical supervision (attendance at infant welfare centre, private practitioner, etc.): .....
4. *Feeding:*
   - (*a*) Breast only (period): .....
   - (*b*) Breast and artificial (period): .....
   - (*c*) Artificial only (period) and reason why: .....
   - (*d*) Nature of artificial feeding:
     Suitability in quantity and quality? .....
     Was water used for dilutions pure or otherwise ? ..... Was it boiled ? .....
     Was milk used pure or otherwise ? ..... Was it boiled ? .....
5. *Medical and pathological history:*
   - (*a*) Dentition, general nutrition (weight curve): .....
   - (*b*) Was development in accordance with age ? .....
   - (*c*) Illnesses: special treatment (by private practitioner, hospital, clinic): .....
6. *Death:*
   - (*a*) Where did death take place ? .....
   - (*b*) Cause of death indicated on death certificate:
     - (*i*) Principal cause: .....
     - (*ii*) Contributory causes: .....
   - (*c*) By whom was death certified (physician or other person) ? .....
   - (*d*) Complete clinical history and exact diagnosis of illness which caused death: .....
   - (*e*) Autopsy findings: .....
   - (*f*) Personal observations of the Investigator: .....

WEIGHT CARD (WEEKLY)

Name (or Identification No.)..... Born on the .....



A.

INDIVIDUAL ENQUIRY FORM [1]

Name of child (or Identification No.).....

Address of parents .....

Date of birth .....

Date of death .....

Sex .....

Religion (optional) .....

Race, Nationality .....

I. GENERAL INFORMATION.

1. *District, exact address of family:* .....

2. *Living conditions of family :*
   - (*a*) Rent (tenant or sub-tenant): .....
   - (*b*) Accommodation (including bedrooms and beds): .....
   - (*c*) Did parents occupy dwelling since birth of child, or, if not, since when ? .....
   - (*d*) Number of occupants of dwelling:
     - (*a*) Under 15 years .....
     - (*b*) Over 15 years .....
   - (*e*) Health conditions of dwelling:
     - (*a*) Water-closet arrangements (sole use or shared) .....
     - (*b*) Cleanliness .....
     - (*c*) Sunlight and outlook .....

II. CHILD'S FAMILY.

1. *Morbid history of family during lifetime of infant.*

2. *Family circumstances* (comfortable, moderate, indigent):

3. *Insurance:* If father or mother insured, do medical benefits extend to the child and, if so, how?.....

   Does the family benefit from family allowances; if so, specify? .....

[1] The original forms are printed on card.

A.

INDIVIDUAL ENQUIRY FORM [1]

UNIFORM INSTRUCTIONS TO INVESTIGATORS.

Lastly, with a view to providing all the persons taking part in the enquiry with a general outline of its principles, a brief description of its objects and an explanatory note on the utilisation of the questionnaire were given (Annexes I and II).

NATIONAL AND INTERNATIONAL CO-ORDINATION OF THE ENQUIRY.

For the purpose of ensuring uniformity, the Director of the enquiry in each country kept in personal and constant touch with the district investigators and persons assisting them.

Frequent contact was maintained between the experts in the various countries by means of periodical conferences,[1] while certain experts and investigators visited districts in other countries. International co-ordination was ensured by the visits of a member of the Health Section to the places in which the enquiry was being conducted, by the exchange of correspondence and information concerning the progress of the work.

DISTRICTS IN WHICH THE ENQUIRY WAS CARRIED OUT IN THE EUROPEAN COUNTRIES IN QUESTION.[2]

The districts finally selected for the enquiry were as follows :[3]

Country	Nature of district	District
Austria	Urban	Vienna, Districts VI, VII, VIII and X.
	Rural	Schärding and Engelhartszell.
		Gmunden.
France.	Urban	Plaisance.
		Vanves
	Rural	Pays de Bray.
		Pays de Caux.
		Lochois and Chinonais.

[1] List of meetings and conferences of the Committee of Health Experts on Infant Welfare (Europe) :
1. Meeting at Geneva, September 27th to 29th, 1926.
2. „ „ Paris, January 17th to 20th, 1927.
3. „ „ Vienna, September 26th to 28th, 1927.
4. „ „ London, July 3rd to 5th, 1928.
5. „ „ Rome, March 25th to 28th, 1929.

[2] See map, page 14.

[3] Certain districts originally chosen had to be left out owing to the reluctance of the doctors attending the cases to assist in the enquiry.

DISTRICTS IN WHICH THE ENQUIRY WAS CARRIED OUT IN THE EUROPEAN COUNTRIES IN QUESTION.

DISTRICTS IN WHICH THE ENQUIRY WAS CARRIED OUT IN THE EUROPEAN COUNTRIES IN QUESTION *(continued)*.

Country	Nature of district	District
Germany	Urban	Augsburg.
		Cassel.
		Lippe.
	Rural	Mecklenburg-Strelitz.
Great Britain.	Urban	Sunderland.
		Croydon.
	Rural	Staffordshire (4 boroughs).
		Oxfordshire.
Italy.	Urban	Rome (whole city)
	Rural	Agro Romano.
Netherlands.	Urban	Leyden.
		Dordrecht.
		Breda.
		Maestricht.
	Rural	Emmen.
		Hoensbroek.
Norway	Urban	Oslo West.
		Oslo East.
	Rural	Hedmark.

In Austria, Germany, the Netherlands and Norway, the enquiry began on January 1st, 1927, in Great Britain on March 1st, in France on April 1st, and in Italy on June 1st.

DURATION OF THE ENQUIRY.

In every case the enquiry covered a period of one year.

DETAILS CONCERNING THE ORGANISATION AND EXTENT OF THE ENQUIRY IN EUROPEAN COUNTRIES.

(See list of persons assisting in the enquiry, Annex VI.)

In all the countries selected, the enquiry was organised and carried out on the lines described above. These principles had, of course, to be adapted to local

[1] A summary of the results of the enquiry in Italy, which ended later than in the other countries, will be found on page 54 (Chapter IV).

conditions, as shown by the following particulars, which give an idea both of the extent and complexity of the organisation required and of the value of the results obtained.

As regards the extent of the enquiry in the six European countries, we would point out that the number of cases in the twenty-five districts was 4,966 [1] including 3,526 deaths under one year, and 1,440 still-births, distributed as follows :

District	Deaths under one year	Still-births	Total
Austria :			
Vienna, Districts VI, VII and VIII	36	26	62
Vienna, District X.	207	35	242
Schärding and Engelhartszell	135	18	153
Gmunden	89	21	110
	467	100	567
France :			
Pays de Bray	280	70	350
Pays de Caux	212	90	302
Lochois and Chinonais	66	28	94
Plaisance and the Zone of fortifications	124	26	150
	682	214	896
Germany :			
Augsburg	259	75	334
Cassel	214	116	330
Lippe.	182	95	277
Mecklenburg-Strelitz	268	90	358
	923	376	1,299
Great Britain :			
Sunderland	332	144	476
Croydon	166	105	271
Oxfordshire	91	65	156
Staffordshire.	111	69	180
	700	383	1,083
Netherlands :			
Leyden	50	41	91
Dordrecht.	39	30	69
Breda.	50	21	71
Maestricht	89	39	128
Emmen	84	53	137
Hoensbroek	190	32	222
	502	216	718

[1] Not including the figures for Italy where the enquiry has covered 2292 cases of deaths under one year or of still-births (see Chapter IV, page 54).

District	Deaths under one year	Still-births	Total
Norway :			
Oslo West	21	20	41
Oslo East	91	41	132
Hedmark	140	90	230
	252	151	403
Total	3,526	1,440	
For the 25 districts	4,966		

Austria.

The enquiry covered four districts — two rural districts, Schärding and Engelhartszel and Gmunden, and two urban districts, Vienna Districts VI, VII and VIII and Vienna District X.

The enquiry was conducted by Professor Pirquet, with the help of Professor Nobel.

In *Vienna*, the medical and social parts of the enquiries in the two districts were carried out by two women doctors and a children's specialist. These three doctors visited the house of each infant and made supplementary enquiries of the doctor attending the case, the midwife, hospital, etc.

The assistance of the Municipal Health Service was also secured; in particular, the statistician attached to this service was good enough to help in the enquiry.

In the urban districts, the assistance of three children's specialists was thus obtained. These specialists paid personal visits and obtained data for each case. In spite of this, it was not possible in all cases of still-birth to obtain the necessary information, and there were also a certain number of cases of deaths under one year on which information could not be obtained.

As regards the *rural districts*, the chief medical officer of the Child Welfare Service at Linz conducted the enquiries either in person or with the help of a woman specialist in children's diseases and the assistance of the visiting nurses attached to the infant-welfare clinics at Schärding and Gmunden.

The conditions prevailing in the rural districts made the enquiry particularly difficult. The defective means of communication, great distances to be covered, and lack of medical practitioners also made it very difficult for the investigators to visit homes and to obtain accurate medical information.

Thanks to the persistent efforts of the investigators, however, the results of the enquiry into deaths under one year bear comparison with those obtained in the best districts, whereas particulars relating to still-births were often impossible to obtain. This is quite comprehensible, in view of the low intellectual level of the population and of the midwives to whom the applications for this information had to be made.

France.

The enquiry covered the five following districts : two urban districts, the quarter of Plaisance and the Zone of fortifications (District XIV of Paris) and the town of Vanves (Department of Seine, a suburb of Paris) ; three rural districts, the Pays de Caux and the Pays de Bray in Normandy (Department of Seine-Inférieure) and the Lochois and Chinonais (Department of Indre-et-Loire).

The enquiry was conducted by Professor Debré with the help of Dr Joannon and Mlle Crémieu Alcan. For the rural districts of Seine-Inférieure, it was possible to make use of the services of the Departmental Health Organisation. Owing to the lack of a service of visiting nurses, it was necessary to apply to the officials in the registrar's office for information relating to the social part of the enquiry. The latter notified the Health Department's investigator of deaths declared and also furnished accurate details of the housing and economic situation of the family of all deceased infants. The doctors attending the cases furnished medical information. A certain number, however, were unwilling to co-operate in the enquiry for fear of violating professional secrecy. In order to obviate these difficulties, the questionnaires for France were arranged in such a way that the part intended for the enquiry bore an identification number only, while the part containing, in addition to this number, the name of the child, remained in the doctor's hands ; in this way, there was no violation of professional secrecy, which is so jealously guarded in that country.

Owing to overwork, other doctors could not find time to furnish the necessary data to the investigator.

The districts of Seine-Inférieure were visited twice a month by one of the investigators, with a view to keeping in touch with the departmental health inspector and with the medical practitioners in the district. A special correspondence was also conducted for the purpose of stimulating the interest of medical men and of the officials in the registrar's offices and of enlisting their help.

It is somewhat difficult to estimate the value of the information collected in the districts of this Department, inasmuch as the questionnaires were filled in by a large number of persons (medical practitioners, officials in the registrar's office, etc.). Thus, the number of deaths unexplained owing to the absence of any enquiry amounted, in the Pays de Bray, to 40 out of 280 deaths, and, in the Pays de Caux, to 28 out of 212 deaths.

As regards still-births, the proportion of deaths unexplained owing to the absence of any enquiry was still higher, amounting to 28 out of 70 still-births in the Pays de Bray and to 43 out of 90 still-births in the Pays de Caux. Nevertheless, the information collected was very carefully sifted and, as regards deaths under one year, it was possible to correct the diagnoses in 41 % of the total number for the Pays de Bray, and in 32 % for the Pays de Caux ; and, as regards still-births, in 45 % for the Pays de Bray and 38 % for the Pays de Caux.

In the rural district of the Department of Indre-et-Loire, use was also made of the services of the health organisation already in existence. Each death was notified through the registrar to the Departmental Health Inspector, who acted as regional investigator. As in the Department of Seine-Inférieure, the medical information was given by the doctor attending the case. The visiting nurses attached to the Anti-tuberculosis Committee for Chinon and Loches visited families in their homes and filled up the part of the questionnaire relating to social questions. The doctors kept in constant touch with the Director of the enquiry and all (with a very few exceptions) obtained the desired information.

In this district, out of a total of 94 deaths, 7 were unexplained owing to inadequate medical information. The results obtained by the enquiry must, therefore, be regarded as satisfactory, and, thanks to the help of the doctors and the good work done by the visiting nurses entrusted

with the social part of the enquiry, the causes and circumstances of nearly all deaths were ascertained.

In the urban district of Plaisance and the Zone of Fortifications (District XIV of Paris), ample information was obtained, thanks to the head of the Maternal and Infant Welfare Centre of Plaisance and of the nurses under her.

As soon as the deaths were notified by the registrar for District XIV, medical information was collected by the doctor in charge of the dispensary (who acted as regional inspector), either from maternity or children's hospitals (this was done in a large number of cases) or from the doctors attending the case.

The social enquiry was also conducted by the district director of the enquiry, through the nurses attached to the Maternal and Infant Welfare Centre of Plaisance.

In this district the enquiry covered 150 deaths, and only in 4 cases was it impossible to carry out the social and medical investigations.

On the whole, the cards were filled in satisfactorily and the number of " details unknown " was very small.

The social information was of special value, thanks to the competence of the nurses by whom it was obtained, and the medical data were also collected under satisfactory conditions either from doctors, the hospital or the dispensary.

In the district of *Vanves* (a suburb of Paris), the enquiry covered, not only still-births and infant mortality under one year, but also living children under one year whose progress was watched until they had completed their twelfth month. The deaths were notified to the Director of the Health Office of Vanves, who is a Director of the " Ecole de pratique sanitaire " and who placed the services of this organisation at the disposal of the investigators.

Social information was obtained by the nurses and medical information by the doctors of Vanves.

As regards living children, births were likewise notified by the registrar, and each infant was visited several times at its home by the nurses until it had attained the age of one year.

Germany.

The enquiry covered four districts — two urban districts, Augsburg and Cassel, and two rural districts, Lippe and Mecklenburg-Strelitz.

The organisation of the enquiry in this country differed from that of the others — except as regards the French district of Vanves — in that it related, not only to deaths occurring in 1927, but to all births during 1927 and 1928, and to infants during the first year of life. An enquiry of this kind gives the whole history of infants for the first year of their lives ; it thus furnishes very complete morbidity and mortality statistics and enables the risks for the various groups of children living in different environments to be estimated.

As, however, the organisation of such an enquiry requires lengthy preparation and considerable financial resources, it was necessary to confine it to the districts in question.

* * *

The enquiry was conducted by Professor F. Rott, with the help of his assistant.

At *Augsburg*, the district medical officer, who is a specialist in children's diseases, was responsible for the enquiry, for which two visiting nurses were specially engaged.

At *Cassel*, the chief municipal medical officer, with the help of the principal medical officer of an infant welfare centre, directed the enquiry. A visiting nurse was specially employed for house visiting.

In both towns the medical officers of the health services, infant welfare centres and all other similar institutions willingly gave their assistance.

At *Lippe*, the Director of the Government Health Service directed the enquiry himself, with the help of the senior visiting nurse of the district and of the visiting nurses under her.

Owing to the particularly favourable circumstances obtaining in the three German districts mentioned above, it was possible to carry out the enquiry under excellent conditions, although the work was somewhat hampered in the urban districts on account of the women investigators being greatly overworked.

At *Mecklenburg-Strelitz*, on the other hand, the enquiry was very difficult to organise owing to the lack of a child welfare service in the rural part of the district; consequently, it was no easy matter to obtain information, and the difficulties were increased by the defective means of communication. For these reasons, the medical diagnoses for this district are not always very accurate, and the other information is not altogether complete. The enquiry was co-ordinated by the medical adviser to the Ministry with the help of a nurse. Two other visiting nurses had to be specially engaged for the enquiry. Their work was made very difficult both on account of the lack of communications and of the distances they had to travel. These difficulties were aggravated by the exceptionally wet weather which prevailed during the year of the enquiry.

Great Britain.

The enquiry covered four districts — two urban districts, Sunderland and Croydon, and two rural districts in Oxfordshire and Staffordshire.

The enquiry was conducted by Dame Janet Campbell.

In this country the medical officers of health in the various districts gave every assistance in their power and obtained the information from their colleagues and from visiting nurses. They also organised special lectures to explain the purpose of the enquiry to medical practitioners and thus obtained their help and that of the directors of hospitals and other important institutions. A highly qualified specialist in children's diseases gave his advice and assistance in checking the medical diagnoses, so that a uniform interpretation of the results was ensured.

At *Sunderland*, the enquiry was conducted by the principal medical officer of health in that town.

At *Croydon*, the medical officer of health was in charge of the enquiry, which was carried out by one of his colleagues with the assistance of visiting nurses.

In *Staffordshire*, the medical officer of health for the county directed the enquiry and was mainly assisted by two chief visiting nurses, inspectors of midwives.

In *Oxfordshire*, the enquiry was conducted by the medical officer of health for the county, while a large number of personal investigations were undertaken by the principal public health nurse, with the help of the staff under her.

Thanks to the efficient organisation of the enquiry and to the competence of the investigators, who contributed to the value of the results by their special knowledge of the living conditions of many of the families, and also to the uniform manner in which the diagnoses were verified from the pediatric standpoint, the data collected were very complete and are therefore of special value.

Netherlands.

The enquiry covered six districts — four urban, Leyden, Dordrecht, Breda and Maestricht, and two rural, Emmen and Hoensbroek.

In each district the enquiry, which was directed by Professor Gorter, was entrusted to a specialist in children's diseases, an ex-student of the University Clinic of Leyden.

Consequently, it was possible to obtain uniform medical diagnoses, which helped the organisation of the work.

The social part of the questionnaires was filled in by the visiting nurses attached to the various infant welfare clinics in the towns, and in the district of Emmen by a midwife. In the district of Hoensbroek, the wife of the medical investigator undertook this part of the enquiry with the help of her husband. The assistance of medical practitioners, hospitals, consulting clinics and other institutions was also secured.

The national co-ordination of the enquiry was ensured by frequent meetings between all the participants and periodical visits by Professor Gorter to the selected districts.

At *Leyden*, it was possible in the majority of cases to form a fairly accurate opinion of the causes of death, as the number of unknown causes was very small. However, notwithstanding the extremely favourable circumstances, the information relating to still-births was not altogether satisfactory, because a post-mortem examination was not possible in all cases, even as regards still-births which occurred in the hospital.

At first sight, the value of the enquiry would appear to be somewhat limited owing to the small number of deaths of infants occurring in the town; but, as will be seen later, the results of the enquiry at Dordrecht, where conditions are practically the same as at Leyden, confirm — both as regards absolute figures and the proportions of the various causes of death — all the observations made at Leyden.

The excellent manner in which the enquiry was organised in the town of *Dordrecht* made it possible to obtain very accurate results, which coincided almost exactly with those for the town of Leyden.

At *Breda*, owing to friction between the medical practitioners and the health authorities, and also between the various welfare institutions, the co-ordination of the enquiry in this town was somewhat difficult.

Notwithstanding these unfortunate circumstances, omissions are very few. With rare exceptions, the purely medical data are correct ; owing, however, to the difficulties mentioned above, the social information is in some cases less accurate and was particularly difficult to obtain in regard to cases of still-birth.

At *Maestricht*, thanks to the close co-operation between the investigators, medical practitioners, the two infant welfare clinics in the town and the hospital, the enquiry yielded accurate results both from the medical and social points of view.

At *Emmen*, in spite of the difficulty of co-ordinating the information owing to the size of the district and inadequate means of communication, the medical information obtained was of great value, thanks to the wholehearted support of medical practitioners ; owing, however, to the comparatively low intellectual level of the population, the information relating to the social status of families was not always as accurate as could be desired.

At *Hoensbroek*, owing to the fact that both the doctors and midwives in this district are greatly overworked, the medical diagnosis was not always very reliable. The work, more especially as regards the obtaining of information from the various institutions, was also hampered by the difficulty in finding competent helpers. Finally, as the intellectual level of the population — and especially that of the resident foreigners — is not very high, the information furnished by families was not always very accurate.

Norway.

In this country, the enquiry covered three districts — two urban, the East and West parts of the town of Oslo, and one rural, the province of Hedmark.

The enquiry at *Oslo* was directed by Dr. Collett, with the help of a specialist in children's diseases, who is an official of the Health Department of Oslo.

The social part of the questionnaires was filled in by a nurse in the Health Department of Oslo.

The help of the Director of the Health Department and of the various directors of hospitals, clinics, etc., and also of medical practitioners was secured.

In this city, the enquiry was conducted under favourable conditions and the data obtained are thus of special value.

In organising the enquiry in the province of *Hedmark*, many obstacles were encountered, owing to the size of this vast district and the difficulty of getting from one part to another, which hampered the work, especially in winter.

The enquiry was carried out, under the Director of the Health Service, by the twenty-six district medical officers and by a few private practitioners.

As none of these medical men was a specialist for children's diseases, the diagnoses were carefully examined by Dr. Collett himself.

Despite the obstacles encountered in this district, owing to difficult communications and the extremely severe weather which prevailed during the winter, the information collected was of great value. Notwithstanding the large number of medical men who took part, the uniformity of the data was ensured by periodical meetings between them and Dr. Collett.

III. DATA FURNISHED BY THE ENQUIRIES IN AUSTRIA, FRANCE, GERMANY, GREAT BRITAIN, THE NETHERLANDS AND NORWAY

INFANT MORTALITY RATE IN THE VARIOUS DISTRICTS.

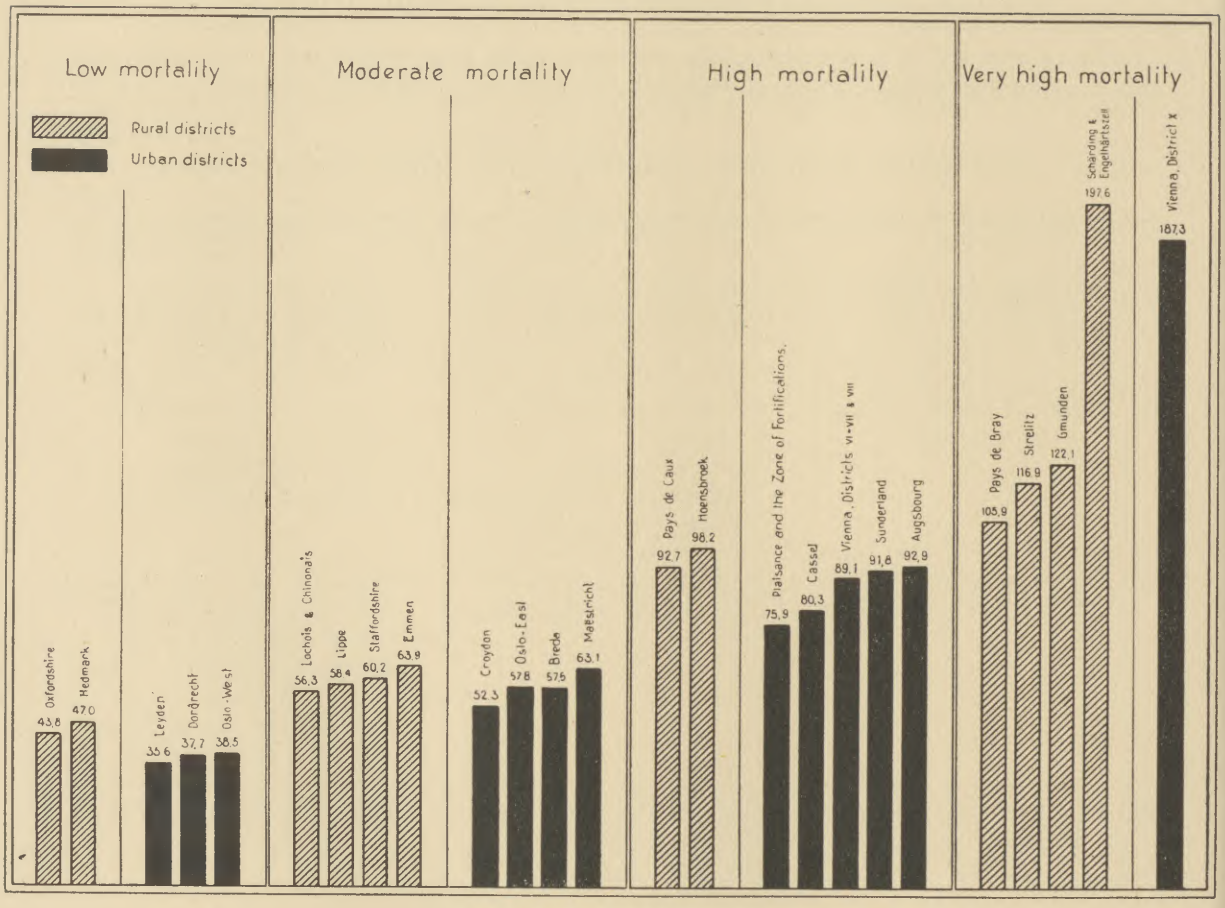
For purposes of comparison, the districts have been arranged in the following order according to their infant mortality rate under one year (see diagram, page 24) :

Arrangement of Districts according to their Infant Mortality Rate.

Classification	Rural districts	Urban districts
I. Low infant mortality : 3.5 - 4.9 per cent	Oxfordshire (Great Britain) Hedmark (Norway)	Leyden (Netherlands) Dordrecht (Netherlands) Oslo West (Norway)
II. Moderate infant mortality : 5 - 6.9 per cent	Lochois and Chinonais (France) Lippe (Germany) Staffordshire (Great Britain) Emmen (Netherlands).	Croydon (Great Britain) Oslo East (Norway) Breda (Netherlands) Maestricht (Netherlands)
III. High infant mortality : 7 - 9.9 per cent	Pays de Caux (France) Hoensbroek (Netherlands)	Plaisance and the Zone of fortifications (France) Cassel (Germany) Vienna, Districts VI, VII and VIII (Austria) Sunderland (Great Britain) Augsburg (Germany)
IV. Very high infant mortality : 10 per cent and over	Pays de Bray (France) Strelitz (Germany) Gmunden (Austria) Schärding and Engelhartszell (Austria).	Vienna, District X (Austria).

In the countries in which they were carried out for a period of one year, the enquiries have furnished results bearing upon the widely different aspects of infant mortality and have suggested means for its prevention for the guidance of the authorities concerned.

Arrangement of Districts according to their Infant Mortality Rate.



NATIONAL REPORTS.

The data collected in the participating countries have been set forth in detail by each expert in the national reports published separately, which should be consulted by those who desire to obtain fuller knowledge of the work done in each of the areas selected. We shall therefore confine ourselves to a brief review of the principal characteristics of the districts in which the enquiries have so far been undertaken, followed by a summary of the most striking observations.

The districts selected in the countries in question differ widely not only from the point of view of infant mortality, which varies in the different districts from 35.6 per 1,000 live births to 197.6 per 1,000 live births, but also as regards general, social and hygienic conditions.

PRINCIPAL CHARACTERISTICS OF THE GENERAL, SOCIAL AND HYGIENIC CONDITIONS IN THE DIFFERENT DISTRICTS.

(See Table, Annex VIII.)

A. Rural Districts.

1. *Districts with a Low Infant Mortality.*

Oxfordshire. — British district, mainly agricultural ; population in many cases of slow mentality ; social and housing conditions poor ; hygienic conditions good ; cases of mothers working rare ; child welfare work well organised ; breast-feeding usual. During the enquiry, two-thirds of the pregnant women underwent pre-natal supervision.

Hedmark. — A very extensive Norwegian agricultural and forest district ; means of communication difficult ; housing and social conditions of families indifferent or bad ; hygienic conditions usually favourable ; child welfare organisation inadequate ; pre-natal supervision rare ; breast-feeding usual.

2. *Districts with a Moderate Infant Mortality.*

Lochois and Chinonais. — A prosperous part of France (" The Garden of France "), semi-wine growing, semi-agricultural ; population enlightened and sociable ; housing and social conditions of families satisfactory or moderate ; drunkenness rare ; hygienic conditions satisfactory ; child welfare organisation little developed ; breast-feeding and artificial feeding employed in almost equal proportions ; pre-natal supervision not systematically organised ; confinements attended by doctors or qualified midwives (no untrained midwives) ; pregnant peasant women frequently overworked.

Lippe. — A fairly prosperous German agricultural and forest district ; one-half of the female population works ; hygienic conditions favourable ; housing fairly good ; social conditions often bad ; child welfare organisation good ; breast-feeding common ; pre-natal supervision very rare.

Staffordshire. — British district, semi-agricultural, semi-mining ; housing and social conditions rather poor ; unemployment rare ; work of pregnant women usually not excessive ; approximately one-half of the pregnant women underwent pre-natal supervision ; child welfare work well organised ; breast-feeding more common than artificial feeding.

Emmen. — A large Dutch district consisting mainly of peat-bogs and to some extent agricultural ; a large number of unemployed ; social conditions and housing in many cases very bad ; very high birth rate ; breast-feeding very common ; child welfare centres and clinics for pre-natal supervision only now being organised.

3. *Districts with a High Infant Mortality.*

Pays de Caux. — A French district in Normandy, mainly agricultural ; peasant population, often suspicious and superstitious ; very backward as regards hygienic conditions ; living conditions frequently bad among agricultural workers ; drunkenness fairly common ; the peasant women are overworked ; no pre-natal supervision in 50 per cent of the cases ; much harm done by untrained midwives ; child welfare organisation undeveloped ; feeding of infants defective.

Hoensbroek. — A Dutch district, almost exclusively mining ; rapidly expanding economically ; housing conditions favourable, but intellectual level of the population not on a par with those conditions ; many young married couples ; population partly foreign ; consulting clinics for infants exist but are little used ; doctors and midwives overworked.

4. *Districts with a Very High Infant Mortality.*

Pays de Bray. — French district in Normandy, almost entirely agricultural (dairy industry) ; fairly prosperous ; general conditions similar to those in the Pays de Caux ; fewer small towns than in that district ; population less able to benefit by urban medical organisations.

Mecklenburg-Strelitz. — A German agricultural district ; communications defective ; many large, old properties ; population mainly consists of labourers, employees and servants living under bad conditions ; rural hygiene defective ; attitude of population frequently sullen ; child welfare centres exist in only a few towns ; female labour common ; pre-natal supervision rare.

Gmunden. — A mountainous Austrian district, mainly agricultural ; communications very difficult ; a population of small farmers and indigent agricultural labourers ; social and economic conditions mainly bad ; housing poor ; women's work excessive ; child welfare centres exist but are run under difficult conditions ; a very high percentage of illegitimate births ; feeding usually artificial.

Schärding and Engelhartszell. — An Austrian district, mainly agricultural and forest land ; communications particularly difficult ; intellectual level of the population below the average ; housing conditions poor ; social conditions rather or very bad ; work of peasant women often excessive during pregnancy ; hygienic conditions bad ; no child welfare organisation in the rural part of the district ; a very high percentage of illegitimate children ; midwives' qualifications particularly poor ; feeding of infants defective.

B. Urban Districts.

1. *Districts with a Low Infant Mortality.*

Leyden. — A commercial and industrial town in the Netherlands ; conditions for all classes of the population satisfactory ; housing and social conditions good or moderately good (as a rule one house for each family) ; hygienic conditions good ; numerous and exceedingly well-run medical institutions ; breast-feeding very common.

Dordrecht. — A very prosperous Netherlands town ; conditions almost identical with those at Leyden ; infant welfare clinics extremely well organised and very popular ; breast-feeding very common.

Oslo West. — A prosperous district of the Norwegian capital ; general living conditions good ; population enlightened ; hygienic conditions very favourable ; one-quarter of the infants were examined by the welfare centres established for the whole city ; more than one-half of the pregnant women received pre-natal care ; confinements often took place at clinics or maternity hospitals ; breast-feeding very common.

2. *Districts with a Moderate Infant Mortality.*

Croydon. — An English town, mainly inhabited by persons working during the day in London ; living and social conditions usually good or moderately good ; overwork on the part of pregnant women practically nil ; hygienic conditions good ; child welfare work thoroughly organised ; more than one-half of the pregnant women underwent pre-natal supervision, usually by a doctor.

Oslo East. — A working-class district of the Norwegian capital ; living conditions fairly good ; nutrition of the population good but housing often defective ; pregnant women not overworked ; pre-natal supervision of approximately two-thirds of pregnant women ; confinement often took place in clinics or maternity hospitals ; breast-feeding common.

Breda. — A Dutch industrial and commercial town ; housing and living conditions less favourable than at Dordrecht and Leyden ; infant welfare centres very popular ; artificial feeding predominates to some extent.

Maestricht. — A Dutch industrial town near the Belgian frontier ; a large working-class population whose customs are not typically Dutch. Although salaries are adequate, housing conditions are often defective, especially in the centre of the old town. Hygienic conditions poor ; nearly 50 per cent of the children who had attained the age of three months were being breast-fed.

3. *Districts with a High Infant Mortality.*

Plaisance and the Zone of Fortifications. — A typical working-class quarter of Paris, including part of the zone made up of hovels ; housing conditions frequently deplorable ; social conditions equally unfavourable ; work of the mother often excessive ; pre-natal supervision carried out in nearly 70 per cent of the cases ; confinements frequently took place in institutions ; infant welfare work well organised.

Cassel. — A German administrative centre, inhabited mainly by a middle-class population of independent means and retired or other officials ; social conditions often bad ; housing conditions good to moderate ; hygienic conditions usually good ; child welfare work well organised ; nearly one-half of the pregnant women were supervised during pregnancy ; a considerable proportion of confinements took place in institutions.

Vienna, Districts VI, VII and VIII. — Commercial districts almost in the centre of the Austrian capital ; conditions abnormal mainly owing to the economic crisis, the result being a low birth rate and a large number of still-births ; housing and living conditions poor ; work done by pregnant women not excessive ; most confinements took place in institutions ; child welfare work and medical institutions well organised.

Sunderland. — A typical English industrial and working-class town ; a large number of unemployed ; housing conditions often very bad ; not many married women work ; health and child welfare services well organised.

Augsburg. — A German commercial and industrial town in Bavaria ; housing and hygienic conditions not very good ; infant welfare centres well organised and well attended. During the period of the enquiry, one-third of the pregnant women underwent pre-natal supervision ; 30 per cent of confinements took place in institutions ; pregnant women frequently work ; feeding is often defective.

4. *District with a Very High Infant Mortality.*

Vienna, District X. — An exclusively working-class district of the town of Vienna ; living and social conditions often deplorable ; pregnant women are frequently overworked ; confinements often took place in institutions ; infant welfare work is well organised.

The medical causes of infant mortality and still-birth were exhaustively investigated ; the results are summarised below.

COMPARATIVE STUDY OF THE MEDICAL CAUSES OF DEATH.

Although the causes of death are nearly everywhere the same, the proportions vary according to the conditions prevailing in each district.

The principal causes of death may be divided everywhere into the three following groups :

Digestive disturbances ;

Diseases of the respiratory system ;

Deaths associated with the pre-natal period (premature birth, still-birth), *confinement* (obstetrical traumatisms), *and with the period immediately following birth* (premature birth, unknown causes).

General Distribution of the Medical Causes of Death.

The various causes of death, grouped in accordance with the nomenclature adopted by the experts (Annexes III and IV [1]), are distributed as follows :

Districts with a Low Infant Mortality.

Rural Districts.

Oxfordshire (Great Britain). — Of the 91 deaths under 1 year (43.8 per 1,000 live births), 4 were due to digestive disturbances ; 6 to specific infectious diseases ; 28 to other infectious diseases ; 2 to non-microbic diseases ; 5 to congenital malformations ; 8 to obstetrical traumatisms ; 3 to serious accidents ; while there were 16 premature births without further diagnosis. Nineteen cases were due to other unknown causes.

The principal causes of death, apart from premature births without further diagnosis and unknown causes, were therefore diseases of the respiratory system ; whereas only a few cases were due to digestive disturbances.

In addition to the 91 deaths under 1 year, there were 65 still-births.

Hedmark (Norway). — Of the 140 [2] deaths under 1 year, 8 were due to digestive disturbances ; 10 to acute specific infectious diseases ; 56 to other infectious diseases (including tuberculosis and syphilis) ; 8 to non-microbic diseases ; 1 to congenital malformation ; 5 to obstetrical traumatisms, and 27 to premature birth without further diagnosis. Twenty-five of these deaths were due to unknown causes.

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[1] The group " other infectious diseases " mainly consists in all districts of diseases of the respiratory system.

[2] Nineteen cases escaped enquiry. The total number is therefore 159, representing 47 per 1,000 live births.

The largest number of deaths was due to respiratory diseases ; the number attributable to premature birth and other unknown causes was likewise considerable. There was a certain number of cases of acute specific infectious diseases, and several deaths were due solely to digestive disturbances.

In addition to deaths under 1 year, there were 90 [1] still-births.

Urban Districts.

Leyden (Netherlands). — There were 50 deaths under 1 year, *i.e.* 35.6 per 1,000 live births, distributed as follows : digestive disturbances 2 ; specific infectious diseases 3 ; other infectious diseases 18 ; non-microbic disease 1 ; congenital malformations 4 ; obstetrical traumatisms 6 ; premature births 9 ; other unknown causes 7.

Hence the largest number of deaths were due to respiratory diseases and to premature birth without further diagnosis ; a comparatively large number was also caused by obstetrical traumatisms and congenital malformations. The small number of deaths due to digestive disturbances is very remarkable. The number of specific infectious diseases constituting the direct cause of death was very small. However, on examining the details of respiratory affections, we find that the predisposing causes were : in 1 case measles, in 5 cases whooping-cough and in some seven cases influenza.

There were also 41 still-births, *i.e.* 29.2 per 1,000 live births.

Dordrecht (Netherlands). — Of the 39 deaths under 1 year (37.7 per 1,000 live births), none were due to digestive disturbances. One was caused by a specific infectious disease ; 14 by other infectious diseases ; 2 by non-microbic diseases ; 2 by congenital malformations : 4 by obstetrical traumatisms ; 2 by serious accidents ; 9 were due to premature birth and 5 to unknown causes.

Respiratory diseases were the most important causes of death. There was only one case of a specific infectious disease (syphilis) ; but the predisposing causes of respiratory diseases were : in 2 cases measles, in 6 cases whooping-cough and in 2 or 3 cases influenza. A fairly large number of deaths was due to premature birth or unknown causes.

The total number of still-births was 30, namely, 29 per 1,000 live births.

Oslo West (Norway). — Out of the 21 [2] deaths under 1 year, none were due to digestive disturbances or specific infectious diseases. The causes of death were as follows : other infectious diseases, 6 cases ; congenital malformations, 2 ; obstetrical traumatisms, 3 ; serious accident, 1 ; premature birth given as the sole cause of death, 6. Only 3 were due to unknown causes.

Respiratory diseases and premature birth were the principal causes of the very small number of deaths under one year.

In addition to the 21 deaths under 1 year, there were 20 [3] still-births in the district.

Districts with a Moderate Infant Mortality.

Rural Districts.

Lochois and *Chinonais* (France). — Out of 65 deaths under 1 year (56.3 per 1,000 live births), 10 were due to digestive disturbances ; 13 to specific infectious diseases ; 5 to other infectious diseases ; 1 to non-microbic disease ; 4 to congenital malformations ; 2 to obstetrical traumatisms ; 19 to premature birth or debility ; 4 to various causes ; the cause of 4 deaths was never ascertained in spite of enquiries and of 4 others owing to the absence of any enquiry.

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[1] Seven cases escaped enquiry. The total number is therefore 97, representing 28.6 per 1,000 live births.

[2] Number of deaths in Oslo West : 23 (two cases escaped enquiry) = 38.5 per 1,000 live births.

[3] Number of still-births : 22 (two cases escaped enquiry) = 36.7 per 1,000 live births.

The largest number of deaths was therefore due to premature birth. Another important problem is that of specific infectious diseases and, in this group, the greatest number of deaths was caused by whooping-cough. Digestive disturbances also played a relatively large part.

There were also 29 still-births.

Lippe (Germany). — Of the 182 deaths under 1 year (58.4 per 1,000 live births), 10 were caused by digestive disturbances ; 15 by specific diseases ; 54 by other infectious diseases ; 3 by non-microbic diseases ; 9 by congenital malformations ; 9 by obstetrical traumatisms ; 2 by serious accidents ; 41 by premature birth ; 39 were classified under " unknown causes and diagnosis not determined ".

The largest number of deaths therefore came under the last two groups taken together ; respiratory diseases were also important causes. There was likewise a certain number of deaths due to specific infectious diseases and digestive disturbances.

The total number of still-births was 395, *i.e.*, 30.5 per 1,000 live births.

Staffordshire (Great Britain). — Of the 111 deaths under 1 year (60.2 per 1,000 live births), 5 were due to digestive disturbances ; 5 to specific infectious diseases ; 28 to other infectious diseases ; 2 to non-microbic diseases ; 7 to congenital malformations ; 11 to obstetrical traumatisms ; 3 to serious accidents ; 32 to premature birth without further diagnosis, and 18 to other unknown causes.

Consequently, the last two groups, taken together, accounted for the largest number of deaths.

Of the important causes with a definite diagnosis, respiratory diseases played a predominant part.

There were 69 cases of still-birth, *i.e.*, 37.4 per 1,000 live births.

Emmen (Netherlands). — There were 84 deaths under 1 year, making 63.9 per 1,000 live births, due to the following causes : digestive disturbances, 6 ; specific infectious diseases, 2 ; other infectious diseases, 33 ; non-microbic diseases, 5 ; congenital malformations, 8 ; obstetrical traumatisms, 10 ; serious accident, 1 ; premature birth, 13 ; unknown causes, 6.

The principal causes of death were therefore respiratory diseases, the predisposing causes being : in 2 cases measles, in 2 whooping-cough and in 13 influenza. In 9 cases the causes were unknown.

The number of deaths due to premature birth and to unknown causes was also considerable. Obstetrical traumatism was an important cause of death ; a peculiarity of this district is the large number of congenital malformations. Finally, a few deaths were caused by digestive disturbances.

The total number of still-births was 53, representing 40.3 per 1,000 live births.

Urban Districts.

Croydon (Great Britain). — There were 166 deaths under 1 year, *i.e.*, 52.3 per 1,000 live births, distributed as follows : digestive disorders, 13 ; specific infectious diseases, 11 ; other infectious diseases, 50 ; non-microbic diseases, 2 ; congenital malformations, 4 ; obstetrical traumatisms, 16 ; serious accidents, 3 ; premature births, 48 ; other unknown causes, 119.

In this district the most important causes of death were premature birth and " other unknown causes " taken together. There was also a large number due to diseases of the respiratory organs and a certain number to digestive disorders.

There were 105 still-births, *i.e.*, 33.1 per 1,000 live births.

Oslo East (Norway). — Out of 91 [1] deaths, 1 was due to digestive disturbances ; 6 to acute specific infectious diseases ; 34 to other infectious diseases, including tuberculosis and syphilis ; 4 to non-microbic diseases ; 2 to congenital malformations ; 13 to obstetrical traumatisms ; 25 to premature birth without other causes, and 6 to unknown causes.

[1] The total number of deaths at Oslo East was 93, *i.e.*, 57.8 per 1,000 live births (2 cases escaped enquiry).

The most important causes of death were, therefore, respiratory diseases (some of which were caused by measles and whooping-cough) and premature birth. Obstetrical traumatisms played a relatively important part.

There were also 41 still-births.

Breda (Netherlands). — There were 50 deaths under 1 year, *i.e.*, 60.4 per 1,000 live births, distributed according to the following causes : digestive disturbances 6 ; specific infectious diseases 3 ; other infectious diseases 20 ; non-microbic disease 1 ; congenital malformations 3 ; obstetrical traumatisms 2 ; serious accident 1 ; premature birth 8 ; unknown causes 6.

At Breda, a small number of cases was due to digestive disturbances, the largest number of deaths being caused by respiratory diseases. The predisposing causes were : in 5 cases measles, in 7 cases whooping-cough and in 4 cases influenza. The number due to premature birth and to unknown causes was also considerable.

The number of still-births was 21, *i.e.*, 25.3 per 1,000 live births.

Maestricht (Netherlands). — The total number of deaths under 1 year was 89, *i.e.*, 63.1 per 1,000 live births ; these deaths were due : in 7 cases to digestive troubles ; in 17 to specific infectious diseases ; in 19 to other infectious diseases ; in 4 to non-microbic diseases ; in 3 to congenital malformations ; in 11 to obstetrical traumatisms ; in 3 to serious accidents ; in 16 to premature birth, and in 9 to unknown causes.

The most important causes of death were infectious diseases. Of these, the group of respiratory affections is much the most important, but in a large number of cases the predisposing causes of pulmonary affections were specific infectious diseases : in 1 case measles, in 3 cases whooping-cough and in 6 cases influenza. These figures therefore increase still further the already large number of deaths due to specific infectious diseases ; after infectious diseases come premature birth and unknown causes. The number of obstetrical traumatisms is also very high. Lastly, a few deaths were caused by digestive troubles.

There were 39 still-births, *i.e.*, 27.6 per 1,000 live births.

Districts with a High Infant Mortality.

Rural Districts.

Pays de Caux (France). — Of the 212 deaths (92.7 per 1,000 live births), 41 were due to digestive disturbances ; 66 to specific infectious diseases ; 36 to other infectious diseases ; 9 to non-microbic diseases ; 8 to congenital malformations ; 5 to obstetrical traumatisms ; 14 to premature birth or debility and 3 to various causes. The causes of 2 deaths remained unexplained, in spite of the enquiries, and those of 28 owing to the absence of any enquiry.

It will be seen that, from a medical standpoint, specific infectious diseases — among which whooping-cough plays the largest part — constitute the most important problem. Then follow digestive disturbances and after them infectious diseases, principally broncho-pneumonia. The number of deaths due to premature birth without further diagnosis was high, as was also that of deaths unexplained owing to the absence of any enquiry. Although the absolute number of cases observed was small, there were a few cases of infections of the umbilical cord and a larger number of tetanus.

There were also 90 still-births.

Hoensbroek (Netherlands). — There were 190 deaths under 1 year recorded, *i.e.*, 98.2 per 1,000 live births, due to the following causes : digestive disturbances 30 ; specific infectious diseases 35 ; other infectious diseases 35 ; non-microbic diseases 8 ; congenital malformations 4 ; obstetrical traumatisms 14 ; serious accidents 2 ; premature births 34 ; unknown causes 28.

At Hoensbroek, the principal causes of death were prematurebirth and unknown causes, which together accounted for nearly one-third of the deaths. Specific infectious diseases and

respiratory diseases also caused a large number of deaths. In these latter cases the predisposing causes were : whooping-cough 4 cases ; measles 1 case ; influenza 9 cases ; making a total of 14 cases. The number of deaths in this district due to digestive disturbances was remarkably high ; respiratory diseases were equally important, and the number of obstetrical traumatisms was also fairly large.

The number of still-births was 32, *i.e.*, 16.5 per 1,000 live births.

Urban Districts.

Plaisance and the Paris Zone of Fortifications (Paris, District XIV). — There were 124 deaths under 1 year, of which 25 were due to digestive disturbances ; 34 to specific infectious diseases ; 29 to other infectious diseases ; 4 to non-microbic diseases ; 2 to congenital malformations ; 3 to burns ; 2 to sudden death ; 5 not diagnosed ; 17 to premature birth ; 2 to obstetrical traumatisms.

The most important causes of death were specific infectious diseases ; of these, measles and whooping-cough played the largest part. There were a certain number of cases of tuberculosis and syphilis, while a considerable number of deaths were due to digestive disturbances and respiratory affections. " Premature birth " is also an important problem.

In addition, there were 26 still-births, *i.e.*, 15.9 per 1,000 live births.

Cassel (Germany). — Of the 214 deaths under 1 year (80.3 per 1,000 live births), 20 were due to digestive disturbances ; 23 to specific infectious diseases ; 48 to other infectious diseases ; 8 to non-microbic diseases ; 6 to congenital malformations ; 11 to obstetrical traumatisms ; 2 to serious accidents ; 1 to other diseases ; 66 to premature birth, and 29 to unknown causes (including cases in which the diagnosis was not determined).

These last two groups together were thus responsible for the greatest number of deaths. Respiratory diseases follow, then come specific infectious diseases and digestive disturbances.

The number of still-births was 116, *i.e.*, 43.5 per 1,000 live births.

Vienna, Districts VI, VII and VIII (Austria). — In these three districts there were 36 deaths under one year, *i.e.*, 89.1 per 1,000 live births, due to the following causes : digestive disturbances 3 ; specific infectious diseases 3 ; other infectious diseases 8 ; non-microbic disease 1 ; congenital malformations 2 ; obstetrical traumatisms 8 ; premature birth 7, while 4 were due to unknown causes.

A large number of deaths were caused by obstetrical traumatisms and respiratory affections.

There were 26 still-births, *i.e.*, 64.3 per 1,000 live births.

Sunderland (Great Britain). — Of the 332 deaths under 1 year (91.8 per 1,000 live births) 39 were due to digestive disturbances, 32 to specific infectious diseases, 109 to other infectious diseases, 4 to non-microbic diseases, 14 to congenital malformations, 12 to obstetrical traumatisms, 2 to serious accidents, 93 to premature birth, while in 27 the cause was unknown.

The largest number of deaths was therefore due to premature birth and unknown causes taken together. Then come respiratory diseases. A certain number of deaths was also caused by digestive disturbances. Of the 32 cases classed under the heading " specific infectious diseases " 29 were due to syphilis. Dr. Thorp took particular interest in this question and the figures furnished by him are absolutely reliable ; 15 of these cases were finally diagnosed by the Wassermann reaction, and the remainder recognised by clinical observation.

Of the 144 still-births in this district (39.8 per 1,000 live births), the 13 syphilitic cases were also diagnosed as such with the help of the Wassermann reaction.

Augsburg (Germany). — Of the 259 deaths under 1 year (92.9 per 1,000 live births), 25 were caused by digestive disturbances ; 31 by specific infectious diseases ; 55 by other infectious diseases ; 12 by nonmicrobic diseases ; 6 by congenital malformations ; 11 by obste-

trical traumatisms ; 4 by serious accidents ; 1 by other diseases ; 71 by premature birth, while 43 were due to unknown causes (including cases in which the diagnosis was not determined).

The largest number of deaths was due to premature birth and unknown causes taken together. Then follow respiratory diseases and specific infectious diseases ; there was also a relatively large number of deaths due to digestive disturbances.

There were 75 still-births, *i.e.*, 26.9 per 1,000 live births.

Districts with Very High Infant Mortality.

Rural Districts.

Pays de Bray (France). — Of the 280 deaths, 50 were due to digestive disturbances ; 65 to specific infectious diseases ; 35 to other infectious diseases ; 13 to non-microbic diseases ; 8 to congenital malformations ; 11 to obstetrical traumatisms ; 37 to premature birth or debility ; 7 to various causes ; 14 were unexplained, notwithstanding enquiries, and 40 owing to the absence of any enquiry.

The observations on these figures are almost the same as in the case of the Pays de Caux ; the number of deaths due to premature birth without further diagnosis and of deaths unexplained owing to lack of any enquiry is even higher than for the Pays de Caux.

The total number of still-births for this district was 70, *i.e.*, 26.5 per 1,000 live births.

Mecklenburg-Strelitz (Germany). — The 268 deaths under 1 year (116.9 per 1,000 live births) were due to the following causes : digestive disturbances 44 ; specific infectious diseases 25 ; other infectious diseases 46 ; non-microbic diseases 4 ; congenital malformations 5 ; obstetrical traumatisms 3 ; premature birth 45 ; unknown causes and diagnoses not determined 96.

The largest number of deaths was due to these last two groups taken together.

In this district the number of deaths due to unknown causes and inconclusive diagnoses is particularly high. Premature birth, respiratory diseases and digestive disturbances contributed in almost identical proportions to the deaths under 1 year.

There were 90 still-births, *i.e.*, 39.3 per 1,000 live births.

Gmunden (Austria). — Of the 89 deaths under 1 year (122.1 per 1,000 live births), 23 were due to digestive disturbances ; 10 to specific infectious diseases ; 28 to other infectious diseases ; 5 to non-microbic diseases ; 1 to congenital malformation ; 9 to obstetrical traumatisms, while in 13 cases the causes were unknown.

The most important causes of death were therefore digestive disturbances and respiratory diseases.

There were also 21 still-births recorded at Gmunden during the enquiry period.

Schärding and *Engelhartszell* (Austria). — Of the 135 deaths under 1 year (197.6 per 1,000 live births), 37 were due to digestive disturbances ; 5 to specific infectious diseases ; 39 to other infectious diseases ; 10 to non-microbic diseases ; 1 to congenital malformation ; 25 to obstetrical traumatisms and 18 to unknown causes.

Consequently, respiratory diseases, digestive disturbances and obstetrical traumatisms contributed in almost equal proportions to the deaths of infants under 1 year.

There were 18 still-births, *i.e.*, 26.4 per 1,000 live births.

Urban Districts.

Vienna, District X (Austria). — There were 207 deaths under 1 year, *i.e.*, 187.3 per 1,000 live births, caused by : digestive disturbances 27 ; specific infectious diseases 12 ; other infectious diseases 110 (99 cases of pneumonia and bronchitis and 11 of measles and pneumonia) ;

non-microbic diseases 5 ; congenital malformations 4 ; obstetrical traumatisms 8 ; premature birth 26. In 15 cases the causes were unknown.

A very large number of deaths was therefore caused by respiratory diseases; a considerable number was also due to unknown causes, specific infectious diseases and digestive disturbances.

The number of still-births was 35, *i.e.*, 31.7 per 1,000 live births.

IMPORTANCE OF EACH MEDICAL CAUSE OF DEATH IN THE VARIOUS DISTRICTS.

DIGESTIVE DISTURBANCES.

(See Table 1 of Annex VI.)

It is this factor which varies most according to the district. It is the principal cause of death in districts with a high mortality and in some (such as Gmunden and Schärding) the number of deaths due to this cause is exceedingly large.

It has been completely eliminated in districts with a low mortality.

In districts where deaths due to digestive disturbances have been entirely or almost entirely eliminated, not only is breast-feeding most common, but artificial feeding is correctly employed, even when general hygienic and housing conditions are bad.

Method of Feeding.

Districts with a Low Infant Mortality.

Thus, in *Oxfordshire*, more than one-half the infants were breast-fed. In the district of *Hedmark*, of the 114 infants who died before they reached the age of 1 year, only 9 were exclusively bottle-fed, and more than one-half had been entirely breast-fed. The remainder of the infants were breast-fed for at least a certain period.

At *Leyden*, of the 24 infants covered by the enquiry who were still living at the age of three months, 16 were being entirely breast-fed, 1 was receiving mixed feeding and 7 were being bottle-fed. At *Dordrecht*, conditions were likewise satisfactory. Of the 16 infants included in the enquiry who died after the age of three months, 7 had been entirely breast-fed, 5 were receiving mixed feeding and 4 were bottle-fed. Out of the 685 infants of three months who were brought to the consulting clinic at Dordrecht during the year of the enquiry, 346 were being entirely breast-fed ; 220 were receiving mixed feeding, 109 were bottle-fed, while in 10 cases the method of feeding was unknown. At *Oslo West*, 8 of the babies were breast-fed and only 1 was artificially fed.

Districts with a Moderate Infant Mortality.

At *Lochois* and *Chinonais*, the proportion of infants receiving artificial feeding only was 56 per cent. At *Lippe*, more than two-thirds of the infants still living at the end of the third month had been entirely breast-fed or were receiving mixed feeding. At *Emmen*, where social and housing conditions are noticeably bad, of the 32 infants who died after they had completed their third month, 16 were being breast-fed and 16 bottle-fed.

The figures for *Breda* show that artificial feeding was employed in a large proportion of cases. Of the 23 infants who were still living at the age of three months, 7 were being entirely breast-fed, 1 was receiving mixed feeding, in 5 cases the method of feeding was unknown, and 10 infants were receiving artificial feeding. At *Oslo East*, of the 58 infants who lived long

enough to be fed, only 6 received artificial feeding alone. The remainder were breast-fed for a more or less lengthy period. At *Maestricht*, one-half of the number of children included in the enquiry who were still living at the age of three months were being artificially fed. The following figures were furnished by the consulting clinic at Maestricht and relate to infants observed during the year of the enquiry : of a total of 510 infants of three months, 210 were being wholly or partly breast-fed, while 300 infants were already being bottle-fed.

Districts with a High Infant Mortality.

In the *Pays de Caux*, 59 per cent of the infants still living at the age of three months were being brought up on the bottle. At *Hoensbroek*, of a total of 87 infants included in the enquiry and who were still living at the age of three months, 35 were being entirely breast-fed, 5 were receiving mixed feeding and 47 were being brought up on the bottle. At *Plaisance*, at the age of three months, only 27 per cent of the infants were being breast-fed, while 15 per cent were receiving mixed feeding and 51 per cent artificial feeding ; in 7 per cent of the cases the method of feeding was unknown. At *Cassel*, out of 75 infants still living at the end of the third month, 22 were being breast-fed, 15 were receiving mixed feeding and 26 were being brought up on the bottle ; in 12 cases the method of feeding was unknown. At *Augsburg*, of the 87 infants still living at the end of the third month, 11 were being breast-fed, 15 were receiving mixed feeding, 54 were being brought up on the bottle, and in 7 cases the method of feeding was unknown.

Districts with a Very High Infant Mortality.

In the *Pays de Bray*, of the infants still living at the end of three months, 76 per cent were being bottle-fed. In *Mecklenburg-Strelitz*, of the 107 infants included in the enquiry who were still living at the age of three months, 34 were being breast-fed, 19 were receiving mixed feeding and 44 were being fed artificially ; in 10 cases the method of feeding was unknown. At *Gmunden*, of the 89 infants included in the enquiry, 59 were being brought up entirely on the bottle; and, of the 135 infants included in the enquiry at *Schärding* and *Engelhartszell*, 72 had never been breast-fed at all.

SPECIFIC INFECTIOUS DISEASES AND DISEASES OF THE RESPIRATORY SYSTEM.

(See Table 2 of Annex VI.)

Respiratory diseases constitute a difficult problem for all districts without exception, even for those with a low infant mortality, while in some belonging to the high and very high mortality groups, such as *Gmunden*, *Schärding* and *Vienna, District X*, they greatly predominate.

Deaths due to *specific infectious diseases* are rare or even non-existent in districts with a low infant mortality. On the other hand, in districts with a high or very high infant mortality they reach very large figures.

It is difficult to draw a hard and fast line between the two groups of diseases, because respiratory diseases, which make up the largest part of the group " *Other infectious diseases* ", are frequently preceded by specific infectious diseases. It was not possible in every case to ascertain precisely whether the predisposing cause of a respiratory

disease was a specific infectious disease ; on the other hand, deaths in some cases were registered under the heading " *Specific infectious diseases* ", although the final cause of death was a respiratory disease.

Among the *acute infectious diseases*, in several districts covered by the enquiry, whooping-cough played a more important part than measles.

ACUTE SPECIFIC INFECTIOUS DISEASES.

We give below for the various districts the total number of cases of *acute specific infectious diseases* observed, which show the small part played by this group of causes in districts with a comparatively low mortality.

Districts with a Low Infant Mortality.

In *Oxfordshire* there was 1 case of measles, 1 of whooping-cough and 1 of influenza. In the district of *Hedmark* there was 1 case of measles and 3 cases of influenza ; at *Leyden*, 1 case of influenza ; at *Dordrecht* and *Oslo West* there were no cases of acute specific infectious diseases.

Districts with a Moderate Infant Mortality.

In the *Lochois* and *Chinonais* there were 6 cases of whooping-cough but no cases of any other acute specific affection. At *Lippe* there were 5 cases of whooping-cough, 2 of measles, 1 of epidemic meningitis. In *Staffordshire* there was 1 case of whooping-cough only. At *Emmen* there was 1 case of whooping-cough ; at *Croydon*, 2 cases of whooping-cough and 1 of diphtheria ; at *Breda*, 1 case of measles ; at *Maestricht*, 8 cases of whooping-cough, 1 case of influenza, 1 of paratyphoid and 1 of epidemic meningitis.

Districts with a High Infant Mortality.

In the *Pays de Caux* there were 13 cases of whooping-cough, 5 of measles, 8 of influenza 1 of diphtheria, 1 of poliomyelitis, 1 of infection by vaccination. At *Plaisance and the Zone* of Fortifications there were 10 cases of measles, 6 of whooping-cough, 2 of diphtheria and 1 of influenza ; at *Cassel*, 7 of measles, 3 of whooping-cough ; at *Vienna, Districts VI, VII and VIII*, 1 case of typhoid fever ; at *Sunderland*, 1 case of measles, 1 of whooping-cough and 1 of diphtheria ; at *Augsburg*, 1 of measles, 1 of diphtheria, 9 of whooping-cough and 1 of epidemic meningitis.

Districts with a Very High Infant Mortality.

In the *Pays de Bray*, 24 cases of whooping-cough, 5 of measles, 1 of diphtheria and 12 of influenza were recorded. In *Mecklenburg-Strelitz*, 4 cases of measles, 3 of whooping-cough, 1 of diphtheria and 8 of influenza ; at *Gmunden*, 1 case of whooping-cough and 2 of influenza ; at *Schärding* and *Engelhartszell*, 1 case of whooping-cough ; at *Vienna, District X*, 12 cases of measles and 1 of scarlet fever.

* * *

Whooping-cough and measles played an essential part in the ætiology of respiratory diseases ; this would also appear to be the case with influenza.

WHOOPING-COUGH AND MEASLES AS PREDISPOSING CAUSES.

As examples, we will take data collected in Great Britain, the Netherlands and Norway.

At *Leyden*, out of 18 cases of respiratory affections, the predisposing causes were : in 1 case measles, in 5 whooping-cough and in 7 influenza. At *Dordrecht*, out of 12 cases of respiratory diseases, the predisposing causes were : in 2 cases measles, in 6 whooping-cough and in 2 or 3 influenza. At *Breda*, out of 16 cases of respiratory affections, measles in 5 cases, whooping-cough in 7 and influenza in 4 were the predisposing causes. At *Maestricht*, out of 17 cases of broncho-pneumonia, the predisposing causes were measles in 1 case, whooping-cough in 3, and influenza in 6. At *Emmen*, out of 26 cases of respiratory diseases, the predisposing causes were measles in 2 cases, whooping-cough in 2, and influenza in 13 cases. At *Hoensbroek*, of the 32 deaths caused by respiratory diseases, the predisposing causes were whooping-cough in 9 cases, measles in 1, and influenza in 12. At *Oslo East*, of the 27 cases of respiratory diseases, 5 were caused by measles and 1 by whooping-cough. In *Hedmark*, of the 48 cases of respiratory diseases, 3 were caused by measles and 3 by whooping-cough. In *Oxfordshire*, of the 23 cases of respiratory diseases, 1 was caused by influenza and 5 by measles. In *Staffordshire*, of the 25 cases of respiratory diseases, 3 were caused by influenza, 1 by measles and 3 by whooping-cough. At *Croydon*, out of 37 cases of respiratory affections, 2 were due to influenza, 7 to whooping-cough and 1 to measles. At *Sunderland*, out of 90 cases of respiratory diseases, 13 were caused by influenza, 2 by measles and 1 by whooping-cough.

* * *

There are certain indications which show that, in districts with a high mortality, the part played by environment is more important than in districts with a low mortality. In the former, other factors connected with living conditions, etc., and possibly with digestive disturbances, leave the infant a ready prey to respiratory infection.

CHRONIC SPECIFIC INFECTIOUS DISEASES.

As regards *syphilis*, the enquiry failed to yield the accurate information desired. It was not possible to carry out the Wassermann reaction as extensively as had been intended. For certain districts, such as *Sunderland*, where the investigators devoted special attention to the question, the figures are higher than for other districts. The data available appear to indicate, however, that this disease did not exercise any considerable influence.

Tuberculosis caused a small number of deaths.

Among deaths under one year, the following *chronic specific infectious diseases* were recorded in the various districts :

Districts with a Low Infant Mortality.

In *Oxfordshire*, 1 case of tuberculosis and 2 of syphilis ; in *Hedmark*, 2 of syphilis and 6 of tuberculosis ; at *Leyden*, 1 of tuberculosis and 1 of influenza ; at *Dordrecht*, 1 of syphilis ; and at *Oslo West*, none.

Districts with a Moderate Infant Mortality.

In the *Lochois* and *Chinonais*, 3 cases of tuberculosis and 4 of syphilis ; at *Lippe*, 2 of tuberculosis and 2 of syphilis ; in *Staffordshire*, 1 of syphilis ; at *Emmen*, none ; at *Croydon*, 1 of tuberculosis and 7 of syphilis ; at *Breda*, 1 of tuberculosis and 1 of syphilis ; at *Oslo East*, 5 of tuberculosis and 1 of syphilis ; at *Maestricht*, 4 of tuberculosis and 2 of syphilis.

Districts with a High Infant Mortality.

In the *Pays de Caux*, 24 cases of tuberculosis and 13 of syphilis ; at *Hoensbroek*, 3 of tuberculosis and 5 of syphilis ; at *Plaisance and the Paris Zone of Fortifications*, 6 of tuberculosis and 7 of syphilis ; at *Cassel*, 2 of tuberculosis and 10 of syphilis ; at *Vienna, Districts VI, VII and VIII*, 1 of tuberculosis and 1 of syphilis ; at *Sunderland*, 29 of syphilis ; at *Augsburg*, 4 of tuberculosis and 2 of syphilis.

Districts with a Very High Infant Mortality.

In the *Pays de Bray*, 9 cases of tuberculosis and 14 of syphilis ; in *Mecklenburg-Strelitz*, no cases of tuberculosis but 2 of syphilis ; at *Gmunden*, 4 cases of tuberculosis and 3 of syphilis ; at *Schärding* and *Engelhartszell*, 3 cases of tuberculosis and 1 of syphilis ; at *Vienna, District X*, 7 of tuberculosis and 1 of syphilis.

OTHER DISEASES.

Non-microbic diseases, serious accidents, etc., are rare in the various districts (with some few exceptions).

Congenital malformations do not usually exceed the figure of 3.6 per 1,000 live births in the various districts, except in the district of *Emmen*, where they reach 6.1 per 1,000.

OBSTETRICAL TRAUMATISMS

(See Table 3 of Annex VI).

Obstetrical traumatisms play an important part in all districts. Generally speaking, conditions are not appreciably better in districts with a low mortality than in those with a very high mortality, especially as regards urban districts. However, in certain rural districts with a very high infant mortality, such as *Gmunden* and *Schärding*, the figures are extremely high.

Districts with a Low Infant Mortality.

Oxfordshire : 2 cases of traumatism of the head, 1 cerebral hæmorrhage, 1 asphyxia, 4 dystocia ; *Hedmark :* 5 asphyxia ; *Leyden :* 2 cephalic hæmorrhage, 3 asphyxia, 1 cause undetermined ; *Dordrecht :* 2 asphyxia, 2 other causes ; *Oslo West :* 1 traumatism of the head, 2 asphyxia.

Districts with a Moderate Infant Mortality.

Lochois and *Chinonais :* causes not specified ; *Lippe :* 5 cerebral hæmorrhage, 4 asphyxia ; *Staffordshire :* 2 traumatism of the head, 1 asphyxia, 1 fracture, 7 dystocia ; *Emmen :* 2 asphyxia, 8 other causes not specified : *Croydon :* 5 traumatism of the head, 3 asphyxia, 8 dystocia ; *Breda :* 1 cerebral hæmorrhage, 1 asphyxia ; *Oslo East :* 6 meningeal and cerebral hæmorrhage,

1 traumatism of the head (perforation), 4 asphyxia, 1 hæmorrhage of the liver, 1 internal hæmorrhage ; *Maestricht :* 2 traumatism of the head, 2 cerebral hæmorrhage, 3 asphyxia, 4 causes not specified.

Districts with a High Infant Mortality.

Pays de Caux : 1 contraction of the pelvis, 1 malpresentation (shoulder), 1 malpresentation not specified, 1 meningeal hæmorrhage, 1 cause not specified ; *Hoensbroek :* 14 causes not specified ; *Plaisance and the Zone* of Fortifications : 2 causes not specified ; *Cassel :* 4 cerebral hæmorrhage, 7 asphyxia ; *Vienna, Districts VI, VII and VIII :* 5 meningeal hæmorrhage, 3 asphyxia ; *Sunderland :* 4 traumatism of the head, 1 cerebral hæmorrhage, 2 asphyxia, 5 dystocia ; *Augsburg :* 2 traumatism of the head, 2 cerebral hæmorrhage, 7 asphyxia.

Districts with a Very High Infant Mortality.

Pays de Bray : 1 contraction of the pelvis, 3 breech presentation, 1 shoulder presentation, 1 cerebral hæmorrhage, 2 uterine inertia, 3 causes not specified ; *Mecklenburg-Strelitz :* 1 cerebral hæmorrhage, 2 asphyxia ; *Gmunden :* 1 traumatism of the head, 6 cerebral hæmorrhage, 2 asphyxia ; *Schärding* and *Engelhartszell :* 10 cephalic hæmorrhage, 15 asphyxia ; *Vienna, District X :* 5 cerebral hæmorrhage, 3 asphyxia.

Therefore, the obstetrical traumatisms which caused the largest number of deaths were cerebral hæmorrhage, asphyxia and dystocia.

Obstetrical traumatism was frequently associated with unsuitable conditions of confinement and lack of proper obstetrical attention. We refer the reader to the numerous details given on this matter in the national reports.

PREMATURE BIRTHS
(See Table 4 of Annex VI).

Premature birth is of considerable importance in all districts. The high proportion of this class of births among deaths under one year is shown by the following figures :

Districts with a Low Infant Mortality.

Oxfordshire : out of 91 deaths under 1 year, there were 65 births at term, 17 premature, 3 twins at term, 6 twins premature ; *Hedmark :* out of 140 deaths under 1 year, 97 births at term, 30 premature, 2 twins at term, 10 twins premature ; *Leyden :* out of 50 deaths under 1 year, 33 births at term, 14 premature, 3 twins premature ; *Dordrecht :* out of 39 deaths under 1 year, 27 births at term, 9 premature, 3 twins premature ; *Oslo West :* out of 21 deaths under 1 year, 8 births at term, 10 premature, 3 twins premature.

Districts with a Moderate Infant Mortality.

Lochois and *Chinonais :* out of 29 deaths under 1 year, 16 births at term, 11 premature, 2 twins at term ; *Lippe :* out of 182 deaths under 1 year, 119 births at term, 63 premature ; *Staffordshire :* out of 111 deaths under 1 year, 67 births at term, 34 premature, 9 twins premature, 1 unknown ; *Emmen :* out of 84 deaths under 1 year, 66 births at term, 15 premature, 4 twins at term, 9 twins premature ; *Croydon :* out of 166 deaths under 1 year, 96 births at term, 46 premature, 7 twins at term, 17 twins premature ; *Breda :* out of 50 deaths under 1 year, 32 births at term, 14 premature, 3 twins at term, 1 case of twins premature ; *Oslo East :* out of 91 deaths under 1 year, 49 births at term, 36 premature, 1 case of twins at term, 5 twins

premature ; *Maestricht :* out of 89 deaths under 1 year, 63 births at term, 15 premature, 7 twins at term, 4 twins premature.

Districts with a High Infant Mortality.

Pays de Caux : out of 212 deaths under 1 year, 93 births at term, 37 premature, 82 unknown; *Hoensbroek :* out of 190 deaths under 1 year, 129 births at term, 40 premature, 5 twins at term, 16 twins premature ; *Plaisance and the Zone* of Fortifications : out of 124 deaths under 1 year, 85 births at term, 32 premature, 7 unknown ; *Cassel :* out of 214 deaths under 1 year, 127 births at term, 87 premature ; *Vienna, Districts VI, VII and VIII :* out of 36 deaths under 1 year 21 births at term, 11 prematuae, 4 twins, without further particulars ; *Sunderland :* out of 332 deaths under 1 year, 188 births at term, 84 premature, 13 twins at term, 42 twins premature, 5 unknown. *Augsburg :* out of 259 deaths under 1 year, 157 births at term, 102 premature.

Districts with a Very High Infant Mortality.

Pays de Bray : out of 280 deaths under 1 year, 155 births at term, 61 premature, 64 unknown ; *Mecklenburg-Strelitz :* out of 268 deaths under 1 year, 210 births at term, 58 premature : *Gmunden :* out of 89 deaths under 1 year, 67 births at term, 17 premature, 5 twins, without further particulars ; *Schärding* and *Engelhartszell :* out of 135 deaths under 1 year 106 births at term, 22 premature, 7 twins, without further particulars ; *Vienna, District X :* out of 207 deaths under 1 year, 125 births at term, 60 premature, 22 twins, without further particulars.

The proportion of deaths immediately following premature birth was considerable. Most of these cases were classified as *premature birth without further diagnosis.* It was not possible to define the causes of these deaths more accurately. Table 4 of Annex VI shows that the death rate for premature births without further diagnosis varies very little in the different districts ; nevertheless, in some districts, such as *Oslo East, Maestricht* and *Cassel,* the rate is, for some unknown reason, extremely high.

In certain districts, overwork of the mother and frequently lack of knowledge concerning the care that should be given, especially to premature infants, during the first 48 hours of life were indicated as the causes of the infant's death at birth or during the first few days of life.

WORK OF THE MOTHER.

It is difficult to establish a direct relationship between the *work of the mother* and the death of the infant owing to premature birth, because in several districts where this phenomenon is frequent the work done by expectant mothers is never exessive.

Oxfordshire : 91 deaths under 1 year ; overwork of the mother, two cases only. *Lochois and Chinonais ;* 94 deaths under 1 year ; overwork of the mother, 28 cases ; no overwork, 45 cases ; unknown, 11 cases. *Lippe :* 182 deaths under 1 year ; mother who had not worked, 135 ; working outside the home, 32 ; at home, 10 ; unknown, 5. *Staffordshire :* 111 deaths under 1 year ; excessive work, 17 cases. *Croydon :* 166 deaths under 1 year ; excessive work, 7 cases. *Pays de Caux :* 212 deaths under 1 year ; overwork, 40 cases ; work not excessive, 57 cases ; 115 cases unknown. *Plaisance and the Zone* of Fortifications : 150 deaths under 1 year and still-births taken together ; 47 cases of overwork, 83 of work not excessive, 20 unknown. *Cassel :* 214 deaths under 1 year ; 136 cases in which the mother had not worked, 32 of mothers who had worked outside the home, 15 at home, 31 cases unknown. *Vienna,*

Districts VI, VII and VIII : 36 deaths under 1 year ; 1 case of overwork. *Sunderland :* 322 deaths under 1 year ; 15 cases of overwork. *Augsburg :* 259 deaths under 1 year ; no work, 132 cases ; work outside the home, 84 ; work at home, 23 ; unknown, 20. *Pays de Bray :* 280 deaths under 1 year ; overwork, 76 cases ; work not excessive, 103 ; unknown, 101. *Mecklenburg-Strelitz :* 268 deaths under 1 year ; 103 cases of work outside the home, 18 of work at home, 128 cases in which no work was done by the mother, 19 cases unknown. *Gmunden :* 89 deaths under 1 year ; 45 cases of excessive work — *i.e.*, overwork in more than 50 per cent of the cases. *Schärding* and *Engelhartszell :* 135 deaths under 1 year ; 59 cases of overwork. *Vienna, District X :* 207 deaths under 1 year ; 56 cases of overwork.

UNKNOWN CAUSES.
(See Table 5 of Annex VI).

A striking feature observed in all districts is the number of deaths due to unknown causes and in regard to which searching enquiries carried out with the greatest care in certain countries failed to produce any results. This is a problem for medical science to solve.

In all districts without exception, deaths due to premature birth without further diagnosis, the death of infants who sustained an obstetrical traumatism and, lastly, death due to congenital malformation occurred during the first days or the first weeks of life ; whereas deaths due to digestive disturbances, respiratory diseases or specific infectious diseases more often occurred towards the end of the first year of life.

As a rule, the majority of *unknown causes* was recorded in all districts during the first week of the infant's life, and may therefore be attributed to the same factors as those constituting the first two groups of causes of death mentioned above.

STILL-BIRTHS (See Graph, page 42).

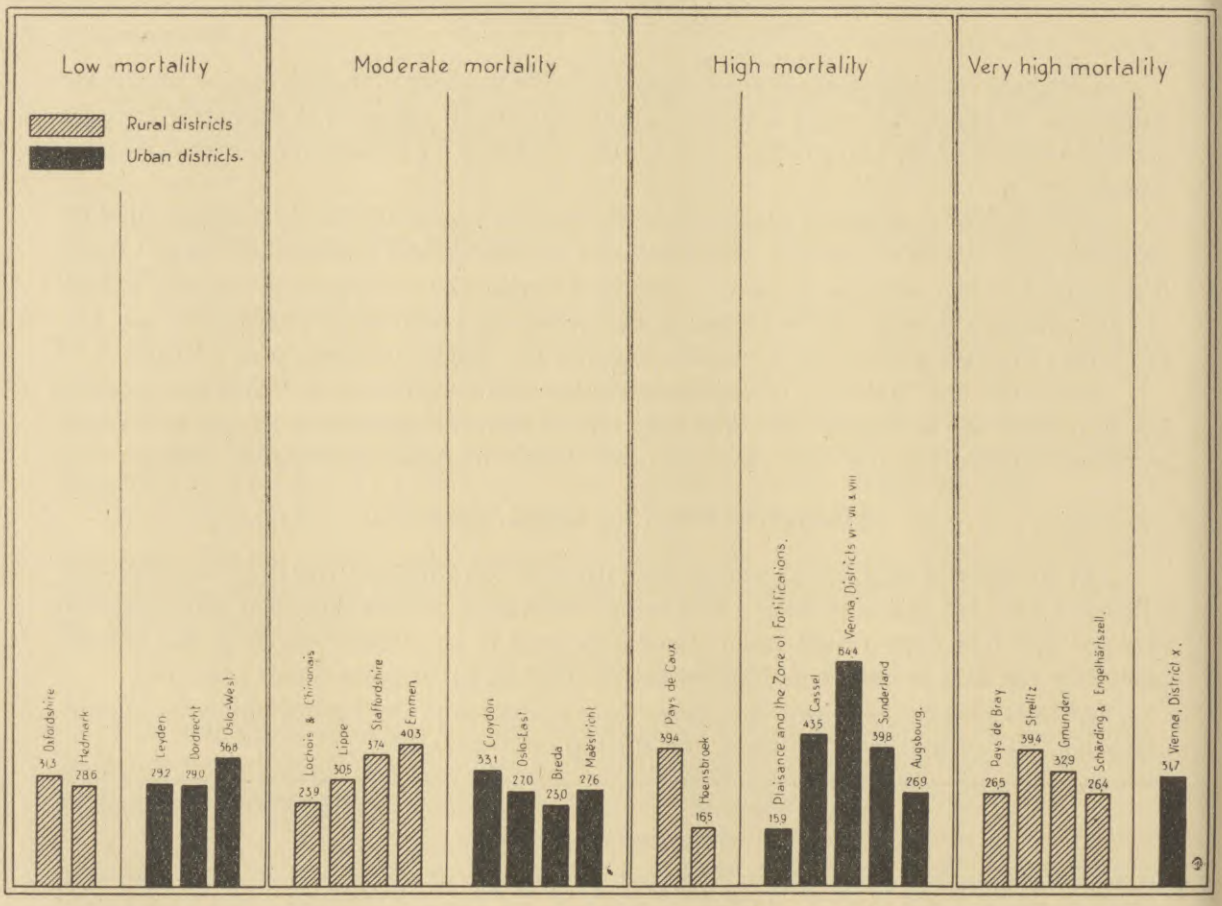
The number of still-births varies very little in the different districts, so that the still-birth rate for districts with a low infant mortality is approximately the same as that for districts with a high infant mortality, and in the districts with a low infant mortality the rate is nearly as high as the death rate for infants under one year.

The following figures show the proportions of deaths in the various districts during gestation, by premature expulsion and during confinement :

Causes of Still-birth	Total per group of causes	Percentage of total
1. During gestation	441	31.9
2. By premature expulsion	144	10.4
3. During confinement	707	51.2
4. Unknown causes	90	6.5
Total	1,382 [1]	100

[1] These figures do not include the data for the two districts of Vienna.

Still-birth Rate (per 1,000 live births) in the various Districts



CAUSES OF STILL-BIRTH DURING GESTATION.

Among the causes of still-birth during gestation, the most frequent were syphilis, toxæmia of pregnancy and congenital malformations. There were also a certain number of cases in which no cause of intra-uterine death was ascertainable.

Districts with a Low Infant Mortality.

In *Oxfordshire*, out of 29 still-births, syphilis was recorded as the intra-uterine cause of death in 5 cases, toxæmia of the mother in 8 cases, malformation in 4 cases, traumatism of the mother in 1 case, while in 11 cases the causes were unknown. In *Hedmark*, of the 19 deaths which occurred before confinement, 9 fœtuses were macerated, the reason being unknown ; of the 10 unmacerated cases, premature rupture of the membranes was the cause of death in 1 case, in 3 cases it was due to congenital malformations and in 6 the cause was unknown. At *Leyden*, out of 14 cases the causes were : 1 syphilis, 1 toxæmia of the mother, 1 retro-placental hæmorrhage, 1 malformation, and 10 unknown causes. At *Dordrecht*, the 17 cases consisted of : 3 tuberculosis of the mother, 5 albuminuria of the mother, 3 retro-placental hæmorrhage, 2 malformations, 4 unknown causes. At *Oslo West*, out of 6 cases, 4 were due to macerated fœtuses, 2 with knots in the cord, while, in the other 2 cases, the causes indicated were illness of the mother (influenza, bronchitis).

Districts with a Moderate Infant Mortality.

In the *Lochois* and *Chinonais*, out of 7 still-births during gestation, 6 were due to syphilis and one to congenital malformation. At *Lippe*, out of 26 cases, 4 were given as syphilis, 2 were due to toxæmia of pregnancy, 7 to congenital malformations and 13 to unknown causes. In *Staffordshire*, out of 15 cases there were: 1 case of toxæmia of pregnancy, 5 malformations, 9 unknown causes. At *Emmen*, out of 31 cases, 6 were due to diseases of the mother (1 diabetes, 1 disease of the liver, 3 toxæmia of pregnancy, 1 spontaneous rupture of the uterus), 13 malformations, 13 unknown causes. At *Croydon*, out of 32 cases there were : 3 syphilis, 8 toxæmia, 6 malformations, 15 unknown causes. At *Breda*, out of 12 cases there were : 1 syphilis, 1 icterus gravis of the mother, 1 nephritis of the mother, 1 albuminuria, 1 retro-placental hæmorrhage, 7 unknown causes. At *Oslo East*, out of 19 cases, 14 were caused by macerated fœtuses (1 due to nephritis of the mother, whilst in another case the autopsy revealed no indication of the cause), 3 syphilis of the mother, 1 congenital malformation, 1 chronic endometritis. At *Maestricht*, out of 13 cases, 2 were due to nephritis, 2 to toxæmia of pregnancy and 9 to unknown causes.

Districts with a High Infant Mortality.

In the *Pays de Caux*, out of 22 cases there were : 13 syphilis, 2 toxæmia of pregnancy, 6 malformations, 1 overwork. At *Hoensbroek*, out of 13 cases there were : 4 syphilis, 1 nephritis, 1 congenital malformation, 8 unknown causes. At *Plaisance*, out of 11 cases, 6 were due to syphilis, 1 to albuminuria, 1 to malformation, 1 to double knots in the cord, 2 to unknown causes. At *Cassel*, out of 56 cases there were : 3 syphilis, 6 toxæmia of pregnancy, 6 malformations and 41 unknown causes. At *Sunderland*, out of 34 cases there were: 13 syphilis, 11 toxæmia of pregnancy, 1 malformation, 9 unknown causes. At *Augsburg*, out of 14 cases there were : 1 syphilis, 1 toxæmia, 2 malformations and 10 unknown causes.

Districts with a Very High Infant Mortality.

In the *Pays de Bray*, out of 10 cases there were : 8 syphilis, 2 toxæmia of pregnancy. At *Strelitz*, out of 20 cases there were : 4 toxæmia, 2 malformations and 14 unknown causes.

CAUSES OF STILL-BIRTH DURING CONFINEMENT.

The most important causes of still-birth during confinement are similar to those which caused the deaths under one year from obstetrical traumatism. Thus, malpresentation and other anomalies of confinement, dystocia and retro-placental hæmorrhage have been indicated in all districts as the principal causes of death. It should be noted that, in several districts, among malpresentations, breech presentation was most frequent.

Districts with a Low Infant Mortality.

In *Oxfordshire*, out of 32 cases there were : 6 malpresentations (5 breech, 1 transverse), 7 contractions of the pelvis, 4 placental hæmorrhages, 2 prolapses of the umbilical cord, 8 anomalies of uterine contractions, 1 disease of the placenta, 3 excessive size of the fœtus, 1 unknown cause. In *Hedmark*, out of 32 cases there were : 13 malpresentations (including 5 breech, 5 transverse), 1 eclampsia, 3 placenta prævia, 1 premature detachment of the placenta, 6 dystocia, 1 compression of the umbilical cord, 2 malformations of the fœtus, 1 pneumonia of the mother, 3 unknown causes. At *Leyden*, out of 22 cases, there were : 1 malpresentation, 4 contractions of the pelvis, 1 tumor prævia, 3 abnormal attachments of the placenta, 2 prolapses of the cord, 1 anomaly of uterine contractions, 1 ovular infection, 1 hæmorrhage of the suprarenal glands, 2 excessive size of the fœtus and 6 unknown causes. At *Dordrecht*, out of 12 cases, there were : 2 malpresentations, 1 placenta prævia, 2 anomalies of uterine contractions, 2 prolapses of the cord, 2 hæmorrhages and anomalies of the cord, 3 unknown causes. At *Oslo West*, out of 11 cases there were : 3 placenta prævia, 1 premature detachment of the placenta, 1 prolapse of the umbilical cord, 2 malpresentations ((1 brow, 1 breech combined with eclampsia), 3 dystocia, 1 contraction of the pelvis.

Districts with a Moderate Infant Mortality.

In the *Lochos* and *Chinonais*, out of 17 cases there were : 5 malpresentations (2 breech, 2 face, 1 other), 2 contractions of the pelvis, 2 double knots in the cord, 1 prolapse of the cord, 2 excessive size of the fœtus, 5 undetermined causes. At *Lippe*, out of 59 cases there were : 13 malpresentations (6 shoulder, 5 breech, 2 trunk), 6 contractions of the pelvis, 2 abnormal dilatation of the cervix, 3 abnormal attachments of the placenta, 6 prolapses of the cord, 3 anomalies of uterine contractions, 9 excessive size of the fœtus, 2 malformations, 15 unknown causes. In *Staffordshire*, out of 50 cases there were : 7 malpresentations (5 breech, 1 transverse, 1 face), 8 contractions of the pelvis, 10 placental hæmorrhages, 2 abnormal contractions of the uterus, 1 infection of the fœtus, 3 excessive size of the fœtus, 1 malformation ; in 5 cases lack of attention was given as the cause ; unknown causes 14. At *Emmen*, out of 21 cases there were : 2 malpresentations, 2 contractions of the pelvis, 4 abnormal attachments of the placenta, 3 prolapses of the cord, 1 ovular infection, 3 anomalies of the cord, 1 dystocia (twins), 3 congenital malformations, 2 unknown causes. At *Croydon*, out of 71 cases there were : 12 malpresentations (1 transverse, 10 breech, 1 face), 16 contractions of the pelvis, 13 hæmorrhages, 11 abnormal contractions of the uterus, 4 excessive size of the fœtus, 1 congenital malformation, 15 unknown causes. At *Breda*, out of 9 cases : 1 breech presentation, 2 contractions of the pelvis, 1 abnormal attachment of the placenta, 1 prolapse of the cord, 1 excessive size of the fœtus, 3 unknown causes. At *Oslo East*, out of 19 cases there were : 7 contractions of the pelvis, 6 dystocia (including 2 breech presentations), 2 eclampsia, 2 asphyxia, 1 intra-cranial hæmorrhage ; in 1 case nervous shock to the mother was indicated as the cause. At *Maestricht*,

out of 25 cases there were : 5 malpresentations, 4 contractions of the pelvis, 4 abnormal attachments of the placenta, 1 placenta velamentosa, 3 prolapses of the cord, 3 excessive size of the fœtus, 1 dystocia (twins), 2 monsters, 2 strangling by the cord.

Districts with a High Infant Mortality.

In the *Pays de Caux*, out of 51 cases, there were : 8 malpresentations (3 breech, 2 shoulder, 2 face), 2 contractions of the pelvis, 2 abnormal attachments of the placenta, 1 prolapse of the cord, 2 knots in the cord, 2 excessive size of the fœtus, 1 dystocia, 33 unknown causes. At *Hoensbroek*, out of 15 cases, there were : 3 malpresentations, 2 contractions of the pelvis, 1 abnormal attachment of the placenta, 2 prolapses of the cord, 1 excessive size of the fœtus ; 6 unknown causes. At *Plaisance*, out of 12 cases, there were : 4 malpresentations (2 breech, 1 shoulder, 1 forehead), one abnormal dilatation of the cervix, 1 contraction of the pelvis, 2 prolapses of the cord, 1 abnormal uterine contraction, 1 infection of the fœtus, 1 excessive size of the fœtus, 1 unknown cause. At *Cassel*, out of 54 cases, there were : 21 malpresentations (10 breech, 9 shoulder, 2 trunk), 6 contractions of the pelvis, 6 abnormal attachments of the placenta, 3 prolapses of the cord, 1 abnormal uterine contraction, 1 excessive size of the fœtus, 4 dystocia (twins), 1 malformation, 11 unknown causes. At *Sunderland*, out of 76 cases, 19 were due to malpresentations (15 breech, 2 shoulder, 2 transverse), 23 to contractions of the pelvis, 1 to abnormal dilatation of the cervix, 16 to placental hæmorrhage, 1 to prolapse of the cord, 1 to excessive size of the fœtus, 8 to dystocia (twins), 2 to malformations, 5 to unknown causes. At *Augsburg*, out of 50 cases, there were : 11 malpresentations, 2 abnormal attachments of the placenta, 4 prolapses of the cord, 2 abnormal uterine contractiona, 6 excessive size, 7 dystocia (twins), 18 unknown causes.

Districts with a Very High Infant Mortality.

In the *Pays de Bray*, out of 30 cases, there were : 8 malpresentations (6 breech, 1 shoulder, 1 other not specified), 1 contraction of the pelvis, 1 prolapse of the cord, 3 knots in the cord, 3 other causes, 2 were due to lack of care and 12 to unknown causes. In *Mecklenburg-Strelitz* out of 74 cases, there were : 20 malpresentations (13 breech, 6 shoulder, 1 brow), 5 contractions of the pelvis, 5 abnormal attachments of the placenta, 5 prolapses of the cord, 6 abnormal uterine contractions, 1 infection of the fœtus, 9 dystocia (twins), 13 unknown causes.

CAUSES OF STILL-BIRTH BY PREMATURE EXPULSION.

A certain proportion of still-births was caused in all districts by premature expulsion.

Districts with a Low Infant Mortality.

In *Oxfordshire*, out of 4 cases, 1 was due to overwork, 2 to disease of the mother, 1 to an unknown cause. At *Leyden*, there were 5 cases of premature expulsion without further indication. At *Dordrecht*, there was 1 premature expulsion diagnosed as " septicæmia of the mother ".

Districts with a Moderate Infant Mortality.

In the *Lochois* and *Chinonais*, out of 5 cases, 4 were due to overwork and 1 to an unexplained cause. At *Lippe*, out of 10 cases, 3 were caused by traumatism of the mother, 1 by acute infection, while in 6 no other indication was given. In *Staffordshire*, out of 4 cases, 3 were due to overwork of the mother, 1 to disease of the mother or of the fœtus. At *Emmen*, there was one case due

to nephritis of the mother. At *Croydon*, out of 2 cases there was 1 malpresentation and 1 disease of the mother or the fœtus without further indication. At *Breda*, no case was reported. At *Maestricht*, there was 1 premature expulsion diagnosed as " cancer of the mother ".

Districts with a High Infant Mortality.

In the *Pays de Caux*, out of 17 cases, 4 were due to overwork, 2 to traumatism of the mother and 11 to unknown causes. At *Hocnsbroek*, 4 cases were recorded, 1 due to pneumonia, 1 to tuberculosis and 2 to unknown causes. At *Plaisance and the Zone* there were 3 cases, 1 due to overwork of the mother, 1 to retro-placental hæmorrhage and 1 to some undetermined cause. At *Cassel*, out of 6 cases, 1 was due to chronic infection of the mother, 1 to disease of the mother, 2 to unknown causes. At *Sunderland*, out of 34 cases, 2 were due to overwork, 1 to traumatism of the mother, 3 to malpresentations, 4 to unknown causes, 10 to chronic infection of the mother, 14 to diseases of the mother and fœtus without further indication. At *Augsburg*, out of 11 cases, 1 was due to disease of the mother without further indication and 10 to unknown causes.

Districts with a Very High Infant Mortality.

In the *Pays de Bray*, out of 30 cases there were 5 due to overwork, 2 to falls of the mother, 1 to cardiopathy of the mother, 1 to metritis, 1 to placenta prævia, 20 to unknown causes. In *Mecklenburg-Strelitz*, out of 6 cases, 1 was caused by grave traumatism, 1 by acute infection and 4 by unknown causes.

In addition to the cases analysed above, there were cases in several districts in regard to which the time at which the still-birth occurred was unknown. Thus, in *Hedmark*, there were 39 cases of this kind, at *Oslo East* 3 cases, and at *Oslo West* 3 cases also.

PRE-NATAL SUPERVISION.

In view of the large number of deaths which occurred during gestation, during confinement and during the first week, we think it advisable to give particulars showing that only a very small proportion of pregnant women in all districts underwent pre-natal supervision, which would have made prophylactic treatment possible.

Districts with a Low Infant Mortality.

In *Oxfordshire*, out of 91 deaths under 1 year, in 26 cases the expectant mothers were examined by doctors, in 35 by midwives, and in 5 by doctors and midwives; in 25 cases there was no pre-natal supervision of the mothers. In *Hedmark*, out of 140 deaths under 1 year, 6 expectant mothers were examined by doctors, 33 by midwives, 3 by doctors and midwives, 2 visited pre-natal clinics, and 96 were not examined at all. As regards the 90 still-births, pre-natal care was given in 5 cases by doctors, in 10 by midwives, in 6 by doctors and midwives, while in 69 cases there was no pre-natal supervision. At *Oslo-West*, out of 21 deaths under 1 year, pre-natal care was given in 10 cases by doctors, in 3 by midwives, while in 8 cases there was no supervision. As regards the 20 still-births, 11 cases were examined by doctors, 1 by a midwife, and 1 by a doctor and midwife, in 1 case the mother attended a pre-natal consulting clinic, in 5 cases there was no supervision, and for 1 case no information was available.

Districts with a Moderate Infant Mortality.

In the *Lochois* and *Chinonais*, out of 53 still-births and infants who died during the first week of life, 34 mothers had received pre-natal supervision, 15 had not, and for 4 cases no information was available. At *Lippe*, out of 95 still-births, 17 mothers had been examined by doctors, 2 by midwives, 63 had not been examined at all, and for 13 cases noin formation was available. In *Staffordshire*, out of 111 deaths under 1 year, 13 mothers had been examined by doctors, 27 by midwives, 3 by midwives and doctors, 59 had not received any supervision, while for 9 cases no information was available. At *Croydon*, out of 166 deaths under 1 year, 68 mothers had been visited by doctors, 25 by midwives, 2 by doctors and midwives, 70 had received no supervision, while in 1 case no information was available. At *Oslo East*, out of 91 deaths of infants under 1 year, 30 mothers had been examined by doctors, 20 by midwives, 3 by doctors and midwives, and 37 had received no supervision ; as regards the 41 still-births, 16 cases had been examined by doctors, 7 by midwives, 3 by doctors and midwives, 1 had attended a pre-natal consulting clinic, while 14 cases had received no supervision.

Districts with a High Infant Mortality.

In the *Pays de Caux*, out of 212 deaths of infants under 1 year, the mothers had received pre-natal supervision in 41 cases, no supervision in 50, while for 121 cases no information was available. As regards the 90 still-births, 20 mothers had been examined, 15 had not, and for 55 no information was available. In *Plaisance and the Zone*, out of 47 infants still-born or who died during the first week of life, 35 mothers were examined during pregnancy, 10 were not, and for 2 cases no information was available. At *Cassel*, out of 116 still-births, 61 mothers were visited by doctors during pregnancy, 4 by midwives, 1 had attended a consulting clinic, 35 had received no supervision, while for 15 cases no information was available. At *Sunderland*, out of 332 deaths under 1 year, 81 mothers were examined by doctors, 102 by midwives, 9 by doctors and midwives, 126 received no supervision, while for 14 cases no information was available. At *Augsburg*, out of 75 still-births, 9 mothers were examined by doctors, 1 by a midwife, 11 by consulting clinics, 39 were not examined, while for 15 cases no information was available.

Districts with a Very High Infant Mortality.

In the *Pays de Bray*, out of 280 deaths of infants under 1 year, 53 mothers had been examined during pregnancy, 106 had not, and for 121 cases no information was available. As regards the 70 still-births in this district, 20 mothers had been examined, 17 had not, while there were 33 cases for which no information was available. In *Mecklenburg-Strelitz*, out of 90 still-births, 11 mothers had been examined by doctors, 2 by midwives, 50 did not undergo any medical examination, while for 27 cases no information was available.

ORDER OF IMPORTANCE OF MEDICAL CAUSES ACCORDING TO INFANT MORTALITY RATES.

A further summary of the facts brought to light regarding the various medical causes of death is given below :

Districts with a Low Infant Mortality (Table 6 of Annex VI).

Among all the various districts, *Oslo West* was exceptional, inasmuch as there were no deaths due to digestive disturbances or specific infectious diseases in that district.

Notwithstanding the small number of deaths which occurred in this part of the town of Oslo, the fact is worth mentioning, more especially as in the district of *Oslo East* a considerable percentage of deaths were due to specific infectious diseases.

During the enquiry, there were no deaths due to digestive disturbances in the town of *Dordrecht.*

Generally speaking, it should be noted that for this class of district :

A. *A few deaths were caused by* DIGESTIVE DISTURBANCES, *but these affections played a very small part.*

B. *On the other hand,* RESPIRATORY DISEASES *which sometimes follow on an* ACUTE SPECIFIC INFECTIOUS DISEASE, *but are not usually associated with any such disease, constituted a relatively serious problem, although the rates were lower than those for groups of districts with a higher infant mortality.*

The number of ACUTE SPECIFIC INFECTIOUS DISEASES *is not large enough to constitute a serious problem.*

C. *Almost two-thirds of infant mortality is caused by deaths occurring* BEFORE, DURING AND IMMEDIATELY AFTER CONFINEMENT. *Their rates are approximately the same as those of districts with a very high infant mortality.*

DISTRICTS WITH A MODERATE INFANT MORTALITY (Table 7 of Annex VI).

The problems of this group of districts are as follows :

A. DIGESTIVE DISTURBANCES, *which were of very little importance in districts with a low mortality, are of greater importance in this group, except in one district : Oslo-East.*

B. *The rates for* RESPIRATORY DISEASES *are the same as in districts with a low mortality or are very little higher. Their relative importance is less owing to the larger number of deaths from other causes. In most districts of this category,* ACUTE SPECIFIC INFECTIOUS DISEASES *play a more important part in regard to respiratory diseases than in the previous group.*

C. *The death rate* BEFORE, DURING AND IMMEDIATELY AFTER CONFINEMENT *is the same as in districts with a low infant mortality. As in the case of respiratory diseases, its relative importance is less owing to the fact that a larger proportion of deaths is due to other causes.*

DISTRICTS WITH A HIGH INFANT MORTALITY (Table 8 of Annex VI).

A. *In districts with a high infant mortality a characteristic feature is the importance of* SPECIFIC INFECTIOUS DISEASES *and* DIGESTIVE DISTURBANCES. *The part played by* TUBERCULOSIS *and* SYPHILIS *tends to become more important than in districts with a low and moderate mortality. Owing to lack of care, infants may suffer from infections at various sites, more especially cutaneous infections.*

B. RESPIRATORY DISEASES *are of greater importance than in the previous groups of districts.*

C. *Finally,* DEATHS DURING THE OBSTETRICAL PERIOD *play a considerable part.*

DISTRICTS WITH A VERY HIGH INFANT MORTALITY (Table 9 of Annex VI).

A. *In this category the rates for* DIGESTIVE DISTURBANCES *are very high.*

B. RESPIRATORY DISEASES *are also of very great importance.* SPECIFIC INFECTIOUS DISEASES *cause a very large number of deaths.*

C. *In certain of these districts,* DEATHS DURING THE OBSTETRICAL PERIOD *reach figures greatly in excess of those for the other groups.*

OTHER OBSERVATIONS.

The study of the data collected has thus brought to light the part played in each district by the various medical causes of death under one year. It should be borne in mind that in most cases the medical diagnoses on which the observations were based were reconstructed after the death of the infant and were established almost exclusively on clinical information. It was only possible to carry out post-mortem examinations in a very small proportion of cases. Nevertheless, the careful analysis of all the data collected by the various investigators, based on modern pediatric knowledge, enabled us to supplement and in many cases even to correct certain of the "official statistics" (see national reports ; for instance, the French Report : Statistics for Plaisance).

One advantage of the enquiries has thus been to furnish an estimate of the different medical causes of death based on the most precise clinical observations and deductions possible in present circumstances. Similarly, the enquiries show — for each district — the extent to which the services of doctors, midwives and maternal and infant welfare centres were utilised. They also furnish conclusions on other social factors connected with infant mortality, such as housing conditions, social status, the work of the mother, etc.

It is true that these enquiries were confined to deceased infants, and that, as all the groups of children still living were omitted, no data are available for the latter. This information will, however, be supplemented by enquiries which are to be continued for a sufficiently long period and which will cover all children from the time they are born until they have completed their first year of life.

HOUSING CONDITIONS.

The various national reports contain numerous examples showing the serious influence of certain social factors — such as housing, economic conditions, illegitimacy — on infant mortality. In particular, *housing conditions* have been regarded as a problem

in nearly all districts, and the classification of housing made by the investigators in each district is analysed below :

Districts with a Low Infant Mortality.

In *Oxfordshire*, where there were 91 deaths under 1 year, 11 dwellings only were classed as bad ; 48 were regarded as moderately good and 32 as good. In *Hedmark*, where there were 140 deaths under 1 year, 41 dwellings were good, 37 moderately good and 59 bad (3 unknown). As regards the 90 still-births, dwellings were good in 45 cases, moderately good in 24 and bad in 21. At *Leyden*, where there were 50 deaths under 1 year, dwellings were good in 13 cases, moderately good in 32 and bad in 5 only. As regards the 41 still-births, dwellings were good in 15 cases, moderately good in 19 and bad in 7. At *Dordrecht*, where there were 39 deaths under 1 year, dwellings were good in 8 cases, moderately good in 18 and bad in 13. As regards the 30 still-births, the dwellings were good or moderately good in 13 cases and bad in 4. At *Oslo West*, as regards the 21 deaths under 1 year, the dwellings were good in 17 cases, moderately good in 1 case and bad in 3 cases. As regards the 20 still-births, the classification was 15 good, 3 moderately good and 2 bad.

Districts with a Moderate Infant Mortality.

In the *Lochois* and *Chinonais*, as regards the 94 still-births and deaths under 1 year taken together, dwellings were regarded as good in 27 cases, moderately good in 27 and bad in 28 (12 unknown). At *Lippe*, where there were 182 deaths under 1 year, dwellings were classified as good in 126 cases, moderately good in 40 and bad in 11 (5 cases unknown). In *Staffordshire*, where there were 111 deaths under one year, 29 dwellings were regarded as good, 59 as moderately good and 23 as bad. At *Emmen*, where there were 84 deaths under 1 year, dwellings were good in 7 cases, moderately good in 34 and bad in 43. As regards the 53 still-births, dwellings were classified as : good 8, moderately good 5, bad 40. At *Croydon*, where there were 166 deaths under 1 year, 39 dwellings were good, 96 moderately good and 29 bad (2 unknown). At *Breda*, where there were 50 deaths under 1 year, 10 dwellings were classified as good, 24 as moderately good and 16 as bad. At *Oslo East*, where there were 91 deaths under 1 year, 27 dwellings were good, 25 moderately good and 39 bad. As regards the 41 still-births, 22 dwellings were good, 9 moderately good and 10 bad. At *Maestricht*, where there were 89 deaths under 1 year, 22 dwellings were good, 49 moderately good and 18 bad. As regards the 39 still-births, 17 dwellings were regarded as good, the same number as moderately good and 5 as bad.

Districts with a High Infant Mortality.

In the *Pays de Caux*, where there were 212 deaths under 1 year, dwellings were regarded in 98 cases as good, in 61 as moderately good and in 46 as bad (7 unknown). As regards the 90 still–births, dwellings were classified as good in 45, moderately good in 30 and bad in 8 (unknown 7). At *Hoensbroek*, where there were 190 deaths under 1 year, dwellings were classified as good in 33, moderately good in 126 and bad in 31 cases. As regards the 32 still-births, dwellings were good in 9 cases, moderately good in 12 and bad in 11. In *Plaisance and the Zone*, as regards the 150 deaths under 1 year and still-births taken together, dwellings were classified as good in 21 cases, moderately good in 37 and bad in 86 (6 unknown). At *Cassel*, where there were 214 deaths under 1 year, 104 dwellings were good, 44 moderately good and 26 bad, while in 40 cases no information was available. At *Vienna, Districts VI, VII and VIII*, where there were 36 deaths under 1 year, dwellings were good in 12 cases, moderately good in 14 and bad in 10. At *Sunderland*, where there were 332 deaths under 1 year, 73 dwellings were classified as good, 164 as moderately good and 89 as bad (6 unknown). At *Augsburg*, where there 259 deaths under 1 year, 169 dwellings were good, 29 moderately good, 15 bad, while in 46 cases, no information was available.

Districts with a Very High Infant Mortality.

In the *Pays de Bray*, where there were 280 deaths under 1 year, the dwellings were classified as : good 160, moderately good 69, bad 46, unknown 5 ; as regards the 70 still-births : good 52, moderately good 12, bad 4, unknown 2. In *Mecklenburg-Strelitz*, where there were 268 deaths under 1 year, dwellings were classified as : 128 good, 49 moderately good, 67 bad. No information was available for 24 cases. At *Gmunden*, where there were 89 deaths under 1 year, 5 dwellings were good, 50 moderately good, 32 bad and 2 unknown ; as regards the 21 still-births, 3 good, 10 moderately good, 7 bad, 1 unknown. At *Schärding* and *Engelhartszell*, where there were 135 deaths under 1 year, 59 dwellings were good, 50 moderately good and 26 bad ; as regards the 18 still-births, 4 good, 6 moderately good, 8 bad. At *Vienna, District X*, where there were 207 deaths under 1 year, 11 dwellings were good, 85 moderately good and 111 bad ; as regards the 35 still-births, 2 dwellings were good, 21 moderately good and 12 bad.

Connection between Infant Mortality and Housing Conditions and Social Status : Study of Statistics.

The study of medical causes in the districts belonging to the various groups has shown that, in those where general conditions were favourable, the greatest number of deaths was observed during the obstetrical period and following respiratory diseases; while, in districts where conditions were less good, the relative importance of mortality during the obstetrical period and from respiratory diseases was less marked, owing to the fact that a considerable number of deaths were also due to infectious diseases and digestive disturbances.

It was possible to corroborate these findings from another standpoint by a comparative study of the connection between the various medical causes of death and social and housing conditions for all districts as a whole (see Annex VII).

While deaths due to digestive disturbances, infectious diseases, premature birth and unknown causes are distributed in almost identical proportions, whatever the social status and housing conditions, the relative importance of still-birth, obstetrical traumatisms and congenital malformations is greater among families whose social status was classified as " good ".

Finally, similar observations were made based on the data collected in Great Britain, and these were utilised for a special study of statistics included in the *National Report* for that country.

This study dealt with the connection between infant mortality and the order of births, the relationship between the weight of the infant at birth, the social status of the parents and housing conditions, infant mortality and living conditions, infant mortality and the age of the mother, infant mortality and the economic situation, and led to the following conclusions :

The Causes of Death and their Relationship to Social Conditions.

Infant mortality due to *syphilis, bronchitis and pneumonia* is higher among families belonging to the lowest economic group and gradually decreases as the economic position of the families improves.

Deaths caused by *congenital malformations, obstetrical traumatisms, difficult confinement and unknown causes* seem to be relatively more frequent among children born in families of the highest social class and diminish in direct proportion to the drop in the level of economic prosperity.

The *remaining groups of causes* do not show any uniform tendency to increase or decrease with the differences in social status. As regards these causes of death, mortality is greatest in the middle group of skilled workers and is smallest in the lowest and highest classes of the population. On the whole, the mortality rate from those causes is higher in the lowest social groups than among children belonging to the professional classes.

Pre-natal deaths and *deaths during the first day*, when they occur, tend to be relatively more frequent in the highest social classes and to diminish as we descend the social scale.

Mortality in Relation to the Age of the Mother.

The age of the mother appears to be a factor of negligible importance in determining the differences between the mortality rates for each of the groups of deaths analysed, except as regards pre-natal hæmorrhage, where the death rate definitely increased with the age of the mother.

Mortality in Relation to Housing Conditions.

As far as could be estimated with the help of the available index (number of rooms per person), unfavourable housing conditions had a closer bearing on the *post-natal causes of death* than on pre-natal and neo-natal causes.

In this latter group, puerperal hæmorrhage, premature birth and congenital malformation are more intimately connected with an unfavourable environment and conditions than is breech presentation. As regards accidents at birth and difficult confinements, the deaths of infants are relatively more frequent in houses where there is adequate accommodation.

A study of the influence on the *fœtus in utero* of the differences in general economic conditions and the conditions under which the mother was living during pregnancy leads to the conclusion that a bad pre-natal environment has no harmful effect on the state of nutrition of the child at birth. It might, however, be argued that bad pre-natal environment would affect not so much the infant born alive as pre-natal mortality. The results, however, likewise tend to discredit this theory and, taken as a whole, they show that general environment does not seriously affect the mortality or nutrition of the fœtus.

Mortality in Relation to the Number of Pregnancies and Large Families.

The most significant result of the enquiry from the statistical standpoint is probably that relating to the importance of the position of the child in its family.

Apart from the first two or three children, infant mortality in general gradually increases with the order of births.

In all the causes of death analysed, the mortality of first-born children is lower than the average ; however, with three exceptions — *i.e.*, deaths due to pre-natal hæmorrhage, syphilis and congenital malformations — the mortality rate for first children is higher than that for second children. In the three groups mentioned, the mortality among first-born children is the lowest of all.

As regards first-born children, the unfavourable factors are : obstetrical traumatisms connected with difficult confinement and breech presentation, for which the percentage of mortality exceeds the average by 90 and 60 per cent respectively.

The death rate is usually lowest among second and third children.

The number of cases of pre-natal hæmorrhage, gastro-enteritis and premature births is relatively greater among children belonging to large families.

Mortality in Relation to the Care given.

The data collected on the influence of pre-natal care were not sufficiently comprehensive to enable definite conclusions to be drawn. It is true that the causes of death among infants whose mothers underwent pre-natal supervision of some kind were noticeably different from cases in which there was no pre-natal supervision ; however, on taking each cause separately, we find that, although the proportion of *pre-natal and neo-natal deaths* among the infants of women who were not examined during pregnancy was slightly in excess of the proportion of *post-natal deaths*, the difference is negligible from a statistical point of view.

The point in this part of the enquiry which deserves special attention is the difficulty experienced in obtaining accurate information as to the *degree* of supervision exercised during pregnancy.

The results of the detailed examination of the whole of the data for Great Britain strikingly confirm the conclusions reached in the first part of this report.

IV. THE ENQUIRY INTO INFANT MORTALITY IN ITALY [1].

Area covered by the Enquiry.

The area selected for the enquiry was the territory of the " Governatorato " of Rome, including the town itself and the surroundings, which contained a population of 823,068 on January 1st, 1928. From June 1st, 1927, until June 1st, 1928, the enquiry covered 1,578 deaths under one year and 714 cases of still-birth.

The " Governatorato " falls into two distinct parts : the urban part — consisting of the 22 districts, the 17 quarters and the suburbs which constitute the city — and the rural part.

On January 1st, 1928, the figures for the urban population were 769,131 and for the rural population 53,937.

For the purposes of the enquiry into infant mortality, the districts and quarters were divided into four groups, mainly on the basis of the social status of the inhabitants.

The first group *includes districts and quarters containing old and new dwellings inhabited chiefly by the leisured classes, members of the liberal professions, manufacturers, etc.*

The second group *consists exclusively of districts and quarters containing modern and some very modern dwellings, inhabited principally by the middle classes : clerical workers, small shop-keepers, merchants, etc.*

The third group, *consisting of districts and quarters inhabited primarily by a working-class population, was subdivided into two separate groups: quarters containing old buildings (Group 3, A) and modern outlying quarters (Group 3, B).*

The fourth group *consists of districts and quarters inhabited mostly by the poorer classes.*

The suburbs inhabited almost exclusively by a poor working-class population and containing a number of rough temporary dwellings (huts), most of which have now been demolished, by the " Governatorato ", are distinct from the above-mentioned groups, though part of the urban area.

During the year covered by the enquiry i.e., from June 1st, 1927, to May 31st, 1928, the birth-rates in the various territorial subdivisions of the " Governatorato " were as follows:

	Per cent
Group 1	15.8
„ 2	17.6
„ 3 A	21.3
„ 3 B	33.6
„ 4	25.0
Suburbs	43.2
Agro Romano	41.2

According to the statistics of the " Governatorato ", the death-rates for children under

[1] This enquiry began and ended later than in the other countries.

one year, per 1,000 live-births (calculated by taking the weighted average), were as follows for the period covered by the enquiry :

	Per thousand
Group 1	48.3
,, 2	54.7
,, 3 A	70.5
,, 3 B	75.7
,, 4	85.3
Suburbs	110.0
Agro Romano	90.7

The general infant mortality rate per 1,000 was 83.3 in the urban area and 90.7 in the Agro Romano.

On the district classification adopted for the purposes of the enquiry, both the urban area and the Agro Romano may be regarded as having a high infant mortality rate (7 to 9.9 per cent). Analysing the different groups in the urban area, however, we find the following figures :

1. Low infant mortality (3.5 to 4.9 per cent) :
   Group 1 (districts and quarters inhabited by leisured classes) ;
2. Moderate infant mortality (5 to 6.9 per cent) :
   Group 2 (semi-leisured districts and quarters) ;
3. High infant mortality (7 to 9.9 per cent) :
   Group 3 A — Group 3 B (working-class districts and quarters) ;
   Group 4 (poor districts and quarters) ;
4. Very high infant mortality (10 per cent and over) :
   Suburbs.

The Agro Romano is classified among areas with a high infant mortality.

Organisation of the Enquiry.

The collection of data was entrusted, in accordance with a plan carefully drawn up beforehand, to the National Maternity and Child Welfare Society, which, by arrangement with the Public Registrar's Office of the " Governatorato ", obtained a return of registered deaths of children under one year, and instructed the Red Cross visiting nurses to procure the information required for the card-index. Specialists in diseases of children, acting as medical inspectors for the National Society, were responsible for going through the cards and filling in the clinical particulars.

The National Society also applied to the medical officers attached to public institutions for data concerning deaths of children and still-births in such institutions.

In the case of still-births and deaths among infants in the Agro Romano, most of the cards were filled in by the medical officer in attendance, as it was difficult for the Society's visiting nurses and doctors to go to the more distant localities, though in many cases they did actually visit distant parts of the suburbs. Professor d'Ormea, General Health Inspector of the Society, collected and checked the data for the card-index for over 300 cases, either directly or through the doctors giving the « travelling courses ».

Information was very rarely refused by the families, though in many cases the latter, despite every effort, could not be found again at the address given.

In such cases, all that could be done was to make use of the data in the registers of the hospital in which the child had died ; the same applied to illegitimate children, when the address of the mother could not be ascertained.

Most of the cards relating to causes of deaths and still-births were classified by Professor Flamini, Director of the Foundling Hospital, partly in order that classification might be on uniform lines and partly because Professor Flamini had agreed to examine the cards afterwards and draw up a detailed report.

Dr. de Berardinis, Chief of Service at the Central Statistical Institute, assisted by Professor Giusti, former Chief of Service at the Institute, was appointed, under the direction of *Professor Corrado Gini, President of the Central Statistical Institute, who was responsible for supervising the whole enquiry*, to check and co-ordinate the work of going through the material and arranging it in accordance with the decisions taken at the meetings of the Committee.

Results of the Enquiry.

Causes of infant mortality. — The tables contained in Annex VIII show the still-births and deaths under one year for which data were collected. They do not include cases in which it was impossible to ascertain the parents' address, cases of children born outside the area of the " Governatorato ", or cases (still-births) in which the period of intra-uterine life was under 6½ months.

In the urban zone, taking deaths from all causes (inclusive of uncertain or ill-defined causes), the highest percentage is represented by " other infectious diseases ", among which diseases of the respiratory system predominate ; in the Agro Romano, on the other hand, the highest figures are for digestive disturbances.

In the urban zone, the groups constituting the principal causes of death are as follows, in descending order of frequency : other infectious diseases (24.8 per cent) ; digestive disturbances (23.8) ; specific infectious diseases (20.7) ; premature births (10.9) ; obstetrical traumatisms (7.3).

For the Agro Romano, the order is as follows : digestive disturbances (36.8) ; specific infectious diseases (18.1) ; other infectious diseases (14.6) ; premature births (10.0).

A comparison will serve to show the relative importance of the more frequent causes of death in the different areas investigated. In the Agro Romano, digestive disturbances come first, while in the urban area the highest figures are found under " other infectious diseases ", diseases of the respiratory system constituting the main cause of death in this group.

Another cause, however, accounts, both in the urban area in general and in the Agro Romano, for a practically equal percentage of the total number of cases, namely, premature birth without other known cause.

A detailed examination, in each of the urban territorial groups (districts and quarters and suburbs) of the death-rate from the various groups of diseases resulting in the highest percentages of deaths, reveals the following facts :

For digestive disturbances, the maximum death-rate (35.2 per thousand live births) is recorded in the suburbs, followed by Group 3 B (modern working-class districts and quarters). The minimum rate is found in Group 1 (leisured population) with slightly higher figures for Group 2 (semi-leisured districts and quarters).

For the group " other infectious diseases ", consisting chiefly, as noted, of diseases of the respiratory system, the highest rate is also recorded in the suburbs, followed immediately by Group 4 (poor and very poor districts and quarters). Here, again, the minimum rates are found in the leisured and semi-leisured districts and quarters.

The highest rate for specific infectious diseases (acute and chronic) is found not in the suburbs but in Group 4 (poor and very poor districts and quarters), which also exhibits the maximum for maternal syphilis (recognised or presumed).

As in the foregoing two cases, the lowest rates occur in Group 1 (districts and quarters with a leisured population) and in Group 2 (semi-leisured districts and quarters).

The highest death-rate from premature births is found in the suburbs, followed at some distance by the semi-leisured and leisured groups, with the minimum in the group comprising working-class districts and quarters with old dwellings.

This brief survey shows that the high death-rate in the territorial groups examined is not due to any specific group of causes of death, but that all causes are responsible in a more or less considerable degree.

Causes of Still-births.

The rates per thousand live-births, for the cases examined, are as follows :

	Per thousand
Group 1 of districts and quarters (leisured)	31.2
„ 2 „ „ „ „ (semi-leisured)	26.6
„ 3A „ „ „ „ (working-class)	32.8
„ 3B „ „ „ „ (working-class)	32.7
„ 4 „ „ „ „ (poor and very poor)	33.7
Suburbs	41.8
General rate for the urban area	32.2
Agro Romano	31.0

Leaving out of account the suburbs and the second group of districts and quarters, in which the highest and lowest death-rates respectively are found, no very marked differences appear in the other groups.

Causes of Death of the Fœtus during Pregnancy.

In practically two-thirds of the cases, syphilis was found or presumed to exist ; the remaining cases, with a few exceptions, were attributed to maternal toxæmia.

The rates were higher in the urban area (10.4 per thousand live-births) and lower in the Agro Romano (7.6 per thousand).

In the urban area, the highest rates were in the working-class groups (3 B, and 3 A) (13.6 per thousand and 13.4 per thousand respectively) and the lowest in the semi-leisured group.

Causes of Death of the Fœtus during Delivery.

The causes most frequently found are abnormal presentation and various forms of dystocia.

No very marked differences are observable between the rates in the urban area (12.5 per thousand live-births) and in the Agro Romano (11.2 per thousand live-births), though the variation is very noticeable as between the several groups of districts and quarters. The lowest rate is in Group 2 and the highest in the suburbs, followed closely by the " leisured " districts and quarters. This is worthy of note when we consider the medical facilities at the disposal of the last-named class.

Causes of Still-births by Premature Expulsion.

This group includes cases in which the intra-uterine life of the fœtus exceeded 6½ months, the majority of the still-births being attributable, in a descending scale, to diseases of the mother, diseases of the ovary, over-exertion of the mother, and violent traumatisms.

The death-rate from such causes (3.6 per thousand live-births) is lower in the urban area than in the Agro Romano ; there is a marked variation also as between the different urban groups, the highest rate being found in the suburbs and the lowest in the leisured group.

Order of Importance of Causes of Death.

In the group of districts and quarters with a low infant mortality (Group 1), the mortality from digestive disturbances is the same as from " other infectious diseases ", which is not the case in other countries. Specific diseases (acute and chronic) and premature births come next.

Obstetrical traumatisms do not account for many deaths.

In the various cases investigated in this group, pre-natal care does not seem to have been more frequent than in the other territorial groups.

In the group with a moderate infant mortality (Group 2), the highest rates are found under " other infectious diseases " and specific diseases (acute and chronic) ; digestive disturbances and obstetrical traumatisms account for only a slightly higher percentage than in the previous group.

In the groups with a high mortality (Group 3 A, Group 3 B, Group 4 and the Agro Romano), digestive disturbances and " other infectious diseases " play a big part ; in the Agro Romano, however, the mortality from " other infectious diseases " is not very considerable, but that from digestive disturbances is fairly high.

These observations thus bear out in the main what has been noted in other countries.

The part played by obstetrical traumatisms, however, is not very important.

In the group with a very high infant mortality, digestive disturbances, " other infectious diseases " and specific infectious diseases (acute and chronic) account for the highest number of deaths, while premature births and obstetrical traumatisms also constitute a fairly large proportion.

Statistical Studies.

The enquiries in the Italian districts have covered 2,282 cases, which has made it possible to carry out thorough statistical studies on social conditions, housing conditions and other factors, as well as on their relations with the different groups of medical causes of death. For full details, the reader should refer to the Italian National Report published separately.

V. GENERAL CONCLUSIONS AND RECOMMENDATIONS.[1]

General Observations.

In the districts covered by the enquiry, two groups of medical causes — on the one hand, those relating to still-births and infant mortality during the first day of life, and, on the other, to digestive disturbances, specific infectious diseases and respiratory diseases — call for special attention on the part of the competent authorities. The former cause a considerable number of deaths even before birth and during the first days of life, while the latter are responsible for the death of a large number of children towards the end of the first year of life.

Since the beginning of the century there has been, in most European countries, a very marked falling-off in infant mortality, and especially in diseases such as digestive disturbances, infectious diseases and respiratory diseases, which belong to the second group of causes of death mentioned above, whereas the rates for still-births and infant mortality during the first weeks of life have remained practically the same everywhere (see document C.H./P.E.42). In those districts covered by the enquiry in which economic conditions are very favourable, where the intellectual level of the population is high and where efforts have been made to improve public health and medical practice, especially as regards the prevention of infant mortality, digestive disturbances and specific infectious diseases have thus almost disappeared, while the rates for still-births and mortality during the first days after confinement are the same as in districts in which infant mortality is still high.

In applying the doctrines to be derived from the decline in infant mortality in certain districts, it should therefore be borne in mind that, even in districts where the efficacy of certain measures for the protection of early infancy has been proved, it would be possible to save the life of a still greater number of infants if further efforts were made to diminish still-birth and infant mortality during the first week of life.

The enquiries clearly show the groups of diseases which cause still-birth and infant mortality and the proportions in which they occur in the various districts ; they point to the necessity of specialising the measures to be applied and also indicate the relative importance of each of them.

All available means should thus be taken in all districts to prevent still-births, neo-natal mortality, digestive disturbances, specific infectious diseases and respiratory diseases — these measures being adapted to meet existing conditions. In districts with a low mortality, a particular effort should be directed to the prevention of still-births and neo-natal mortality, so as to reduce the infant mortality rate still further.

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[1] Based on the recommendations adopted by the experts at their meeting in Rome (document C.H.779).

In districts with a moderate and high mortality, the special steps against each of the different causes of infant mortality and still-birth should be applied, according to the proportions in which they occur.

The enquiries, while confirming the already established causes of infant mortality, have revealed considerable gaps in our knowledge. So far, the enquiries have only succeeded in showing the causes of a small number of premature births — the number of such cases in regard to which the causes of death were unknown being very high in every district, both as regards still-birth and mortality during the first days of life. Exhaustive investigations should be undertaken with the assistance of obstetricians and anatomo-pathologists and with any other scientific resources, for the purpose of establishing, in all its details, the ætiology of these phenomena and furnishing us with weapons to combat them.

Certain aspects of the ætiology, prevention and treatment of respiratory diseases — which, in spite of all the efforts employed, still constitute a danger in districts with a ow infant mortality rate — are also problems for the solution of which the assistance of children's specialists and hygienists is required.

The enquiries have shown, on the one hand, the value of certain measures, such as infant welfare centres, the supervision of mothers and their infants and the benefits resulting from social legislation, and, on the other, the inadequate provision of these measures in all districts. As regards certain causes, information is definite enough to indicate the appropriate preventive measures, whereas, for others, the position is still obscure; the enquiries have demonstrated that some of the most important problems still require elucidation. The causes of premature birth, still-birth and deaths during the first days of life call for further scientific research by both obstetricians and pediatricians.

The ætiology of respiratory affections is much better known, but the further study of measures for their prevention should be undertaken by pediatricians and hygienists.

I. PREVENTION OF STILL-BIRTHS AND INFANT MORTALITY DURING THE FIRST DAYS OF LIFE.

Medical Supervision of the Mother during Pregnancy. — Among the causes to which a considerable number of deaths, both of the fœtus and of the new-born infant, are attributable, malpresentations, uterine hæmorrhage, toxæmia of the mother, syphilis and other grave diseases of the mother are the most important. It is a well-known fact that most deaths caused by the diseases or conditions mentioned above are preventable, provided that appropriate pre-natal supervision has made possible a definite diagnosis and provided prophylactic treatment is applied in time. This is especially true in regard to malpresentations, toxæmia of pregnancy, syphilis and other debilitating diseases of the mother (such as tuberculosis and heart troubles), the harmful effect of which, on the life of the fœtus and of the infant, can be prevented by appropriate treatment during pregnancy, which removes the risk of premature delivery or obstetrical traumatisms, with all their consequences.

Ante-natal supervision was inadequate in all the districts covered by the enquiry, even in those with a low infant mortality, and also among the well-to-do classes of the population. The medical supervision of pregnant women should therefore be improved and adapted to the conditions obtaining in all classes of the population, both in towns and in country districts.

Such supervision may be carried out at ante-natal clinics or by doctors or midwives who have been specially trained.

To ensure that medical supervision is adequate, more ante-natal clinics are necessary.

Medical supervision of the expectant mother implies a better understanding on her part of the necessity for such supervision from the beginning and during the whole period of pregnancy.

There should also be a campaign against the employment of untrained women as midwives and, in certain countries, the social status of the midwife should be raised.

Lastly, there should be medical supervision of pregnant women in industry.

Social and Legislative Measures for Pregnant Women. — In many cases, overwork of the mother was indicated as the cause of death of the fœtus or new-born infant. It should be possible in all cases for pregnant women to have sufficient rest before and after confinement and also an allowance sufficient to make up for the loss in wages during the period of rest.

In the majority of the districts under consideration, neither the existing laws nor the extent of financial assistance have been adequate to enable pregnant women to take sufficient rest.

Financial and other forms of assistance to pregnant women and legislative measures, such as health insurance (with provision for dependents), should be extended to permit women to rest during the latter months of pregnancy — a means of preventing prematurity and still-birth. Social measures should be applied impartially to legitimate and illegitimate children alike. Attention is drawn to the high death rate among illegitimate children in certain districts.

Measures during Confinement. — The enquiries have shown that a very large number of still-births and deaths during the first days of life are caused by obstetrical traumatisms. Many of these deaths could have been prevented if the confinement had been effected in accordance with modern obstetrical practice.

It was obvious that in some cases midwives had not received proper training and also that some medical practitioners were not acquainted with appropriate methods. In several districts, great harm was done through confinements being attended by persons who were absolutely unqualified ; in others, the lack of maternity hospitals or their inadequacy from the hygienic or technical point of view was also responsible for raising the level of the infant mortality rate. Even in districts where there are a sufficient number of competent midwives and of medical practitioners possessing expert knowledge of obstetrics, readily accessible maternity hospitals are indispensable, both in urban and in rural districts, for particularly difficult confinements.

Untrained women should be prevented from acting as midwives, and, on the other hand, the obstetrical training of both physicians and midwives should be improved.

The admission of parturient women to maternity hospitals should be facilitated whenever there is sufficient medical or social need.

Small maternity hospitals should be established in rural districts.

Prevention of Deaths during the First Days of Life. — In view of the high proportion of deaths of infants during the first days of life recorded in all districts, attention should be drawn to the special care needed by new-born infants. In many cases, following the customary practice, new-born children were left entirely to the care of midwives who had not received sufficient training.

In particular, premature infants require very special care and competent attention.

Attention should be called to the necessity for consulting doctors who have made a special study of the diseases of new-born infants. The public should also be educated and midwives instructed concerning the care needed during the first hours of life by infants, especially those who are premature or feeble.

2. MEASURES AGAINST DIGESTIVE DISTURBANCES, ACUTE INFECTIOUS DISEASES AND DISEASES OF THE RESPIRATORY SYSTEM.

Measures against Digestive Disturbances. — The enquiries have shown the efficacy of the measures adopted for the prevention of digestive disturbances which only a few years ago were nearly everywhere regarded as the greatest danger during the first year of life. Breast-feeding, on the one hand, and the improvement in the care given to infants, especially as regards artificial feeding in cases where this was necessary, on the other, have been recognised as the best preventive measures, and their use should be encouraged by educating all classes of the population. The enquiries have demonstrated that the intellectual level and training of the persons in charge of the infant have a very marked effect on its welfare during the first year of life, and efforts should therefore be made to educate persons in the child's immediate circle and to improve the professional training of doctors, midwives and visiting nurses.

Infant welfare centres and visiting nurses can exercise a direct influence upon mothers and families and advise them as to the means of safeguarding the health and life of the child.

In case of illness, adequate treatment by competent doctors should be within the reach of all and, in serious cases, the necessary care should be given to the child either at home, by properly trained nurses, or in a children's hospital.

The success obtained in the districts with low mortality in the prevention of this group of causes of death indicates clearly the action to adopt. In these districts the campaign should be continued and extended to districts with higher infant mortality. Breast-feeding should be encouraged by measures of education and material assistance given to the nursing mother.

In the interests of artificially fed infants, infant welfare agencies, which give advice to mothers and assist by other means, should be developed.

Lastly, measures for the supervision and improvement of the milk supply should be organised.

It is also desirable that infants living in each district be visited by a public health nurse, who should persuade the mother to visit the family physician or the infant welfare centre, even though the child is quite well. The public health nurse should also advise the mother on infant hygiene and feeding. The influence of such nurses and of infant welfare centres is particularly valuable in dealing with certain groups of the population which resist the application of measures for the protection of infancy.

The education of the public should include the teaching of certain aspects of hygiene concerning infants as a part of elementary and secondary school instruction.

The interest of teachers and professors should be developed in this direction, especially when women teachers are employed.

The establishment of schools of hygiene with courses not limited to physicians, midwives and nurses, but also open to the public, is indispensable. Education of the public may be carried on by means of infant welfare centres, which should undertake still more widely than at present the training of mothers by dealing more fully with all the subjects relating to infant welfare.

The education of physicians and midwives in hygiene should not be limited to student midwives and to medical students, but should extend to practising physicians and midwives, for whom systematic continuation courses should be organised. In medical schools, physicians and midwives should learn the practical difficulties which will confront them in practice. Courses in pediatrics, and particularly in diseases of infants, should be compulsory.

Measures against Specific Infectious Diseases. — The part played by infant welfare centres and their staffs in preventing digestive disturbances should, in all cases, be extended so as to include specific infectious diseases and respiratory diseases. The instruction of the public and the training given to medical students, midwives and nurses should also include questions relating to these two groups of diseases.

The attention of medical men should be called to the dangers of whooping-cough and measles and to the need for employing the classic preventive measures, such as isolation, as well as the more recent methods, such as serum-prophylaxis and vaccination.

Every possible effort should be made to apply to infants all known preventive measures against syphilis (sero-diagnosis and treatment during pregnancy) and tuberculosis.

Measures against Diseases of the Respiratory System. — At the present time the public is still very ignorant of the manner in which these diseases are spread and of the danger to infants of respiratory affections which, in adults, assume a relatively mild form. Special steps should be undertaken, on similar lines to those already taken in regard to digestive disturbances, to warn persons who have the care of infants against this danger.

The improvement in housing conditions, which is highly desirable from every point of view, is, indeed, an urgent necessity if infectious diseases and diseases of the respiratory system are to be prevented. In a large number of cases infants have died because the necessary isolation was not possible and, owing to overcrowding, infection was transmitted, either from an adult suffering from a respiratory disease, or from older brothers and sisters suffering from measles or whooping-cough.

The public should be better informed regarding these diseases, the danger of their spread from adults to infants, and the methods of prevention.

Apart from better housing conditions, the prevention of cross-infection implies improvement of hyienic conditions and medical supervision of all infants gathered together in groups, as in hospitals, crèches, homes, etc.

* * *

If adequate provision be made to meet the needs of pregnant women and new-born children in the form of maternal and infant welfare clinics, visiting nurses, legislation prescribing compulsory absence from work, and a subsistence allowance before and after confinement, as well as an allowance for breast-feeding, a large proportion of the women in need of these services will take advantage of them voluntarily.

The whole of the social, hygienic and medical measures, the application of which has proved to be of such great value both in preventing still-births and infant mortality during the first days of life, and in combating digestive disturbances, acute infectious diseases and respiratory diseases, *require the closest co-operation between all the organisations concerned.*

* * *

The enquiries have therefore shown the importance of the problems, the possibility of their solution, and the imperfections which still exist in the means of prevention. Although many factors — constitutional, social, economic and nosological — influence the mortality amongst infants, this can, to a great extent, be diminished by the application of appropriate administrative measures. The method of enquiry, the application of which on an international basis has been described above, was tried with a view to assisting in the solution of problems relating to the reduction of infant mortality which are mainly the concern of public health authorities. The experience acquired in European countries and the information already received from South American countries, in regard to which final data will be available shortly, have proved the efficacy of the method employed. The general adoption of this method of enquiry under the most varied conditions is not only possible, as shown by the examples given in the present memorandum, but is also highly desirable with a view to the generalisation of the doctrines to be formulated on the basis of its results.

VI. ANNEXES

Annex I.

EXPLANATORY NOTE FOR THE INVESTIGATORS.

The object of this enquiry is to determine the causes of death among infants under one year in a given district. The investigator should seek to ascertain the exact diagnosis of the last illness and the social and public health factors which may have played a part in the infant's death. All infant deaths during the period of twelve months should be included.

A. Each infant whose parents were living in the district at the date of its birth and until its death and, in addition, all foundlings are to be included in the enquiry.

B. All dead-born infants are to be included in the statistical compilations, *i.e.* :

(a) All infants which did not live (breathe) after birth ;

(b) All infants which lived several hours or days after birth and which are treated as dead-born in the official statistics because they were dead when birth was recorded.

In the present enquiry, infants belonging to category *(b)* are included in the class of live infants.

Cases of abortion are to be excluded from the enquiry.

It will not be easy to determine the exact cause of death in a certain number of cases because the diagnosis will have to be reconstructed from the history. In all doubtful cases the investigator should interview the physician who treated the infant in order to obtain all necessary information concerning the pathological history of the infant and of its family. The investigator should not be satisfied with a diagnosis which merely refers to a symptom, such as convulsions, debility, anæmia, etc., but should seek, in addition, to determine if the illness causing the infant's death was an all-important factor in its morbid history. An infant frequently dies of a pulmonary infection after having suffered for a long time from digestive troubles, or convulsions may be merely the last stage of an illness whose exact character should be discovered.

In the attached Nomenclature, the most common causes of death are given for infants between the date of birth and one year of age. It should be noted that the term " convulsions ", which is found in official lists, does not figure in this Nomenclature, and the investigator should seek to trace the disease which was the cause of this symptom. He must first ascertain whether convulsions did actually occur, this term being frequently used to describe violent muscular movements of an agitated child. Then he has to discover whether the convulsions were due to an obstetrical traumatism, to meningitis, to spasmophilia, or to yet another cause. The vague term " congenital debility " is also excluded from the Nomenclature. It is particularly important to

know whether or not the infant was born before term. Even in the case of premature births, a cause other than prematurity is generally necessary to cause death, and the investigator should try to ascertain the actual cause. Was the infant the victim of rhino-pharyngeal bronchitis, due to contact with someone in its environment ? Did it show signs of injury to the head or did it lack necessary care (proper feeding, warmth) ?

The condition of premature birth with debility has, however, been retained as a cause of death. This is to include infants born before term weighing 2 kilogrammes or more, with sub-normal temperature, being difficult to keep warm and extremely difficult to nourish.

The most probable diagnosis should be entered, after consideration of the clinical history, in cases in which it is impossible to definitely determine the exact cause of death.

The investigator may find the family history as regards epidemicity and contagion useful in establishing his diagnosis. A very young infant frequently reacts vaguely and not distinctly to infection by highly specific agents. At this age, diphtheria frequently develops without false membrane ; measles without eruption ; whooping-cough without characteristic paroxysms ; and influenza shows a malignant and rapid development.

The existence of such diseases in the family raises an important presumption as to the disease which caused the infant's death, although without characteristic manifestations. The question of contagion also plays an important part in the case of tuberculosis. It is true that the infant is not born tuberculous, but it becomes so by living in contact with tuberculous parents or grandparents. In such a case, it becomes necessary even to suspect strangers frequenting the house and to realise that a brief contact may result in fatal tuberculosis in an infant.

On the other hand, it is a well-known fact that an infant at birth is protected by anti-bodies inherited from its mother. This temporary immunity, relating only to those diseases which the mother herself has had, disappears at the age of three to four months.

Congenital syphilis plays an important part in infant mortality as well as in dead births. It is necessary to make a distinction between the cases in which congenital syphilis is evident and cases in which this diagnosis is probable. In the latter instance, it would be useful to set forth the reasons which have prompted this diagnosis.

In so far as digestive troubles, which play so important a part in the pathology of infancy, are concerned, the necessity of dividing these into two main classes must be emphasised. On the one hand, there are the digestive disturbances appearing in the course of another morbid state which should be sought for and demonstrated ; on the other hand, there are the digestive disturbances which result from errors in infant feeding. Finally, there are certain primary digestive disturbances which do not appear to be associated with errors in feeding ; these cases may be considered as due to an acute infection of the digestive tract. It appears important to classify all digestive disturbances accurately under one of these three categories.

Prolonged digestive disturbances lead to a serious lowering of the infant's nutrition and may produce symptoms classified as hypotrophia and athrepsia. The latter is seldom seen after the fifth month of life and is characterised by a progressive loss of weight and disappearance of fat, together with a drying-up of the infant, which results in a very characteristic general appearance and facies.

Besides the medical data, which, above all, should engage the attention of the investigator, he should not neglect the public health and social factors which throw a light on infant mortality.

In this connection, it is important for the investigator to distinguish between the different factors, as the following example will show :

An infant dies from digestive disturbances in the home of the wet-nurse where it was sent by its mother, a working woman in a neighbouring village. The infant's death has, therefore, a pathological cause — namely, digestive disturbances ; a hygienic cause — improper care by the wet-nurse ; a social cause — the situation of the mother.

In order that the investigation may be of value, these different causes must be demonstrated.

The attached questionnaire (see page 12) gives a series of particulars intended to enable the investigator to define exactly the causes which, from all these points of view, may have contributed to the death of the infant. For the purposes of this type of hygienic and social diagnosis, the investigator should give his impression of the circumstances as a whole and his personal conclusions, as in the case of the medical diagnosis.

Annex II.

EXPLANATORY NOTE ON THE QUESTIONNAIRE.

I, 2 *(b)* : Describe the dimensions and situation of the house, the number of rooms and the direction in which they face ; the number of bedrooms and of beds.

Indicate where the infant sleeps and if alone.

I, 2 *(e)* : Indicate whether the infant is able to benefit from sunlight ; whether or not the windows are opened ; if the infant is taken out of doors.

Finally, the investigator should give his personal impressions in regard to the general sanitary conditions of the building.

II : *Family.* — It is important to know if the infant is in immediate danger of contagion by contact with an acute disease (whooping-cough, measles or influenza) or a chronic disease (tuberculosis).

II, 4 *(e)* : Information is desired upon the state of health of the father and if it is such as to prevent him from providing properly for his family. Does his illness constitute a danger to those in his immediate environment ?

II, 5 *(a) :* How long did the mother live in the country ? (Since country-bred women may escape such contagious diseases as measles, and in these cases their infants are not immune.)

II, 5 *(c) :* It is important to learn whether the mother worked for her living at home before confinement and, in particular, if her occupation prevented her from feeding her infant (breast).

It should be determined whether the woman was overworked during pregnancy.

III, 2 *(e) : Definition of Dead Birth.* — Extract from document C. L. 66.

" The word ' birth ' means the separation and extrusion of a fœtus from the body of the parturient woman. The birth is to be deemed complete at the instant when the whole of the body of the fœtus — head, trunk and limbs — is outside the body of the mother.

" The birth is to be deemed a live birth if, after birth (as defined above), the infant breathes.

" The act of respiration is incontrovertible evidence of life, and its continued absence is to be taken as proof of fœtal death.

" It is desirable, for statistical purposes, that a distinction should be made between the birth of a fœtus which can normally be expected to be capable of an existence independent of its mother and the expulsion of one which cannot — births in the latter category being regarded as miscarriages (abortions).

" A fœtus capable of an independent existence is a ' viable fœtus ' and is the product of a gestation which has lasted at least twenty-eight weeks. Such a fœtus will normally measure at least 35 centimeters from the crown of the head to the base of the heel, the body being fully extended. The Committee is of opinion that the latter criterion is the more trustworthy.

" *Hence a ' dead birth ' is the birth of a fœtus, after twenty-eight weeks' pregnancy, in which pulmonary respiration does not occur ; such a fœtus may die either :* (a) *before ;* (b) *during ; or* (c) *after birth, but before it has breathed.* "

IV, 3 *(a) :* Was the infant reared : In its family ? / With relations ? / By a wet-nurse ? / In a crèche ? — temporarily or permanently ?

IV, 3 *(b) :* Good, moderate, bad.

IV, 3 *(c) :* What is required is the impression of the investigator in regard to the moral and intellectual standard of the mother or of the nurse.

It will suffice to give a general idea of the care given to the infant.

IV, 3 *(d) :* How long was the infant under supervision ?

By whom ?

Age of the infant at its first visit to infant welfare station or when first seen by doctor ?

IV, 4 : *Method of Feeding.* — It is essential that information on the method of feeding should be as complete as possible. Mention should be made of the following points :

1. Was the infant breast-fed by its mother or by a wet-nurse ?
2. How long did breast-feeding last ?
3. When was the infant put on mixed feeding and what artificial food was given to it in addition to breast milk ?
4. Why was the infant prematurely weaned ?
5. What artificial food was used ?

Indicate whether the infant was given cow's milk, goat's milk, pure or diluted, sterilised or not, or if foods unsuited to its age were given (such as alcohol, cake).

Indicate the quantity of milk given to the infant.

6. Give the investigator's impression in regard to the method of feeding, as follows :

Good.
Indifferent.
Bad.

IV, 5 : *Health of the Infant.* — It should be stated whether the infant was well developed or if the condition of its health left something to be desired before the last illness began, and, above all, the diseases from which it suffered. Describe these in sufficient detail to permit the reconstruction of a diagnosis. It is important to give details of the duration and gravity of these diseases as well as of their effect on the nutrition of the infant.

IV, 6 *(a)* and *(b) Death :* A detailed description is required of the illness which was more or less directly responsible for the infant's death. The symptoms should be detailed as well as the evidence given by those in contact with the infant regarding the development and progress of the disease. Mention the immediate cause of death as well as the illness which led up to it.

These details are required in order to permit of comparison between the diagnosis arrived at by the different medical investigators.

IV, 6 *(f) :* It would be of value to learn the opinion of the investigator on such points as the accuracy of the diagnosis and the greater or lesser exactitude of the information obtained, etc.

Annex III.

NOMENCLATURE OF DISEASES COMMON TO THE FIRST YEAR OF LIFE.

I. Digestive Disturbances and Nutritional Disturbances associated with Feeding.

A. *Acute.* Intensity : Light.
Moderate.
Serious.

B. *Chronic.* Intensity : Moderate.
Serious.

II. Specific Infectious Diseases.

A. *Acute :* Measles.
Scarlet Fever.
Rubella.
Diphtheria.
Typhoid Fever.
Dysentery.
Meningitis epidemica.
Malaria.
Chicken-pox.
Smallpox.
Whooping-cough.
Mumps.
Influenza.
Encephalitis epidemica.
Poliomyelitis.
Erysipelas.
Gonorrhœa.

B. *Chronic.* Tuberculosis. Syphilis.

III. Other Infectious Diseases.

1. Generalised infections : Septicæmia.
2. Skin diseases . . . . . *(a)* Furunculosis. *(b)* Pyogenic infections. *(c)* Impetigo. *(d)* Other skin diseases.
3. Respiratory infections, including infections of the throat and ear. *(a)* Coryza. *(b)* Bronchitis. *(c)* Bronchial pneumonia. *(d)* Pneumonia. *(e)* Purulent pleurisy. *(f)* Angina. *(g)* Otitis and complications.
4. Urinary infections . . . . . Cystitis, Pyelitis.

5. Meningo-encephalic infections . . . { (a) Acute meningitis (various forms). (b) Encephalitis (various forms).
6. Infections of the umbilical cord . . See Generalised Infections, Tetanus, Erysipelas.
7. Bones and joints . . . . . { (a) Osteomyelitis. (b) Arthritis.

IV. Non-infectious Diseases (excluding Groups I, V and VI).

Barlow's Disease.
Rickets.
Spasmophilia.
Eczema and other non-infectious diseases of the skin.

Diseases of the blood . . . . . { Pernicious anæmia. Leucæmia. Hæmophilia.
Diseases of the thyroid gland . . . . . { Malignant tumours. Hypothyroidism. Hyperthyroidism (Goitre).
Diseases of the stomach . . . . . { Pernicious vomiting. Pyloric stenosis.
Intestinal diseases . . . . . { Melæna. Invagination and other causes of intestinal occlusion.

Other diseases will be classified according to the organs affected.

V. Congenital Malformations.

1. Nervous system (idiocy, hydrocephalus, meningocele and spina bifida).
2. Heart.
3. Mouth, digestive tract.
4. Liver and biliary tract.
5. Bones and joints.
6. Umbilical cord.

VI. Obstetrical Traumatisms.

1. Traumatism of the head.
2. Hæmorrhage into the brain and spinal cord.
3. Fractures and luxations.
4. Asphyxia.

VII. Serious Accidents (Burns, etc.).

Annex IV.

NOMENCLATURE OF THE CAUSES OF STILL-BIRTH.

The nomenclature which follows includes both determining and predisposing causes :

1. Death of the fœtus during pregnancy (death due to fœtal disease) :
   - Syphilis and other chronic diseases.
   - Toxæmias of pregnancy (eclampsia, albuminuria, retro-placental hæmorrhage, etc.).
   - Malformations incompatible with life.
   - Occupational poisonings.
   - Unknown causes.

2. Death due to premature birth (debility incompatible with extra-uterine survival) :

Infants otherwise healthy	Overwork of the mother. Violent traumatism inducing premature labour. Malpresentation.
Infants otherwise healthy or defective	Acute infections. Chronic infections, particularly syphilis. Maternal or fœtal diseases (hydramnios, diseases of the heart, pernicious anæmia, etc. ; for example, such conditions may terminate pregnancy spontaneously or necessitate the artificial emptying of the uterus).

3. Death of the fœtus during labour (death due to mechanical causes) :

Malpresentations . . .	Shoulder. Breech. Face.
Obstacles to the birth of the infant	Contracted pelvis. Tumour obstructing birth-canal. Anomalies in the dilatation of the birth-canal. Malposition of the placenta.
Miscellaneous [1]	Protrusion of the cord. Abnormal uterine contractions. Infections of the fœtus.

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[1] These are almost always secondary causes, associated with one of the causes mentioned in preceding titles, they may be of first importance.

Other exceptional causes	Excessive size of fœtus. Dystocia due to presence of twins. Monstrosity capable of more or less prolonged survival, but mechanically causing dystocia (hydrocephalus, for instance).

Unknown causes.

Annex V.

PERSONS TAKING PART IN THE ENQUIRY.

Austria (Professor C. PIRQUET and Professor E. NOBEL) :

Dr. A. STROBL, Specialist in children's diseases, *Vienna.*
Dr. M. KUGLER, Specialist in children's diseases, *Vienna.*
Dr. BARSFELD-SIEGFRIED.
Dr. POERNER, Statistician in the Municipal Health Service.
Dr. B. HACKL, Chief Medical Officer of the Child Welfare Service, *Linz.*
Dr. KRIECHBAUM, *Linz.*

France (Professor R. DEBRÉ) :

Dr. P. JOANNON, Assistant for the Enquiry to Professor Debré.
Dr. OTT, Head of the Departmental Health Service, *Rouen* (Seine-Inférieure).
Dr. PIGOT, Departmental Inspector of Health, *Tours* (Indre-et-Loire).
Mlle. CHAPTAL, Head of the Maternal and Infant Welfare Organisation of *Plaisance* (District XIV of Paris), Member of the " Conseil supérieur de l'assistance ", Vice-President of the " Conseil de perfectionnement des écoles d'infirmières " at the Ministry of Health.
Dr. M. Th. CRÉMIEU-ALCAN, Medical Officer of a dispensary, *Paris.*
Dr. LAFOSSE, Professor at the " Ecole de pratique sanitaire ", Member of the " Conseil de perfectionnement des infirmières " at the Ministry of Health, Director of the Health Bureau of *Vanves* (a suburb of Paris).

Germany (Professor F. ROTT) :

Dr. MEIER, Assistant to Professor Rott, *Berlin.*
Frl. PLASCHKE, *Berlin.*
Dr. ROTHAMMER, District Medical Officer for the town of *Augsburg.*
Dr. KEHDING, Chief Municipal Medical Officer of the town of *Cassel.*
Dr. SCHAEFER, Chief Medical Officer to the Infant Welfare Centre, *Cassel.*
Dr. CORVEY, Director of the Government Health Service of the town of *Lippe.*

Frl. KRIEGER, Chief Public Health Nurse of *Lippe.*
Dr. STEIN, Medical Adviser to the Ministry for *Mecklenburg-Strelitz.*
Frl. Paula MODERSOHN, nurse, *Mecklenburg-Strelitz.*

Great Britain (Dame Janet CAMPBELL) :
Dr. M. GREENWOOD, Professor of Epidemiology and Demographic Statistics at the University of London and Dr. Peter L. McKINLAY.
Dr. Harold WALLER, Specialist in children's diseases, *London.*
Dr. Eustace THORP, Acting Head of the Public Health Service for *Sunderland.*
Dr. NEWSHOLME, Head of the Public Health Service, *Croydon.*
Dr. M. BRODIE, *Croydon.*
Dr. CARRUTHERS, Chief Medical Officer of Public Health for *Staffordshire.*
Miss HARDY and Miss WOOLDRIDGE } Chief Public Health Nurses, Inspectors of Midwives for *Staffordshire.*
Dr. COLES, Medical Officer of Health for *Oxfordshire.*
Mrs. PEARSE, Chief Public Health Nurse for *Oxfordshire.*

Italy (Professor C. GINI) :
Dr. DE BERARDINIS, Chief of Department at the Central Statistical Institute in the Kingdom of Italy, *Rome.*
Prof. GIUSTI, Former Chief of Department at the above Institute.
Prof. D'ORMEA, General Sanitary Inspector of the National Organisation of Motherhood and Childhood, *Rome.*
Prof. FLAMINI, Director of the Home for Abandoned Children, *Rome.*

Netherlands (Professor E. GORTER) :
Dr. J. MUNK, Senior Assistant at the University Child Clinic and Pediatrician, *Leyden.*
Dr. A. TEN BOKKEL HUININK, Pediatrician and Medical Officer attached to the Infant Welfare Centre of *Dordrecht.*
Dr. J. VAN LOOKEREN CAMPAGNE, Pediatrician and Medical Officer attached to an Infant Welfare Centre, *Breda.*
Dr. H. P. J. KOENEN, Pediatrician and Medical Officer attached to an Infant Welfare Centre, *Maestricht.*
Dr. J. W. HARTGERINK, Pediatrician at *Groningen* (Emmen).
Dr. J. H. TUNTLER, Health Inspector, *Emmen.*
Dr. J. F. KREIKEN, Chief Medical Officer of the Miners' Insurance Fund, *Hoensbroek.*
Mme. KREIKEN.
Dr. O. A. DRIESSEN, Pediatrician at *Heerlen* and Medical Officer attached to an InfantWelfare Centre *Hoensbroek.*

Norway (Professor A. COLLETT) :
Dr. HUSTAD, Specialist in children's diseases, Official of the Department of Health at *Oslo.*
Mme. STROM, Nurse in the Department of Health at *Oslo.*

Annex VI.

TABLE 1. — DEATHS DUE TO DIGESTIVE DISTURBANCES.

Classification	Rural districts	Per 1,000 live births	Percentage of total deaths under 1 year	Urban districts	Per 1,000 live births	Percentage of total deaths under 1 year
I. Low infant mortality: 3.5-4.9 %	Oxfordshire (Great Britain) .	1.9	4.4	Leyden (Netherlands) . . .	1.4	4.0
	Hedmark (Norway)	2.4	5.0	Dordrecht (Netherlands) . .	0	0
				Oslo West (Norway)	0	0
II. Moderate infant mortality : 5.6.9 %	Lochois and Chinonais (France)	8.5	15.2	Croydon (Great Britain) . .	4.1	7.8
	Lippe (Germany)	3.2	5.5	Oslo East (Norway)	0.6	1.1
	Staffordshire (Great Britain) .	2.7	4.5	Breda (Netherlands)	7.1	12.0
	Emmen (Netherlands) . . .	4.6	7.1	Maestricht (Netherlands) . .	5.0	7.9
III. High infant mortality : 7-9.9 %	Pays de Caux (France). . .	17.9	19.3	Plaisance and the Zone		
	Hoensbroek (Netherlands) .	15.5	15.8	(France)	15.3	
				Cassel (Germany)	7.5	20.2
				Vienna, Districts VI, VII and		9.3
				VIII (Austria).	7.4	
				Sunderland (Great Britain) .	10.8	18.3
				Augsburg (Germany)	9.0	9.7
IV. Very high infant mortality : 10 % and over	Pays de Bray (France) . .	18.9	17.9	Vienna, District X (Austria)	24.4	13.0
	Mecklenburg-Strelitz (Germany)	19.2	16.4			
	Gmunden (Austria)	31.5	25.8			
	Schärding and Engelhartszell (Austria)	54.2	27.4			

TABLE 2. — DEATHS DUE TO SPECIFIC INFECTIOUS DISEASES AND OTHER INFECTIOUS DISEASES.

Classification	Rural districts	Specific infectious diseases		Other infectious diseases		Joint total	
		Per 1,000 live births	Percentage of total deaths under 1 year	Per 1,000 live births	Percentage of total	Per 1,000 live births	Percentage of total
I. Low infant mortality: 3.5-4.9 %	Oxfordshire (Great Britain)	2.9	6.6	13.4	30.8	16.4	37.4
	Hedmark (Norway)	2.9	7.1	15.9	34.0	19.5	41.5
II. Moderate infant mortality: 5-6.9 %	Lochois and Chinonais (France)	11.1	19.7	4.3	7.6	15.3	27.3
	Lippe (Germany)	4.8	8.2	17.3	29.7	22.2	37.9
	Staffordshire (Great Britain)	2.7	4.5	15.2	25.2	17.9	29.7
	Emmen (Netherlands)	1.5	2.4	25.1	39.3	26.6	41.7
III. High infant mortality: 7-9.9 %	Pays de Caux (France)	28.9	31.1	15.7	17.0	44.6	48.1
	Hoensbroek (Netherlands)	18.1	18.4	18.1	18.4	36.2	36.8
IV. Very high infant mortality : 10 % and over	Pays de Bray (France)	24.6	23.2	13.2	12.5	37.8	35.7
	Mecklenburg-Strelitz (Germany)	10.9	9.3	20.1	17.2	31.0	26.5
	Gmunden (Austria)	13.7	11.2	38.4	31.5	52.1	42.7
	Schärding and Engelhartszell (Austria)	7.3	3.7	57.1	28.9	64.4	32.6
	Urban districts						
I. Low infant mortality: 3.5-4.9%	Leyden (Netherlands)	2.1	6.0	12.8	36.0	14.9	42.0
	Dordrecht (Netherlands)	1.0	2.5	13.5	35.8	14.5	38.4
	Oslo West (Norway)	0.0	0.0	10.0	26.1	10.0	26.1
II. Moderate infant mortality: 5-6.9 %	Croydon (Great Britain)	3.4	6.6	15.8	30.1	19.2	36.7
	Oslo East (Norway)	3.7	6.4	21.1	36.6	24.8	43.0
	Breda (Netherlands)	3.6	6.0	24.1	40.0	25.2	46.0
	Maestricht (Netherlands)	12.0	19.1	13.5	21.3	25.5	40.4
III. High infant mortality: 7-9.9 %	Plaisance and the Zone (France)	21.4	28.2	17.7	23.4	39.2	51.6
	Cassel (Germany)	8.6	10.7	18.0	22.4	26.7	33.2
	Vienna, Districts VI, VII and VIII (Austria)	7.4	8.3	19.8	22.2	27.2	30.6
	Sunderland (Great Britain)	8.8	9.6	30.1	32.8	39.0	42.4
	Augsburg (Germany)	11.1	12.0	19.7	21.2	30.9	33.2
IV. Very high infant mortality : 10 % and over	Vienna, district X (Austria)	10.9	5.8	99.5	53.1	110.4	53.9

TABLE 3. — DEATHS DUE TO OBSTETRICAL TRAUMATISMS.

Classification	Rural districts	Per 1,000 live births	Percentage of total deaths under 1 year	Urban districts	Per 1,000 live births	Percentage of total deaths under 1 year
I. Low infant mortality: 3.5-4.9%	Oxfordshire (Great Britain) .	3.8	8.8	Leyden (Netherlands) . .	4.3	12.0
	Hedmark (Norway)	1.5	3.1	Dordrecht (Netherlands) . .	3.9	10.3
				Oslo West (Norway)	5.0	13.0
II. Moderate infant mortality : 5-6.9 %	Lochois and Chinonais (France)	1.7	3.0	Croydon (Great Britain) . .	5.0	9.6
	Lippe (Germany)	2.9	4.9	Oslo East (Norway)	8.1	14.0
	Staffordshire (Great Britain).	6.0	9.9	Breda (Netherlands)	2.2	4.0
	Emmen (Netherlands) . . .	7.6	11.9	Maestricht (Netherlands) . .	7.8	12.4
III. High infant mortality : 7-9.9 %	Pays de Caux (France). . .	2.2	2.4	Plaisance and the Zone (France)	1.2	1.6
	Hoensbroek (Netherlands) .	7.2	7.4	Cassel (Germany)	4.1	5.1
				Vienna, Districts VI, VII and VIII (Austria).	19.8	22.2
				Sunderland (Great Britain) .	3.3	3.6
				Augsburg (Germany)	3.9	4.2
IV. Very high infant mortality : 10 % and over	Pays de Bray (France) . .	4.2	3.9	Vienna, District X (Austria)	7.2	3.9
	Mecklenburg-Strelitz (Germany)	1.3	1.1			
	Gmunden (Austria)	12.3	10.1			
	Schärding and Engelhartszell (Austria)	36.6	18.5			

TABLE 4. — DEATHS DUE TO " PREMATURE BIRTH "

(Without further diagnosis.)

Classification	Rural districts	Per 1,000 live births	Percentage of total deaths under 1 year	Urban districts	Per 1,000 live births	Percentage of total deaths under 1 year
I. Low infant mortality: 3.5-4.9%	Oxfordshire (Great Britain) .	7.7	17.6	Leyden (Netherlands) . . .	6.4	18.0
	Hedmark (Norway)	8.0	17.0	Dordrecht (Netherlands) . .	8.7	23.1
				Oslo West (Norway)	10.0	26.1
II. Moderate infant mortality : 5-6.9%	Lochois and Chinonais (France)	16.2	28.8	Croydon (Great Britain) . .	15.1	28.9
	Lippe (Germany)	13.2	22.5	Oslo East (Norway)	15.5	26.8
	Staffordshire (Great Britain)	17.4	28.8	Breda (Netherlands)	9.7	16.0
	Emmen (Netherlands) . . .	9.9	15.5	Maestricht (Netherlands) . .	11.3	18.0
III. High infant mortality : 7-9.9 %	Pays de Caux (France). . .	6.1	6.6	Plaisance and the Zone		
	Hoensbroek (Netherlands) .	17.6	17.19	(France)	10.4	13.7
				Cassel (Germany)	24.8	30.8
				Vienna, Districts VI, VII and VIII (Austria).	17.3	19.4
				Sunderland (Great Britain) .	25.7	28.0
				Augsburg (Germany)	25.5	27.4
IV. Very high infant mortality : 10 % and over	Pays de Bray (France). . .	14.0	13.2	Vienna, District X (Austria)	23.5	12.6
	Mecklenburg-Strelitz (Germany)	19.6	16.8			
	Gmunden (Austria)	6.9	5.6			
	Schärding and Engelhartszell (Austria)	10.2	5.2			

Table 5. — DEATHS DUE TO UNKNOWN CAUSES.

Classification	Rural districts	Per 1,000 live births	Percentage of total deaths under 1 year	Urban districts	Per 1,000 live births	Percentage of total deaths under 1 year
I. Low infant mortality: 3.5-4.9%	Oxfordshire (Great Britain) .	9.1	20.9	Leyden (Netherlands) . . .	5.0	14.0
	Hedmark (Norway)	7.4	15.7	Dordrecht (Netherlands) . .	4.8	12.8
				Oslo West (Norway)	5.0	13.0
II. Moderate infant mortality : 5-6.9 %	Lochois and Chinonais (France)	3.4	6.1	Croydon (Great Britain) . .	6.0	11.4
	Lippe (Germany)	12.5	21.4	Oslo East (Norway)	3.7	6.4
	Staffordshire (Great Britain)	9.8	16.2	Breda (Netherlands)	4.2	12.0
	Emmen (Netherlands) . . .	4.6	7.1	Maestricht (Netherlands) . .	6.4	10.1
III. High infant mortality : 7-9.9 %	Pays de Caux (France). . .	0.9	0.9	Plaisance and the Zone		
	Hoensbroek (Netherlands) .	14.5	14.7	(France)	3.1	4.0
				Cassel (Germany)	10.9	13.6
				Vienna, Districts VI, VII and VIII (Austria).	9.9	11.1
				Sunderland (Great Britain).	7.5	8.1
				Augsburg (Germany)	15.4	16.6
IV. Very high infant mortality : 10 % and over.	Pays de Bray (France) . .	5.3	5.0	Vienna, District X (Austria)	13.6	7.2
	Mecklenburg-Strelitz (Germany)	41.9	35.8			
	Gmunden (Austria)	11.0	9.0			
	Schärding and Engelharstzell (Austria).	16.1	8.1			

Tableau 6. — CATÉGORIE I. DISTRICTS A MORTALITÉ INFANTILE FAIBLE
RÉPARTITION DES GROUPES DE CAUSES MÉDICALES DE DÉCÈS

1° Pour 1.000 nés vivants. — 2° Pourcentage du total des décès au-dessous d'un an.

Districts	Décès au-dessous d'un an pour 1.000 nés vivants Deaths under one year per 1,000 live births	Mort-nés pour 1.000 nés vivants Still-births per 1,000 live births	Groupes de causes de décès — I Troubles digestifs Digestive troubles		II Maladies infectieuses spécifiques Specific infectious diseases		III Autres maladies infectieuses Other infectious diseases		Total des groupes II et III Total for Groups II and III	
			Pour 1.000 nés vivants Per 1,000 live births	% du total % of total	Pour 1.000 nés vivants Per 1,000 live births	% du total % of total	Pour 1.000 nés vivants Per 1,000 live births	% du total % of total	Pour 1.000 nés vivants Per 1,000 live births	% du total % of total
I. **Districts ruraux. — Rural Districts.**										
Oxfordshire (Grande-Bretagne — Great Britain)	43.8	31.3	1.9	4.4	2.9	6.6	13.4	30.8	16.4	37.4
Hedmark (Norvège — Norway)	47.0	28.6	2.4	5.0	3.5	7.5	15.9	34.0	19.5	41.5
II. **Districts urbains. — Urban Districts.**										
Leyde — Leyden (Pays-Bas — Netherlands)	35.6	29.2	1.4	4.0	2.1	6.0	12.8	36.0	14.9	42.0
Dordrecht (Pays-Bas — Netherlands)	37.7	29.0	0	0	1.0	2.5	13.5	35.8	14.5	38.4
Oslo-ouest — Oslo West (Norvège — Norway)	38.5	36.8	0	0	0	0	10.0	26.1	10.0	26.1

Tableau 7. — CATÉGORIE II. DISTRICTS A MORTALITÉ INFANTILE MODÉRÉE
RÉPARTITION DES GROUPES DE CAUSES MÉDICALES DE DÉCÈS

1° Pour 1.000 nés vivants. — 2° Pourcentage du total des décès au-dessous d'un an.

I. **Districts ruraux. — Rural Districts.**										
Lochois et Chinonais — Lochois and Chinonais (France)	56.3	23.9	8.5	15.2	11.1	19.7	4.3	7.6	15.3	27.3
Lippe (Allemagne — Germany)	58.4	30.5	3.2	5.5	4.8	8.5	17.3	29.7	22.2	37.9
Staffordshire (Grande-Bretagne — Great Britain)	60.2	37.4	2.7	4.5	2.7	4.5	15.2	25.2	17.9	29.7
Emmen (Pays-Bas — Netherlands)	63.9	40.3	4.6	7.1	1.5	2.4	25.1	39.3	26.6	41.7
II. **Districts urbains. — Urban Districts.**										
Croydon (Grande-Bretagne — Great Britain)	52.3	33.1	4.1	7.8	3.4	6.6	15.8	30.1	19.2	36.7
Oslo-est — Oslo East (Norvège — Norway)	57.8	26.7	0.6	1.1	3.7	6.4	21.1	36.6	24.8	43.0
Breda (Pays-Bas — Netherlands)	60.4	25.3	7.1	12.0	3.6	6.0	24.1	40.0	27.7	46.0
Maestricht (Pays-Bas — Netherlands)	63.1	27.6	5.0	9.9	12.0	19.1	13.5	21.3	25.5	40.4

Table 6. — CLASS I. DISTRICTS WITH A LOW INFANT MORTALITY
DISTRIBUTION OF THE GROUPS OF MEDICAL CAUSES OF DEATH

(1) Per 1,000 live births. — (2) Percentage of total deaths under 1 year.

Groups of Causes of Death															
IV Traumatismes obstét. Obstetrical traumatisms		V Naissances prématurées Premature birth		VI Causes inconnues Unknown causes		Total des groupes IV, V et VI Total for Groups IV, V and VI		VII Malformations congénitales Congenital malformations		VIII Maladies non microb. Non-microbic diseases		IX Autres causes Other causes		X Sans enquête No enquiry made	
Pour 1,000 nés vivants Per 1,000 live births	% du total % of total	Pour 1,000 nés vivants Per 1,000 live births	% du total % of total	Pour 1,000 nés vivants Per 1,000 live births	% du total % of total	Pour 1,000 nés vivants Per 1,000 live births	% du total % of total	Pour 1,000 nés vivants Per 1,000 live births	% du total % of total	Pour 1,000 nés vivants Per 1,000 live births	% du total % of total	Pour 1,000 nés vivants Per 1,000 live births	% du total % of total	Pour 1,000 nés vivants Per 1,000 live births	% du total % of total
3.8	8.8	7.7	17.6	9.1	20.9	20.7	47.3	2.4	5.5	1.0	2.2	1.4	3.3	0	0
1.5	3.1	8.0	17.0	7.4	15.7	16.8	35.8	0.3	0.6	2.4	5.0	0	0	5.6	11.9
4.3	12.0	6.4	18.0	5.0	14.0	15.7	44.0	2.8	8.0	0.7	2.0	0	0	0	0
3.9	10.3	8.7	23.1	4.8	12.8	17.4	46.2	1.9	5.1	1.9	5.1	1.9	5.1	0	0
5.0	13.0	10.0	26.1	5.0	13.0	20.1	52.2	3.3	8.7	0	0	1.7	4.3	3.3	8.7

Table 7. — CLASS II. DISTRICTS WITH A MODERATE INFANT MORTALITY
DISTRIBUTION OF THE GROUPS OF MEDICAL CAUSES OF DEATH

(1) Per 1,000 live births. — (2) Percentage of total deaths under 1 year.

1.7	3.0	16.2	28.8	3.4	6.1	21.3	37.9	3.4	6.1	0.9	1.5	3.4	6.1	3.4	6.1
2.9	4.9	13.2	22.5	12.5	21.4	28.6	48.9	2.9	4.9	1.0	1.6	0.6	1.1	0	0
6.0	9.9	17.4	28.8	9.8	16.8	33.1	55.0	3.8	6.3	1.1	1.8	1.6	2.4	0	0
7.6	11.9	9.9	15.5	4.6	7.1	22.1	34.5	6.1	9.5	3.8	6.0	0.8	1.2	0	0
5.0	9.6	15.1	28.9	6.0	11.4	26.1	50.0	1.2	2.4	0.6	1.2	0.9	1.8	0	0
8.1	14.0	15.5	26.8	3.7	6.4	27.3	47.3	1.2	2.2	2.5	4.3	0	0	1.2	2.2
2.4	4.0	9.7	16.0	7.2	12.0	20.9	32.0	3.6	6.0	1.1	2.0	1.1	2.0	0	0
7.8	12.4	11.4	18.0	6.4	10.1	25.5	40.4	2.1	3.4	2.8	4.5	2.1	3.4	0	0

Tableau 8. — CATÉGORIE III. DISTRICTS A MORTALITÉ INFANTILE FORTE
RÉPARTITION DES GROUPES DE CAUSES MÉDICALES DE DÉCÈS

1° Pour 1.000 nés vivants. — 2° Pourcentage du total des décès au-dessous d'un an.

Districts	Décès au-dessous d'un an pour 1.000 nés vivants Deaths under one year per 1,000 live births	Mort-nés pour 1.000 nés vivants Still-births per 1,000 live births	Groupes de causes de décès — I Troubles digestifs Digestive troubles		II Maladies infectieuses spécifiques Specific infectious diseases		III Autres maladies infectieuses Other infectious diseases		Total des groupes II et III Total for Groups II and III	
			Pour 1.000 nés vivants Per 1,000 live births	% du total % of total	Pour 1.000 nés vivants Per 1,000 live births	% du total % of total	Pour 1.000 nés vivants Per 1,000 live births	% du total % of total	Pour 1.000 nés vivants Per 1,000 live births	% du total % of total
I. **Districts ruraux. — Rural Districts.**										
Pays de Caux (France)	92.7	39.4	17.9	19.3	28.9	31.1	15.7	17.0	44.6	48.1
Hoensbroek (Pays-Bas — Netherlands)	98.2	16.5	15.5	15.8	18.1	18.4	18.1	18.4	36.2	36.8
II. **Districts urbains. — Urban Districts.**										
Plaisance et la Zone — Plaisance and the Zone (France)	75.9	15.9	15.3	20.2	21.4	28.2	17.7	23.4	39.2	51.6
Cassel (Allemagne — Germany)	80.3	43.5	7.5	9.3	8.6	10.7	18.0	22.4	26.7	33.2
Vienne, VI^{e}, VII^{e} et VIII^{e} arrond. — Vienna, Districts VI, VII and VIII (Autriche — Austria)	89.1	64.4	7.4	8.3	7.4	8.3	19.8	22.2	27.2	30.6
Sunderland (Grande-Bretagne — Great Britain)	91.8	39.8	10.8	11.7	8.8	9.6	30.1	32.8	39.0	42.4
Augsbourg (Allemagne — Germany)	92.9	26.9	9.0	9.7	11.1	12.0	19.7	21.2	30.9	33.2

Tableau 9. — CATÉGORIE IV. — DISTRICTS A MORTALITÉ INFANTILE TRÈS FORTE
RÉPARTITION DES GROUPES DE CAUSES MÉDICALES DE DÉCÈS

1° Pour 1.000 nés vivants. — 2° Pourcentage du total des décès au-dessous d'un an.

I. **Districts ruraux. — Rural Districts.**										
Pays de Bray (France)	105.9	26.5	18.9	17.9	24.6	23.2	13.2	12.5	37.8	35.7
Mecklembourg-Strelitz (Allemagne — Germany)	116.9	39.3	19.2	16.4	10.9	9.3	20.1	17.2	31.0	26.5
Gmunden (Autriche — Austria)	122.1	32.9	31.5	25.8	13.7	11.2	38.4	31.5	52.1	42.7
Schärding et Engelhartszell (Autriche — Austria)	197.6	26.4	54.2	27.4	7.3	3.7	57.1	28.9	64.4	32.6
II. **Districts urbains. — Urban Districts.**										
Vienne, X^{e} arrondissement — Vienna, District X (Autriche — Austria)	187.3	31.7	24.4	13.0	10.9	5.8	99.5	53.1	110.4	58.9

Table 8. — CLASS III. DISTRICTS WITH A HIGH INFANT MORTALITY
DISTRIBUTION OF THE GROUPS OF MEDICAL CAUSES OF DEATH

(1) Per 1,000 live births. — (2) Percentage of total deaths under 1 year.

Groups of Causes of Death															
IV Traumatismes obstét. Injury at birth		V Naissances prématurées Premature birth		VI Causes inconnues Unknown causes		Total des groupes IV, V et VI Total for Groups IV, V et VI		VII Malformations congénitales Congenital malformation		VIII Maladies non microb. Non-microbic diseases		IX Autres causes Other causes		X Sans enquête No enquiry made	
Pour 1.000 nés vivants Per 1,000 live births	% du total % of total	Pour 1.000 nés vivants Per 1,000 live births	% du total % of total	Pour 1.000 nés vivants Per 1,000 live births	% du total % of total	Pour 1.000 nés vivants Per 1,000 live births	% du total % of total	Pour 1.000 nés vivants Per 1,000 live births	% du total % of total	Pour 1.000 nés vivants Per 1,000 live births	% du total % of total	Pour 1.000 nés vivants Per 1,000 live births	% du total % of total	Pour 1.000 nés vivants Per 1,000 live births	% du total % of total
2.2	2.4	6.1	6.6	0.9	0.9	9.2	9.9	3.5	3.8	3.9	4.2	1.3	1.4	12.2	13.2
7.2	7.4	17.6	17.9	14.5	14.7	39.3	40.0	2.1	2.2	4.1	4.2	1.0	1.1	0	0
1.2	1.6	10.4	13.7	3.1	4.0	14.7	19.4	1.2	1.6	2.4	3.2	3.1	4.0	0	0
4.1	5.1	24.8	30.8	10.9	13.6	39.8	49.5	2.3	2.8	3.0	3.7	1.1	1.4	0	0
19.8	22.2	17.3	19.4	9.9	11.1	47.0	52.8	4.9	5.6	2.5	2.8	0	0	0	0
3.3	3.6	25.7	28.0	7.5	8.1	36.5	39.8	3.9	4.2	1.1	1.2	0.6	0.6	0	0
3.9	4.2	25.5	27.4	15.4	16.6	44.9	48.3	2.2	2.3	4.3	4.6	1.8	1.9	0	0

Table 9. — CLASS IV. DISTRICTS WITH A VERY HIGH INFANT MORTALITY
DISTRIBUTION OF THE GROUPS OF MEDICAL CAUSES OF DEATH

(1) Per 1,000 live births. — (2) Percentage of total deaths under 1 year.

4.2	3.9	14.0	13.2	5.3	5.0	23.4	22.1	3.0	2.9	4.9	4.6	2.6	2.5	15.1	14.3
1.3	1.1	19.6	16.8	41.9	35.8	62.8	53.7	2.2	1.9	1.7	1.5	0	0	0	0
12.3	10.1	6.9	5.6	11.0	9.0	30.2	24.7	1.4	1.1	6.9	5.6	0	0	0	0
36.6	18.5	10.2	5.2	16.1	8.1	62.9	31.9	1.5	0.7	14.6	7.4	0	0	0	0
7.2	3.9	23.5	12.6	13.6	7.2	44.3	23.7	3.6	1.9	4.5	2.4	0	0	0	0

Tableau 10. — RÉPARTITION DES DÉCÈS AU-DESSOUS D'UN AN SELON L'AGE DES DÉCÉDÉS POUR TOUS LES DISTRICTS

Districts urbains.

	Leyde Leyden		Dordrecht		Oslo-ouest Oslo West		Croydon		Oslo-est Oslo East		Bréda Breda		Maëstricht Maestricht	
	Total	% du total % of total	Total	% du total % of total	Total	% du total % of total	Total	% du total % of total	Total	% du total % of total	Total	% du total % of total	Total	% du total % of total
I. 1re semaine	20	40.0	15	38.5	14	60.9	72	43.4	41	44.8	13	26.0	31	34.8
II. 1er mois (inclus 1re semaine)	23	46.0	17	43.5	18	78.3	98	59.0	49	52.7	17	34.0	44	49.4
III. 1er trimestre (inclus 1er mois)	26	52.0	23	59.0	20	87.0	123	74.1	60	64.5	26	52.0	57	64.0
IV. 2e trimestre. . . .	5	10.0	4	10.3	2	8.7	22	13.3	9	9.7	8	16.0	13	14.6
V. 2e semestre	19	38.0	12	30.8	1	4.3	21	12.7	23	24.5	16	32.0	19	21.3
VI. Inconnu	0		0		0		0		0		0		0	
Total.	50		39		23		166		93		50		89	

Districts ruraux.

	Oxfordshire		Hedmark		Lochois et Chinonais Lochois and Chinonais		Lippe		Stafford-shire		Emmen	
	Total	% du total % of total	Total	% du total % of total	Total	% du total % of total	Total	% du total % of total	Total	% du total % of total	Total	% du total % of total
I. 1re semaine.	31	34.1	42	26.4	25	38.5	64	35.2	49	44.1	31	36.9
II. 1er mois (inclus 1re semaine) .	52	57.1	69	43.4	32	49.2	92	50.5	66	59.5	45	53.6
III. 1er trimestre (inclus 1er mois) .	69	75.8	113	76.0	43	66.2	111	61.0	81	73.0	52	61.9
IV. 2e trimestre	14	15.4	22	13.8	6	9.2	29	15.9	12	10.8	14	16.7
V. 2e semestre.	8	8.8	24	15.0	16	24.6	42	23.1	18	16.2	18	21.4
VI. Inconnu	0		0		0		0		0		0	
Total	91		159		65		182		111		84	

TABLE 10. — DISTRIBUTION OF DEATHS UNDER 1 YEAR ACCORDING TO AGE FOR ALL DISTRICTS

Urban Districts.

Plaisance		Cassel		Vienne VI^e, VII^e, VIII^e arrondissem. Vienna, Districts VI, VII and VIII		Sunderland		Augsbourg Augsburg		Vienne X^e arrond. Vienna, District X		
Total	% du total % of total	Total	% du total % of total	Total	% du total % of total	Total	% du total % of total	Total	% du total % of total	Total	% du total % of total	
24	19.4	75	35.0	23	63.9	128	38.6	97	37.5	52	25.1	I. 1st week.
50	40.3	87	40.7	27	75.0	175	52.7	124	47.9	77	37.2	II. 1st month (including 1st week).
67	54.0	138	64.5	28	77.8	228	68.7	173	66.8	122	58.9	III. 1st three months (including 1st month).
20	16.1	35	16.4	3	8.3	34	10.2	40	15.4	32	15.5	IV. 2nd three months.
37	29.8	41	19.2	5	13.9	70	21.1	46	17.8	53	25.6	V. 2nd six months.
0		0		0		0		0		0		VI. Unknown.
124		214		36		332		259		207		Total.

Rural Districts.

Pays de Caux		Hoensbroek		Pays de Bray		Mecklembourg-Strelitz		Gmunden		Schärding		
Total	% du total % of total	Total	% du total % of total	Total	% du total % of total	Total	% du total % of total	Total	% du total % of total	Total	% du total % of total	
44	20.8	50	26.3	64	22.9	50	18.7	16	22.6	34	25.2	I. 1st week.
63	29.7	72	37.9	117	41.8	102	38.1	34	38.2	64	47.4	II. 1st month (including 1st week).
106	50.0	103	54.2	178	63.6	160	59.7	44	49.4	95	70.4	III. 1st three months (including 1st month).
42	19.8	33	17.4	40	14.3	49	18.3	28	31.5	21	15.6	IV. 2nd three months.
64	30.2	54	28.4	62	22.1	58	21.6	17	19.1	19	14.1	V. 2nd six months.
0		0		0		0		0		0		VI. Unknown.
212		190		280		268		89		135		Total.

Annex VII.

TABLES SHOWING THE CONNECTION BETWEEN INFANT MORTALITY, HOUSING CONDITIONS AND SOCIAL STATUS.

1. Distribution of Social Conditions for Deaths under 1 Year observed in 23 Districts, according to the Most Important Groups of Diseases.[1]

Social conditions	I. Digestive troubles			II and III. Infectious diseases *			IV. Obstetrical traumatisms		
	Total number	Percentage of total	Difference between this percentage & the percentage for all deaths [2]	Total number	Percentage of total	Difference between this percentage & the percentage for all deaths [2]	Total number	Percentage of total	Difference between this percentage & the percentage for all deaths [2]
Good	42	10.5	— 1.7	138	10.6	— 1.6	50	23.4	+ 11.2
Moderately good . . .	137	34.2	— 5.1	532	40.7	+ 1.4	97	45.3	+ 6.0
Bad	213	53.1	+ 7.7	599	45.8	+ 0.4	62	29.0	— 16.4
Unknown . .	9	2.2	— 0.9	38	2.9	— 0.2	5	2.3	— 0.8
Total . . .	401	100		1,307	100		214	100	

Social conditions	V. Congenital malformations			VI and VII. Premature births and unknown causes **			Total for all deaths		
Good	29	26.6	+ 14.4	125	11.4	— 0.8	408	12.2	
Moderately good . . .	41	37.6	— 1.7	402	36.7	— 2.6	1,311	39.3	
Bad	36	33.0	— 12.4	513	46.9	+ 1.5	1,515	45.4	
Unknown . .	3	2.8	— 0.3	54	4.9	+ 1.8	102	3.1	
Total . . .	109	100		1,094	100		3,336	100	

* Distribution of respiratory diseases, taken separately in twenty-three districts :

		Percentage of total
Good	89	(11.8)
Moderately good	343	(45.6)
Bad	318	(42.2)
Unknown	3	(0.4)

** Distribution of premature births, taken separately, in 19 districts for which data were available :

		Percentage of total
Good	62	(11.2)
Moderately good	235	(42.6)
Bad	235	(42.6)
Unknown	20	(3.6)

[1] The data relating to the distribution of the various classes of dwellings and social conditions of the parents for each medical cause of death and for each district are not sufficiently numerous to permit of conclusions for each district. These data have therefore been added together for the twenty-three districts for which they were comparable (namely, all districts, with the exception of (1) Plaisance and the Zone, and (2) Lochois and Chinonais).

[2] These figures indicate the proportion in which the percentage of deaths classified according to social conditions — "good", "moderately good", "bad", or "unknown" — in each group of diseases, is higher or lower than the total percentage of deaths and thus show the position of each cause of death as compared with the average.

2. Relationship between the Distribution, according to Social Conditions of Still-Births and deaths under 1 year in 14 Districts for which the Data were comparable (Leyden, Dordrecht, Maestricht, Emmen, Hoensbroek, Oslo West, Oslo East, Hedmark, Augsburg, Cassel, Lippe, Mecklenburg-Strelitz, Pays de Bray, Pays de Caux).

Social conditions	Still-births			Deaths under 1 year	
	Total	Percentage of total	Difference between this percentage and the percentage of deaths under 1 year	Total	Percentage of total
Good	133	15.1	+ 6.7	179	8.4
Moderately good. . .	322	36.5	+ 0.4	765	36.1
Bad	385	43.7	— 7.5	1,084	51.2
Unknown	42	4.8	+ 0.5	91	4.3
Total	882	100.1		2,119	

3. Distribution of Housing Conditions for Deaths under 1 Year in 23 Districts, according to the Most Important Groups of Diseases.

Housing conditions	I. Digestive troubles			II and III. Infectious diseases			IV. Obstetrical traumatisms		
	Total number	Percentage of total	Difference between this percentage & the percentage for all deaths [1]	Total number	Percentage of total	Difference between this percentage & the percentage for all deaths [1]	Total number	Percentage of total	Difference between this percentage & the percentage for all deaths [1]
Good	135	32.3	— 3.7	416	31.9	— 4.1	102	47.7	+ 11.7
Moderately good . . .	136	32.5	— 1.9	464	35.6	+ 1.2	79	36.9	+ 2.5
Bad	130	31.1	+ 5.8	387	29.7	+ 4.4	27	12.6	— 12.5
Unknown . .	17	4.1	— 0.2	38	2.9	— 1.4	6	2.8	— 1.5
Total . . .	418	100		1.305	100.1		214	100	

Housing conditions	V and VI. Premature births and unknown causes			VII. Congenital malformations			Total for all deaths		
Good	415	37.9	+ 1.9	52	47.7	+ 11.7	1,200	36.0	
Moderately good . . .	370	33.8	— 0.6	38	34.9	+ 0.5	1,149	34.4	
Bad	238	21.8	— 3.5	15	13.8	— 11.5	843	25.3	
Unknown . .	71	6.5	+ 2.2	4	3.7	— 0.6	144	4.3	
Total . .	1,094	100		109	100.1		3,336	100	

[1] These figures indicate the proportion in which the percentage of deaths classified according to housing conditions — " good ", " moderately good ", " bad " or " unknown " — in each group of diseases is higher or lower than the total percentage of deaths and thus show the position of each cause of death as compared with the average.

4. Distribution of Still-Births in 10 Districts (Leyden, Dordrecht, Maestricht, Emmen, Hoensbroek, Oslo West, Oslo East, Hedmark, Pays de Bray, Pays de Caux), as compared with that of Deaths under 1 Year for the Same Districts.

Housing conditions	Still-births			Deaths under one year	
	Total	Percentage of total	Difference between this percentage and the percentage of deaths under one year	Total	Percentage of total
Good	241	47.6	+ 12.0	426	35.6
Moderately good. . .	144	28.5	— 9.3	452	37.8
Bad	112	22,1	— 3,2	303	25.3
Unknown	9	1.8	+ 0,5	15	1,3
Total	506	100		1,196	

Annexe VIII. — Annex VIII.

TABLEAUX MONTRANT LES CAUSES MÉDICALES DE LA MORTALITÉ INFANTILE ET DE LA MORTINATALITÉ POUR LES DISTRICTS ITALIENS DE L'ENQUÊTE.

TABLES SHOWING THE MEDICAL CAUSES OF INFANT MORTALITY AND STILL-BIRTHS FOR THE ITALIAN DISTRICTS OF THE ENQUIRY.

DÉCÈS D'ENFANTS AGÉS DE MOINS D'UN AN. — DEATHS OF CHILDREN UNDER ONE YEAR.

Groupes d'arrondissements et de quartiers Groups of districts and quarters	Groupes de causes — Groups of Causes											
	I Troubles digestifs et troubles de la nutrition Digestive disturbances and nutritional disturbances		II Maladies infectieuses spéciales, aiguës ou chroniques Specific infectious diseases (acute a. chronic)		III Autres maladies infectieuses Other infectious diseases		Total des II et III groupes Total for Groups II and III		IV Maladies non microbiennes Non-microbic diseases		V Malformations congénitales Congenital malformations	
	par 1.000 naissances d'enfants vivants per 1,000 live births	% du total % of total	par 1.000 naissances d'enfants vivants per 1,000 live births	% du total % of total	par 1.000 naissances d'enfants vivants per 1,000 live births	% du total % of total	par 1.000 naissances d'enfants vivants per 1,000 live births	% du total % of total	par 1.000 naissances d'enfants vivants per 1,000 live births	% du total % of total	par 1.000 naissances d'enfants vivants per 1,000 live births	% du total % of total
Groupe 1.	9.2	18.7	7.9	16.2	9.2	18.7	17.1	35.0	3.1	6.3	1.2	2.5
» 2.	9.9	17.6	12.7	22.5	13.3	23.5	26.0	46.0	0.9	1.7	1.3	2.3
» 3 A.	18.1	24.8	16.2	22.1	16.2	22.1	32.4	44.2	2.7	3.7	3.5	4.7
» 3 B.	24.4	31.0	16.8	21.3	20.3	25.8	37.1	47.1	1.0	1.3	1.0	1.3
» 4.	19.3	22.5	21.2	24.7	22.5	26.2	43.8	50.9	1.6	1.9	2.6	3.0
Faubourg — Suburbs	35.2	28.6	18.7	15.2	34.3	27.9	53.0	43.1	1.3	1.1	4.8	3.9
Total pour la zone urbaine — Total for the urban area .	17.9	23.8	15.6	20.7	18.7	24.8	34.3	45.6	1.6	2.1	2.3	3.1
Campagne romaine — Agro Romano	29.8	36.8	14.6	18.1	11.8	14.6	26.5	32.7	1.4	1.8	3.3	4.1
Total	19.3	25.3	15.5	20.4	17.9	23.6	33.5	44.1	1.6	2.1	2.4	3.2

Décès d'enfants agés de moins d'un an *(suite)* — Deaths of children under one year *(continued)*

Groupes d'arrondissements et de quartiers Groups of districts and quarters	Groupes de causes — Groups of Causes											
	VI Traumatismes obstétricaux Obstetrical traumatisms		VII Lésions accidentelles Accidental lesions		VIII Diagnostic non formulable ou incertain Diagnosis not determined or uncertain		IX Naissances avant terme Premature births		Total des VI, VIII et IX groupes Total for Groups VI, VIII and IX		X Débilité congénitale Congenital debility	
	par 1.000 naissances d'enfants vivants per 1,000 live births	% du total % of total	par 1.000 naissances d'enfants vivants per 1,000 live births	% du total % of total	par 1.000 naissances d'enfants vivants per 1,000 live births	% du total % of total	par 1.000 naissances d'enfants vivants per 1,000 live births	% du total % of total	par 1.000 naissances d'enfants vivants per 1,000 live births	% du total % of total	par 1.000 naissances d'enfants vivants per 1,000 live births	% du total % of total
Groupe 1.	4.3	8.8	—	—	4.3	8.8	7.9	16.2	16.5	33.8	1.8	3.8
» 2.	4.5	7.9	—	—	3.6	6.3	8.4	14.9	16.5	29.1	1.9	3.3
» 3 A.	7.7	10.5	—	—	3.5	4.7	4.6	6.3	15.8	21.6	0.8	1.1
» 3 B.	4.1	5.1	—	—	3.6	4.5	6.6	8.4	14.2	18.1	1.0	1.3
» 4.	5.8	6.7	0.6	0.8	2.9	3.4	7.4	8.6	16.1	18.7	1.9	2.2
Faubourg — Suburbs	7.0	5.7	0.9	0.7	6.1	4.9	14.3	11.7	27.4	22.3	0.4	0.3
Total pour la zone urbaine — Total for the urban area	5.5	7.3	0.2	0.3	3.8	5.1	8.2	10.9	17.5	23.3	1.4	1.9
Campagne romaine — Agro Romano	2.8	3.5	—	—	6.1	7.6	8.0	10.0	17.0	21.1	2.8	3.5
Total	5.2	6.8	0.2	0.3	4.1	5.4	8.2	10.8	17.5	23.0	1.6	2.1

(Italie) — (Italy).

Enfants mort-nés. — Still-births.

Groupes d'arrondissements et de quartiers Groups of districts and quarter	Groupes de causes — Groups of causes												
	Enfants nés vivants Live births	I Enfants mort-nés pendant la grossesse, à la suite de maladies fœtales Death of the fœtus during pregnancy, consequent on fœtal diseases			II Enfants mort-nés à la suite d'expulsion due à des causes anormales ou pathologiques Still-births consequent on expulsion due to abnormal or pathological causes			III et IV Décédés pendant l'accouchement. Traumatismes obstétricaux Death of the fœtus during delivery. Obstetrical traumatisms			V Enfants mort-nés pour cause non indiquée ou non constatée Deaths from causes not stated or not determined		
		chiffres absolus Actual figures	par 1.000 naissances d'enf. vivants per 1,000 live births	pour 100 du total % of total	chiffres absolus Actual figures	par 1.000 naissances d'enf. vivants per 1,000 live births	pour 100 du total % of total	chiffres absolus Actual figures	par 1.000 naissances d'enf-vivants per 1,000 live births	pour 100 du total % of total	chiffres absolus Actual figures	par 1.000 naissances d'enf. vivants per 1,000 live births	pour 100 du total % of total
Groupe 1	1,667	15	9.0	28.8	3	1.8	5.8	25	15.0	48.1	9	5.4	17.3
» 2	5,308	37	7.0	26.2	15	2.8	10.7	52	9.8	36.9	37	7.0	26.2
» 3 A	2,618	35	13.4	40.7	9	3.4	10.5	30	11.5	34.9	12	4.6	13.9
» 3 B	1,988	27	13.6	41.5	5	2.5	7.7	25	12.6	38.5	8	4.0	12.3
» 4	3,084	39	12.6	37.5	12	3.9	11.5	36	11.7	34.6	17	5.5	16.4
Faubourg — Suburbs .	2,462	25	10.2	24.3	18	7.3	17.5	46	18.7	44.6	14	5.7	13.6
Total pour la zone urbaine — Total for the urban area . .	17,127	178	10.4	32.3	62	3.6	11.3	214	12.5	38.8	97	5.7	17.6
Campagne romaine — Agro Romano. . . .	2,223	17	7.6	24.6	14	6.3	20.3	25	11.2	36.2	13	5.8	18.9
Total.	19,350	195	10.1	31.5	76	3.9	12.3	239	12.4	38.5	110	5.7	17.7

Annex IX.

Annexe IX.

RÉCAPITULATION DU NOMBRE D'HABITANTS, DE NAISSANCES VIVANTES, DE DÉCÈS AU-DESSOUS D'UN AN ET DE MORT-NÉS POUR CHACUN DES DISTRICTS ALLEMANDS, AUTRICHIENS, BRITANNIQUES, FRANÇAIS, NÉERLANDAIS ET NORVÉGIENS

Districts ruraux Rural districts	Nombre d'habitants Number of inhabitants	Naissances vivantes Live births		Décès au-dessous d'un an Deaths under one year		Mort-nés Still-births	
		Total	Pour 1.000 habitants Per 1,000 inhabitants	Total	Pour 1.000 nés vivants Per 1,000 live births	Total	Pour 1.000 nés vivants Per 1,000 live births
Catégorie I : *Class I :*							
Oxfordshire (GB)	136,310	2,079	15.3	91	43.8	65	31.3
Hedmark (N)	163,959	3,386	20.6	159	47.0	97 [3]	28.6
Catégorie II : *Class II :*							
Lochois et Chinonais (F) — Lochois and Chinonais (F)	64,090	1,173	18.3	66	56.3	28	23.9
Lippe (Al) (G)	166,062	3,115	18.8	182	58.4	95	30.5
Staffordshire (GB)	100,323	1,843	18.4	111	60.2	69	37.4
Emmen (PB) (NL)	41,766	1,314	31.5	84	63.9	53	40.3
Catégorie III : *Class III :*							
Pays de Caux (F)	108,899	2,286	21.0	212	92.7	90	39.4
Hoensbroek (PB) (NL) . . .	53,169	1,934	36.4	190	98.2	32	16.5
Catégorie IV : *Class IV :*							
Pays de Bray (F)	108,264	2,644	24.4	280	105.9	70	26.5
Mecklembourg-Strelitz (Al)(G)	111,537	2,292	20.5	268	116.9	90	39.3
Gmunden (Aut) (A)	37,577	729	19.4	89	122.1	24	32.9
Schärding et Engelhartszell (Aut) (A)	29.088	683	23.5	135	197.6	18	26.4

Al = Allemagne
Aut = Autriche
F = France
GB = Grande-Bretagne
N = Norvège
PB = Pays-Bas

A = Austria
F = France
GB = Great Britain
G = Germany
N = Norway
NL = Netherlands

Annex IX.

RECAPITULATION OF THE NUMBER OF INHABITANTS, LIVE BIRTHS, DEATHS UNDER 1 YEAR AND STILL-BIRTHS FOR EACH AUSTRIAN, BRITISH, FRENCH, GERMAN, NETHERLANDS AND NORWEGIAN DISTRICT.

Districts urbains Urban districts	Nombre d'habitants Number of inhabitants	Naissances vivantes Live births		Décès au-dessous d'un an Deaths under one year		Mort-nés Still-births	
		Total	Pour 1.000 habitants Per 1,000 inhabitants	Total	Pour 1.000 nés vivants Per 1,000 live births	Total	Pour 1.000 nés vivants Per 1,000 live births
Catégorie I : *Class I :*							
Leyde (PB) — Leyden (NL)	68,840	1,405	20.4	50	35.6	41	29.2
Dordrecht (PB) (NL) . . .	54,797	1,034	18.9	39	37.7	30	29.0
Oslo-ouest (N) – Oslo West (N)	77,613	598	7.7	23	38.5	22 [1]	36.8
Catégorie II : *Class II :*							
Croydon (GB)	211,700	3,174	15.0	166	52.3	105	33.1
Oslo-est (N) — Oslo East (N)	175,859	1,610	9.2	93	57.8	46 [2]	28.0
Bréda (PB) (NL).	43,418	912	21.0	50	54.8	21	23.0
Maëstricht (PB) (NL). . . .	59,353	1,411	23.8	89	63.1	39	27.6
Catégorie III : *Class III :*							
Plaisance et la Zone (F) — Plaisance and the Zone (F)	80,033	1,634	20.4	124	75.9	26	15.9
Cassel (Al) (G).	172,648	2,664	15.4	214	80.3	116	43.5
Vienne, VI[e], VII[e], VIII[e] arr. (Aut)[4] — Vienna, Districts VI, VII and VIII (A)[4] . .	167,635	404	2.4	36	89.1	26	64.4
Sunderland (GB)	162,700	3,618	22.2	332	91.8	144	39.8
Augsbourg (Al) — Augsburg (G)	167,372	2,787	16.7	259	92.9	75	26.9
Catégorie IV : *Class IV :*							
Vienne, X[e] arr. (Aut.)[4] — Vienna, District X (A)[4] .	142,456	1,105	7.8	207	187.3	35	31.7

[1] Deux cas ont échappé à l'enquête. — Two cases which escaped enquiry.
[2] Les statistiques officielles portent sur 59 cas. — The official statistics cover 59 cases.
L'enquête n'en comprend que 41. — The enquiry covers 41 only.
Deux mort-nés ont échappé à l'enquête. — Two still-births escaped enquiry.
Les autres cas ont été classés comme nés vivants ou avortements. — The remainder were recognised as live births or abortions.
[3] Sept mort-nés ont échappé à l'enquête. — Seven still-births escaped enquiry.
[4] Statistiques officielles. — Official statistics.

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