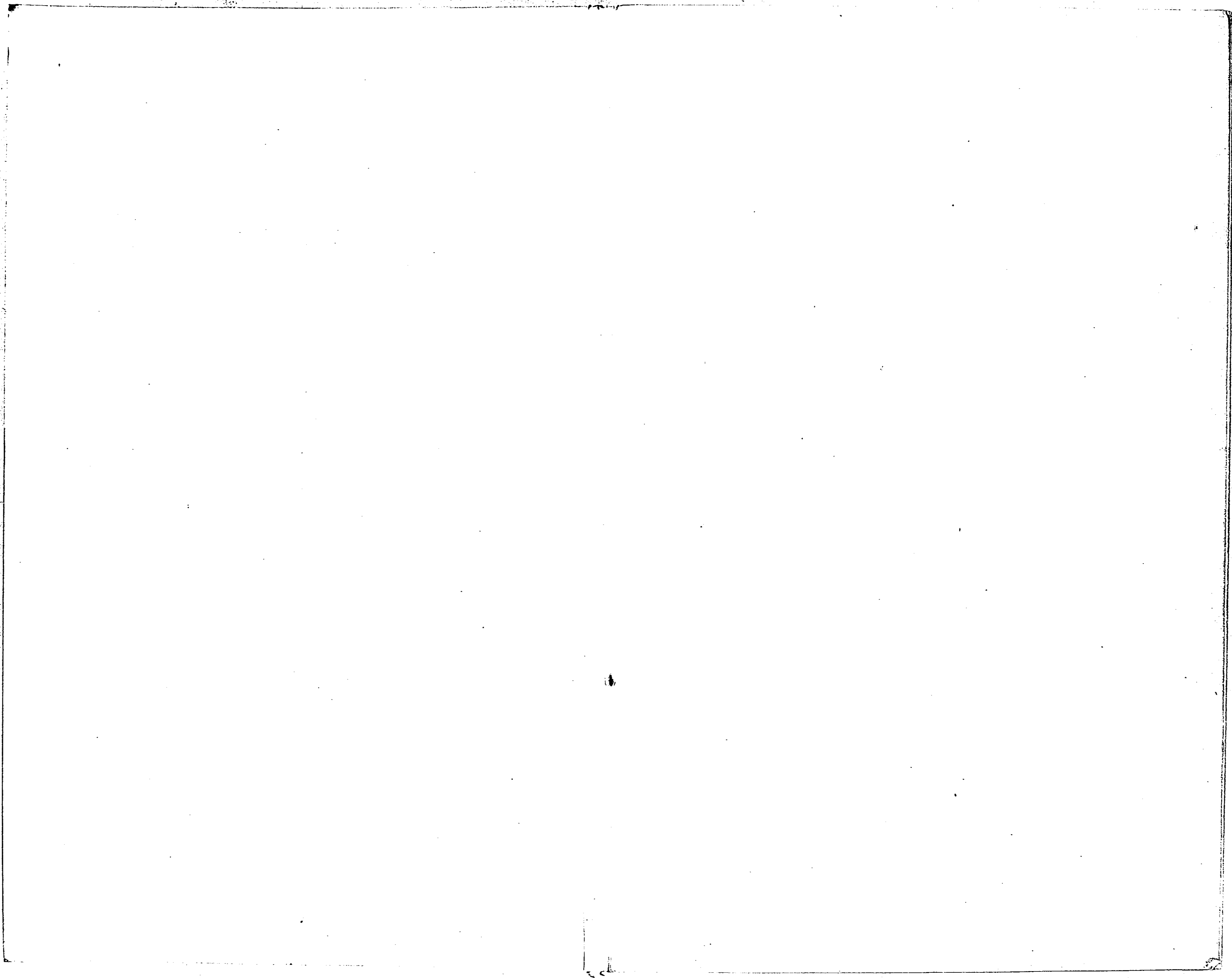


**Transactions  
of the  
Incorporated  
Sanitary Association  
of Scotland,  
1908.**



PUBLISHED BY  
**THE INCORPORATED SANITARY ASSOCIATION OF SCOTLAND.**  
Registered Office: 83 Bath Street, Glasgow.



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OF  
THE INCORPORATED  
SANITARY ASSOCIATION  
OF SCOTLAND

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1908

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PUBLISHED BY  
THE INCORPORATED SANITARY ASSOCIATION  
OF SCOTLAND  
REGISTERED OFFICE—83 BATH STREET, GLASGOW  
GEORGE MIDDLETON, M.A., LL.B., WRITER, GLASGOW, *Secretary*

REPORTED AND PRINTED BY  
WILLIAM HODGE AND COMPANY  
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## CONTENTS.

	PAGE
LIST OF OFFICE-BEARERS, - - - - -	v
ANNUAL REPORT OF THE COUNCIL, 1908, - - - - -	vii
TREASURER'S STATEMENT, - - - - -	xviii
ANNUAL BALANCE SHEET AS AT 3RD AUGUST, 1908, - - - - -	xix
ANNUAL BUSINESS MEETING, - - - - -	xxi
THE CONGRESS AT PEBBLES, - - - - -	xxv
LECTURE—SOME EPISODES IN THE HISTORY OF PREVENTIVE MEDICINE. By Dr. JOHN C. M'VAIL, County Medical Officer, Stirlingshire and Dunbartonshire, - - - - -	3
PRESIDENTIAL ADDRESS—THE STATE AND THE INDIVIDUAL IN EUGENICS. By Dr. CHARLES TEMPLEMAN, Medical Officer of Health, Dundee, - - - - -	33
SCHOOL EDUCATION IN RELATION TO THE MENTAL HYGIENE OF CHILDHOOD. Discussion introduced by Dr. J. R. WATSON, Medical Officer of Health, Peebles, and Mr. MOWBRAY RITCHIE, B.Sc., Science Master, High School, Peebles, -	48
THE CLEANSING AND DISINFECTING OF SCHOOLS. Discussion introduced by Dr. THOMAS F. DEWAR, Medical Officer of Health, Fifeshire, - - - - -	68
THE HOUSING AND TOWN PLANNING BILL (1908) IN RELATION TO THE REQUIREMENTS OF SCOTLAND. Discussion introduced by Mr. F. G. HOLMES, Burgh Surveyor, Govan, - - - - -	91
THE PROBLEM OF THE UNEMPLOYABLE. Discussion introduced by Mr. ANDREW M'CRACKEN, Glasgow, - - - - -	118
SOME POINTS IN WATER WORKS ADMINISTRATION. Discussion introduced by Mr. WILLIAM A. TAIT, C.E., Edinburgh, -	145
WHAT ARE THE MOST ADVANTAGEOUS ARRANGEMENTS TO BE MADE BY LOCAL AUTHORITIES FOR THE ISOLATION OF CASES OF LUNG TUBERCULOSIS? Discussion introduced by Dr. THOMAS F. S. CAVERHILL, County Medical Officer, Haddingtonshire, - - - - -	159

	PAGE
THE MILK SUPPLY OF THE COUNTRY—WITH SPECIAL REFERENCE TO PROSPECTIVE LEGISLATION. Discussion introduced by—	
(a) Dr. G. MATHESON CULLEN, Convener of the Public Health Committee, Edinburgh, from the point of view of the Local Authority in a Burgh, - - -	195
(b) Dr. A. CAMPBELL MUNRO, County Medical Officer, Renfrewshire, from the point of view of the Local Authority in a County, - - - - -	202
(c) Mr. JOHN FINDLAY, Farmer, Baillieston, from the point of view of the Dairy Farming Interest, - - -	209
RESOLUTIONS ADOPTED AT THE CONGRESS, - - - - -	239
REGISTER OF MEMBERS, - - - - -	245

## The Incorporated Sanitary Association of Scotland.

### LIST OF OFFICE-BEARERS.

*(Elected at Annual Business Meeting, 2nd September, 1908.)*

#### Joint Honorary Presidents.

JOHN A. BALLANTYNE, ESQ., THE NEUK, PEEBLES, PROVOST OF PEEBLES.  
M. G. THORBURN, ESQ., GLENORMISTON, INNERLEITHEN, PEEBLESSHIRE,  
CONVENER OF THE COUNTY OF PEEBLES.

#### President.

CHARLES TEMPLEMAN, M.D., D.SC., MEDICAL OFFICER OF HEALTH, DUNDEE.

#### President Elect.

COUNCILLOR W. FLEMING ANDERSON, GLASGOW.

#### Vice-Presidents.

COUNCILLOR W. FLEMING ANDERSON, GLASGOW.  
ROBERT LINDSAY, COUNTY SANITARY INSPECTOR, MIDLOTHIAN.

#### Secretary and Treasurer.

GEORGE MIDDLETON, M.A., LL.B., WRITER, GLASGOW.

### COUNCIL.

#### Chairmen of Health Committees.

Treasurer MALCOLM SMITH, Leith. | Bailie ALEXANDER FRASER, Inverness.  
Bailie ALEXANDER DONALD, Airdrie.

#### Medical Officers.

Dr. C. R. MACDONALD, Ayrshire. | Dr. WILLIAM ROBERTSON, Leith.  
Dr. JOHN T. WILSON, Hamilton.

#### Sanitary Inspectors.

FRANCIS BRAID, Kirkcaldy. | PETER FYFE, Glasgow.

## LIST OF OFFICE-BEARERS.

**Burgh Engineers.**

JOHN BRYCE, C.E., Partick. | F. G. HOLMES, C.E., Govan.

**Elected Members.**

Dr. ALEXANDER JOHNSTON, Glasgow.	Bailie JOHN W. BENNETT, Greenock.
F. W. HARRIS, F.I.C., Glasgow.	Dr. W. LESLIE MACKENZIE, Edinburgh.
Prof. JOHN GLAISTER, M.D., D.P.H., Glasgow.	GILBERT THOMSON, M.A., C.E., Glasgow.

**BOARD OF EXAMINERS.****Medical Officers.**

Dr. J. C. M'VAIL, Dunbartonshire. | Dr. A. CAMPBELL MUNRO, Renfrewshire.  
Dr. WILLIAM ROBERTSON, Leith.

**Sanitary Inspectors.**

PETER FYFE, Glasgow. | ROBERT LINDSAY, Midlothian.  
W. W. KELSO, Paisley.

**Burgh Surveyors.**

JOHN BRYCE, C.E., Partick. | A. J. TURNBULL, C.E., Greenock.  
J. R. FINDLAY, C.E., Leith.

**Elected Members.**

Prof. JOHN GLAISTER, M.D., D.P.H., Glasgow.	GILBERT THOMSON, M.A., C.E., Glasgow.
F. W. HARRIS, F.I.C., Glasgow.	

**PARLIAMENTARY BILLS COMMITTEE.**

THE WHOLE COUNCIL.

THE  
INCORPORATED SANITARY ASSOCIATION  
OF SCOTLAND.

ANNUAL REPORT BY THE COUNCIL, 1908.

CHAMBERS TOWN HALL, PEEBLES, 2nd September, 1908. In terms of the Articles of Association, the Council beg to submit their Annual Report as follows:—

Since last Annual General Meeting the Council have prepared and issued the annual volume of *Transactions* of the Association for the year 1907.

Two examinations in Sanitary Science have been conducted by the Association during the year since last Annual Report. The first Examination took place in the Heriot-Watt College, Edinburgh, on 22nd and 23rd October, 1907, when 18 candidates presented themselves, of whom only 3 passed. The next Examination took place in the Athenæum College, Glasgow, on 21st and 22nd April, 1908, when 36 candidates presented themselves, of whom 17 passed. The papers set at these examinations are printed as an Appendix to this Report.

The Council had under consideration the various remits made to them from the Congress at Aberdeen, and decided, *inter alia*—

(1) *Filthy Flocks*.—The resolution requesting the Council to draw the attention of the Local Government Board to the fact that large quantities of unwashed and filthy flocks are being sold to the public for bedding, furniture, and cushion stuffing, and other upholstering purposes, and to

urge the Board to bring the matter before Parliament, was duly communicated to the President of the Local Government Board on 24th October, 1907, and receipt of same acknowledged, but so far the matter has not been dealt with by Parliament.

(2) *Supervision of our Milk Supplies.*—The resolution expressing the opinion that there is necessity for further legislation with the object of securing the purity and wholesomeness of our milk supply, and requesting the Council to consider ways and means for promoting said legislation, was considered by the Council, and a Sub-Committee was appointed to deal with the remit and report. It was thereafter resolved, in view of the Bills on Milk Supply which had been introduced in Parliament, to arrange for a discussion bearing on the question, with special reference to prospective legislation, at the Annual Congress at Peebles, to take part in which discussion representatives of Burghs and County Councils and of the dairy farming interest should be invited. This discussion has been duly arranged, and it is hoped will prove of special value.

(3) *Inspection of Meat.*—The Council resolved that the Sub-Committee on Examinations appointed last year should be continued, with powers to proceed with the settling of the regulations for the Examination, and also with the initiation of approved courses of tuition in meat inspection. This Committee hope to complete arrangements for the institution of the Examination in the near future.

The Association was favoured with an invitation from the Corporation of Peebles to hold its thirty-fourth Annual Congress there. The invitation has been accepted, and the Council have arranged a Programme of Addresses and Discussions, which they hope will prove both useful and interesting.

The invitations sent by the Council to the Local Authorities of Scotland to appoint delegates to represent them at the Congress at Peebles have been accepted by 108 Town and County Councils, and the number of delegates appointed is 241.

The Register of Members of the Association as at 3rd August, 1908, stood thus—Life members, 21; ordinary members, 363, being a total membership of 384. During the year 38 members were admitted, while the names of 24 persons were, on various grounds, removed from the roll. The membership has made a net increase of 14 since last Annual Report.

The financial position of the Association continues to improve. The balance of cash on hand and invested at close of last year's accounts amounted to £756 6s. 4d., while at the close of the current year's accounts on 3rd August, 1908, the amount of cash on hand and invested was £772 9s. 8½d. The Capital of the Association, conform to Balance Sheet made up as at said date, amounted to £862 14s. 4½d.

Under Article 52 of the Articles of Association, the Council elected as Honorary Presidents and Honorary Vice-Presidents of the Association for the year until next Annual General Meeting the following gentlemen, viz. :—

*Joint Honorary Presidents.*

John A. Ballantyne, Esq., The Neuk, Peebles, Provost of Peebles.  
M. G. Thorburn, Esq., Glenormiston, Innerleithen, Peebles-shire, Convener of the County of Peebles.

*Honorary Vice-Presidents.*

Sir James R. Fergusson, Bart., Spitalhaugh, West Linton, Peebles.  
Sir Henry Ballantyne, Minden, Peebles.  
Sir Walter Thorburn, Kerfield, Peebles.  
H. B. Marshall, Esq. of Rachan, Broughton, Peeblesshire.  
Baillie Peter Dalling, 16 Dean Park, Peebles.  
Provost Robert Mathieson, Innerleithen.

Under Article 48 of the Articles of Association, the Council have nominated the following members of Council in place of those retiring by rotation :—

*President.*

Dr. Charles Templeman, Medical Officer of Health, Dundee.

*Vice-Presidents.*

Councillor W. F. Anderson, Glasgow.

Mr. Robert Lindsay, County Sanitary Inspector, Midlothian.

*Councillors.*

As a Chairman of Health Committee—Bailie Alexander Donald, Airdrie.

As a Medical Officer of Health—Dr. John T. Wilson, Lanarkshire.

As a Sanitary Inspector—Mr. Peter Fyfe, Glasgow.

As a Burgh Engineer—Mr. F. G. Holmes, C.E., Govan.

As Elected Members—Dr. W. Leslie Mackenzie, Edinburgh, and Mr. Gilbert Thomson, M.A., C.E., Glasgow.

The Council further recommended the election of the following office-bearers, viz. :—

As President-elect—Councillor W. F. Anderson, Glasgow.

As Secretary and Treasurer—Mr. George Middleton, M.A., LL.B., Glasgow.

As Auditor—Mr. John J. D. Hourston, C.A., Glasgow.

(Sgd.) JOHN T. WILSON, *President.*

( , , ) GEO. MIDDLETON, *Secretary.*

## APPENDIX.

## EXAMINATION PAPERS.

EDINBURGH, Tuesday, 22nd October, 1907.

TWO QUESTIONS ONLY TO BE ANSWERED IN EACH GROUP.

TIME ALLOWED—5 HOURS.

## GROUP No. 1.

1. State specifically what provision is made in the Public Health (Scotland) Act, 1897, for dealing with unsound food.

2. What are the powers under the Public Health (Scotland) Act, 1897 :

(a) For the examination of persons suspected to be suffering from infectious disease.

(b) For the compulsory removal to hospital of persons suffering from infectious disease.

(c) For the provision by the Local Authority of hospitals for infectious disease and reception-houses.

3. Under what statute are powers given for scavenging and public lighting in landward districts? What are the necessary statutory preliminaries to the introduction of a system of scavenging or public lighting in a landward district?

## GROUP No. II.

1. Describe in full detail (1) the appearance of newly caught fish, and (2) the changes which occur as time proceeds.

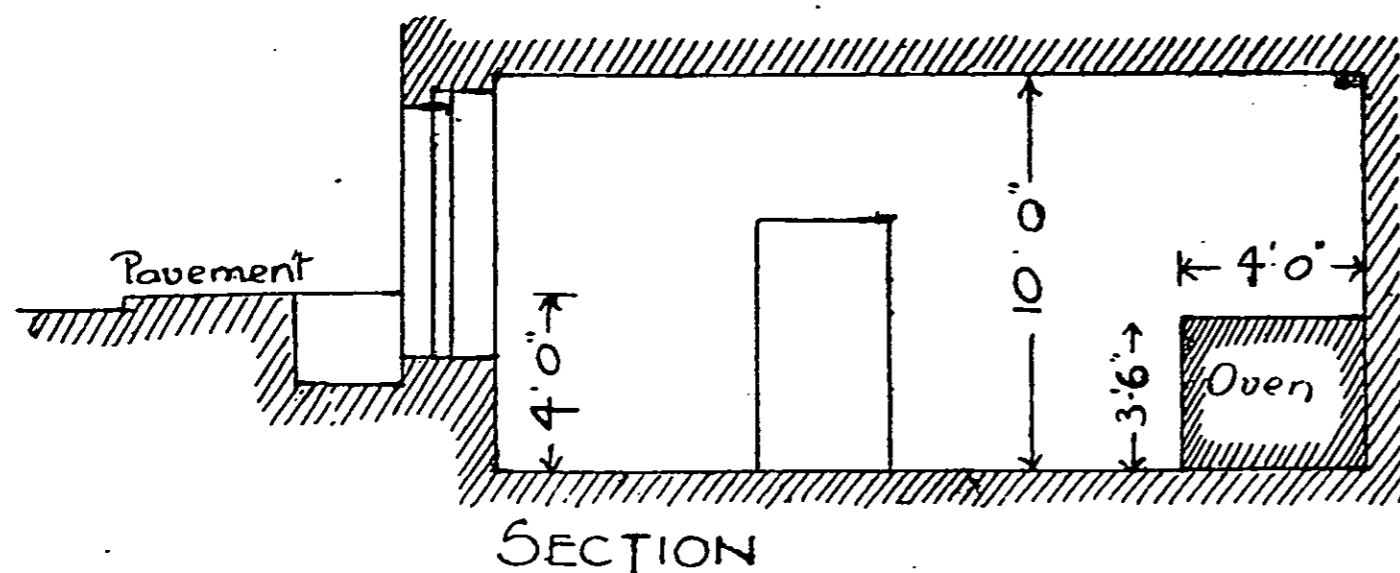
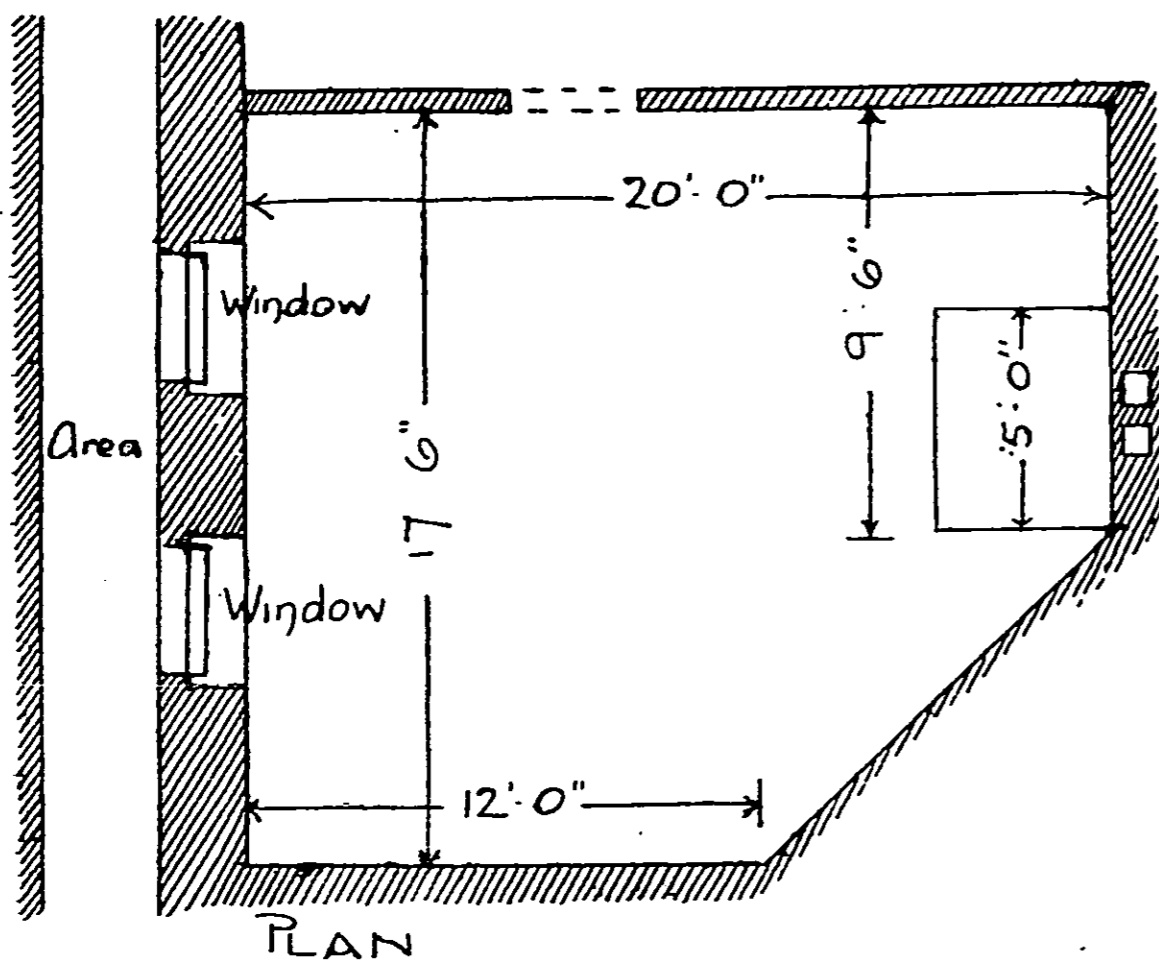
2. How is diphtheria caused or spread? State in detail the steps you would take for the disinfection of a house from which a case of diphtheria has been removed.

3. What are the most common causes of the emission of excessive smoke from chimneys connected with boiler furnaces? Explain fully how these causes operate.



GROUP No. III.

1. Annexed is a plan and section of a bakehouse, the floor of which is 4 feet under the street level. Six persons are employed, and the ventilation is defective. State how many cubic feet of free air space each worker has. How would you provide adequate and suitable ventilation?



2. A plan for a three-storey tenement of dwelling-houses being submitted to you for examination and report, state

briefly the principal points to which you would direct your attention. To what points would you specially direct your attention in the inspection of the tenement during the course of its erection?

3. The sewage of a village of 600 inhabitants runs into a small stream, and causes a nuisance. It is proposed to construct a "septic tank." Would the tank alone be sufficient? If not, explain why, and describe (with some indication of sizes) what further equipment you would suggest.

GROUP No. IV.

1. Sketch the plan of a single-storey cottage of four apartments, with scullery, bathroom and water-closet, and coal cellar. Show the necessary pipes and fittings, and the house drain to its junction with the sewer; indicating in figures the dimensions of apartments, pipes, and drains.

2. State in detail the provision you would make for the heating and ventilation of a school to be built for the accommodation of 200 children.

3. Write out a brief specification for—  
 (a) Sewers formed of fireclay pipes.  
 (b) House drains formed of iron pipes.

GLASGOW, Tuesday, 21st April, 1908.

TWO QUESTIONS ONLY TO BE ANSWERED IN EACH GROUP.

TIME ALLOWED—5 HOURS.

GROUP No. I.

1. For what public health or sanitary purposes may Bye-laws be made under the Burgh Police Act, 1892, and the Public Health Act, 1897? What is the procedure required in adopting bye-laws under these Acts?

2. Detail the whole procedure involved in the formation of a Special Water Supply District. What Act gives the necessary powers?

3. What are the powers of Local Authorities in Burghs and Counties respectively regarding privies, water-closets, ashpits, soil pipes, drains, and cesspools? Name the Acts which give these powers.

#### GROUP NO. II.

1. In what particulars is the air of a room rendered impure by human occupation, in the absence of proper ventilation? What is the relative importance of the several impurities?

2. Assuming that two or three cases of enteric fever occur in a district simultaneously and are traced to a milk supply from a wholesale dealer, who obtains his supply from several farms in the country, state what steps you would take to discover the source of infection. What would you expect to find as the cause of the outbreak? What would you recommend the wholesale dealer to do?

3. The inhabitants of a village complain to the Local Authority of a nuisance caused by the smoke from a factory chimney. What procedure would you adopt in the circumstances? Specify any remedial means you would recommend to abate such a nuisance if it existed.

#### GROUP NO. III.

1. What are the common causes of damp in the walls of houses, and of dry rot in the timbers of houses, and what precautions should be taken (a) to remedy these conditions and (b) to prevent them from occurring?

2. It is proposed to discharge the sewage from a town of 10,000 inhabitants into the sea at a river mouth. What are the objections, and how would you endeavour to meet them?

3. What methods prevail of refuse collection and refuse disposal? Give in some detail the methods you would advise to be adopted in the case of a rapidly growing town, and your reasons therefor.

#### GROUP NO. IV.

1. Sketch a sectional elevation of a wash-down closet placed against the outside wall of a tenement, showing all the supply and soil pipe arrangements, and indicating sizes and materials.

2. Compare the advantages and disadvantages of (a) wood, (b) wood and corrugated iron, (c) brick, and (d) stone, as building material for walls of dwelling-houses and hospitals.

3. Sketch a plan and section of a pig-stye suitable for the accommodation of ten pigs. Indicate materials to be used. Under which Acts are pig-styes controlled, and what powers are given by these Acts?

**ABSTRACT OF TREASURER'S INTROMISSIONS**

**AND**

**BALANCE SHEET.**

# The Incorporated Sanitary Association of Scotland.

## Abstract of Treasurer's Intrmissions, 1907-1908. Ending 3rd August, 1908.

RECEIPTS.		
To Balance invested and on hand at the close of last year's account, . . . . .	£756 6 4	
Contributions from Local Authorities, . . . . .	116 10 0	
Subscriptions from Members—		
(a) Annual, 309 at 5/-, . . . . .	£77 5 0	
(b) Life, 2 at £3 3/-, . . . . .	6 6 0	
Examination Fees, . . . . .	83 11 0	
Reprints of Examination Papers sold, . . . . .	134 8 0	
Copies of Transactions sold, . . . . .	3 17 1	
Interest on Funds invested and deposited in Bank, . . . . .	0 5 0	
Congress Badges sold, 29 at 2/6, . . . . .	22 13 5	
	3 12 6	
		£1121 3 4

PAYMENTS.		
By Sundry Congress Expenses (Aberdeen), £125 19 0		£39 18 0
Less received from Sale of Dinner and Excursion Tickets, . . . . .	86 1 0	
Printing and Stationery Accounts, less discount, 5/6, . . . . .		115 19 3
Advertising Account, . . . . .		6 11 3
Library Account, . . . . .		3 1 2
Fees and Expenses paid to Examiners, . . . . .		32 15 0
Miscellaneous Expenses, . . . . .		25 6 7½
Postages and Telegrams, &c., . . . . .		25 2 0
Honorarium to Secretary and Treasurer, . . . . .		100 0 0
Funds invested and on hand as at 3rd August, 1908—		
(a) Sum invested in Bond over Heritable Property, . . . . .	£500 0 0	
(b) Sum on Deposit Receipt with the Commercial Bank of Scotland, Ltd., . . . . .	240 0 0	
(c) Sum on Current Account with said Bank, . . . . .	25 13 6	
(d) Cash in hands of Secretary and Treasurer, . . . . .	6 16 2½	
		772 9 8½
		£1121 3 4

GLASGOW, 12th August, 1908.—I have examined the Accounts of the Treasurer of the Incorporated Sanitary Association of Scotland for the year ended 3rd August, 1908, compared the Cash Book with Vouchers, &c., and found the whole correct, and I certify the foregoing to be a correct Abstract.

(Signed) JOHN J. D. HOURSTON, C.A., Auditor.

## BALANCE SHEET AS AT 3rd AUGUST, 1908.

LIABILITIES.	ASSETS.
I. Capital, . . . . .	I. Library Account, value as at 31st July, 1907, . . . . .
	£18 19 7
	Added during year, . . . . .
	- 3 1 2
	£22 0 9
	Deduct depreciation, say, 15 per cent., 3 6 1
	£18 14 8
	II. Members' Subscriptions in Arrear, . . . . .
	26 15 0
	III. Contributions from Local Authorities for 1908, outstanding, . . . . .
	19 13 0
	IV. Stationery on hand (including Certificates, Examination Reprints, &c.), say, . . . . .
	10 0 0
	V. Congress Badges on hand, say, . . . . .
	15 2 0
	VI. Funds invested and on hand as at 3rd August, 1908—
	(a) Sum invested on Bond over Heritable Security, . . . . .
	£500 0 0
	(b) Sum on Deposit Receipt with the Commercial Bank of Scotland, Ltd., . . . . .
	240 0 0
	(c) Sum on Current Account with said Bank, . . . . .
	25 13 6
	(d) Cash in hands of Secretary and Treasurer, . . . . .
	6 16 2½
	772 9 8½
	£862 14 4½

GLASGOW, 12th August, 1908.—Examined and found correct.

(Signed) JOHN J. D. HOURSTON, C.A., Auditor.

## ANNUAL BUSINESS MEETING.

---

AT PEEBLES, and within the Chambers Town Hall there, on Wednesday, 2nd September, 1908, met the Incorporated Sanitary Association of Scotland.

*Sederunt.*—Dr. Charles Templeman, President of the Association, in the chair; and Messrs. John Alcorn, David Andrew, Thomas Bishop, Francis Braid, James Brand, A. W. Bryson, Duncan Burns, Kenneth Cameron, James Campbell, Alexander Dalziel, Adam Elder, Thomas A. Fortune, Bailie Fraser, John Frew, F. G. Holmes, Robt. Lindsay, John Rankine, A. L. Reid, William Telfer, William Ure, and A. J. Waddell.

*Attending.*—Mr. George Middleton, Secretary and Treasurer.

The Circular calling the Annual General Meeting of 1908 was held as read.

The Minutes of last Annual General Meeting, held at Aberdeen, were read and approved of.

The Secretary submitted the Annual Report, which, on the motion of Mr. Robert Lindsay, Midlothian, seconded by Bailie Fraser, Inverness, was unanimously agreed to. A vote of thanks was awarded to the Secretary for his labour in preparing the Report and Statement of Accounts.

It was intimated that, in terms of the Articles of Association, the Council had elected the following gentlemen as Honorary Presidents and Vice-Presidents for the ensuing year, viz. :—

### *Honorary Presidents.*

John A. Ballantyne, Esq., The Neuk, Peebles, Provost of Peebles.

M. G. Thorburn, Esq., Glenormiston, Innerleithen, Peeblesshire, Convener of the County of Peebles.

*Honorary Vice-Presidents.*

Sir James R. Fergusson, Bart., Spitalhaugh, West Linton,  
Peebles.

Sir Henry Ballantyne, Minden, Peebles.

Sir Walter Thorburn, Kerfield, Peebles.

H. B. Marshall, Esq. of Rachan, Broughton, Peebleshire.

Bailie Peter Dalling, 16 Dean Park, Peebles.

Provost Robert Mathieson, Innerleithen.

In terms of the Council's Report, the following gentlemen were held to be elected Office-Bearers and Members of Council till the date of the next Annual General Meeting, viz. :—

*President.*

Charles Templeman, M.D., D.Sc., Medical Officer of Health,  
Dundee.

*Vice-Presidents.*

Councillor W. F. Anderson, Glasgow.

Robert Lindsay, County Sanitary Inspector, Midlothian.

*Councillors.*

As a Chairman of Health Committee—Bailie Alexander  
Donald, Airdrie.

As a Medical Officer of Health—Dr. John T. Wilson, Lanark-  
shire.

As a Sanitary Inspector—Peter Fyfe, Glasgow.

As a Burgh Engineer—F. G. Holmes, C.E., Govan.

As Elected Members—Dr. W. Leslie Mackenzie, Edinburgh,  
and Gilbert Thomson, M.A., C.E., Glasgow.

Mr. George Middleton, M.A., LL.B., Writer, Glasgow, was  
unanimously appointed Secretary and Treasurer, and Mr. John  
J. D. Hourston, Auditor, for the ensuing year.

The Secretary submitted a letter received from Councillor  
W. F. Anderson, Glasgow, who in ordinary circumstances  
would have been the acting President of the present Congress,  
explaining his recent serious illness.

The Chairman expressed his regret that Councillor Ander-  
son had not been able to be present on this occasion as he had

hoped to be, particularly when they considered the cause of  
his absence and the severe illness which he had just undergone.  
He was sure that they all sympathised with Councillor  
Anderson, and that they were very pleased to know that he  
was now on the high way towards recovery. They looked  
forward to him occupying the chair next year.

The Secretary stated that on learning the state of Councillor  
Anderson's health the Council had at once agreed to the  
suggestion that Dr. Templeman should take the chair at this  
Congress. Under the circumstances, nothing else was left for  
the Council to do, but accept with gratitude Dr. Templeman's  
kindness in coming forward to take the chair as President, and  
to deliver, on short notice, the Presidential Address. In  
passing that part of the Minute he thought that, while the  
Members would no doubt cordially homologate the action of  
the Council in appointing Dr. Templeman as the President for  
the year, they should also accord a vote of thanks to him for  
accepting the duty on such short notice.

The Chairman expressed his appreciation of his appointment  
as President. He was quite sure that the voice of the Meeting  
was that Councillor Anderson should receive his turn as  
President as recommended by the Council, and that they  
would ratify the action of the Council that Councillor Anderson  
should now be elected as President-elect, so that he might take  
the chair at the Congress next year.

This was cordially agreed to.

The following new members, duly proposed and seconded,  
were admitted, viz. :—

Miss Margaret H. Wingate, Town Hall, Bury St. Edmunds.

William D. Telfer, Sanitary Inspector, Methil.

William H. Gray, Barrfield Terrace, Uddingston.

Thomas G. Gough, Sanitary Inspector, Blanehead.

It was remitted to the Council to fix the place of meeting  
for next Annual Congress of the Association.

The proceedings terminated with a vote of thanks to Dr.  
Templeman for his conduct in the chair.

THE CONGRESS, PEEBLES, SEPTEMBER, 1908.

THE THIRTY-FOURTH ANNUAL CONGRESS OF THE ASSOCIATION was held in the Chambers Town Hall, Peebles, on Wednesday, Thursday, Friday, and Saturday, 2nd to 5th September, 1908.

The Joint Honorary Presidents were Provost J. A. Ballantyne and M. G. Thorburn, Esq. of Glenormiston, convener of the county of Peebles; while the Honorary Vice-Presidents were Sir James R. Fergusson, Bart., Sir Henry Ballantyne, Sir Walter Thorburn, H. B. Marshall, Esq. of Rachan, Bailie Peter Dalling, and Provost Mathieson, Innerleithen.

Dr. Charles Templeman, Medical Officer of Health, Dundee, was the acting President.

The following members of the Association were present during the proceedings, viz.:—John Aleorn, William Alexander, A. Watt Allison, R. S. Anderson, David Andrew, John Barclay, John Barr, J. W. Bennet, Thomas Bishop, Francis Braid, James Brand, James Brooks, W. Dunlop Brown, John Bryce, A. W. Bryson, Duncan Burns, Kenneth Cameron, Duncan Campbell, Peter Campbell, J. B. Chrystie, Alexander Cullen, Duncan Cumming, George Cunnison, James Currie, Alexander Dalziel, Dr. Norman Davidson, James Devine, Dr. Thomas F. Dewar, Henry Dyer, Adam Elder, Bailie A. Fraser, John T. Firth, John Frew, John Fyfe, Peter Fyfe, James H. Gilmour, Marshall Gorrie, Thomas G. Gough, John Grieve, Alexander Hamilton, Dr. James A. Hislop, F. G. Holmes, John Irving, Dr. Robert P. Jack, the Right Honourable the Earl of Stair, W. W. Kelso, Alexander

Knowles, Robert Lambie, John Lindsay, Robert Lindsay, Thomas M'Ghee, John M'Kellar, Robert M'Nicoll, John Macrae, William Marshall, George Millar, W. R. Nicoll, David O'Brien, Alexander Pillans, John Rankine, A. L. Reid, Donald Reid, George Ross, Bailie John A. Ross, Dr. William Robertson, Charles J. Shaw, Peter C. Smith, Alexander Soutar, Dr. C. Parker Stewart, Dr. Charles Templeman, A. J. Turnbull, J. A. Waddell, William Watson, W. Ross Young.

The first of the Congress meetings was a public lecture in the Chambers Town Hall, Peebles, which was delivered on the evening of Wednesday, 2nd September, by Dr. John C. M'Vail, County Medical Officer, Stirlingshire and Dunbartonshire, his subject being "Some Episodes in the History of Preventive Medicine." The Town Hall was completely filled with members of Congress and inhabitants of Peebles. Bailie Dalling, convener of the Public Health Committee, presided, and stated that it had been with considerable satisfaction that the Town Council heard of the decision of the Sanitary Association to visit Peebles. They all welcomed this visit of the Association, not so much because it brought a large number of people to the town, but because of the important public position which the members of the Association held. Every one had heard that prevention was better than cure, and he thought in no case was the truth of that saying more exemplified than in connection with disease. The cure of disease was a great and good work, but the prevention of disease was better. At the conclusion of the lecture Dr. M'Vail was heartily thanked for his excellent address.

The formal opening of the Congress took place on Thursday, 3rd September, in the Chambers Town Hall. The chair was occupied by Provost Ballantyne, who was

accompanied to the platform by several members of the Town Council. In welcoming the members of Congress to the town the Provost said—"Mr. President, ladies and gentlemen, it gives me the greatest possible pleasure to extend to you on behalf of the Town Council and inhabitants of Peebles a very hearty welcome. We are all very pleased indeed that your Association should have chosen Peebles as its place of meeting this year, recognising, as we do, the great importance of your work and the very representative character of this gathering. We, in Peebles, take a considerable pride in our little town and its beautiful surroundings, and we try to do everything in our power to make it as attractive, as happy, and as healthy as possible. We are very fortunate in having two most excellent officials in our Medical Officer (Dr. Watson) and our Sanitary Inspector (Mr. Cowan). (Applause.) Both of these gentlemen are most zealous and painstaking in their efforts to improve the sanitary condition of the burgh, and I am glad to say that the Town Council is fully alive to the importance of the objects, and is always ready to back up these efforts in every possible way. I had the pleasure of listening last night to a most interesting lecture by Dr. M'Vail, which formed a most successful preliminary to the deliberations that you are about to take part in. Dr. M'Vail's main theme was the immense importance of housing reform in connection with the prevention of disease, and in that connection I should like to tell you in a few words about a very successful experiment which has been carried out in Peebles. Some years ago there existed some slum property which for many years had been a disgrace to the burgh. It was mainly occupied as common lodging-houses of the lowest class, and it was the resort of all the tramps and ne'er-do-weels who passed through Peebles. In short, it was a hotbed for



the propagation and dissemination of disease. Well, some energetic and public-spirited gentlemen conceived the idea of forming a small company which they called the Peebles Building Improvement Company. Sufficient capital was subscribed to enable this company to pull down and rebuild the "Lang Close," which I have described to you, and other insanitary property in the burgh, with the result that what was then a collection of filthy hovels is now a row of neat, clean, and tidy working men's dwellings—(applause)—and the increased value of the rental was sufficient to enable the company to pay a dividend of 3 per cent. to its subscribers. Now, I suppose that such schemes may have been carried out in other places, but I think that the idea is worthy of much wider application, and, although it may not be such a very profitable return to many business men who could easily employ their money to better advantage, still it enables public-spirited citizens to help their poorer neighbours without much sacrifice. I have mentioned this matter because I think it is one of the objects which you have all so much at heart to advance, but I am not going to detain you any further from the important business which you are about to engage in. I would only say once more that you are always heartily welcome to Peebles. I hope that much good will result from your deliberations, and I also hope that the weather will be kind to you, that you will all thoroughly enjoy your visit, and that you will carry away many happy memories of your visit to Peebles. (Applause.)

The PRESIDENT—Ladies and gentlemen, I am quite sure that before Provost Ballantyne and the other members of the Town Council withdraw it will be your desire that I should express to them on your behalf our appreciation and our gratitude for the very kindly welcome which the Provost has extended to us here,

and also to express the hope that in the benefits which we individually, and which the local bodies which we represent, will derive from our deliberations here, Peebles may have a very good share. (Applause.)

Provost BALLANTYNE—I thank you very much, and I have now pleasure in vacating the chair to your President. I hope that you will all find that the old saying is a true one, "Peebles for pleasure." (Applause.)

The following is a list of the local authorities supporting the Association and of delegates appointed by them to attend the Congress:—

Aberdeen—Kenneth Cameron.  
 Ayr—Donald M'Donald, Dr. Walter F. Brown, Robert Adam.  
 Airdrie—Dr. Arthur, Councillor Ramsay, G. Scott.  
 Alloa—Councillor A. R. Strang, J.P., Andrew Mackie.  
 Annan—Councillor Foster, John Irving.  
 Ardrossan—Bailie James B. Chrystie, Bailie James Fullerton, C. J. Shaw.  
 Arbroath—Councillor John Duncan, P. C. Smith, C.E.  
 Barrhead—Bailie Grandison, Councillor John Shanks, Dr. Corbett, A. W. Bryson.  
 Blairgowrie—George Cunnison.  
 Bathgate—Bailie Grieve, A. L. Reid.  
 Burntisland—Provost Wallace, J. A. Waddell.  
 Brechin—Councillor Henderson, ex-Bailie Beaton, Wm. Eggie.  
 Bo'ness—Mr. Jeffrey, Mr. Loudon.  
 Campbeltown—(No delegates).  
 Coatbridge—Bailie Robert Pettigrew, Bailie William Arnott, Arthur George Dutch.  
 Clydebank—Bailie Donald, Councillor M'Ghee, George Ross.  
 Crieff—Provost Alexander Kerr, A. Watt Allison.  
 Dunoon—Councillor George Douglas, James Andrew.  
 Dumbarton—John Briggs.  
 Dunfermline—Councillor John Fisher, Andrew Walker Bell.  
 Denny and Dunipace—Police-Judge C. A. Nisbet, A. T. Lunn, Councillor John Ferguson, Councillor John A. Lochhead.  
 Dollar—M. Cochran, Robert Young.  
 Dumfries—Councillor David O'Brien, Dr. Joseph Hunter or Dean Mathew Henry M'Kerrow, John Barker.  
 Elgin—Bailie John Gordon, Acton A. Turiff.

Edinburgh—Councillor Cullen, M.D., Bailie Martin.  
 Falkirk—John Bryce Hamilton.  
 Forres—John Rankine.  
 Fraserburgh—Bailie Alex. Gordon, Bailie Alex. S. Cow, Bailie Samuel Robb, William Alexander.  
 Glasgow—Councillor W. F. Anderson, Councillor Sloan, Councillor Steele, Dr. A. K. Chalmers, Peter Fyfe, J. Lindsay.  
 Grangemouth—James Duncan.  
 Greenock—Bailie Shearer, James Devine.  
 Galashiels—Bailie James Cameron Dalgleish, Bailie George Paterson Sutherland, Treasurer Thos. Douglas, Councillor John Scott, Councillor George Cooke, Councillor William Plummer-Sanderson, Councillor Bailie Ruthven, William Thomson.  
 Gourock—Bailie Walker, Judge Glencross, Alex. Duthie, C.E.  
 Govan—Ex-Bailie Thomas A. Fortune, Councillor Dr. Yuille Anderson, F. G. Holmes.  
 Hamilton—Bailie John Cassels, Councillor John Robertson, Alex. Hamilton.  
 Hawick—Bailie Aitken, Charles Brown.  
 Helensburgh—John Mowat, Councillor Thomas C. Mitchell.  
 Innerleithen—Alex. M'Laren.  
 Inverness—Alexander Knowles.  
 Irvine—Ex-Provost James Borland, Councillor Matthew Boyd, Councillor John Parker, John M'Caa.  
 Jedburgh—Councillor Alexander Walker, R. J. Charters.  
 Kilwinning—Judge Smith, Councillor Robert Auld.  
 Kilmarnock—(No delegates).  
 Kilsyth—James I. Little, W. Mackay Lennox.  
 Kinghorn—Bailie Paxton, Councillor Burt, W. Millie Dow.  
 Kirkintilloch—Provost Service, Bailie Murrie, Alexander Stark, William Marshall.  
 Kirkcaldy—Bailie Dishart, Francis Braid.  
 Lanark—Robert Tweeddale.  
 Leith—Bailie Pennell, Dr. Wm. Robertson, Thomas Bishop.  
 Linlithgow—Bailie Beattie, James Bamberry.  
 Maxwelltown—Provost Nicholson, Alexander Cruickshank.  
 Montrose—Alexander Middleton, Dr. Connon, S. L. Christie.  
 Musselburgh—Councillor Constable, John Barclay.  
 Motherwell—Councillor Dyer, Councillor Macdonald, Jas. Currie.  
 Moffat—Councillor James Riddell, Councillor Charles Clark, William Tait.  
 Newport—John M. Mathers.  
 Newmilns—Bailie Shields, James H. Gilmour.  
 North Berwick—Councillor James Elliot, W. Ross Young.

Peebles—Bailie Forester, Samuel Cowan.  
 Paisley—Dr. Alex. Robb, W. W. Kelso, G. G. Kirk, John Arthur.  
 Perth—Ex-Bailie Grieve, Dr. C. Parker Stewart, Duncan Cumming.  
 Partick—Councillor M'William, Councillor Hubbard, Dr. G. A. Brown, John Bryce, James Reid.  
 Peterhead—Provost Leask, Dr. Davidson, James Dickie.  
 Port-Glasgow—Adam Elder.  
 Pollokshaws—Dr. C. G. King, Duncan Burns, Andrew Arbuckle.  
 Penicuik—Provost Wilson, Adam Armstrong.  
 Renfrew—Bailie James Milliken, Councillor Daniel Ferguson, A. R. Paterson.  
 Rothesay—Councillor Alexander Rankin, Dr. Andrew J. Hall.  
 Rutherglen—Councillor Thomas Young, William Weir.  
 Saltcoats—Councillor Hugh Thomson, Bailie John Christie, Councillor MacGavin, Councillor J. Miller, jun., David Robertson.  
 Selkirk—Councillor John Wilson, M.B., John Pritty.  
 St. Andrews—Convener of Public Health Committee, William Watson.  
 Stewarton—Bailie Sim, John Barclay.  
 Stornoway—Alexander Macdonald.  
 Stonehaven—George Murdoch.  
 Stirling—Judge Hugh Ferguson, John Fyfe.  
 Stranraer—Provost The Earl of Stair, Councillor Robt. Young, William Bradford,  
 Troon—Councillor Muir, Councillor Robertson, Andrew Black.  
 Wick—Donald Reid.  
 Wishaw—William Shearer Clark, W. R. Nicoll.  
 Aberdeen C.C. (Aberdeen District)—William Reid.  
 Do. (Deer District)—John Watt, W. J. Simpson.  
 Do. (Ellon District)—William Coutts,  
 Do. (Garioch and Huntly District)—William Gauld.  
 Do. (Alford District)—James Allanach.  
 Ayrshire C.C. (Ayr District)—Alexander Dalziel.  
 Do. (Kilmarnock District)—John Brown.  
 Do. (Northern District)—David Andrew, Alexander Macknight.  
 Clackmannan C.C.—James Fernie, John Scott.  
 Dunbarton C.C. (Eastern District)—Thomas Stirling, David Dunbar.  
 Fife C.C. (Dunfermline District)—William Davison.  
 Do. (St. Andrews)—John Macrae.  
 Do. (Kirkcaldy District Committee)—James Low.  
 Haddington C.C.—Dr. Thomas F. S. Caverhill, George Reid.

Lanark C.C.—Alexander Hamilton, A. D. Mack, James Dennistoun Mitchell, John D. Scott, James Tonner, Thomas F. Wilson, Dr. John T. Wilson, Thomas Munro.  
 Lanark C.C. (Upper Ward)—J. P. Baird, Alexander Pillans, Duncan Glen, A. W. Paterson.  
 Lanark C.C. (Lower Ward)—William Spiers, W. S. Bruce.  
 Do. (Middle Ward)—Richard Gibb, Robert Lambie, James Dobson, W. E. Whyte.  
 Linlithgow C.C.—John Frew.  
 Midlothian C.C. (Edinburgh County)—Robert Lindsay.  
 Nairn C.C.—Dr. James A. Cameron.  
 Peebles C.C.—R. S. Anderson, C.E.  
 Perth C.C.—Dr. John T. Graham, Robert M'Nicoll.  
 Renfrew C.C.—Dr. A. Campbell Munro.  
 Do. (Lower District)—John Pollock.  
 Stirling C.C. (Central District)—John Barr.  
 Do. (Eastern District)—Thomas Scott, David Abercrombie, Dr. M'Vail, Alex Bremner, Wm. Stewart.  
 Wigtown C.C.—Dr. James Dawson, James Brand.

The programme of addresses and discussions during the Congress was as follows:—

Wednesday, 8 p.m.—Popular Lecture in the Chambers Town Hall, Peebles, by Dr. John C. M'Vail, County Medical Officer, Stirlingshire and Dunbartonshire. Subject—"Some episodes in the history of preventive medicine." With lantern illustrations.

Thursday, 10.10 a.m.—Presidential Address by Dr. Charles Templeman, Medical Officer of Health, Dundee. Subject—"The State and the individual in eugenics."

10.45 a.m.—Discussion—"School education in relation to the mental hygiene of childhood." Introduced by Dr. J. R. Watson, Medical Officer of Health, Peebles, and Mr. Mowbray Ritchie, B.Sc., Science Master, High School, Peebles.

11.30 a.m.—Discussion—"The cleansing and disinfecting of schools." Introduced by Dr. Thomas F. Dewar, Medical Officer of Health, Fife.

12.15 p.m.—Discussion—"The Housing and Town Planning Bill, 1908, in relation to the requirements of Scotland." Introduced by Mr. F. G. Holmes, Burgh Surveyor, Govan.

2 p.m.—Discussion—"The problem of the unemployable." Introduced by Mr. Andrew M'Cracken, Glasgow.

Friday, 10 a.m.—Discussion—"Some points in waterworks administration." Introduced by Mr. William A. Tait, C.E., Edinburgh.

11 a.m.—Discussion—"What are the most advantageous arrangements to be made by local authorities for the isolation of cases of lung tuberculosis?" Introduced by Dr. Thomas F. S. Caverhill, County Medical Officer, Haddingtonshire.

12 Noon.—Discussion—"The milk supply of the country, with special reference to prospective legislation." Introduced by (a) Dr. G. Matheson Cullen, convener of the Public Health Committee, Edinburgh, from the point of view of the Local Authority in a burgh; (b) Dr. A. Campbell Munro, County Medical Officer, Renfrewshire, from the point of view of the Local Authority in a county; (c) Mr. John Findlay, farmer, Baillieston, from the point of view of the dairy farming interest.

2 p.m.—Discussion on milk supply continued.

The following resolution arising out of the discussion on "The milk supply of the country, with special reference to prospective legislation," proposed by Dr. A. Campbell Munro, Renfrewshire, on being put to the meeting, was unanimously adopted, viz.:—

"That this Congress desires respectfully to represent to the Secretary for Scotland the urgent necessity for the introduction of a measure dealing with the question of milk supplies and dairies in Scotland."

Arising out of the same discussion, the following resolution, comprising twelve motions, was moved by Dr. A. Campbell Munro, viz.:—

"That any such measure should embody the following requirements:—

- "1. Subject to a dispensary power in the hands of the Local Government Board, Local Authorities ought to be required to appoint veterinary inspectors, debarred from private practice in the district, for the purposes of the Dairies Act, the Public Health Act, and the Diseases of Animals Act, powers being given to Local Authorities to combine for the purpose of such appointments.
- "2. Local Authorities should be required to cause every dairy and milch cow in their districts to be inspected regularly within specified periods.
- "3. Every dairy should be held subject to an annual licence.
- "4. Dairy regulations framed by Local Authorities should be subject to review by the Local Government Board.

- "5. It should be the duty of the dairyman to give notice to the Local Authority of any cow suffering from any disease of the udder or any sore upon the teats accompanied by suppuration or bleeding.
- "6. Local Authorities should have power to dispose temporarily or permanently of any cow which the veterinary inspector suspects to suffer from tuberculosis of the udder, subject to an appeal to the Sheriff and to compensation in which a temporary or permanent seizure has been made in error.
- "7. The medical officer of health of a milk-producing district should be required to give intimation forthwith to the medical officer of the district to which milk is supplied of any case of infectious disease occurring amongst persons having any connection with a dairy business.
- "8. The clause in Mr. Gulland's bill requiring the dairyman to call in a medical man in the case of any person suffering 'from any illness attended by sore throat, diarrhoea, lassitude, or weakness,' and the medical man to report to the medical officer of health 'the precise nature of such illness,' should be embodied in any Dairies Act.
- "9. The clause in Mr. Gulland's bill (clause 14) providing for the stoppage of infective milk supplies should be extended to meet the case of a milk supply which is under suspicion, but against which there is nothing amounting to 'evidence,' by the addition of a sub-clause empowering the medical officer of health of the district in which the milk is sold to issue

a notice, *ex proprio motu*, to the dairyman to cease forthwith supplying milk—such notice to be valid for a week. The dairyman to receive compensation from the Local Authority for direct material loss should further inquiry show that the suspicion was unfounded.

- “10. The Local Authority in whose district milk is distributed should have power to require samples of the milk of any cow or cows whose milk was under suspicion to be procured for them.
- “11. Local Authorities should be required to appoint small executive committees, with full powers, to act in cases of emergency.
- “12. There should be a right of appeal by the Local Authority of a milk-consuming district to the Local Government Board in the case of the failure of the Local Authority of a milk-producing district to carry out the provisions of the Act.”

After considerable discussion, as fully reported in the Proceedings, Mr. John Lindsay, Glasgow, moved, and Mr. Robert Lambie, Larkhall, seconded, the following amendment, which, with Dr. Munro's approval, became a substantive motion, and was unanimously agreed to, viz.:—

“That this Congress express their approval of the general principles embodied in the twelve resolutions submitted by Dr. Munro, and remit them to the Council of the Association to be dealt with in detail in accordance with these principles, with power also to the Council to bring the said resolutions as adjusted before

the Secretary for Scotland, with a view to their being given effect to in any prospective legislation.”

At the conclusion of the discussions on Thursday, 3rd September, the members of Congress and their friends visited Neidpath Castle, which was thrown open for their inspection by the kind permission of the Earl of Wemyss. The company walked to the castle by way of the south side of the Tweed, crossing the river by a temporary bridge, and a photograph of the party was taken within the grounds of the castle.

The annual dinner of the Association was held in the Peebles Hydropathic on Thursday, 3rd September, when about 130 ladies and gentlemen were present. Dr. Charles Templeman presided, and among the guests were the Provost, Magistrates, and several members of the Town Council. In proposing the toast of “The Provost, Magistrates, and Town Council of Peebles,” Bailie Martin, Edinburgh, remarked that his city was indebted for its excellent water supply to Peeblesshire, and that the deputation from the Edinburgh Town Council which had recently examined various systems of filtration in England stated that the water from the Talla was better and purer without filtration than any water they examined in England, even when it was filtered. The toast was acknowledged by Provost Ballantyne. Mr. Michael G. Thorburn, convener of the county, proposed the toast, “The Sanitary Association,” and the President, in replying, stated that the Association had been of great service in educating public opinion and also in influencing legislation on some of the most important matters relating to public health. Other toasts were “The Local Authorities of Scotland,” proposed by the Rev. A. M. Maclean and acknowledged by Bailie Dalling, Peebles;

"The Secretary," proposed by Mr. John Lindsay, Glasgow; and "The Chairman and Croupier," proposed by Mr. Robert Lindsay, Midlothian.

On Friday, 4th September, after partaking of tea at the Hydropathic as the guests of Provost Ballantyne, the company, on the kind invitation of the Corporation of Peebles, drove to Innerleithen and Traquair, proceeding by way of the south side of the Tweed and returning by the north side. The grounds of Traquair House were thrown open for inspection, and the Hon. Maxwell Stuart of Traquair kindly acted as guide and pointed out the various points of interest.

On Saturday, 5th September, about 100 members of the Congress availed themselves of an excursion to Talla Waterworks. A special train conveyed the company to Broughton, and carriages were provided there to drive to Talla. The members of Congress were favoured with delightful weather during their stay in Peebles, and the special thanks of the Association are due to the Provost, Magistrates, and Town Council for the hospitable manner in which the members were entertained.

PAPERS  
AND  
DISCUSSIONS.

LECTURE :  
EPISODES IN THE HISTORY OF PREVENTIVE  
MEDICINE.

By JOHN C. M'VAIL, M.D., LL.D., County Medical Officer,  
Stirlingshire and Dunbartonshire.

I. THE DISCOVERY THAT MILK CAN CONVEY (ENTERIC)  
FEVER.

II. THE DIFFERENTIAL DIAGNOSIS OF CONTINUED  
FEVERS.

III. THE CRUSADE AGAINST PULMONARY CONSUMPTION.

I HAVE called this lecture "Episodes in the History of Preventive Medicine" because the facts to which I propose to refer are not so closely connected in time or character as to constitute anything like a chapter of such history.

In these days the world is fond of celebrating anniversaries and jubilees and centenaries. It happens that the present year 1908 is the jubilee of a very important event in the history of disease prevention, and, so far as I have seen, no one up till now has taken note of the fact. It seems proper, therefore, that at the Annual Congress of this Association some reference should be made to the episode. In the *Edinburgh Medical Journal* for May, 1858, there appeared an article entitled "On the Communication of the Infection of Fever by Ingesta." The author was Michael Waistell Taylor, a doctor of medicine of Edinburgh University, who practised his profession in the town of Penrith, in the Lake District. The article contains the first record, so far as I am

aware, of an outbreak of enteric fever traced to infected milk supply. The outbreak itself occurred in 1857—the record of it was published in 1858. Dr. Taylor begins thus—“Hitherto one medium only of communication of the morbid seminum from without to the healthy frame has been generally recognised, namely, the air, by which it is borne to the lungs and imbibed by inspiration. It is the object of the following paper to show that there is another way in which the poison of fever may sometimes be conveyed into the system, and there enkindle the disease, namely, by ingesta. This conclusion I have derived from the observation of the epidemic which has recently prevailed in this town, and of which I am about to trace the origin and progress.” And it quickly appears on perusing the paper that milk is the article of diet to which Dr. Taylor attributes the epidemic. He records how a young girl, E. O., was brought home to her father’s house at Penrith from Liverpool, where she had been ill for a week previously. She infected two children in the same house, and the mother attended to the sick. A byre adjoined the premises; the parents kept two or three cows, and retailed milk to about fourteen different families in the town; the mother, who was the nurse, milked the cows; the milk was brought into the kitchen direct from the byre, and by and by taken out in tin measures and pitchers for distribution to the customers. The sick children lay in the kitchen. Soon after her convalescence the child first attacked was employed in carrying part of the milk into the town, and part of it was delivered by her mother and one of the younger children. Having stated the preliminary facts, Dr. Taylor proceeds to give a chronological account of the spread of the epidemic. He records particulars regarding seven households who furnished what he properly describes as

the primary series of cases which were known to have originated in the imported case. In No. 1 household a little girl, aged nine, was attacked, and she in turn infected her mother. Dr. Taylor points out that O.’s milk was brought to this house in the mornings only, before the child was dressed, so that infection could not have been carried directly to the child by the milk distributor, but only through the milk itself. House No. 2 had seven inmates, of whom three took the fever. Milk was conveyed to this house from the dairy by the young girl who had herself suffered from the disease, but she had never been in contact with the three inmates who were subsequently attacked, all of whom “were great consumers of milk, and used frequently to drink it shortly after its arrival in the morning and before it had stood long.”

In house No. 3 there were three attacks. The household received its milk from O.’s dairy. Two next-door neighbours with large families of children ceased using O.’s milk as soon as they knew that there was fever in O.’s house, and these two families escaped the disease. The reason for their action does not appear to have been any fear that the milk itself would carry the disease, but rather that the milk carrier might personally convey the disease. I need not detail the facts regarding all the seven families primarily infected, but house No. 7 is interesting, because the patient here lived ordinarily with a relative in another part of the town, and spent only one day and usually one night weekly with the mother. It was only on the occasion of these weekly visits that the child used O.’s milk, and it had no other kind of exposure to the infection of the disease. The seven households became centres for extension of the infection far and wide. A servant from an infected house, for example, was sent home with fever to a valley ten miles off, where



the disease subsequently broke out. Again, bed clothing from a fever case infected a young person who helped to hang up the clothing in an outhouse for purification.

After a most interesting and pertinent statement of the course of the outbreak, Dr. Taylor proceeds to discuss its origin, and he does so with keen logical insight. He argues that the fever did not rise from any local cause, such as malaria; that it was due to infection; and that the inference is irrefragable that milk was the medium of infection. He points out that in the primary cases the persons attacked had intercourse with the imported case from Liverpool only through the milk supply, while next-door neighbours, who had not such intercourse, enjoyed exemption. Also, the disease invaded separate and distinct localities which were connected together only through their receiving milk from O.'s dairy. He discusses the fact that, while the seven families using the milk were infected, other six or eight families also supplied with it were not infected, and he argues that this is only in accordance with the laws which are known to rule the spread of epidemics—that no matter what the medium of infection is, only a certain proportion of exposed persons take the disease, that such proclivity on the one hand and immunity on the other depend on a number of co-operating and concurrent, or counter-acting and cohibitive elements, which in a relative, though perhaps not an absolute, manner, determine the result. These circumstances, he says, are of two kinds—intrinsic or inherent in the individual or recipient, such as age, temperament, and state of health; and extrinsic, operating on or with the infectious agent. In particular, he holds that a state of concentration of the virus is important in the latter group. He points next to the absence of other causes,

and to the fact that it was the children in the infected houses who were mainly attacked, though these were less than other inmates exposed to any possibility of aerial infection. Next he calls attention to more positive evidence as to the contamination of the milk—to the nurse and sole attendant of the three children in the dairyman's house being also engaged in milking the cows by her hands, to the milk standing in the same room where the sick were lying, and to the capacity of milk for absorbing and retaining animal effluvia.

Finally, he proceeds to reason by analogy, which he admits to be an uncertain guide, but holds to be useful in corroboration of inductive reasoning. The analogy appealed to is that of the conveyance of cholera, which had by that time been in great degree elucidated. He shows how, when once introduced into a filthy court or alley, it sweeps away half the inhabitants, but that, until the introduction of the disease, the filth and overcrowding had no such result, and he writes, "In fact, a satisfactory explanation of the propagation and progress of cholera demands the assumption of the existence of a *materies morbi*, or cholera germ." This virus, he says, "requires a fit theatre for its action, in which, probably like leaven, to reproduce and multiply." Then he proceeds to emphasise the fact that water is one of the great media for reproduction and multiplication of cholera germs, and he illustrates his argument by reference to an outbreak of cholera in Newcastle in 1853, where the city water supply had been derived from the river Tyne, which received all the excreta from the town. He points also to various other outbreaks of cholera which had in all probability been similarly due to water supply. Dr. Taylor's remarkable paper concludes with these words—"What I have more specially in-

ferred is that the poisonous effluvia and cutaneous exhalations of fever may be absorbed by fluids, which, when used as ingesta, may constitute one means of spreading the disease. If this be a fact, I conceive it to be a new one in the etiology of fever, and the evident importance of its practical bearings is my excuse for laying it before the notice of my professional brethren."

Dr. Taylor's paper exhibits him as a man of uncommon skill and ability in the tracing of causes and arriving at sound conclusions. It must be recollected that his investigation was conducted entirely without the modern aid which bacteriology affords.

Unfortunately, like many another pioneer, he lived before his time. His work seems to have almost fallen out of sight, and no reference whatever to milk as a means of spreading enteric fever appears in an authoritative article on that disease in what was, ten or fifteen years later, the leading systematic treatise on medicine in the English language. The next milk epidemic of which I have seen any proper record was at Islington in 1871, by Dr. Ballard, afterwards inspector to the English Local Government Board.

And now I wish to make what all but the medical part of my audience will probably regard as a very surprising statement. Dr. Taylor, all the time he was giving this admirable account of a milk epidemic, was not aware that the subject of his paper was enteric fever. It is clear that he thought he was writing about what is now known to be a totally different disease, namely, typhus fever. He does not refer to any distinction between the two infections. He urges that the children who used the milk were not out of bed in the early morning when the girl from the dairy called with the day's supply, but he did not dream of holding that this fever of which he wrote could not be

conveyed through the air, mediately, by a child living in an infected house and calling at other houses. Also, he speaks of milk as being very capable of absorbing and retaining animal effluvia and cutaneous exhalations. And though he refers to the fact that the nurse and sole attendant of the children was also engaged in milking the cows with her hands, there is no evidence that he thought of the intestinal evacuations of the first case as containing the poison of the disease. Indeed, at the time he wrote this had not come to be the view of the medical profession. The title of Dr. Taylor's paper is simply "On the Communication of the Infection of Fever by Ingesta." The term "fever" probably included, in his mind, the three distinct diseases now known as typhus fever, enteric fever, and relapsing fever. And when he does incidentally give a specific name to this milk-borne disease he takes it for granted to be epidemic typhus, not typhoid. But you are not on that account to think the less of Dr. Taylor. Though there were numerous exceptions, probably the large majority of medical men in general practice were no further forward than himself on this point.

Sir Thomas Watson, whose lectures on the practice of medicine achieved great popularity owing to the attractive manner in which they were written, declared in the year 1848 that the fevers run insensibly into each other, even the most dissimilar of them, and are traceable often to the same contagion.

Forty years ago a well-known text-book of medicine was that of Professor Aitken, of Netley, and he opposed the view that enteric and typhus fever were essentially different. The greatest writer on fevers in this country was Murchison, who fully recognised and insisted on the differences between the two diseases, but even in 1873 he could still give the names

of high authorities who believed in their identity. It is not many years since I saw two or three abnormal cases which explained to me how puzzling the facts must occasionally have been.

I had occasion lately to look into an article on enteric fever contributed to what was the standard work of reference on medicine more than a decade after Dr. Taylor's article, and was much interested in its many gropings after truth and in the difference of the views now currently held regarding that very important disease. Enteric fever is divided into three classes—(1) a simple inflammatory enteric fever, non-contagious, due to no specific cause, and capable of arising in any inflammatory condition of the body, such as accompanies pneumonia, erysipelas, pyæmia, &c.; (2) a contagious enteric fever which the author is not sure that he has seen, but whose existence he regards as an indisputable fact; and (3) paludal enteric fever, which he states to be the common form. It is not contagious, and arises from putrescent animal and vegetable substances. In the low-lying districts on the banks of the Thames, where ague was formerly so rife, enteric fever, he says, prevails continuously, becoming very abundant in the autumn, while the higher situations are comparatively free from it. Also it is remarkably prevalent in the spreading outskirts of the suburbs, where new houses and streets are continually springing up beyond the limits of drainage works. The writer notes that some authorities believe the disease to be propagated by contagion, and he gives certain examples, but says that many physicians, including men with most extensive experience of the disease, conclude either that it is destitute altogether of contagious properties or only possesses them in a very slight degree, and in London he regards the disease as ordinarily non-contagious. He quotes from

a French author regarding epidemics in France from 1841 to 1846, and it appears from the quotation that the majority of the French physicians "signalise, amongst the causes to which they attribute the manifestation of these epidemics, the following conditions:—The more or less immediate vicinity of stagnant waters, marshes, or bogs, from which, chiefly under the influence of summer heat, effluvia arise and spread over the people—effluvia which tend to produce affections of a periodic type; the presence of dunghills, often accumulated and allowed to remain for a long time upon a public way, before houses, or the single door of some wretched hut; wells of water, level with the ground, permeated with water infected by drains and dunghills; an infected pool existing in the midst of a commune, and furnishing only a brackish, muddy, stinking water for the common drink of men and of animals who come to allay their thirst there; or springs, containing, it is true, a pure water and fit for drink, but disturbed by all kinds of animals who go there to drink and corrupt the water with their dung; or, further, conduits of impure water, which become a source of infection to the houses near which they pass, or, discharging their contents upon the public ways, form puddles of stagnant water in streets badly kept and unprovided with suitable means for carrying off the fluid accumulations."

Impure water and impure food, fæcal matter soaking into wells from cesspools, and other such causes are also noted as causing the disease. The following passage is interesting:—

"Dr. W. Budd most strongly insists that the essence of enteric fever is contained in the alvine dejections of the patient, but we cannot adduce any facts recorded by himself that give material support to this view, and our own observations lead us to the conclusion that

the intestinal discharges do not contain any *volatile* poison which is capable of generating enteric fever."

He adds—

"Food in an incipient stage of putrefaction is also capable of generating symptoms and intestinal lesions apparently identical with those of enteric fever," and again—"Granting that enteric fever may be produced by the ingestion of putrid animal substances, we shall be at no loss to find a cause for the origin of many of the isolated cases which occur, for such may exist in every household. There is nothing, for example, more essentially putrid than the *decomposed cheese* with which many persons habitually indulge their appetites, and persons unaccustomed to such food can hardly be supposed to partake of it with impunity. It is a matter of common experience that an *egg* will sometimes produce vomiting and purging."

Finally, as to the *causa causans* of the disease, he writes—

"With regard to the identity and nature of the poisonous agent or agents which produce enteric fever, we know nothing. It has never been demonstrated that any particular gaseous body can induce the lesions found after death from enteric fever. There are, however, both mineral and vegetable substances which, when introduced into the stomach, produce symptoms and morbid changes, if not identical with those of enteric fever, at the least hard to be distinguished from them."

While some of these quotations may surprise any who are acquainted only with present-day conclusions, and have no conception of the painful and laborious process by which these conclusions have been reached, yet when read aright, they indicate that at the period in question the whole subject of enteric fever was ripe for solution; that it only required the wonderful light which bacteriology has thrown on the disease to make

plain what seemed so mysterious and contradictory, and to separate out the wheat of knowledge from the chaff of erroneous speculation.

As noted by Murchison, one effect of the long confusion that existed in the diagnosis of the various forms of fever, namely, relapsing, typhus, and typhoid or enteric fever, was to affect seriously the treatment of cases. In the first half of the last century bleeding was a regular part of therapeutic routine, and there were few maladies in which it was not resorted to. Relapsing fever has not, so far as I am aware, been seen in Glasgow for about thirty-five years, but it was not uncommon long ago. It is a very mild fever, and has a low fatality rate. In this disease bleeding was sometimes freely resorted to, and the low case-mortality, which was a natural feature of the disease, was attributed to the treatment.

Typhus fever had prevailed in the year 1800. Bleeding had been little practised, and the disease, as its nature is, was very fatal. Then came relapsing fever in 1817 to 1819. Bleeding was freely used, and there were few deaths. The difference between the fatality rate of typhus in 1800 and of relapsing fever subsequently was attributed not to the fact that two different diseases were in question, but to the bleeding which had been practised in the one epidemic and not in the other. Consequently, when typhus returned, bleeding resumed its place in the treatment, and in the low and exhausted condition of the patients such treatment in that disease could not but be very mischievous.

The question may be naturally asked, Why, even in the absence of bacteriology, had observation not resulted earlier in more accurate conclusions? It will help to elucidate that problem if we go back a little further in the history of the diseases, and this brings me to the second episode to which I wish to call your attention.

It is not second, however, in point of time. It belongs to the year 1836, and the scene is the Glasgow Royal Infirmary.

Up till so recently as 1870 the Royal Infirmary consisted of three main blocks of buildings—the medical house, the surgical house, and the fever house. I well recollect, when at college, seeing the partitions of the fever house being taken down in order to turn the apartments into surgical wards. In the year 1836 the physician to the fever house was the late Dr. Perry, whose son was one of the physicians to the institution in my own time, and still lives, an honoured member of the profession in Glasgow. Previous to the time of Dr. Perry, senior, it had been the habit to group together all cases of fever admitted to the institution, and no distinction was made between typhus and typhoid or enteric fever. But in 1836 Dr. Perry published in the *Edinburgh Medical and Surgical Journal* an article in which he urged that there were two diseases, each with its own characteristics and its own specific eruption of the skin. The title of his paper was "Observations on Continued Fever in the Glasgow Hospitals," and in the same year he contributed to the *Dublin Journal of Medical Science* a letter on typhus fever.

Dr. A. P. Stewart, a pupil of Dr. Perry's, in a paper read in Paris in 1840, wrote that Dr. Perry was the first whom he heard maintaining the complete difference of the two eruptions, and he adds, "I am now fully satisfied of the accuracy of that opinion."

These are only two of many workers in the same field and about the same period both in this country and on the Continent, and, even long before this time there are indications in the works of old writers of some inkling of the distinctions between the fevers. But, as you will gather from what I have already said

about the views which continued to be held for thirty years after Dr. Perry wrote, it took a long time to thrash out and establish all the differences between the three continued fevers—typhus, typhoid, and relapsing.

In his letter to the *Dublin Journal* Dr. Perry wrote—"I have for some years entertained the opinion, founded upon an extensive series of observations, that contagious typhus is an exanthematous disease, and is subject to all the laws of the other exanthemata; that, as a general rule, it is only taken once in a lifetime, and that a second attack of typhus does not occur more frequently than a second attack of smallpox, and, judging from my own experience, less frequently than a second attack of measles or scarlet fever." He also denies in the same letter that the disease can originate spontaneously.

In the *Edinburgh Journal* he sets down his opinions in a series of sixteen clearly-stated propositions, which include the following:—

(1) That typhus fever is an idiopathic disease solely produced by contagion, that is, by the introduction into the system of a specific animal poison.

(2) That this specific poison is (as far as yet known) only generated in the human body during the course of this idiopathic fever.

In the fourteenth, fifteenth, and sixteenth propositions he refers to "dothineritis," by which name at that time the symptoms now referred to enteric fever were often known. He states that the intestinal glandular lesions, which are now known to be characteristic of enteric fever, are found *post mortem* in about one in six cases of persons who die from typhus. This at first sight suggests that even then Dr. Perry sometimes confused the two diseases, but he immediately proceeds to say that dothineritis also exists as a disease *per se*, and he goes on to describe its

symptoms, including those belonging to the abdomen. Seeing that both typhus and enteric fever abounded in Glasgow, and were not distinguished in the houses where either disease occurred, and that in the fever wards they lay side by side, it appears to me that cross-infection partly explains the fact that in an appreciable minority of fatal typhus cases evidences were also found of the existence of enteric fever. John Hunter's dictum, that the human body cannot harbour two infectious fevers at the same time, is now known to be erroneous, and, in presence of so much infective material in Glasgow, patients may quite possibly have been admitted suffering from both typhus and typhoid.

Enteric fever would be readily spread by water from the Clyde and from the old wells in the town, and by milk, but the tracks of the infection would be constantly covered up and obliterated by those of the much more prevalent typhus.

Under the conditions which prevailed in Glasgow, it is quite certain that typhus was much commoner than enteric fever. In 1847-48, when the one disease had been pretty definitely distinguished from the other in the Royal Infirmary, the number of admissions from enteric is stated by Murchison to have been 134, and of typhus fever 3379. Including relapsing fever, he gives the total cases in the Glasgow hospitals at the remarkable number of 11,425 for the year 1847. In the same epidemic there were 2503 deaths in Edinburgh, and the cases are alleged to have been 19,254, or 1 in every 9 of the population. In Dublin there were 40,000 cases; in Ireland, probably over 1,000,000; and in England in 1847, about 300,000. In 1843 it was estimated that the number of cases of relapsing fever in Glasgow was 33,000. They occurred amongst the poorest of the poor after a period of want and distress.

But surely, you may say, with such an abundance of material for clinical investigation as existed in Glasgow in the early years of last century, typhus and typhoid fever should have been separated long before Dr. Perry's time. The explanation is to be sought in this very superabundance. One sometimes hears it said of men engaged in various spheres of work, that they have enormous experience because they have seen so much. Such an opinion is too often a baseless delusion. The truth quite possibly is that these men have had no time for experience. They have seen far too much. Facts have rushed past them with the speed of an express railway train, but they have had no chance to study or gain intimate knowledge of the facts. I think that must have been the case with regard to the differentiation of fevers in Glasgow.

Quite likely there had been conceived by some dreamer the project of isolating all cases of fever, and so preventing their spread. But any such conception was in the existing circumstances Utopian, and took many years to come within the range of the realisable. In the great majority the course was to attend to the disease in the patient's own home, so far as any attention was given to it. The Town Council took little to do with such matters, and, as pointed out by the late Dr. Russell, the poor law authorities sent cases to hospital, not for isolation, and perhaps not even so much for the benefit of better treatment, but really because it was more convenient and more economical to treat in the wards of a public institution the victims of the disease, who, with their dependants, became paupers simply owing to the ravages of fever. It would have been as impracticable in these times to treat all cases of fever in hospital as it is in the present day for local authorities in town and country to treat all cases of measles and whooping-cough and consumption in hospital.

Under such circumstances, questions of diagnosis between different forms of fever could not be seriously considered. The object was to get some degree of humane attention paid to the sufferers, whether in their own crowded homes or in the crowded wards of the infirmary, and careful clinical study could not but be very difficult or even impracticable. It is not, therefore, very surprising that the progress towards present-day knowledge of typhus and enteric fever should have been so slow and interrupted, and should have been marked by various mistakes before the facts were clearly ascertained.

Even yet, it may be interpolated here, we are far from knowing all that is to be known on the subject. Concerning the spread of enteric fever, it is only within the last year or two that we have come to appreciate the importance of what is probably a frequent agency in the prolongation of infection after all ordinary measures have been taken to stamp out the disease. It is being found now that, just as the bacillus of diphtheria may lodge in the throat of a person not himself suffering from the disease, and that infection may thus be conveyed to others, so in enteric fever, the patient who has clinically recovered may still harbour in the intestinal canal, and especially in the gall duct, the microbe of infection, and may discharge it from time to time so as to cause spread of the disease. There is, however, this difference between these two cases that, so far as yet known, only a person who has already had enteric fever can be a chronic source of infection to others, whilst in diphtheria the carrier with the bacillus in his throat may never have in any degree suffered from the malady which he conveys.

Having now indicated that the main difficulties in distinguishing typhus from enteric fever were the enor-

mous prevalence of fevers and the strain on medical resources which every epidemic must have produced, the next question is, what were the conditions under which fevers so largely prevailed? These conditions can nowhere be better exemplified than in the history of the city of Glasgow as it existed in the early part of the last century. The last vestiges of the feudal system began rapidly to disappear in Scotland with the breaking up of the Highland clans which followed the Jacobite rebellion of 1745. With this disappearance the class of skilled artisans rapidly increased its ranks, and throughout the country in little villages and hamlets and in wayside cottages the sound of the weaver's loom and of other industrial processes could be increasingly heard. But it quickly became obvious that manufactures could, from the financial and productive point of view, be best conducted on a large scale in great factories and workshops, instead of in small workrooms in scattered houses in rural districts. There was, therefore, much crowding into towns, and this crowding took place entirely without sanitary guidance. The simplest laws of health were unknown or unrecognised. Individual dwellings were small and overcrowded. They were huddled into huge tenements several storeys high. These in their turn abutted on narrow lanes or closes, each opening off another in series, with only two or three reasonably wide streets enclosing the whole seething mass of humanity. Writers of the time appointed to investigate such conditions give appalling accounts of what they saw.

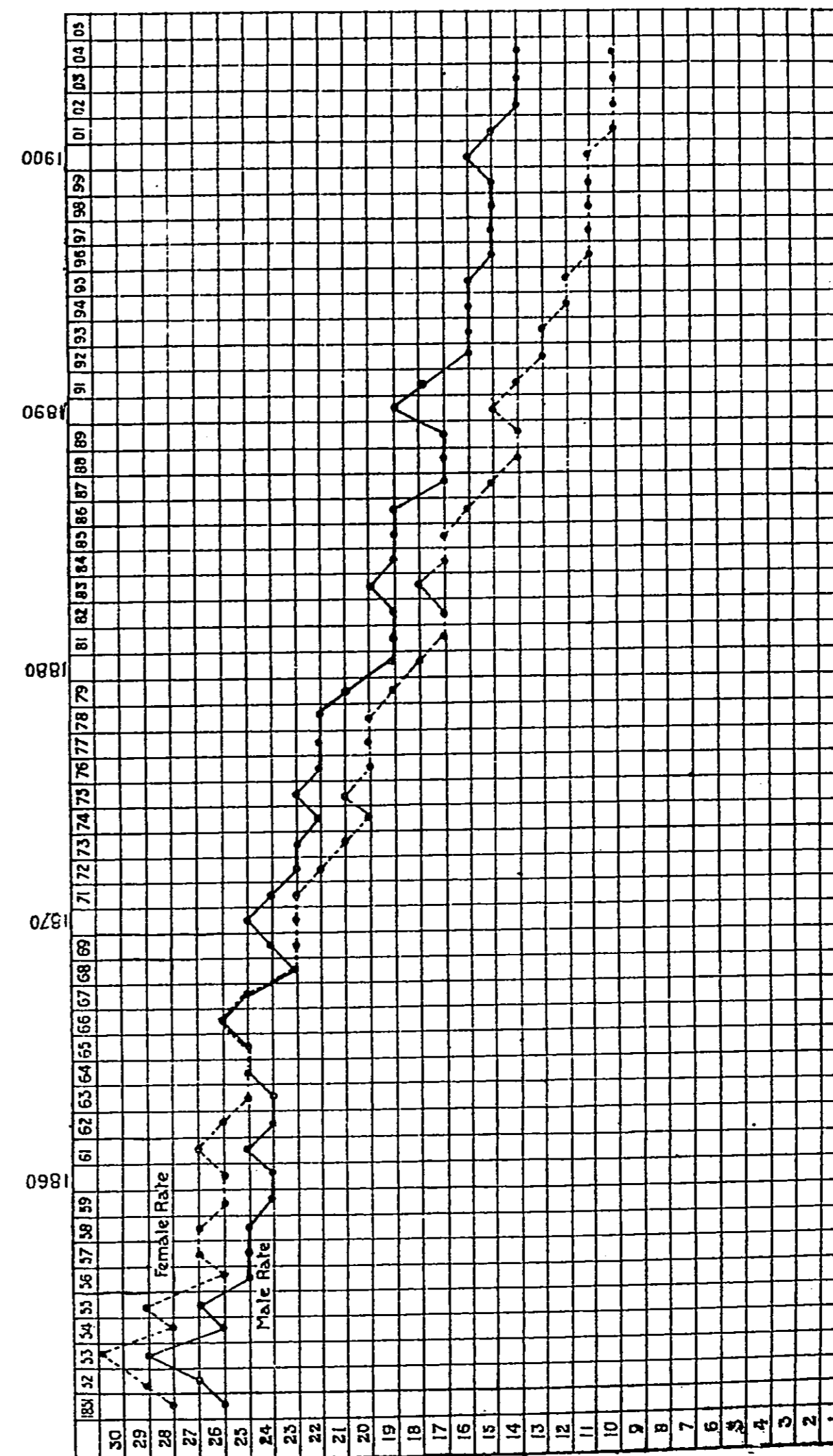
But photography had not been invented, and there was no ready means of pictorial representation of the state of things which prevailed. Fortunately for future knowledge of the matter, photography was available before the least objectionable of the slums were entirely cleared away. In 1868, a time when the fever wards

of the Royal Infirmary were still in active use, and before the operations of the Glasgow Improvement Trust began, the decision was reached that photographs should be taken of the closes in the areas about to be dealt with. I shall now show you some of these.\*

The exhibition of these lantern slides brings me to the third and last episode in the history of preventive medicine, of which I wish to speak to-night. That episode is the crusade against pulmonary consumption.

It is hardly necessary to point out that improved housing is very beneficial, quite independently of its great influence towards the extermination of typhus fever. Sufficient air space and sufficient ventilation are useful for building up and maintaining health and strength apart from their effect on any particular malady, and no doubt the great diminution of the total death-rate within recent years is to a very appreciable extent attributable to better housing. Has housing reform had any special influence in the diminution of deaths from phthisis? As bearing on the question, here is an important chart taken from Dr. Timbrell Bulstrode's recent report on tuberculosis to the English Local Government Board. The striking feature in this chart is its display of the difference in the rate of diminution of the mortality from phthisis as between males and females. It shows that in England and Wales, from 1851 up to about 1863, females had an appreciably higher death-rate from consumption than males. Then for several years the death-rates were practically identical, but from 1868 onwards females have enjoyed an advantage which tends to increase as time passes, so that in 1904, which is the latest year given in the chart, the male death-rate is 13 per 10,000 of population, and the female death-rate is only 9, or little more than two-thirds, of the

\* Not reproduced here.

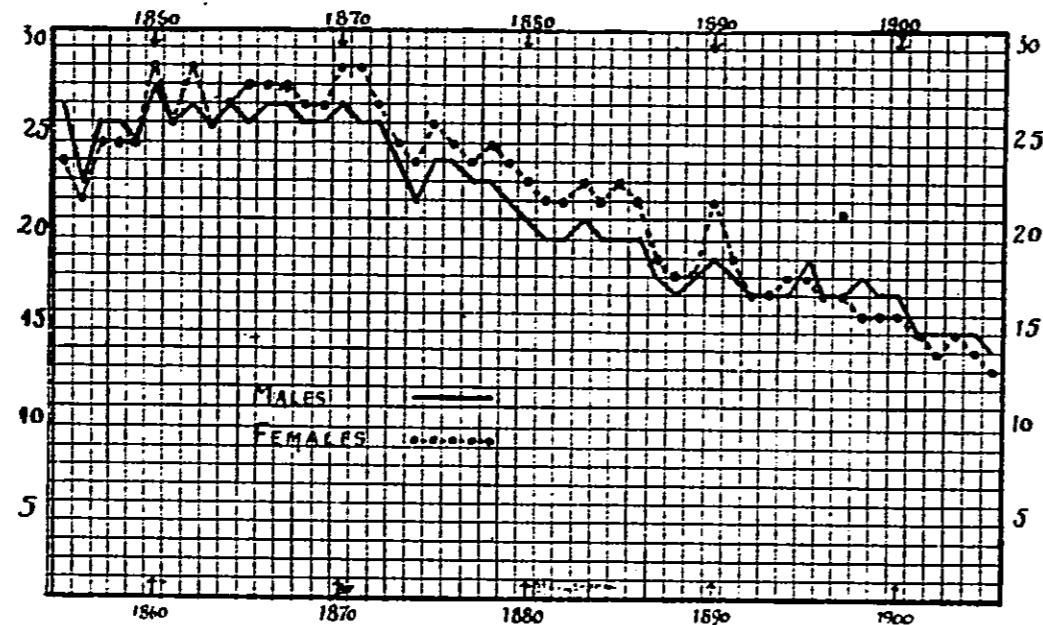




male death-rate. Much discussion has taken place as to the interpretation of these facts, and in some respects the figures are very puzzling, for, as Dr. Bulstrode points out, the liability of females to die from phthisis under five years old is less than that of males, while between five and twenty-five females are more liable than males, but after twenty-five the male liability is decidedly greater than the female. Very likely unhealthy conditions of employment have to do with adult males lagging behind adult females in their progress towards a lower death-rate. The figures are also compatible with the view that improved housing has been of much importance. Adult females spend much more of their life in the dwelling-house than do adult males, and better housing would naturally affect them in a greater degree.

The chart of male and female phthisis incidence in Scotland is different from that in England. It will

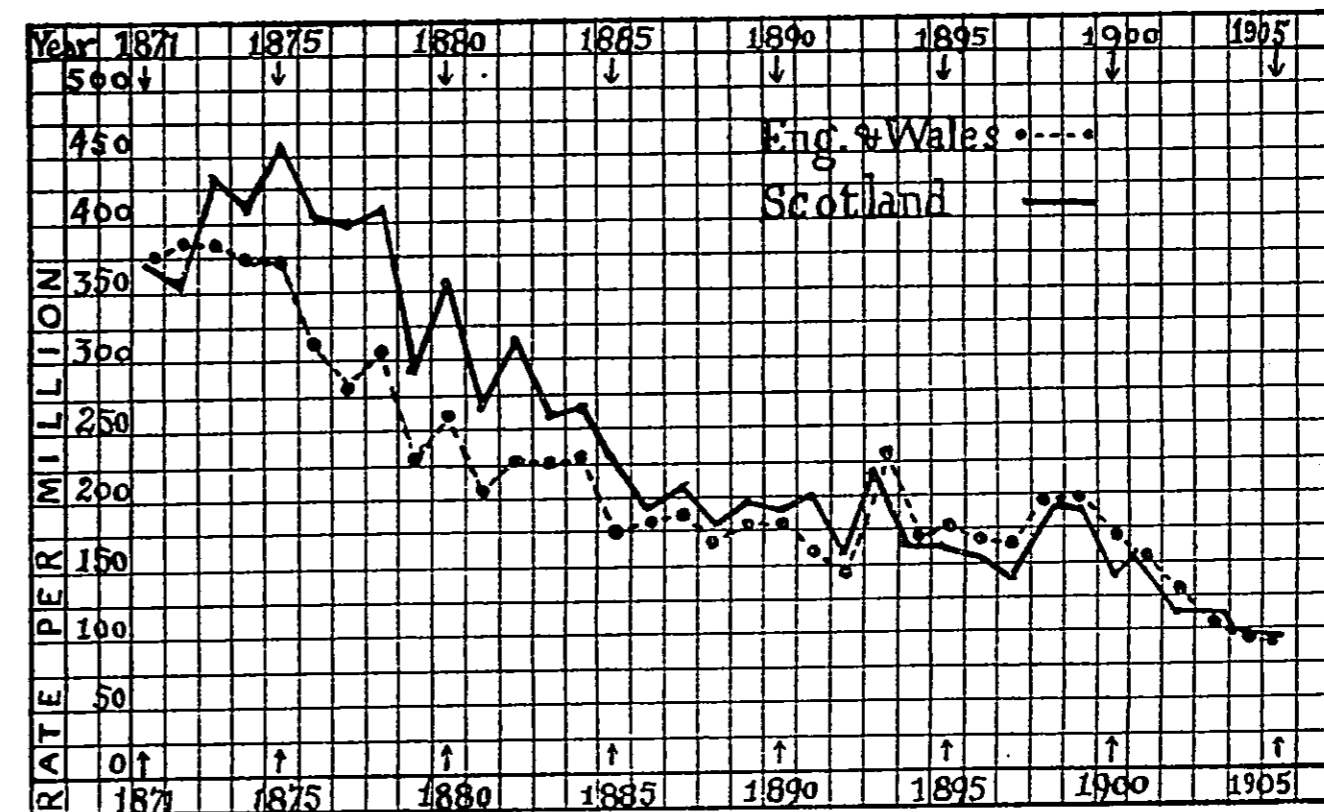
MALE AND FEMALE DEATH RATE PER 10,000 FROM PULMONARY TUBERCULOSIS IN SCOTLAND.



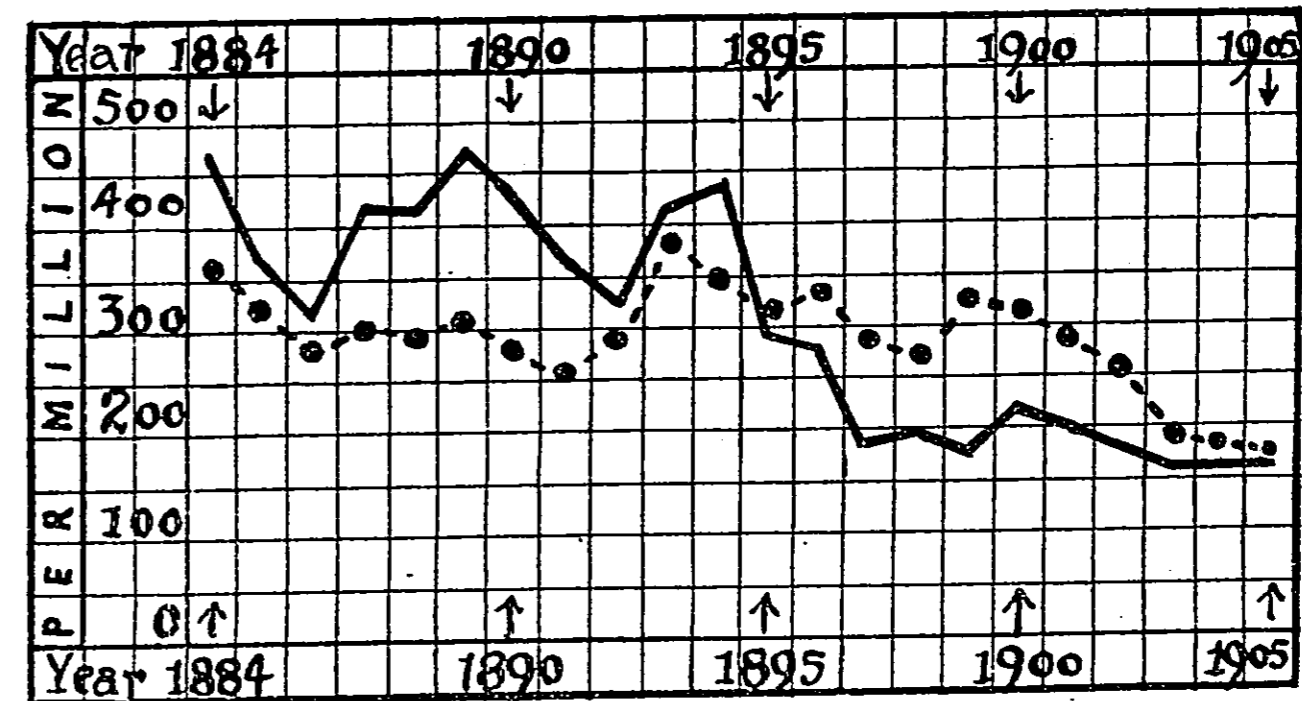
be seen that in Scotland the female rate remained higher than the male until 1895, and that even yet the difference is not nearly so great as in England. What can be the explanation? Perhaps some light may be thrown on the point by looking at other charts

of a different nature. These have nothing to do with comparisons of sex incidence, but they show that, about the same time that the female phthisis prevalence in Scotland, became reduced below that of males, the death-rates from enteric fever and diphtheria, which had up till that time been higher than the corresponding rates in England, fell below the English level.

ENTERIC FEVER—DEATH RATE PER MILLION, 1871 TO 1905. England and Wales. Scotland.

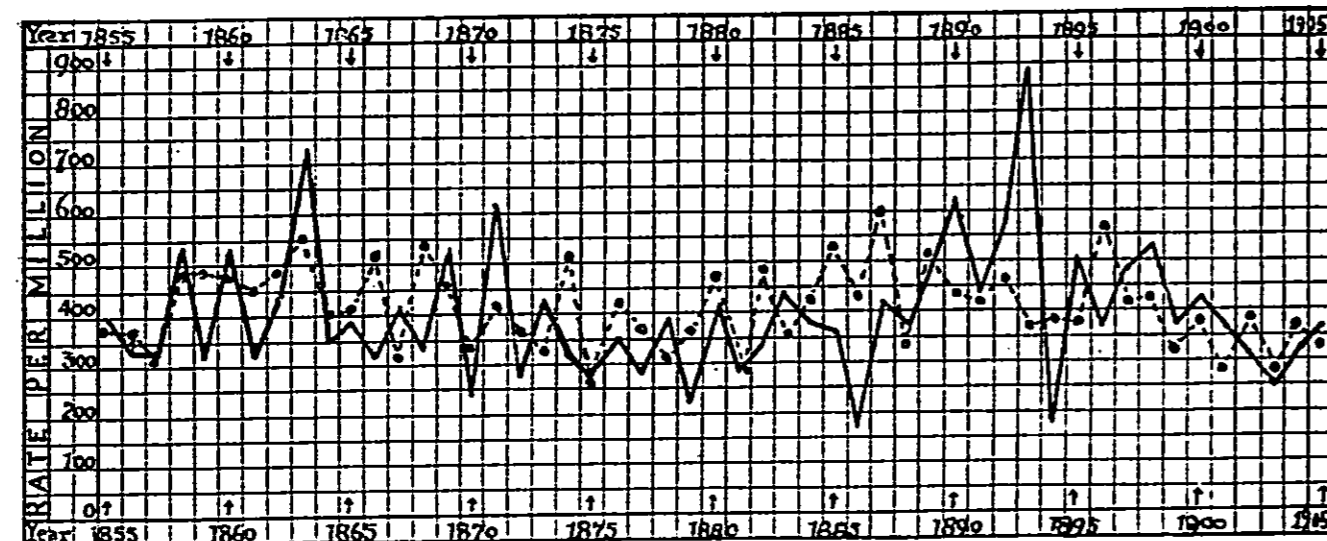


DIPHTHERIA AND CROUP—DEATH RATE PER MILLION, 1884 TO 1905. England and Wales—Interrupted Curve. Scotland—Continuous Curve.

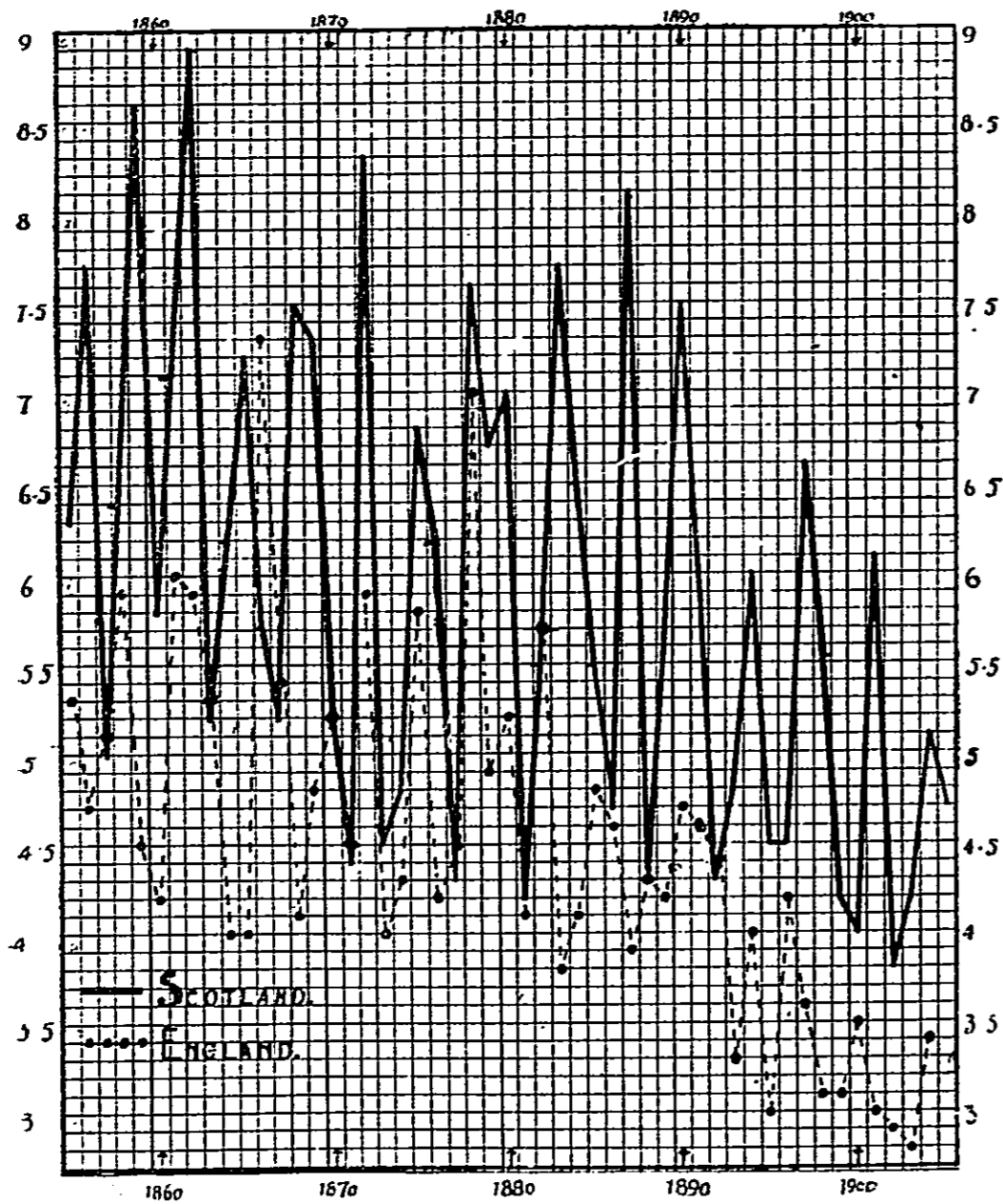


No similar fall took place in measles, whilst in whooping-cough Scotland has a decidedly higher rate than England, and in scarlet fever the decline in

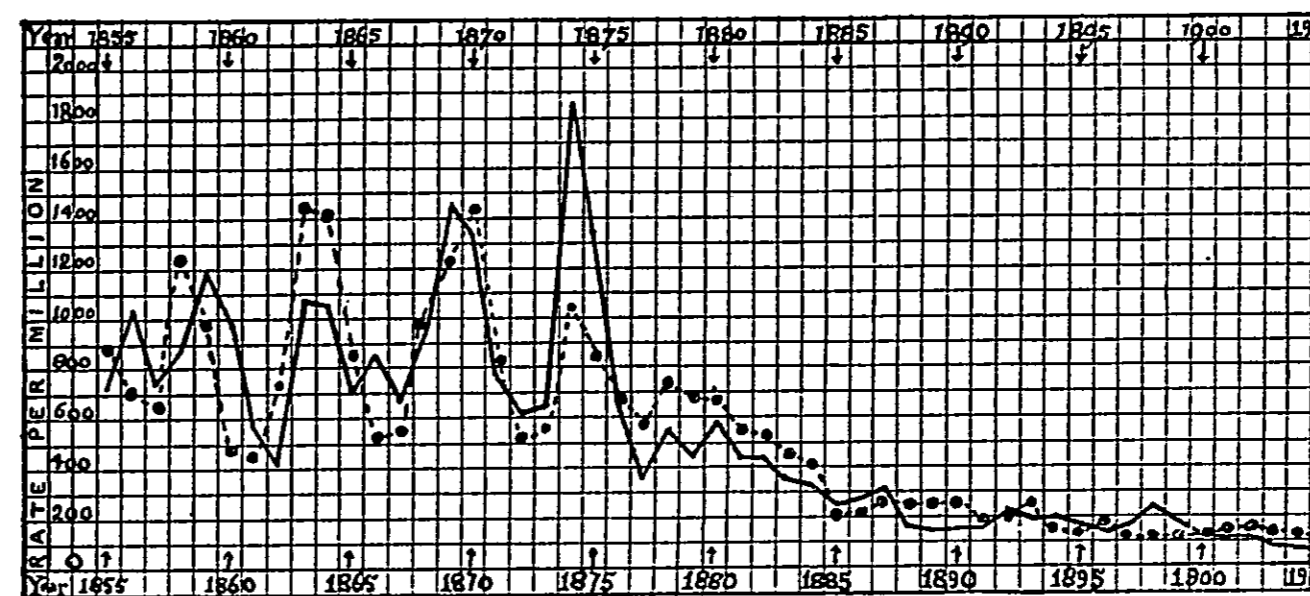
MEASLES—DEATH RATE PER MILLION, 1855 TO 1905.  
England and Wales—Interrupted Curve. Scotland—Continuous Curve.



DEATH RATE FROM WHOOPING-COUGH PER 10,000 OF POPULATION, 1855 TO 1905.



SCARLET FEVER—DEATH RATE PER MILLION, 1855 TO 1905.  
England and Wales—Interrupted Curve. Scotland—Continuous Curve.



the two countries is practically identical. These comparisons suggest an interesting question, which I do not pretend to solve, but merely to indicate. In the early years of the periods covered by the charts sanitary progress was greater and sanitary conditions were better in England than in Scotland. Then there came into operation in rapid succession in Scotland the Local Government Act of 1889, the Burgh Police Act of 1892, the Local Government Act of 1894, and the Public Health Act of 1897, constituting jointly a new code of public health law for the northern kingdom. Under its influence great strides have been made in several important directions. Is it because of this progress that diphtheria and enteric fever are now less prevalent in Scotland than in England, and that Scotland has followed England in reducing its female phthisis death-rate below its male rate? With regard to measles, a serious contributor to infantile mortality, little effective action has been taken, at least during the period dealt with in the charts, and the fact that its rates are unaffected falls in with the hypothesis which I am indicating. In the prevention of scarlet fever there has been much activity in both countries,

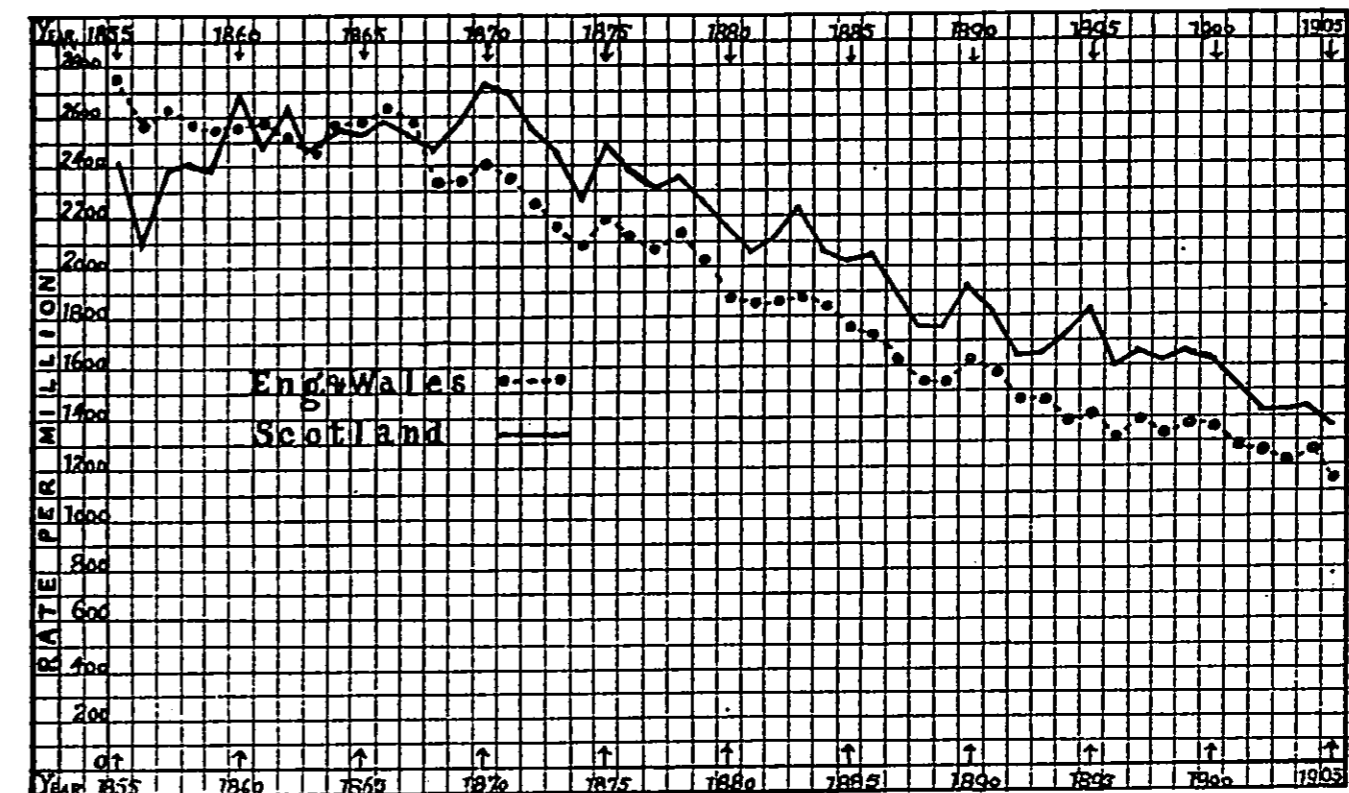
and the figures are pretty nearly identical, but, as was pointed out by Dr. J. T. Wilson in 1897,\* the decline in the death-rate is largely due to the low fatality-rate among persons attacked.

Though a good deal of this is little more than speculation, the difference between the rates of improvement in the male and female phthisis mortality in the two countries gives support to the otherwise very natural and reasonable view that good housing is a very important agency in preventing phthisis, whilst the fact that the advantage which females have over males is much less pronounced in Scotland than in England, and began to show itself later in Scotland, quite falls in with what is known about the difference in working-class house accommodation in the two countries. The English workman's house is on the average decidedly larger than the Scotsman's. In the former the kitchen or living room is hardly ever used as a bedroom, but in the latter the kitchen is in the great majority of cases also a sleeping room. The Englishman's bedrooms, on the upper flat of his little dwelling, are unoccupied except at night, and in many of them the casement windows stand open all day long. In Scotland, on the other hand, the kitchen is occupied both day and night. Probably this helps to explain what the following chart shows, namely, that, though the phthisis death-rate is diminishing in both countries, it remains steadily higher in Scotland than in England, when both sexes and all ages are included.

Whilst investigating medical relief under the poor law last year in England I took note of the accommodation for phthisis provided in poor law sick wards

\* A contribution to the Natural History of Scarlet Fever, by Dr. J. T. Wilson, County Medical Officer of Lanarkshire, in "Public Health," 1897.

PHTHISIS—DEATH RATE PER MILLION, 1855 TO 1905.  
England and Wales. Scotland.



and infirmaries. Invariably it emerged that in the larger institutions there were far more male than female patients. This is by no means wholly due to the different prevalence of the disease in the two sexes. The explanation partly is that when the bread-winner suffers from phthisis he has at a comparatively early stage to give up his work entirely, and seek treatment which, under the poor law, is now increasingly given in infirmaries rather than at home. On the other hand, a married woman living at home and suffering from the disease is able to continue giving some attention to her household duties for a long time after she would be unfit for any regular factory employment.

Another point which greatly impressed me in these poor law inquiries, and which has a most important practical bearing on efforts at prevention of the disease, was the insanitary condition of the houses in which phthisis was being treated. Notwithstanding the efforts that are now increasingly being made to guide people in the precautions required to hinder spread of

phthisis in infected households, I am convinced of this, that in thousands of working-class dwellings in Britain phthisis is getting every possible opportunity to do its deadly work.

Regular hygienic supervision of an invaded household is essential. The other inmates, being in a great majority of cases relatives of the patient, are very likely to be of a weakly stock, specially susceptible to phthisis, and possibly some of them may have already been infected with the disease without its having reached a stage at which diagnosis can be certain. A healthy condition of the house, therefore, and healthy habits of life are of the first importance towards destroying any seeds which may have already been implanted. This is by no means a hopeless line of policy, because certain extensive series of *post-mortem* examinations show that a large proportion, possibly even a third of the population of the country, must at some time of their lives, and in some slight degree, have been attacked by tubercle and have recovered from the attack.

Even if a recognised and notified case is removed to hospital or sanatorium, the dealings of the local authority with the household should not be at an end. For the reasons just indicated, it is important that those who remain should be kept under supervision, and especially that the necessity for abundance of fresh air and for personal hygiene and domestic cleanliness should be inculcated, so that any who may have been infected shall have the best chance of throwing off the disease, and so that any others who, though not yet infected, belong to the same weakly stock as the removed case, and who are similarly liable to successful attack by any infection to which they may be exposed, shall be strengthened against assault.

I desire to bring these considerations before the

delegates of sanitary authorities who are attending this Congress from all parts of Scotland. The authorities they represent are no doubt now entering seriously on the question raised once more by the Local Government Board in their third circular on the control of pulmonary phthisis. The difficulty that always rises up before the eyes of local authorities when they begin to think of the subject is the risk of their requiring to isolate phthisis in large hospitals or sanatoriums. They think of the great number of cases that are scattered through their district, and they begin to calculate what it would cost to build a sanatorium capable of holding all these, and to maintain all the patients throughout their long illness, and the financial prospect is so appalling that they are very apt to put aside the whole project as being impracticable.

Now, I do not myself read the Local Government Board's recent circular in this paralysing fashion. Whether a local authority builds a small pavilion for phthisis in the grounds of its existing fever hospital, or temporarily uses otherwise empty wards—and either of these courses will, as I take it, meet with the approval of the Board—there is abundant opportunity, altogether outside of hospitals and sanatoria, for excellent work in the prevention of phthisis.

With notification once adopted, then every small house in which it becomes known that phthisis exists should be at once visited by a medical officer of the local authority, the visit being made along with the family medical attendant, where there is such an attendant. The handing to patients or friends of patients of a print of instructions regarding disposal of sputum and the opening of windows is very good so far as it goes, but is quite insufficient. Periodical, though not too frequent, inspection is required in order

to see that the instructions are carried out. Not merely the ventilation of the house, but its rigid cleanliness, likewise the cleanliness of all articles of furniture and clothing, and the personal health and cleanliness of every inmate are of great importance. To obtain and maintain such cleanliness will need vigilant attention on the part of the sanitary authority, and there is here an ample field for most valuable administrative action.

At present the cost of hospital or sanatorium treatment for all the phthisis cases in the country would simply not be borne by the public. One main object should be so to manage the disease at home, and so to improve the conditions there, as to check its spread and to diminish the number of cases, which by and by might be so reduced as to bring general isolation within the field of practical politics. Therefore, in considering the Local Government Board's circular, local authorities should not be deterred by the fear that the undertaking of this new duty will involve them in bankruptcy. At the same time, I would point out that, when a large amount of accommodation in a fever hospital is standing empty there is no profit, but the opposite, in failing to utilise it for what it is worth. The repayment of capital outlay and the payment of interest have to go on whether the hospital is full or empty, whilst the difference in the cost of administration and staff, and of food and medicine, which would result from the reception of cases specially requiring isolation would be comparatively small.

The history of the prevention of various infectious diseases is interesting in respect of the stage when isolation comes to be of practical value. In typhus fever in Glasgow, in the early years of the last century, isolation was quite a hopeless preventive measure. Before it came to be usefully applicable it was necessary to clear away the slums and to improve the houses

and their whole environment. Then, when cases had in this way been enormously diminished, it became possible to isolate those that remained, and so to stamp out the disease. Similarly, in the prevention of smallpox, isolation was of no use in pre-vaccination days. The number of cases was so great and the infectivity of the disease was so high that the provision of hospital accommodation, if it had been attempted, would have been futile. But when vaccination came into play, and the susceptible population was in this way reduced to a mere fraction of what it had been before, isolation became a most valuable supplement to vaccination and re-vaccination, so that wherever these measures are fully utilised the disease can be checked at its very beginnings, and epidemic proportions are never reached. On the other hand, as against measles, improvement of housing has no such influence as in typhus, and there is no known prophylactic like vaccination. At present, therefore, measles has not reached the stage when isolation can stamp it out. So also it is with whooping-cough, whose ravages remain practically unchecked. But these analogies apply only very partially to phthisis, and in one respect there is an essential difference. In typhus, in the wynds of Glasgow, it would have been of no avail to remove one case and to leave other ten at home, or to remove ten cases and leave a hundred. So also with smallpox, and so in the present day with measles, though in this latter disease removal to hospital is sometimes useful as giving the patient a better chance of recovery than is possible in a small and dirty and over-crowded house. In phthisis, however, the infection is so slow and so feeble in relation to the resisting power of the great bulk of the people, and the influence of infection from any advanced case is so largely confined to the dwelling within which the

patient lives, that the removal to hospital of one actively infectious case is very likely to be valuable in respect of his own particular household, notwithstanding that in the same town another hundred cases are left at home. Indeed, every such case removed is in its own measure, whether that measure be large or small, a diminution of opportunity for spread of infection. I venture to hope, therefore, that the Local Government Board's circular will not meet with too timid a reception by local authorities, but that, while having due regard to economy, they will face, in some practical fashion, at least the partial solution of the greatest public health problem of the present day.

It is impossible in the time at my disposal to do more than mention the question of the part played by milk in the spread of tuberculosis. That is a subject of great importance, which would easily occupy a whole course of lectures.

These are all the points on which I wish to address you to-night. Retrospect in any field of work may be useful or the opposite according as we read its lessons. If dipping into the past only convinces the modern student of his own superiority and of the ignorance and incompetence of those who have gone before, it does far more harm than good. If, on the other hand, it teaches humility and avoidance of errors by observing what has been the experience of men of previous generations quite as competent as those of to-day, then the retrospect will be useful. I trust that our little excursion backwards into the nineteenth century will make us thankful for the good work that has been done, rather than critical of the mistakes that were committed in the doing of it.

## PRESIDENTIAL ADDRESS.

### THE STATE AND THE INDIVIDUAL IN EUGENICS.

By Dr. CHARLES TEMPLEMAN, Medical Officer of Health,  
Dundee.

In opening this Congress I feel that the first note I should strike must be one of apology. Most of you doubtless are aware that Councillor W. F. Anderson, of Glasgow, who, as President-elect, should have occupied the chair on this occasion, has just passed through a long and serious illness, and is on this account unable to perform this duty. We are delighted to know that he has now reached the stage of convalescence, and trust he will soon be able to resume his useful public career. To his misfortune I owe my elevation to this honourable position, but, as it is only a few weeks since I was informed that it would be my duty to preside at this Congress, I have neither had the time nor the opportunity to prepare an address worthy of the occasion, and so must crave your indulgence if I fail to reach the high standard which has been set by my predecessors in office.

I have selected as the subject to which I invite your attention for a little "The State and the Individual in Eugenics." Mr. Galton has defined eugenics as "the study of agencies under social control that may improve or impair the racial qualities of future generations either physically or mentally." The subject, you