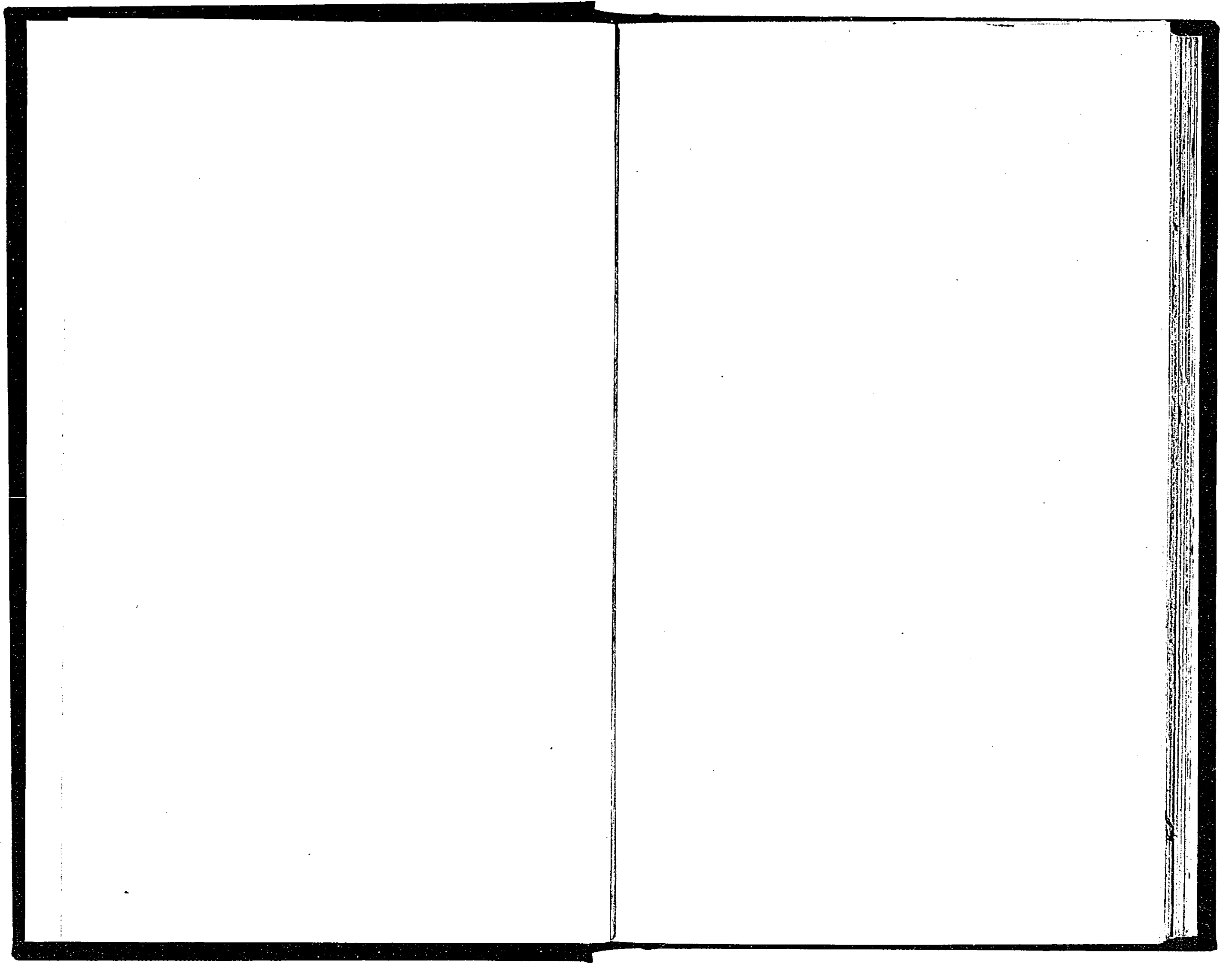


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1881-2.

TRANSACTIONS

OF THE

Sanitary Institute of Great Britain.

VOLUME III.

---

1881-82.

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EDITORS:

HENRY C. BURDETT, F.L.S., F.S.S.

F. S. B. F. DE CHAUMONT, M.D., F.R.S.

LONDON:

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1882.

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## P R E F A C E .

In presenting the Third Volume of the Transactions of the Sanitary Institute the Editors have to point out that no Congress took place in 1881, and that there was in consequence an absence of the usual matter for a volume. The International Medical Congress, and the large Medical and Sanitary Exhibition, established in connection with it at South Kensington, rendered a Congress and Exhibition both less necessary and less easy to carry out at the time of year which is generally most convenient for the members of the Institute. It was therefore decided to suspend them for the year; but at the same time it was considered desirable that a Report on the Exhibition at South Kensington should be made, seeing that it contained much that was of permanent sanitary interest. Such a Report has accordingly been prepared, and will be found in the present volume.

The Papers read at the Ordinary Meetings, with the discussions following them, as well as the Addresses at the Anniversary Meetings, will also be found. Among them are subjects of great interest and public utility.

It is, of course, understood that authors are alone responsible for the opinions expressed in Papers, Addresses, or Discussions.

The Congress and Exhibition of 1882 will take place at Newcastle-upon-Tyne, at the invitation of the Mayor and Corporation of the city, and under the Presidency of Capt. DOUGLAS GALTON, R.E., C.B., D.C.L., F.R.S. The Congress will commence on the 26th of September, and terminate on the 30th. The Exhibition will remain open till Oct. 21st.

It is intended, for the future, to issue the Transactions at the close of the Winter Session.

## ADVERTISEMENT.

The Institute, as a body, is not responsible for the facts and opinions advanced in the addresses and papers published in its Transactions.

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## Sanitary Institute of Great Britain.

## FORMATION OF THE INSTITUTE.

THE increasing importance attached to Sanitary Science and the recognised position it was assuming in the public mind, appeared to the promoters of the Sanitary Institute fully to justify the formation of a National Society, the object of which should be to devote itself *exclusively* to the advancement of all subjects bearing upon Public Health. In furtherance of the object, a meeting was held at St. James's Hall, on the 13th of July, 1876, at which His Grace the Duke of Northumberland presided, when it was unanimously resolved:—

First—"That in the opinion of this meeting the sanitary condition of this country is still very unsatisfactory, and that further legislation is necessary with a view to its improvement; and that for the purpose of collecting and imparting information upon all matters connected with the subject of 'Public Health' a Society be now formed, to be styled 'The Sanitary Institute of Great Britain.'"

Second—"That the gentlemen whose names are appended be requested to act as a Committee (with power to add to their number) for the purpose of carrying out the previous resolution and of reporting to an adjourned public meeting to be held during the second week in October next."\*

The Committee appointed to report upon the subject considered it would add greatly to the usefulness of the Institute if Mayors of Boroughs, Chairmen of Local Boards, Sanitary Authorities, Medical Officers of Health, and all who have to administer the Public Health Acts, would associate themselves with the Institute, either in their individual or corporate capacity, and take part in its proceedings. By thus bringing their united knowledge and experience to bear upon Sanitary matters, the laws relating to the same would become better known and be more efficiently administered.

## BASIS OF THE CONSTITUTION OF THE INSTITUTE.

## SECTION I.

*Charter of Incorporation, Membership, and Government of the Institute.*

As soon as practicable a Charter of Incorporation shall be obtained, as it will facilitate some portions of the work of the Institute, more

\* An adjourned public meeting was held on the 14th of March, 1877, when the report was unanimously adopted and a Council subsequently appointed to carry it into effect.

especially the examinations as set forth in Section II. Until a Charter is obtained, the examinations shall be continued as heretofore, and a Register of persons certificated as competent to act as Local Surveyors and Inspectors of Nuisances shall be formed.

The Institute shall consist of Fellows, Members, Associates, and Subscribers.

Fellows shall be elected by ballot by the Council, and shall include scientific men of eminence, persons of distinction as Legislators or Administrators, and others, who have done noteworthy Sanitary work.

All Fellows (except those who have already become Life Members) shall pay a fee of Ten Guineas on taking up the Fellowship, and such fee shall entitle the Fellow to all the privileges and advantages of the Institute for life without further payment.

Any person proposed by three Fellows or Members, shall be eligible for election as a Member of the Institute.

Members shall be elected by ballot by the Council, and shall be eligible to serve on the Council, and to vote at all Elections and Meetings of the Institute. The admission Fee payable by a Member shall be Three Guineas, and the Annual Subscription Two Guineas.

Medical Officers of Health and Medical Men holding Certificates in Sanitary Science from any University or Medical Corporation shall be entitled to be enrolled as Members of the Institute without Admission Fee.

Members desirous of becoming Life Members may do so on payment of Ten Guineas in lieu of the Annual Subscription.

All persons who have passed the Examination and received the Certificate for Local Surveyor from the Institute, shall, by virtue of having so passed, become Members of the Institute upon the payment of Five Guineas (without Annual Subscription), in addition to the fee paid for the Examination.

Any one proposed by two persons, either Fellows, Members, or Associates of the Institute, shall be eligible to be elected as an Associate of the Institute, the election to be by ballot by the Council. The Admission Fee payable by Associates shall be Two Guineas, and the Annual Subscription One Guinea.

All persons who have passed the Examination and received the Certificate for Inspector of Nuisances from the Institute, shall, by virtue of having so passed, become Associates of the Institute upon the payment of Three Guineas (without Annual Subscription), in addition to the fee paid for the Examination,

Persons of either sex, interested in the advancement of Sanitary Science, shall be entitled to be enrolled as subscribers on payment of One Guinea annually. Annual Subscribers shall be entitled to attend and to take part in the discussions at all meetings and Congresses of the Institute, and shall have free admission to the Conversazioni and Exhibitions of Sanitary Appliances held in connection with the Institute, so long as they continue to pay their Subscription.

Donors of Ten Guineas and upwards shall be entitled to be enrolled as "Life Subscribers," with all the privileges and advantages of Annual Subscribers without further payment.

Subscribers of Half-a-Guinea to any Congress of the Institute shall be entitled to a card of admission to the Meetings, Addresses, Conversazioni, Excursions, and Exhibition held in connection with that Congress.

The Institute shall be governed by a President, Vice-Presidents, and a Council of Twenty-four, consisting of Fellows and Members of the Institute, of whom not less than two-thirds shall be Fellows. The Council shall be chosen by the Fellows and Members. One-fourth of the Council shall retire annually, and shall not be eligible for re-election for one year.

The first President of the Institute shall be His Grace the Duke of Northumberland. Future Presidents and Vice-Presidents shall be elected by the Council. The Council shall have the power of electing Honorary Members of the Institute, Honorary Foreign Associates, and Corresponding Members of the Council.

## SECTION II.

### *Objects of the Institute.*

To devote itself to the advancement of Sanitary Science and the diffusion of knowledge relating thereto.

To examine and to grant Certificates of Competence to Local Surveyors and Inspectors of Nuisances, and to persons desirous of becoming such or of obtaining the Certificate. The Examinations shall be held at such times and in such places as the Council may direct.

A Board of Examiners shall be appointed by the Council; such Board shall consist of gentlemen representing Medical, Chemical, and Sanitary Science, Engineering, Architecture, and Sanitary Jurisprudence.

The Examination for Local Surveyors shall include a competent knowledge of the Statute relating to Sanitary Authorities, of Sanitary Science and Construction, and of Engineering.

The Examination for Inspectors of Nuisances shall comprise the elements of Sanitary Science, together with Sanitary Construction, and the Statutes relating to the prevention of disease and the suppression of nuisances injurious to health.

Fees shall be charged for the Examinations, and a Certificate of Competence, signed by the Examiners, shall be granted to successful candidates, entitling them to be designated as "Certificated by the Sanitary Institute of Great Britain."

A Congress shall be held by the Institute for the consideration of subjects relating to Hygiene at such times and places as the Council may direct.

Exhibitions of Sanitary Apparatus and Appliances shall be held from time to time as the Council may direct.

Fellows, Members, Associates, and Subscribers shall have the right

of Free Admission to the Exhibitions of the Institute whenever they are open. All fees payable by Exhibitors and the Public shall be fixed by the Council and belong to the Institute.

A Catalogue shall be published under the direction of the Council as a permanent record of the Exhibitions.

The Institute shall take such steps as may be within its power to obtain a complete registration of sickness, especially of preventable diseases.

The Institute shall endeavour to secure the services of medical men and others specially qualified to give lectures on subjects relating to the prevention and spread of disease.

The Institute shall encourage the formation of classes for technical instruction in Sanitary Science in such a way as may seem advisable to the Council.

A Library shall be formed in connection with the Institute.

## Sanitary Institute of Great Britain.

### ANNUAL REPORT

FOR 1880-1.

In presenting their Fourth Annual Report, the Council have to point out that during the past year the Sanitary Institute has been steadily acquiring support, and the public manifest an increasing appreciation of its labours.

The Fourth Anniversary Meeting of the Institute was held, by the kind permission of the Council of the Royal Institution, in their theatre, on July 8th, 1880. The Right Hon. Earl of Shaftesbury, K.G., Vice-President of the Sanitary Institute, occupied the chair, and presented the medals and certificates awarded to the successful exhibitors at the Exhibition at Croydon. A paper was read by Captain Douglas Galton, R.E., C.B., F.R.S., Vice-Chairman of Council, on "The Preventible Causes of Impurity in London Air." The paper was ordered to be printed for circulation.

By invitation of the Mayor and Corporation of Exeter, the Fourth Congress and Exhibition in connection with the Institute was held at Exeter, under the Presidentship of the Right Hon. Earl Fortescue. The Institute was most hospitably received by the Mayor and Corporation. The meetings of the Congress were very well attended throughout, and were reported with exceptional fulness, both by the Metropolitan and Provincial press. There was a full supply of papers, some of them of great interest, and leading to important discussions. As, however, the proceedings of the Congress have been fully reported in Volume II. of the Transactions of the Institute, it is unnecessary to refer to them at length. The Exhibition was well supported, there being 106 exhibitors and 500 exhibits. Nine prize medals and 35 certificates of merit were awarded at the close of the Exhibition, and 30 exhibits were reserved by the judges for deferred practical trial. The results of the deferred trials will be made known at the Anniversary Meeting, on July 14th, when the medals and certificates will be presented.

At the commencement of the present year the Council determined to hold Ordinary Meetings of the Institute, for the reading and discussion of papers and the delivery of lectures and addresses. At the first Meeting, February 9th, a paper was read by Mr. W. H. Michael, Q.C., F.C.S., upon "The Law in Relation to Sanitary Progress." (See Appendix, page 3.) The discussion which followed upon the reading of the paper was continued at the subsequent adjourned Ordinary Meeting of March 9th. Mr. Michael's paper, and the discussion

upon it have been printed, and will appear in the Transactions. At the Meeting on April 13th an Address was given by the Chairman of the Council, Dr. Richardson, F.R.S., entitled, "Suggestions for the Management of Cases of Small Pox and of other Infectious Diseases in the Metropolis and Large Towns." (See Appendix, page 49.) The discussion upon this important subject was continued at an adjourned Meeting held on April 27th, and had to be further adjourned to May 18th.

The Council are of opinion that valuable facilities will be afforded by means of the Ordinary Meetings for the promotion of the objects of the Institute, and they therefore trust that the Fellows and Members, and all interested in the advance of sound sanitary knowledge, and in its wider diffusion, will assist in developing the utility and interest of the Ordinary Meetings of the Institute.

Two Examinations of candidates for the Institute's certificate of competency as Local Surveyor or as Inspector of Nuisances have been held during the year, under the direction of the Council. At the Examination, in June, three candidates presented themselves for examination as Local Surveyors, and one as an Inspector of Nuisances. Two certificates of competency as Local Surveyors, and one certificate of competency as Inspector of Nuisances were granted by the Institute. At the Examination in November, seven candidates presented themselves for examination as Local Surveyors and two as Inspectors of Nuisances. Four certificates of competency as Local Surveyors, and one as Inspector of Nuisances, were granted by the Institute.

The retiring Members of Council this year are A. Haviland, M.R.C.S.; Lieut.-Col. Jones, V.C., ASSOC. M. INST. C.E.; G. Palmer, M.P.; T. Salt, Major-General H. Y. D. Scott, R.E., C.B., F.R.S., and G. Wilson, M.A., M.D. The names of the following gentlemen are submitted for election at the Annual Meeting to fill the vacancies thus created:—B. Browning, L.R.C.P., M.R.C.S., S.S.C. CERT. EDIN.; W. Collingridge, M.R.C.S., B.A., M.B., S.S.C. CERT. CAM.; H. H. Collins, F.R.I.B.A.; T. J. Dyke, F.R.C.S.; E. C. Robins, F.R.I.B.A.; H. Robinson, M. INST. C.E.

In July, the offices of the Institute were moved from Spring Gardens to the more convenient premises at 9, Conduit Street.

In the Autumn of 1880, Major McCoy resigned the Secretaryship, and Mr. E. White Wallis was elected to fill that office.

The Wyatt Edgell Prize, for an essay on "The Range of Hereditary Tendencies in Health and Disease," has not yet been awarded, owing to the amount of matter to be dealt with, and the difficulties incidental to the award, which, it is hoped, may be made prior to the Anniversary Meeting on July 14th.

As mentioned in the previous Report, the Council appointed a Committee, consisting of Captain Douglas Galton, R.E., C.B., F.R.S.; Rogers Field, B.A., M. INST. C.E.; and W. Bessie, C.E., to carry out further experiments on Cows and other automatic modes of Ventilation. Before proceeding to the experiments on the cows, the Committee decided to carry out a series of experiments to test the accuracy of the anemometers and air-meters which they required for

the trials of the cows. These experiments have been carried on continuously during the last two years. After much labour, they have proved that the corrections supplied with the instruments are not to be relied upon, and, consequently, that an entirely new set of corrections must be determined for every instrument.

Experiments with air-meters have been carried on at the Gas Works, Battle Bridge, and a special stage has been erected at Kew Observatory for the trial of the anemometers and cows.

The experiments on the anemometers and air-meters were not contemplated in the original programme of the Committee, and the unforeseen expenses which have been thereby entailed make it necessary for the Committee to ask for further subscriptions, to enable them to complete their investigation satisfactorily. Contributions may be forwarded to Mr. Rogers Field, 5, Cannon Row, Westminster, who has consented to act as Treasurer of the Special Cow Experiment Fund, which, with the approval of the Council, has been raised to meet the incidental expenses.

During the year Vol. I. and Vol. II. of the "Transactions of the Institute" have been published. Vol. I. contains an account of the proceedings of the Congress held at Croydon in 1879; and Vol. II. an account of the proceedings of the Congress held at Exeter in 1880. The Council look to the annual publication of the "Transactions of the Institute" as a great means of increasing its usefulness, by circulating the valuable papers and addresses read at the various meetings, and also preserving them for future reference.

The additions to the Library have not been very numerous; but the Council have determined upon active steps for the collection and arrangement of books relating to Sanitary Science, and have ordered a circular to be sent to the Fellows and Members inviting donations to the Library.

By order,

E. WHITE WALLIS,

*Secretary.*

9, Conduit Street, W.

May 25th, 1881.

**SANITARY INSTITUTE**  
*Abstract of Cash Receipts and Payments*

	£	s.	d.	£	s.	d.
To Balance at Bankers and in hand, 1st January, 1880 .. .. .				188	2	7
„ Fees Received:—						
Fellows .. .. .	136	10	0			
Associates .. .. .	8	8	0			
Life Members .. .. .	52	10	0			
Amission Fees .. .. .	18	18	0			
Examination Fees .. .. .	48	6	0			
				264	12	0
„ Annual Subscriptions .. .. .				176	13	7
„ Wyatt-Edgell Fund .. .. .	200	0	0			
„ Deferred Exhibits .. .. .	80	17	7			
				280	17	7
„ Cash Advanced by Chairman of the Finance Committee .. .. .				212	19	6
				£1,123	5	3

EXHIBITION

	£	s.	d.
To Balance 1st January, 1880 .. .. .	226	11	3
„ Receipts .. .. .	160	18	10
	£387	10	1

Audited and found correct with books of Institute,  
MAGNUS OIHREN, } AUDITORS.  
ERNEST TURNER, }

**OF GREAT BRITAIN.**  
*for the Year ending 31st December, 1880.*

	£	s.	d.	£	s.	d.
By Expenditure:—						
Office Furniture and Repairs ..	78	17	11			
Rent and Taxes .. .. .	43	0	2			
Salaries and Wages .. .. .	127	5	11			
Postage, Telegrams, and Carriage	69	8	1			
Petty Expenses .. .. .	34	10	4			
Stationery and Printing .. .. .	110	3	6			
Advertising .. .. .	7	3	5			
Examination Expenses .. .. .	19	12	0			
Congress Expenses .. .. .	66	15	4			
Bank charges .. .. .	0	2	7			
Quilter, Ball & Co., Accountants, 1879 accounts .. .. .	10	10	0			
Heaton & Sons, Medals, &c. ..	7	1	8			
				574	10	11
„ Balance at Bankers as per Pass Book of the Institute, December 31st, 1880, viz.:—						
Wyatt-Edgell Fund .. .. .	200	0	0			
Deferred Exhibits .. .. .	80	17	7			
On Drawing Account .. .. .	215	5	0			
				496	2	7
„ Cash in hand:—						
Cheques Paid to Bankers after the 31st December .. .. .	46	4	0			
Petty Cash .. .. .	6	7	9			
				52	11	9
				£1,123	5	3

ACCOUNT.

	£	s.	d.
By Expenditure .. .. .	105	4	2
„ Balance, as per Pass Book (Exhibition A/c)	282	5	11
	£387	10	1