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1886-7.

Sanitary Institute of Great Britain.

TRANSACTIONS, VOLUME VII.

ERRATA.

Page 36. Third Plate, Sketch No. 1: for "Intake Reservoir at Soucieu," read "Outlet Reservoir at Soucieu."

Page 37. Plate, Sketch No. 2: for "Intake Reservoir at Soucieu," read "Outlet Reservoir at Soucieu;" for "Outlet Reservoir at Brignais," read "Intake Reservoir at Brignais."



1886-7.

TRANSACTIONS

OF THE

Sanitary Institute of Great Britain.

VOLUME VIII.

CONGRESS AT YORK.

1886-7.

LONDON :

OFFICES OF THE SANITARY INSTITUTE, 74A, MARGARET STREET, W.
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1887.

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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 especially the examinations as set forth in Section II. Until a Charter

* 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.

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.

Fellows are only elected from among the Members, and they must have been Members for at least one year before they are eligible for election as Fellows.

All Fellows 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.

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.

Fellows, Members, Associates, and 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 any

Conversazione given by the Institute and Exhibitions of Sanitary Appliances held in connection with the Institute as long as they continue to pay their Subscription.

Holders of Half-Guinea Congress Tickets are entitled to the use of the Reception Room in the town of meeting, to admission to the Presidential and other Addresses, to all the Meetings, to the Exhibition of the Institute, and to any Conversazione given by the Institute.

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 preventible 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.

ANNUAL REPORT OF THE COUNCIL

FOR 1885-6.

IN presenting the Annual Report to the Fellows and Members of the Institute, the Council can look back upon nine years of continuous work and steady progress in the growth of the Institute, and in attaining the objects for which it was established.

The Financial Statement shows an improvement even upon the favourable one presented last year. This is due in a large measure to the proceeds from Dr. Farr's works and from the Exhibition, and to the fact that although the Institute is steadily increasing, very little increase has been made in the working expenses. The large item for the printing of Transactions includes the cost of two volumes. It should be mentioned that although there was a large balance in the Bank at the end of the year, various accounts for the printing and binding of Dr. Farr's Works, which had to be met early in the year, prevented the Council investing any part of this amount.

The Anniversary Meeting of the Institute was, by kind permission of the Board of Managers, held in the theatre of the Royal Institution on July 9th, 1885. The chair was taken by Sir John Lubbock, Bart., M.P., D.C.L., F.R.S., Vice-President of the Institute; and the Medals and Certificates awarded at the Exhibition at Dublin in September, 1884, were presented by him to the successful exhibitors. Prof. W. H. Corfield, M.A., M.D. (Oxon), read a paper on "The Water Supply of Ancient Roman Cities, with especial reference to Lugdunum (Lyons)," which will be published in Vol. VII. of the Transactions of the Institute.

The Annual Congress was held in Leicester, under the Presidentship of Prof. F. S. B. F. de Chaumont, M.D., F.R.S. and the meeting proved a great success.

The Local arrangements for the meeting were very well carried out, and the attendance at the Inaugural Address and some of the other meetings was larger than usual.

The Council proposed as special subjects for discussion at the meetings:—In Section I.: Infantile Diarrhoea and Small-pox repression. In Section II.: Sewerage and Sewage Treatment, and Hospital Construction; and in Section III.: The Geology of the neighbourhood of Leicester. These, and many other interesting subjects were brought forward.

The building allotted to the Exhibition was very suitable for the purpose, but a large Annexo had to be added to accommodate all the Exhibitors who applied for space.

The Exhibits shewed a decided improvement in the manufacture of Sanitary Apparatus and Appliances. Cookery lectures were given every day in the Exhibition, and also demonstrations of butter making, &c., a model dairy having been fitted up for the purpose. The Electric Light was used throughout the building, and the Exhibition proved altogether very attractive; 37,000 persons passed the turnstiles during the 17 days the Exhibition was open. There were 135 Exhibitors and about 1000 Exhibits. The Judges awarded Silver Medals, presented by the Leicester Gas Company, and by the Exeter Gas Company, 14 Bronze Medals of the Institute, 11 Special Certificates, and 62 Certificates—the Special Certificates being awarded to articles which had received Medals at previous Exhibitions of the Institute. 119 Exhibits were deferred for further practical trial and testing; the result of these trials will be reported at the Anniversary Meeting in July, when all the Medals and Certificates will be presented.

The number of Candidates for the Examinations still continues to shew a very rapid increase. At the Examination in June twenty-five Candidates presented themselves: nine for Certificates as Local Surveyors, and sixteen for Certificates as Inspectors of Nuisances. Three Candidates were certified to be competent, as regards their sanitary knowledge, to discharge the duties of Local Surveyors, and fourteen to discharge those of Inspectors of Nuisances. At the Examination in November, thirty-nine Candidates presented themselves: eleven for Local Surveyors, and twenty-eight for Inspectors of Nuisances. Two Candidates were certified to be competent to discharge the duties of Local Surveyors, and nineteen to discharge those of Inspectors of Nuisances. All unsuccessful Candidates have the option of coming up for examination a second time for one fee.

The Council are very pleased to note that the Parkes Museum has instituted, for the instruction of Sanitary Inspectors, a very valuable and well arranged course of Lectures which have been thoroughly appreciated by the Candidates coming up for the examination of the Institute, there being no other classes at which instruction is given in the duties of Inspectors of Nuisances.

The Council mentioned in the last Report that they were considering the feasibility of co-operating with the Association of Public Sanitary Inspectors, with a view to practically enlisting the interests of that Association in the work of the Examinations; but after carefully discussing the suggestions made by that Association, the Council reluctantly came to the conclusion that they could not be entertained; the negotiations have therefore terminated.

The Council have to report with much regret the death of the Right Hon. the Earl of Shaftesbury, K.G., Vice-President of the Institute, General Bartlett and Daniel Clark, Fellows; Josiah Atwool, G. Chorley, and J. Lee, Members; Joshua Dixon, Subscriber.

Since the last Annual Meeting there have been elected 17 Members and 14 Associates. The numbers on the roll of the Institute were, at the end of 1885, 95 Fellows, 209 Members, 54 Associates, 13 Subscribers, and 29 Honorary Foreign Associates: total, 400.

The retiring members of Council are: Dr. H. C. Bartlett, F.C.S.; Mr. W. R. E. Coles; Prof. T. Hayter Lewis, F.R.I.B.A.; Mr. J. E. Lingard, A.M.INST.C.E.; Magnus Ohren, A.M.INST.C.E.; and Mr. H. C. Stephens, F.L.S., F.C.S.

The following gentlemen are nominated for election at the Annual Meeting to fill the vacancies thus created: T. W. Cutler, F.R.I.B.A.; Director-General Sir Thomas Crawford, K.C.B., M.D.; Major Lamorock Flower; Baldwin Latham, M.INST.C.E.; E. C. Robins, F.S.A.; F.R.I.B.A.; and M. Ogle Tarbotton, M.INST.C.E.

The publication of an Abstract of the writings of the late Dr. William Farr, Vice-President of the Institute, was successfully completed in December last, and the value of the publication seems to have fully satisfied the expectation of all those who subscribed to the work. The Council consider that the book is a valuable addition to Sanitary literature; it should also be noted that the undertaking has proved financially successful. Six hundred and twenty copies were subscribed for besides those sold to the public; this more than

ADDRESS

BY CAPTAIN DOUGLAS GALTON, C.B., D.C.L., F.R.S.,

CHAIRMAN OF COUNCIL.

Read at the Annual Meeting, May 27th, 1886.

GENTLEMEN,—In moving the adoption of the Report, I should like to say a few words upon the present position of the Institute, in relation to sanitary progress in the country; for I hope that we are about to take an important step in further developing the objects for which the Institution was founded; and the present moment is therefore a convenient one for briefly taking stock of the progress we have so far made.

The Sanitary Institute may be said to have come into existence when there was a general awakening of the public to the necessity for improved sanitary procedure.

I look upon it that its main object was to endeavour to elevate the standard of sanitary knowledge among the public, and to create as it were an aristocracy of sanitarians.

The methods by which the Sanitary Institute seeks to secure this object, so far as its internal organization is concerned, is by making the position of Fellow obtainable only by selection from among the members at the instance of the Council; and it seeks to raise the standard of sanitary knowledge amongst the outside public by holding Congresses and Exhibitions, and by instituting Examinations for those classes of officials specially engaged in the sanitary service of the country, viz.: the Local Surveyor and the Inspector of Nuisances, by means of which to test their competency in sanitary knowledge for these appointments.

These being its objects, I think the Sanitary Institute may fairly be congratulated on having made a definite and continual progress ever since its formation, more than ten years ago; and to all who have watched its progress, it is evident that its success has been due to the fact that it has honestly and consistently kept in view the functions for which it was originally formed, viz.: to promote the advancement of Sanitary Science, and the diffusion of knowledge relating thereto.

1. Our Congresses have, year by year, increased in influence and in repute.

2. The towns who are desirous of receiving us are now numerous.

3. The volumes in which the transactions of our Congresses are recorded contain a large amount of valuable information; our publications have not been limited to these volumes; upon the suggestion of some of our most eminent members, we undertook the publication, in a condensed form, of the life work of Dr. Farr, who I think I am justified in calling the ablest sanitary statistician of this or any country. I need hardly say that that work, which has been edited by my friend Mr. Humphrey, not only does great credit to the Editor, and forms a lasting monument of Dr. Farr's eminent scientific knowledge, but it reflects its lustre upon the Sanitary Institute. I trust that we shall similarly soon arrange to publish a digest of the now scattered works of that eminent sanitarian, Mr. John Simon.

4. The Exhibitions of Sanitary Appliances, which are an integral part of our Congresses, are attaining a position of special importance. Manufacturers are anxious to obtain our certificates; and I may safely assert that these Exhibitions are so conducted as to fulfil their mission of continually improving the knowledge of the public in the principles which should govern the form and construction of sanitary appliances.

Those of the Members of the Sanitary Institute who have not been Members of the Council, can have little idea of the amount of earnest zeal and of self-sacrificing spirit which has animated those Members of Council who have performed the function of Judges of these Exhibitions, and which has led to the satisfactory results which have been attained.

The work is voluntary work; the Judges have devoted a large share of their valuable time, taken from professional occupation, to decide upon the merits of the Exhibits.

I would here desire to point out that the experience gained by the Exhibitions shows that a very important adjunct to real progress in the design of sanitary appliances would be an arrangement by which the more notable of the Exhibits of one year should be kept together, so as to be capable of being studied by all persons interested, instead of being dispersed as soon as the Exhibition is closed.

I need scarcely mention that the object of the Parkes Museum is to afford a place where valuable and new methods of the application of sanitary science to practical use may be studied by the public.

You thus see that for this reason the Parkes Museum, in this part of its work, forms a necessary adjunct to our system of

Annual Exhibitions of Sanitary Appliances. It provides the link which shows the connection between the best appliances of one year with the improvements of the next.

But I wish to point out to you that it is chiefly to the method which we have inaugurated for judging the Exhibits in each consecutive Exhibition, that we owe the high estimation in which our certificates are now held.

The great difficulty in the judging of the merits of Exhibits in consecutive Exhibitions, that is to say, of obtaining a standard of value between the articles exhibited in one Exhibition and those exhibited in another Exhibition, and between articles exhibited, and what may be called the normal condition of invention in the case of any particular article, has in other Exhibitions been due to the fact that the appointment of the Judges or Juries has been an after thought. They have generally been selected after the Exhibition has been arranged and the articles received, and they have had no voice in deciding upon the conditions under which the Exhibits have been received.

Moreover, different principles have governed the Judges, or the Juries specially selected for the occasion, in making their awards.

This difficulty we believe that we have overcome.

In our Exhibitions, the one important consideration which we have kept in mind, has been to ensure consistency in the awards of consecutive years.

The judging of the Exhibits in our Exhibitions takes place upon a continuous systematic plan. This is secured by having a permanent Committee of Judges, whose professional avocations ensure their being always in the most favoured position for acquiring a knowledge of what is the state of invention as regards the several appliances, and of how the new appliances work in practice.

This Committee, moreover, in the first place lays down the conditions upon which the Exhibits are to be received.

But whilst this permanent Committee provides for a certain uniformity in the principles upon which the awards are made, it allows at the same time sufficient elasticity to prevent the judging degenerating into mere formalism.

5. In the next place, a notable work of the Institute lies in the Examinations.

I think it may be truly said that the value of the Examinations has become, every year, more and more appreciated by the public, and their importance more and more recognised.

That this is so, has been due partly to the growing feeling amongst public bodies of the necessity of requiring a knowledge

of sanitary matters in the officers they appoint under them to supervise sanitation, and also in the care which we have taken to give the Examinations that practical character which the subject requires.

In order to effect this, the Examiners devote much care to the selection of questions, and to the conduct of the *viva voce* Examinations.

It seems certain that the Examinations provide for a real want. This is evidenced by the fact that the numbers who present themselves have increased steadily year by year, and for the approaching Examination on the 3rd and 4th June, the numbers who have entered amount to sixty-three.

The experience which the Examiners have obtained from the Examinations, and which I may say has been apparent to me in the position I have also held as Examiner in Public Health for the Universities of Oxford and London, proves that besides the opportunity for Examinations, one of the most important needs of the present time is the opportunity for studying the subjects in which we examine.

It is a very remarkable fact that although the University of London, and the Universities of Oxford and Cambridge have all instituted examinations which embrace these matters, they have not yet developed any school for teaching; and there is nowhere at the present time any systematic instruction given in practical Hygiene which is available to the general public.

I do not forget that Dr. Corfield is Professor of Hygiene at University College, and there is a Professor at King's College, and that Dr. de Chaumont is Professor of Hygiene in the Army Medical School at Netley; but there is no available public means of instruction in matters relating to Health for the large body of Surveyors, Sanitary Inspectors, and others whose actual duties are connected with Public Health.

I cannot too strongly emphasize this matter, because in the case of each Examination, the want of such a course of instruction is prominently brought to the notice of those of your members who form the Board of Examiners.

At the last Examination which we held, the number of candidates was so large, and the replies of the candidates evinced so marked an evidence of the want of opportunity among the candidates of obtaining tuition in the subjects in which we examined them, that the Board of Examiners set themselves seriously to consider how the matter could be remedied.

I have the pleasure to inform you that for the benefit of the candidates who are expected to present themselves at the Examinations which we are about to hold early in June, and

for which, as I said, sixty-three candidates have been entered, the Council of the Parkes Museum instituted a course of Lectures during this spring.

These Lectures were specially arranged by the Parkes Museum for the instruction of those desirous of obtaining knowledge required for the due performance of the duties of Sanitary Inspectors, and to suit the requirements of persons preparing for the Examinations of the Sanitary Institute of Great Britain; and they therefore comprised the subjects scheduled for the Examinations of the Sanitary Institute.

The various subjects were dealt with in a course of twelve lectures, given by well-known authorities.

1. Introductory Lecture—General History, Principles, and Methods of Hygiene.—Dr. GEORGE WILSON, M.A., F.R.S.E.
2. Ventilation, Measurement of Cubic Space, &c.—Prof. F. DE CHAUMONT, M.D., F.R.S.
3. Water Supply, Drinking Water, Pollution of Water.—Prof. W. H. CORFIELD, M.A., M.D.
4. Drainage, Construction.—Prof. H. ROBINSON, M.INST.C.E.
5. Sanitary Appliances.—Mr. W. EASSIE, C.E., F.L.S., F.G.S.
6. Scavenging and Disposal of Refuse.—Mr. H. PERCY BOULNOIS, M.INST.C.E.
7. Food, good and bad; Milk; Sale of Food and Drugs Act.—Mr. C. E. CASSAL, F.C.S., F.I.C.
8. Infectious Diseases and Methods of Disinfection.—Mr. SHIRLEY F. MURPHY, M.R.C.S.
9. General Powers and Duties of Inspectors of Nuisances.—Method of Inspection.—Mr. J. F. J. SYKES, B.Sc., M.R.C.S.
10. Nature of Nuisances, including Nuisances the Abatement of which is difficult.—Mr. J. F. J. SYKES, B.Sc., M.R.C.S.
11. Sanitary Law—General Enactments, Public Health Act, 1875; Model Bye-Laws.—Mr. A. WYNTER BLYTH, M.R.C.S., L.S.A.
12. Metropolitan Acts, Bye-Laws of Metropolitan Board of Works.—Mr. A. WYNTER BLYTH, M.R.C.S., L.S.A.

A nominal fee only, of Five Shillings for the course, was charged to cover expenses; and the Students attending the course were granted free admission to the Museum and Library of the Parkes Museum, from April 1st to June 1st.

The names of the lecturers are a sufficient guarantee to you

that the lectures were good; and it gives evidence of a public want, that sixty-five persons entered for this new and untried course of lectures, although we were enabled to give but very short notice of the holding of these lectures.

This brings up the question of the value of an examining body as apart from a teaching body.

London University is essentially an examining body, and has no teaching functions; but I am convinced that an examining body which is unconnected with any teaching institution loses much of its value; and such a body is of course quite useless as an institution for training the mind, and forming the character. But I would bring to your notice this consideration, that it is in sanitary knowledge that this question of tuition assumes paramount importance; for the teaching of the majority of subjects in which London University holds examinations, such as Latin, Greek, Mathematics, Languages, Chemistry, Physics, Geology, Music, and equally for the teaching of the majority of subjects proposed for examination in Oxford and Cambridge, there are numerous institutions affiliated or otherwise to these Universities, where students can acquire a knowledge of the subjects in which they are to be examined. But that is far from being the case in sanitary matters.

As I have already mentioned, there are no courses of practical Hygiene generally available to the student; and I know of no institution where the subject is taught practically, so as to be available for the class of persons whom we desire to benefit.

If the Sanitary Institute is to fulfil its functions of diffusing knowledge in relation to sanitary science, it must not be content with holding periodical examinations; it must develop its educational character still further, and it must afford opportunities for students to qualify themselves for these examinations by providing lectures on practical sanitation, and by furnishing laboratories for research in sanitary matters.

The experience which these first ten years of our existence has afforded us, all points to this, that without this complement of the functions which we undertook at our foundation to promote, we cannot usefully fulfil that main object of our existence, viz., the diffusion of sanitary science.

No one can read the regulations under which the Sanitary Institute was founded without seeing that its authors, in founding the Institute, held education to be its primary object.

Its Congresses, its Exhibitions, its Examinations, are all directed to that end. And there is no doubt that if we are to fulfil the objects which its original promoters had in view, we must develop a system of teaching as part of the permanent work of the Institute.

The scheme is incomplete without it.

I wish specially to point out to you that just as the Parkes Museum, in its work as a Museum, affords a complement to the Exhibition work done by the Sanitary Institute, so in the functions which the Parkes Museum is bound to perform under its Articles of Association, of spreading sanitary science by lectures, its work is complementary to that of the functions of Examination of the Sanitary Institute.

If the Parkes Museum did not exist, it would be essential to the proper development of the Sanitary Institute that a Museum of sanitary appliances should be formed under the auspices of the Institute; and that the lectures and cognate means of further instruction in practical Hygiene should be given by the Sanitary Institute.

But fortunately we have the Parkes Museum with its permanent Exhibition of apparatus, and its educational functions ready to our hand.

I therefore feel very strongly that if the Sanitary Institute is to receive the development required to enable it to fulfil its full sphere of usefulness, its association with the Parkes Museum is a necessity.

The amalgamation of the two bodies has already been consented to by a meeting of the Sanitary Institute, and I merely mention these points because I wish to impress upon all members present the fact that this amalgamation is of the highest importance in the interest of the Sanitary Institute; and that we could not properly fulfil the mission which we have undertaken without this further development.

A very little consideration will shew that, unless we are prepared to let the Sanitary Institute collapse, we cannot stand still. We must progress.

The feeling of the country in regard to sanitary matters is daily growing.

Just consider the class of legislation which has been brought forward in late years.

We had first the General Sanitary Acts.

Then Improved Rural Water Supply.

Then we had the Housing of the Poor.

Thus Parliament began twelve or fourteen years ago with legislation on general matters; but each year legislation approaches more and more to the details of sanitation.

For instance last year, in the Housing of the Working Classes Act, a clause was prepared but not passed, which threw upon the owner of every house which was to be let, whether furnished or unfurnished, the duty of putting that house into a sanitary condition, and it proposed to make the

owner responsible pecuniarily for any illness arising from defective sanitation.

That provision was not passed; but this session I observe that a Bill is about to be proposed to require that all Dwelling Houses, and especially all Public Buildings, Schools, Hotels, and establishments for the supply of food, should have their sanitary arrangements certified by some authority of recognised competence.

I do not suppose that that Bill will be passed, but I mention the fact in order to point out to you that the public mind is directed towards the enforcement of detailed provisions in sanitation, and towards increased supervision of the arrangements necessary to ensure health in our crowded communities.

In crowded localities, health depends so largely upon the details. It is often apparently from very trifling causes that the most carefully devised sanitary arrangements are upset. Dr. Carpenter told us last year how much the health of the children in the Board Schools is dependent upon adequate care in using the appliances for ventilation, in adopting properly devised seats and desks, to prevent the undue straining of the muscles of the spine, which may amongst other evils produce shortness of sight; he urges that we should provide physical exercises in all schools to counteract the evils of brain work.

This reminds me of a recent instance of how neglect of small details produces evils.

At the Asylum for Imbeciles, at Darent, there was recently an outbreak of Typhoid Fever.

The Managers called in skilled assistance to report, and it was found that the cases occurred in certain wards only: in these wards there was a peculiar smell; these wards were warmed by means of hot water pipes laid in a trough in the floor. On examining these troughs it appeared that, in sweeping the floor, dirt from the wards had fallen through the grating covering them, and collected in the trough; in these wards, filled with imbecile children, much of the dirt arose from excreta: moreover, this collection of dirt was of so foul a smell, that the workmen who cleared it out were made sick in the operation.

This is only another instance of the necessity for care in the administration of details, and of the increased vigilance which is necessitated in attention to the details in the case of every improvement which we attempt to introduce into our houses.

I might produce numerous other instances of evils resulting from the want of attention to keep valuable sanitary appliances in a healthy condition; but it would only be wasting your time to do so. What I have already said, will, I trust, have impressed

upon you that in view of the progress which Parliament is making in respect of Sanitary Legislation, and in view of the increased powers of interference and supervision in matters of domestic sanitation which Parliament is giving to Local Boards and Municipalities, it is very incumbent on us to endeavour to improve the education of the public in sanitary knowledge, and specially to ensure the possession of adequate sanitary knowledge to those who are charged by the several Local Boards and Municipalities with the duty of watching over our sanitary arrangements.

I doubt the advisability of making local authorities responsible for inspecting and certifying to the sanitary condition of houses, as suggested in the Bill to be proposed this year, and I believe the more effectual remedy for defective house sanitation would be found in the Bill of last year, which would make the house-owner liable to the person to whom he let a house, or to the persons he received into his house, for any evil arising from insanitary conditions.

But my object in mentioning this subject is to point out that the tendency of legislation is towards a more stringent interference in details, and that if such legislation is not to be mischievous, it must be accompanied by increased knowledge in sanitary matters on the part both of the persons charged with administering the Sanitary Acts, as well as of the public themselves.

This knowledge it is the mission of the Sanitary Institute to endeavour to provide.

I now beg to move that the Report read by the Secretary be approved.

Congresses held by the Institute.

LEAMINGTON, 1877.

President.

B. W. RICHARDSON, M.D., LL.D., F.R.S.

Presidents of Sections.

- Section I.—EDWIN CHADWICK, C.B.
 " II.—GEORGE WILSON, M.A., M.D., F.C.S.
 " III.—R. BRUDENELL CARTER, F.R.C.S.

STAFFORD, 1878.

President.

EDWIN CHADWICK, C.B.

Presidents of Sections.

- Section I.—B. W. RICHARDSON, M.D., LL.D., F.R.S.
 " II.—HENRY DAY, M.D., F.R.C.S.

CROYDON, 1879.

President.

B. W. RICHARDSON, M.D., LL.D., F.R.S.

Presidents of Sections.

- Section I.—ALFRED CARPENTER, M.D., M.R.C.P.Lond., C.S.S.Camb.
 " II.—CAPTAIN DOUGLAS GALTON, R.E., C.B., D.C.L., F.R.S.
 " III.—G. J. SYMONS, F.R.S.

EXETER, 1880.

President.

THE RIGHT HON. EARL FORTESCUE.

Presidents of Sections.

- Section I.—PROF. DE CHAUMONT, M.D., F.R.S.
 " II.—R. RAWLINSON, C.E., C.B.
 " III.—SIR ANTONIO BRADY.

NEWCASTLE-UPON-TYNE, 1882.

President.

CAPT. DOUGLAS GALTON, R.E., C.B., D.C.L., F.R.S.

Presidents of Sections.

- Section I.—DENIS EMBLETON, M.D., F.R.C.S.
 " II.—H. LAW, M.INST.C.E.
 " III.—ARTHUR MITCHELL, M.A., M.D., LL.D., F.R.S.

GLASGOW, 1883.

President.

PROF. G. M. HUMPHRY, M.D., F.R.S.

Presidents of Sections.

- Section I.—PROF. W. T. GAIRDNER, M.D., LL.D.
 " II.—PROF. T. ROGER SMITH, F.R.I.B.A.
 " III.—R. ANGUS SMITH, PH.D., F.C.S.

DUBLIN, 1884.

President.

SIR ROBERT RAWLINSON, C.B.

Presidents of Sections.

- Section I.—T. W. GRIMSHAW, M.A., M.D.
 " II.—C. P. COTTON, M.INST.C.E.
 " III.—CHARLES A. CAMERON, F.R.C.S.I.

LEICESTER, 1885.

President.

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

Presidents of Sections.

- Section I.—ARTHUR RANSOME, M.A., M.D., L.S.A., F.R.S.
 " II.—PERCIVAL GORDON SMITH, F.R.I.B.A.
 " III.—WILLIAM MARCET, M.D., F.R.MET.SOC., F.C.S., F.R.S.

YORK, 1886.

President.

SIR SPENCER WELLS BART.

Presidents of Sections.

- Section I.—PROF. F. DE CHAUMONT, M.D., F.R.S.
 " II.—BALDWIN LATHAM, M.INST.C.E., F.R.MET.SOC.
 " III.—WILLIAM WHITAKER, B.A., F.G.S.

The next Congress and Exhibition of the Institute
 will be held at Bolton, commencing September
 20th, 1887.

CONGRESS AT YORK.

SEPTEMBER, 1886.

PAPERS AND DISCUSSIONS.

CONGRESS AT YORK.

INTRODUCTION.

THE Ninth Congress of the Institute was held at York, from Tuesday, September 21st, to Saturday, September 25th, 1886, by the invitation of the LORD MAYOR and CORPORATION.

The Buildings placed at the disposal of the Council were commodious and well adapted for the Meetings of the Congress. The opening Address by the President, SIR SPENCER WELLS, BART., and the Lecture to the Congress by CAPTAIN DOUGLAS GALTON, were delivered in the Saloon of the Fine Art and Industrial Institution, in St. Leonards Place: the Exhibition also was held in the extensive buildings and grounds of that Institution. The Sectional Meetings were held in the Theatre of the Museum of the Philosophical Society.

The Congress opened with a Special Service at the Minster, the Sermon being preached by the VERY REV. THE DEAN OF YORK. The Members of the Congress were then received by the LORD MAYOR and CORPORATION in the Reception Room at the Fine Art Building, and the Public Luncheon, at which the LORD MAYOR presided and welcomed the Institute to the City of York, was held in the De Grey Rooms. After lunch the LORD MAYOR and CORPORATION and Members of the Congress proceeded to the Exhibition, and were conducted round the building by the JUDGES; the LORD MAYOR then pronounced the Exhibition open.

The Exhibition continued open until October 16th. There were 130 Exhibitors, and 900 Exhibits. The Judges awarded 11 Medals, 11 Special Certificates, and 56 Certificates; 42 Exhibits were deferred for further practical trial. About 30,000 people visited the Exhibition during the 23 days it was open.

The papers read to the Congress were divided into three Sections: Section 1, Sanitary Science and Preventive Medicine. Section 2, Engineering and Architecture. Section 3, Chemistry, Meteorology

and Geology. The papers and discussions in Sections 1 and 2 occupied nearly two days each. A Conference of Medical Officers of Health was held on the afternoon of the 1st day of Section 1, at which several subjects that come specially within the province of the Medical Officers were brought forward for discussion. The leading features of the Sectional Meetings and Conference are given in the Reports of the Secretaries, on page 363.

On Wednesday evening a *Conversazione* was held in the Exhibition and the adjoining rooms and Picture Galleries, which were specially arranged and decorated for the occasion.

A Breakfast was given to the Members of the Congress on Thursday morning, in the De Grey Rooms, by the National Temperance League.

Addresses to the Working Classes were given on Saturday evening in the Festival Concert Room, Museum Street, by MR. EDWARD C. ROBINS, F.R.I.B.A., DR. GEORGE VIVIAN POORE, and MR. JAMES MANSERGH, M.INST.C.E. The Chair was taken by the REV. CANON FLEMING.

An Excursion was made on Saturday afternoon to the York New Waterworks, at Acomb, by invitation of the Chairman and Directors of the Company.

Many opportunities were given to the Members to visit the numerous places of interest in the City, the DEAN, on several occasions, personally conducting the Members over the Minster and Library; the antiquarian rambles were taken through the old city under the guidance of the REV. CANON RAINE.

MR. BUCKLE, the Principal of the School for the Blind, kindly arranged a Concert by the Pupils on Saturday morning, to which the Members of the Congress were invited.

It was decided to hold the Congress of 1887 at Bolton, an invitation from the TOWN COUNCIL having been accepted during the Meeting at York.

E. WHITE WALLIS,

Secretary.

15th April, 1887.

Officers of the Congress.

PRESIDENT—SIR T. SPENCER WELLS, BART.

VICE-PRESIDENTS.

The Right Hon. the LORD MAYOR OF YORK.
The SHERIFF OF YORK.
His Grace the ARCHBISHOP OF YORK.
The Very Rev. the DEAN OF YORK.
His Grace the DUKE OF WESTMINSTER, K.G.
The Most Hon. the MARQUIS OF RIPON, K.G.
The Right Hon. the LORD WENLOCK.
The Right Hon. BARONESS BURDETT-COUTTS.
Right Hon. VISCOUNT CROSS, G.C.B.
Sir JOSEPH FAYRE, K.C.S.I., M.D., F.R.S.
Sir ROBERT RAWLINSON, O.B.
The Ven. ARCHDEACON CROSTHWAITE.
The Right Hon. and Rev. CANON LORD FORESTER.
ALFRED WATERHOUSE, R.A.
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Professor JOHN MARSHALL, F.R.S., F.R.C.S.
Professor G. M. HUMPHRY, M.D., F.R.S.
GEORGE BUCHANAN, M.D., F.R.S.
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Miss FLORENCE NIGHTINGALE.
MAJOR-GENERAL DANIEL, O.B.
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F. LOCKWOOD, Q.C., M.P.
Mr. ALDERMAN ROOKE.
Mr. ALDERMAN MELROSE, J.P.
Mr. ALDERMAN VAREY, J.P.
Mr. ALDERMAN BROWN, J.P.
Mr. ALDERMAN ROWNTREE, J.P.
Mr. ALDERMAN RICHARDSON, J.P.
Mr. ALDERMAN AGAR, J.P.
Mr. ALDERMAN T. VAREY, J.P.
Mr. ALDERMAN CLOSE, J.P.

Mr. ALDERMAN RYMER.
Mr. ALDERMAN THORP.
The Town Clerk, J. WILKINSON.
The MAYOR OF RICHMOND.
The MAYOR OF HARROGATE.
The MAYOR OF HULL.
The MAYOR OF WAKEFIELD.
The MAYOR OF SHEFFIELD.
The MAYOR OF DONCASTER.
The MAYOR OF SCARBOROUGH.
The MAYOR OF LEEDS.
The MAYOR OF HALIFAX.
The MAYOR OF RIPON.
The MAYOR OF HUDDERSFIELD.
The MAYOR OF KEIGHLEY.
The MAYOR OF PONTEFRAC.
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W. WALKER, J.P.
W. W. WILBERFORCE, J.P.
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G. WHITEHEAD, J.P.
R. BAKER, M.D.
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W. J. CLUTTON, J.P.
J. FRANCIS TAYLOR.
W. SURTEES HORNBY.
W. H. JALLAND, F.R.C.S.

LOCAL COMMITTEE.

The Right Hon. the LORD MAYOR OF YORK.
His Grace the ARCHBISHOP OF YORK.
The Most Hon. the MARQUIS OF RIPON, K.G.
The Right Hon. the LORD WENLOCK.
The Very Rev. the DEAN OF YORK.
The Sheriff of York (S. WRIGHT).
The Right Hon. and Rev. CANON LORD FORESTER.
A. E. PEASE, M.P.
F. LOCKWOOD, Q.C., M.P.
Rev. CANON FLEMING, B.D.
The Ven. ARCHDEACON CROSTHWAITE.
The Ven. ARCHDEACON WATKINS.
Rev. G. M. ARGLES.
Rev. H. LOWTHER CLARKE.
Sir F. G. MILNER, Bart.
Rev. J. E. M. YOUNG.
Hon. J. C. DUNDAS.
MAJOR-GENERAL DANIEL.
COLONEL TELFORD.
Mr. Alderman ROOKE.
Mr. Alderman MELROSE, J.P.
Mr. Alderman VAREY, J.P.
Mr. Alderman BROWN, J.P.
Mr. Alderman ROWNTREE, J.P.
Mr. Alderman AGAR, J.P.
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Mr. Alderman CLOSE, J.P.

Mr. Alderman RYMER.
Mr. Alderman THORP.
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Mr. Councillor MCKAY.
Mr. Councillor J. BROWN.
Mr. Councillor G. BROWN.
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Mr. Councillor PROCTOR.
Mr. Councillor RODWELL.
Mr. Councillor STOTT.
Mr. Councillor MATTHEWS.
Mr. Councillor MANSFIELD.
Mr. Councillor RUSSELL.
Mr. Councillor FOSTER.
Mr. Councillor CROSS.
Mr. Councillor ROTHERFORD.
Mr. Councillor HORNBY.
The Town Clerk (J. WILKINSON).
TEMPEST ANDERSON, M.D.
W. MATTERSON, M.D.
RICHARD PETCH, M.D.
G. I. SWANSON, M.D.
R. BAKER, M.D.
C. H. DUNHILL, M.D.
B. BRUCE LOW, M.D.
J. MITCHELL WILSON, M.D.

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J. F. MARSHALL, M.R.C.S.
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Dr. SPINKS, Q.C.
W. LEAK.
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S E R M O N

BY THE VERY REV. THE DEAN OF YORK.

PREACHED AT

YORK MINSTER,

September 21st, 1886.

PSALM CXIX. 97.

"Lord, what love have I unto Thy law: all the day long is my study in it."—*York Minster, September 21st, 1886, 11.30 A.M.*

So spake the Psalmist in his unlettered simplicity generations ago, meditating on the Almighty power which (he felt) produced, pervaded, and was sustaining all things, yet alike unfathomable, incomprehensible to him. Little enough could he decipher. One great first cause calling everything into being, and providing alike for the harmonious working of all the (even to him) innumerable agencies and complex mechanism. Unity of God-head, and unity of order—a grand unison in which there could be no discord, but with which all must be in harmony, subordinate to Him from whom and by whom it came.

Surely, in the words of the text, he is meditating on a law not indicated or comprised only in the Word of God, but in all which, beside that, came from Him: all the works of His hand, all that His divine fiat had ever called into existence; even as the judicious Hooker said, in after years, "A divine order exists, not in written revelation only, but in the moral relations, the historical development, and the social and political institutions of men." The Psalmist looked up to Heaven, and saw, "the work of Thy fingers, the moon and the stars which Thou hast created." He looked on atmospheric phenomena, and said, "He sendeth snow like wool, and scattereth the hoar frost like ashes."—"He casteth forth the ice like morsels: who is able to abide His frost?" He looked on the earth, and exclaimed, "Thou visitest the earth, and blessest

it, Thou makest it very plenteous"—"the fruitful land maketh He barren"—again, "He maketh the wilderness a standing water, and watersprings of a dry ground." He looked on vegetation, and continued, "The trees of the Lord also are full of sap, even the cedars of Lebanon, which He hath planted." He looked on the animal world, and said, "When Thou lettest Thy Word go forth, they shall be made"—"that Thou givest them they gather"—"Thou openest Thine hand, and fillest all things living with plenteousness"—"The lions roaring after their prey do seek their meat from God." He looked on man: "What is man," he asked, "that Thou art mindful of him, and the son of man that Thou so regardest him.—Thou madest him a little lower than the angels, to crown him with glory and worship."

One Creator, one law-giver, for the creation which He had created. It was a simple faith. It was an ignorant faith; but it was at least a logical faith. Much wiser than those who have acknowledged the first, but denied or craned at the second, severed that which he felt could not be put asunder, and so have disseminated discord and antagonism where all should be harmony and unity. In his simple creed there was no hard separation between theology and science—between moral law and natural law. To him they were one; everything part of one great whole, of which the author and director was the same.

Doubtless he had but a very superficial knowledge—had never pierced below the surface and scrutinized the arcana which lay beneath—never peered into the heavens and discovered the order which regulated the myriad stars, invisible to the unaided vision of man—never detected in the atoms and dust of earth the strange and countless organisms thereof. Doubtless he had never even imagined the innumerable conflicting theories and issues which should puzzle the minds and bewilder the brains, and delight the intellects of those who should attain to do so. But perhaps for that very reason he had formed a juster and truer apprehension than is possible for those who are enticed into the illimitable range of theory and speculation. And thus he had enunciated a great first truth which it is the part of wisdom and honesty to endeavour to keep prominently forward and not to obliterate and abandon. For if His dictum is true of the whole, it must be true of every part which is comprehended in that whole, and it is pride and blindness, not wisdom and righteousness, which would prompt us to set them at variance one with another. For man is a complex being of body, soul, and spirit; they act and re-act on each other; the spiritual life is not complete without the physical life, and *vice versa*.

Unfathomable mysteries there are indeed in the one. Are

there not in the others? Has science exhausted the arcana of creation? is there nothing left to discover? is everything unravelled? has everything been accurately demonstrated? has the book of nature been ransacked? every page opened and deciphered, and all so plain that he which runs may read it? So have some thought from the beginning. Each age has heard the triumphant cry "Eureka." Each age has heard the contemptuous condemnation of that which has gone before; the dogmas of one age have been the fallacies of the next, and the wisest intellect has shown its greatness in the humble confession of a Newton, "I am but a little child gathering a few grains of sand before the shores of eternity." Those whom God hath joined together, man in his pride has ever been endeavouring to put asunder. The ecclesiastic of old anathematised the scientist as a propounder of heresy, and the scientist of modern days is apt to deride the theologian as a mere preacher of effete and old world fables. Theological law and scientific law have been arrayed against each other as if incompatible the one with the other. The one has been exalted in indifference to or in antagonism to the other, instead of each being treated as the correlative or complement of the other; each being imperfect, impotent, and deleterious in proportion as the other is lost sight of and neglected.

Theological truth versus scientific truth—as if the one or the other must have the unquestioned supremacy if not monopoly, instead of each being but a half truth, which together make the whole truth; or each being a half law, together making that of which even the most cultured and learned mind in these days may say with the shepherd boy of Israel, "Lord, what love have I unto Thy law; all the day long is my study in it."

And men have gone astray in proportion as they have swerved from this elementary axiom. Human life in its health, for instance, to use the word in its full and therefore true comprehension and significance, depends upon the fruitful recognition and harmonious dealing with both.

On the one hand, theology, however sure its grasp, however deep its perception, cannot suffice. It is only the half law and cannot do all. How often in the history of the past has the pestilence been recognised as a Divine chastisement for moral or spiritual shortcoming, and the remedy sought only in penitential prostrations and prayers?

And truly so, for we are distinctly told that pestilence is one of the scourges in the Divine hand for human punishment; and effectually so, for scoff and mock as people may at God at other times, nothing begets or stimulates serious thought so much as a widespread epidemic.

But what is this chastisement? No extraordinary visitation of God. Simply people experiencing the natural and necessary consequence of their infraction or neglect of the physical-half law, and, in the misery and death resulting therefrom, being taught what perhaps they would not be so ready to perceive or admit—nay, that which they are obstinately resisting and refusing to acknowledge—the as certain evil consequences resulting from neglect of the spiritual-half law, and that thus they may be led to keep the whole law. And the supreme Orderer and Controller of all things, no doubt, suffers them to become involved therein, in order that it may be, as it were, a parable to convince them of what they are so slow and so reluctant to understand.

God forbid that man should ever ignore such teaching. But the whole remedy is not only spiritual but scientific too. Not only penitence and prayer and amendment of the spiritual life, but cleanliness and drainage and increased and improved sanitary appliances. Not strange incongruous duties, but each forming part of complete obedience to the same law. Not different unconnected laws, with no harmony or coherence between them. And who shall say that answer to prayer and penitence is not given by greater attention to and clearer perception of these things. We are quite right in regarding a pestilence as God's visitation, but we have no right to think that He will only take it away by some special act of His providence in answer to prayer, when He has implanted in us faculties to perceive and capacities to use, powers which He has provided for that purpose, and, by the successful use of which, we may look to Him to guide and bless those who, in faith and humility, seek His direction and help.

It is God's will, indeed, that we should be spiritual, but not only spiritual beings. He has implanted in us capacities for an earthly as well as a spiritual life. And as long as we are here, means us to use them both. It is not enough to be, however, good and holy and humble, we must be practical. We must in this, as in everything else, be fellow-workers together with Him. He will enlighten and guide us. But we must not sit with folded hands. No, nor bow the head like a bull-rush. Nor ever say with Eli, "It is the Lord, let Him do what seemeth Him good."

And so, on the other hand, it is but a biased prejudiced and imperfect apprehension which under similar circumstances, ignores and ridicules all spiritual significance, and regards things simply from their physical and scientific aspect.

To consider religion with disease pestilence and epidemic is, to some, to mix up things which have no connection.

Defective water supply, insufficient drainage, neglect of

ordinary precautions, scamped workmanship, ignorant design. These are the causes, and the remedy is not far to find: money, engineering skill, scientific and medical talent.

True; but, even if successful, all is not done. "Salus populi suprema lex." True enough; but a sanitary people, and a cleanly people, are not therefore, as a matter of course, a happy people. There are evils besetting us which no perfection of drainage will remove. There are troubles affecting us which the purest water supply cannot wash away, and cravings which the most sparkling streams cannot supply. When "Salutland," of which Dr. Richardson spoke, has been established, even then heavy heads and aching hearts will not cease. Existence, even if thereby lengthened, according to his opinion, to a hundred years, will become a burden in spite of the most complete and sanitary precautions in the world. Moreover, I venture to assert that definite religious principle and active religious practice have a great deal to do with the performance of sanitary duties as regards ourselves personally, and the maintenance or development of them amongst men. Something more than mere self-preservation is needed for the one, and pecuniary interest, or fear of the penalties of human law, for the other.

As regards ourselves, our bodies, as well as our Spirits, are God's; and if He has shewn His care for the former as well as the latter, who are we that we should, from any motives of mental indolence or distorted spirituality, disregard them. "Cleanliness is next to Godliness," says the old proverb. I am bold to say more than that, viz., that cleanliness is part of Godliness; and if religion is knowing and keeping God's law, to set that law at defiance, or to ignore it in one part, is as culpable as in another. There can be no consistent cultivation of the one with any conscious or intentional disregard of the other; and to attend to all that reasonably concerns and promotes the health of our bodies, is as much a religious duty as the same attention to our souls. The old theory that the opposite to this was an evidence of sanctity has been long ago exploded, but we have not as yet arrived at the true converse. To rush to the other extreme and to pamper the body, and indulge in everything which panders to selfishness and sensuality, is not the true converse but the abuse thereof. At any rate, until people realize that dirty habits and neglect of healthful practices are as much sins of commission and omission as anything else, they will never give them the attention which they deserve, which cannot be enforced by law, and which are so easily evaded.

And if so as regards ourselves, how about others? Those

intentional neglects, those deliberate offences against the health of the people, to which so much sickness, misery, and death are due? Plain duties evaded, work purposely scamped and rendered inefficient and worse, people suffered knowingly to live without the most necessary requirements, and under influences which cannot but cause miasma, or kindle, or spread, or aggravate disease, debility, and wretchedness.

Human law has done and is doing much to expose, condemn, and remedy such execrable practices, and, in my humble opinion, no punishment can be too great, no penalty can be too heavy, for those who from some contemptible consideration of greed, or from some wretched indolence, are the cause of these evils to poor and often helpless people. But human law can always be thwarted and evaded, and legal consequences never appeal to or call out the best attributes of our nature. Such a sentiment may be deemed visionary and unpractical outside, but here I venture to put this on a religious basis, and to repeat that, until the human conscience is quickened to feel that such proceedings are deliberate sins against God, for which no amount of Church going, or Chapel going, or religious profession of any sort can compensate, men will not forego the paltry profits which can be gained therefrom, or exert themselves to deliver those who are languishing silently and perhaps unconsciously from them.

But if this is so, mere recognition of and assent thereto is not enough. Nor the assumption that the principle, once admitted, can be easily carried out. God's law is complex, delicate, subtle, and, therefore, to comprehend it, demands continuous and careful attention, or as the Psalmist expresses it, "All the day long is my study in it." Half knowledge is perhaps more detrimental and contemptible than utter ignorance; and while we smile at the ridiculous bravado of Alphonso of Castile, in the 13th century, mathematician and astronomer, who declared "that he could have devised a better way of ordering the movements of the celestial bodies," a similar superficial grasp of a subject is still lurking abroad, and is at the root of half the evils that beset the physical condition of man.

That condition is always altering, developing if you like it. Man's personal wants and habits, his social position with his fellows, must alter according as the means and circumstances of his life alter by the inventions and culture of men.

Man is, personally, the same animal that he was at the creation; but his surroundings and requirements, his enjoyments and acquirements have varied, and will continue to vary with each succeeding generation, and the attention thereunto must, in like manner, be progressive. The usages and customs which sufficed for our forefathers would be distasteful if not

disgusting to us, nay, the sufficiency of yesterday is almost effete to-day.

Moreover, advancing science each day succeeds more and more in tracing effects to their cause, and bringing to light that which has been heretofore enveloped in darkness. That which was vague and mysterious but lately, now is so plain that he which runs may read it. The subtlest poisons are detected now lurking in the simplest substances; and latent, unsuspected chemical changes, developing active agents of mischief to human life, are discovered and demonstrated.

How many errors have been exposed, how many strange paradoxes satisfactorily reconciled? We are tempted to smile at the simple ignorance—the clumsy expedients of our ancestors.

But more (how much more) remains to be unravelled? and to keep pace with the ever-changing progress of men, men must be ever examining, ever learning, ever designing, ever holding communion with men like-minded with themselves in that wide and unrestricted intercourse which has become possible, from which larger and clearer views may be acquired, vexed questions sifted and ventilated, and conclusions arrived at, instinct with valuable results for the present, and pregnant with beneficent issues for the future.

But what are you doing herein? Are you thus unravelling a fortuitous web—A skein evolved of itself by some spontaneous generation, entangled by hap-hazard, the product of mere chance? Or are you forcing the barred doors of nature's treasures and rifling her secrets against her will—convicting her of mismanagement, and intending to undertake the management thereof for the future yourselves?

Or are you engaged in a siege, in which, by sap and mine and persistent struggle, you are advancing upon a citadel which your own increasing strength and cunning shall enable you to master, "vi et armis," in spite of all opposition? Or are you advancing along a track, the doors of which, one by one, an Almighty hand has, as it has seemed good to Him, been opening to you, without whose pleasure you would have been baffled for ever, whose finger is even now leading and directing you which way you should go, and how far and how fast you should go along it.

We have lately read, with pleasure and gratitude, the devout acknowledgment of the Divine Author of Nature, uttered by Sir William Dawson in his opening address at the meeting of the British Association at Birmingham,—“The vastness and the might of ocean, and the manner in which it cherishes the feeblest and the most fragile beings alike, speak to us of Him who holds it in the hollow of His hand, and gave to it of old

its boundaries and its laws." And, as you trace out the conflicting theories, and reconcile seemingly irreconcilable paradoxes; as vague and indefinite processes assume form and purpose, range themselves in order and become elements of a law, mysterious sometimes, but nevertheless distinct, reasonable, efficient; a law which you can demonstrate and define. Do they not indicate a law-giver? One to whom you can say, as you recognise the aim and discover the end thereof, "Lord, what love have I unto Thy law, all day long is my study in it."

Yes, and will you not go one step further, and acknowledge yourselves as "good stewards of the manifold grace of God." Yea, it is a high honour to be the exponent to others of what God has revealed to you. It is a blessed stewardship to be made the agents of imparting to others that which so largely and so intimately concerns the welfare and comfort of their life here.

Homes rendered healthy by the removal or prevention of all that creates miasma, or defiles the "breath of life," by the inculcation of the importance of the habits of cleanliness and order; and these habits rendered possible by the power of demonstration and conviction, causing them to be adopted and practised.

Healthy development of mind and body promoted, the infirmities thereof supported, the sickness thereof mitigated. All that now, unnecessarily, blights humanity, produces squalid forms, pale faces, and debilitated frames, abolished. Men, women, and children rising up and calling you blessed—hailing you as, under God, their deliverers "from the pestilence which walketh in darkness, and from the sickness which destroyeth in the noon-day."

And so we wish you God speed in this your happy work. So we join hands here to-day—men of science and men of theology.

The law which we preach and you lecture, which we proclaim from the pulpit, and you propound from the rostrum, is one. The phases different, the applications diverse, but the source the same, and the ends thereof not antagonistic to nor independent of each other, but identical, viz., the health of that complex being of body, soul and spirit, whom we call man.

INAUGURAL ADDRESS

Delivered 21st Sept., 1886,

BY SIR T. SPENCER WELLS, BART., F.R.C.S.,

PRESIDENT OF THE CONGRESS.

I HESITATED for several days before complying with the flattering proposal of the Council of the Sanitary Institute to fill the honourable position of President of this year's Congress, and to address you this evening. Although a worker in collateral Science and Art, I could not presume to appear before a meeting of sanitary experts as an instructor, and I must beg you while listening to me to consider that we are all engaged in making a joint effort to draw general attention to questions of vital importance to the public health, to diffuse information, to get the people to take an intelligent interest in sanitary matters, and to bring the governing powers into a disposition to give more effectual help in carrying out such reforms as are proved to be necessary by scientific investigators. With the feeling that this is our mutual relation I may proceed, and if I trouble you with the reiteration of some truisms, and the citation of facts already well known to many of you, I trust you will be patient with me in the hope that some of the seed which may be sown broadcast to-night may fall upon fruitful soil; and, if good, may so multiply that it may be sown again and again by others, and in good time influence the multitude.

A great deal of what, if I had time, I should like to say to-night has been already said by one or other of my predecessors in this chair. Richardson, one of the foremost of our sanitary reformers, began by an account of his researches and experiments on the origin of spreading or communicable diseases, and followed by displaying his popular "Ideal of a healthy people." He was, perhaps, the first to make generally known the grounds upon which Owen and Flourens calculated

that threescore years and ten, or fourscore years, should not be the extreme limit of human life; but that old age only begins at 70 years, mellowing down to a ripe old age at 85, and that the natural duration of human life, under perfectly healthy surroundings, ought to be 100 years, and might be occasionally carried on some fifteen or twenty years more. Chadwick, our revered Vice-President, eight years ago, though then almost an octogenarian, showed that he was as exact and earnest as he had always been in the sanitary work to which he has devoted his useful and honoured life. Even now, though approaching his ninetieth year, he still stimulates his juniors by his bright example. Before the end of this year two volumes of his works, speeches, and letters, edited by Dr. Richardson, will be published, and will be prized as the foundation of scientific sanitation, and as a valuable contribution to the history of our own time. Lord Fortescue, who for more than forty years has laboured in the cause of public health with a zeal which involved personal sacrifice, treated sanitary reform in this country in its administrative and legislative aspects. Galton, distinguished in the army as an officer of the Royal Engineers, and not less so in the Royal Society and in civil life, proved that his powers were equal to the wide range of the subjects before us. Then Humphry, honoured alike as practical surgeon and Cambridge Professor, enlightened us by his knowledge of many things which prevent the development of the human body, and lead to disease and too-early death. Rawlinson taught us what sanitary engineers can do by a better system of sewerage, drainage, and water-supply, in preventing sickness and prolonging life. He well said, "The strength and glory of a nation is not in standing armies and ironclad fleets, but in the health, well-being, and contentment of the people." And last year de Chaumont, with extraordinary exactness and minuteness, detailed statistical evidence of the effects of sanitary modifications of many conditions which affect the health of all classes of the population. In the hope that we may assist in the advancement of the grand object which animated these great men, and following the course cleared by them, it now remains for us to consider how sanitary improvements may be carried on still further by the co-operation of investigators, legislators, and administrators.

Any great sanitary improvement of the community must be the result of elaborate co-operation. We must have the combined action of the three great classes of investigators, legislators, and administrators, before we can effect any good result. And if we regard sanitary reform in these three aspects, we find that a great deal of the work of investigation

has been done, and that the work of legislation is lamentably deficient; while the work of administration cannot advance beyond the limits of legislation.

As regards the work of investigation, we may safely assert that it has hitherto been for the most part personal, and that the waste of labour has been enormous. It is only of late that this Institute has come to its aid. Three-fourths of the fifty years that Southwood Smith, Chadwick, Farr, and Trevelyan were at work, they were well-nigh single-handed. Perhaps the foundation of such a body as the Sanitary Institute may be enough for them to be proud of; but more must follow, and it is to be hoped that before long we shall have, for the sake of life and health, an organisation as powerful as that which protects our property and our liberties. The Institute must develop into something grander and more powerful. The Colleges of Physicians and Surgeons have done and are doing much useful work; but the work is done more for the individual than the collective good. Without interfering with them—rather aiding them—why should we not have a College of Health—a College which would show our appreciation of the gift of life and our reverence for the Giver?

But, turning back for a moment, let us glance at what the advanced guards of sanitary science have already accomplished. It is bare justice to them from time to time to recount their services, and while we are encouraged by their success, we shall learn what remains for us to do. We have only to look carefully into the memorial volume of selections from the reports and writings of William Farr, published by the Council of this Institute, at the suggestion of Dr. Gairdner, to find a revelation of the mass of ignorance, prejudice, and folly which our early reformers had to expose, and of the variety and extent of their labours. It is a record which is honourable to all, and to him whose writings it enshrines it may serve as a monument more eloquent and touching than any brass or marble. What did we know of Vital Statistics fifty years ago? It was in 1837 that our Registration Act came into operation, and certainly no one could have more ably worked it or turned it to better purpose than Farr. It was from his Reports that it first became generally known that our death-rate was too high. We now know that the measures indicated, and taken as necessary to lessen mortality, have been so effectual that a large part of the gain of twenty years in the average duration of life in this country since the beginning of this century may be claimed for the registration period; and there can be little doubt that, if the provisions of the Registration Act were more strictly enforced, the prolongation of life would

be greater. Very few even of those well informed in sanitary matters are aware of the large proportion of the population now buried without the cause of death being properly certified. When Dr. Cameron introduced the "Disposal of the Dead Regulation Bill" in the House of Commons, in 1884, he showed that in England and Wales, more than 20,000 bodies in a single year were buried without any certificate whatever of the cause of death. In Ireland, there were more than 4,000 burials under the same circumstances, while in Scotland, in no fewer than 20 per cent. of the total number of deaths registered, the causes of death were uncertified. Even in Glasgow, not less than 9 per cent. of the total number of persons who died in that city in 1882 were buried without any certificate of the cause of death. Having learned the important results obtained by what we must confess to have been very imperfect registration, I desire in the strongest manner to urge attention to the necessity for more strict observance of the provisions of the Act by the public; and for more careful and accurate certificates from members of my own profession—a profession ever ready freely to assist the State when asked for information on any question affecting the public health and welfare.

Since our last meeting one of Farr's fellow-workers—a veteran reformer—has passed away. The name of Sir Charles Trevelyan will at once recur to you, and with it the thought of the vast amount of good he was able to accomplish. The principle underlying all his efforts—that of helping the poor to help themselves—is the right one. He knew that without health they could never succeed, and one of his main objects was to secure health for them in the least objectionable way. The President of the Metropolitan Provident Medical Association will give you some interesting details on this subject in a day or two.

When we speak of the prolongation of life, we think chiefly of the advantage to individuals, their better health, and their augmented power of enjoyment. This is a great deal. But it means more for the State. It may sound well to declaim against the money view of the subject as low and sordid; but it is not to be overlooked when we are apportioning merit for work done. A donation to the community of two or three millions would be looked upon as an extravagance. But what is the fact? During the forty-nine years that registration has been in force, and sanitary reforms have advanced with its annually increased information, about eight millions of people have been added to the population of the United Kingdom. We may fairly credit our reforms with a large proportion of this increase in numbers, and consequently of their money

value. The result on human happiness is not a matter of calculation, but a future industrial census will show in a very definite shape the effect of sanitation in raising the economic value of the population.

How much of this gain is due to the active and useful work of pure sanitation, and how much to medical and surgical work, it is unnecessary for me to discuss; but it would be a censurable omission on my part if I neglected to allude to the coincident progress made in the science and art of medicine and surgery. It would be easy to tabulate figures showing how the mortality of small-pox has been diminished by more universal vaccination; how hospital mortality in general, and in a number of different diseases, has been diminished, especially since the use of antiseptics, and by the improved methods of performing various surgical operations. I must not go into such details and statistics here, but I do claim for the medical profession of this country a considerable share in the gain to the State of increasing numbers of more healthy subjects. We cannot be far wrong if we put the average duration of human life in Great Britain half a century ago at about 30 years; now, according to the healthy life table, it is 49 years. The population in less than 50 years increased, as I have said, by some eight millions. Each individual of these millions was worth to the State, as is calculated, about £150. Say that only two millions out of the eight millions of increased numbers were the fruit of sanitary and medical work, their economical value was at least 300 millions of pounds, and that a clear gain. To this we must add that the productive powers of the population depend on labour, and that labour depends upon health. Let sickness come, men are disabled, their labour ceases, and the produce of labour is lost. Formerly it was calculated that a twenty-third part of the population was constantly sick, and the products of all that labour for the time necessarily withdrawn. A great deal of this sickness has been altogether prevented, and the duration of that which comes in spite of sanitation is lessened. Happily did Richardson give form and expression to the proverb, "National Health is National Wealth!" and well may Froude follow with his paraphrase, "The *Commonwealth* is the *Common health*, the common wellness," and add "No nation can prosper long which attaches to its *wealth* any other meaning."

Since the formation of the Sanitary Institute, although the progress of sanitary science has not been as rapid as we desire, yet its advances have been more readily measured. The annual meetings, the presidential and sectional addresses, and the papers read in the sections, have brought important

movements under notice; and as the Congress migrates yearly to new places, its information becomes more varied and trustworthy. We gather assurance of the generally improved moral and physical condition of the people. We find that infant mortality is lower; that education becomes more satisfactory as the principles upon which it should be conducted are better understood; that those who work are better paid, get wholesomer food, and dwelling-places more fit for human habitation. Increasing intelligence has given a claim to political rights, and developed an interest in political questions. Thrift is more common, and savings banks more used. It is barely 50 years since the general introduction of savings banks; yet by the last returns more than 45 millions of money stand to the credit of depositors in these trustee banks—while in the Post Office Savings Bank, only established in 1861, more than 44 millions belong to the industrial classes of the United Kingdom. Thus a total of more than 90 millions now represents the results of the thrift of the people during the past half-century. And co-operative associations show more and more, year after year, how well and quickly, when men begin to learn that life and health are worth looking after, they find out the means of taking care of themselves and of their material interests; and I think I am not going too far when I say that this Institute may be congratulated upon the success of what it has done towards the recent diminution of drunkenness and crime.

With all this encouragement we may look hopefully to the future, and consider what are the most pressing subjects of inquiry, and which is the way of conducting our investigations that gives the greatest promise of success. The field is vast, but, as we have seen, it is not impenetrable; and obstacles are sure to yield to steady and well-directed attack. Facing the difficulties, what is our attitude? Our representative meeting here manifests that we are numerous; our Institute shows a certain amount of aggregated working power; but it is more a nucleus than a complete organisation. It may be effective as an investigating, deliberative, consulting, and examining body, but it has no directorial power, no agency for carrying out practically the measures which its collective wisdom has indicated. Crowds of sanitary volunteers hover about it, and make desultory attacks upon weak points, often with much waste of energy. "What we want is a central power," as Lord Brabazon wrote last month in the *Times* (August 30), "which shall regulate and control local action, so that no town or locality shall be able to neglect the public health, or, in endeavouring to purify itself, shall poison its neighbour. We

want a power which shall take a bird's-eye view of the whole question, and work not for the good of one locality only, but for the good of all." This is what we want, and what we must have some day. But, while we are waiting, an interim organisation of deliberative and administrative agency should be set up, as if a Ministry of Health were in power. The Local Government Board, too, with all its official completeness, like ourselves, may recommend, but cannot command. There seems to be a link missing between the knowledge of what is right and the power to apply it. This link is a Minister of Health. We have now only the elements of the organisation which I suggest; its formation is matter for consultation and arrangement, and probably might be accomplished without much delay. In the meantime, what are we to do? The last generation has done so much with means less efficient than we have at command, that we ought to do more than emulate the past. This Institute, united with the Parkes Museum, is bound, in my opinion, to induce all the others to make not only common cause, but joint action; or, failing in this effort, it may, by increased activity, in a short time cover the ground which they now occupy. This would at once make plain the folly and waste of division. This process of amalgamation has already begun by the union of the Parkes Museum with our Institute. The National Health Society, the Ladies' Sanitary Association, the Cremation Society, the Smoke Abatement Institution, and others of a like kind must follow; while such societies as that of the "Medical Men qualified in Sanitary Science," and the "Society of Medical Officers of Health," would find themselves more fitly placed and more usefully employed as sections of one united body than they now are. The Conference of Medical Officers of Health to be held to-morrow afternoon is, I trust, the beginning of a closer union between this important class of officers and the Sanitary Institute.

The active working of such a large group of philanthropic societies shows how constantly the interest in all sorts of sanitary measures has been increasing during the last twenty years, and how much it has been in the power of such feebly-supported societies to do. The official lists of names connected with them proves that there is nothing narrow nor sectarian in the way the work is carried on. And in calling to mind the beneficent influence that has been exercised by the Society of Arts through their publications and exhibitions, by the National Health Society through their pamphlets and popular lectures, by the homely instructions and friendly visitations of the Ladies' Sanitary Association, by the manifestation of sympathy of class with class in the efforts made to secure recreation grounds

and open-air spaces, so striking to every one who walks along our streets and suburbs, and by the greater comfort which our smoke abators have secured for forced town-dwellers, we ought to make grateful recognition of so much useful service. Our great effort at present ought to be the concentration of working power and its economical direction. With this object attained, it will not be difficult to explain the motives for special contributions, and to collect them from a public which seldom turns a deaf ear when appealed to rationally. There are many investigations which require much time, which cannot be conducted by individuals, and which are costly. The Institute, with adequate funds, could form its commissions, send out its health challengers, have its own laboratories, museums, deliberative councils, exponents, and consultants—and all this not interfering with, but rather in aid of, recognised privileges or established authorities. If money enough were forthcoming, more than I have suggested could be done, and I cannot believe that we shall fail simply for want of money. Take the sum total of all the subscriptions and donations received by the whole group of Sanitary Societies, and how very small it is compared with the amounts thrown away daily upon the most trivial objects, and with the many millions of pounds worse than thrown away in unjustifiable wars! It is not the least of the gain we hope for after each Congress, that more direct and repeated enforcement of the conviction that individual advantage is bound up with all that improves the national health, will lead to more thoughtful discrimination, and more liberal support of worthy objects—that new labourers may be called into the field—that the old hands may be invigorated—and that wealthy philanthropists, who justly value their money by the amount of good they can do with it, may learn how, by an expenditure insignificant to them, an incalculable amount of good may be done, and how easily they may assist in the efforts to make our people healthier and happier, wiser and better. In this country the most brilliant instance of what I mean is the munificent legacy of Erasmus Wilson to the College of Surgeons, amounting to nearly £200,000. In America, a citizen of Baltimore has endowed that city with a University and Hospital by a bequest amounting to nearly a million and a half of our money. In New York, the Medical School of the Bellevue Hospital has been presented, by a wealthy inhabitant, with a pathological laboratory; and the College of Physicians has been provided with new buildings affording the best means of teaching and research, at a cost of £200,000 by Mr. Vanderbilt and members of his family; while an unknown donor has endowed a laboratory for the University Medical

College of the same city with the sum of £20,000. Well might my dear old friend Fordyce Barker last year, in his retiring address as President of the New York Academy of Medicine, rejoice in this growing tendency to regard wealth as a "trust to be used for the benefit of humanity," and we may join with him in the belief that an endowment of at least a million of dollars will be provided by some of his wealthy fellow-citizens so as to complete the requirements of an Academy of Medicine on a scale never yet attained on this side of the Atlantic. Such examples as these are pleasing evidence that, although this is said to be an age of machinery, of money getting, of selfish indulgence, of thoughtless waste, still it is an age in which men are not wanting who have proved that they well understand the responsibility entailed upon them by their riches—whether derived from their ancestors or gained by their own successful labours—and who can find their truest satisfaction and reward in endeavours to benefit their fellow-men and in the exercise of a careful foresight, so that the good they do may be continued and increase as time goes on.

In studying the various subjects to which the Institute has given attention, and the investigation of which it is still prosecuting, they may be conveniently arranged into five groups: 1, those which relate to the training and health of the population; 2, to their social comfort and well-being; 3, to the prevention of disease; 4, to the care of the sick; and, lastly, those relating to the disposal of human refuse and remains. Impossible as it is even to recall those subjects to your minds, there are a few points upon which I cannot refrain from a word or two of comment.

1. So far as concerns the mental and physical training of children, and giving women the option of other occupations than those of domestic life, I see no great cause for alarm. It is an age in which education—at any rate for the middle classes—must be pushed far beyond the limits which our fathers thought wide enough for us. Mere rule-of-thumb work is almost out of date, and there are so many industries in which scientific knowledge and exactness are requisite, that the want of early education cuts off a young man's chances of advancement. To engage in most of the recent applications of steam-power, electricity, magnetism, and chemistry—to be available in carrying out the complexities of engineering science—a workman must be something more than a mere machine. He must have head as well as hands—brain as well as muscle; and as uneducated brains are not worth more in the labour market than untrained muscle, we must be content to make some sacrifice in the culture. While we pity the few who

fall in the struggle, we must remember that there is no chance for those who stand still.

As for the outcry about the dangers from women taking up men's work, it is breath wasted. A great many failures will outweigh a few successes, and bring the balance right. For my own part I think women capable of a great deal more than they have been accustomed to do in times past. "To suckle fools and chronicle small beer" surely cannot be the chief end of woman. If overwork sometimes leads to disease, it is more morally wholesome to work into it than to lounge into it. And if some medical practitioners have occasionally observed cases where mental over-strain has led to disease of mind or body, I cannot deny that I also have at long intervals seen some such cases. But for every such example I feel quite sure that I have seen at least twenty where evils equally to be deplored are caused in young women by want of mental occupation, by deficient exercise, too luxurious living, and too much amusement or excitement. After marriage, the domestic duties which are the pride and happiness of most English women keep the great majority of them free from the very slightest desire to encroach upon any part of the work or occupations of men. A few exceptionally gifted individuals may rival their fathers, husbands, and brothers in music, the fine arts, or literature; and I know no one who would seek to discourage them. If some of them, and if even a larger proportion of unmarried women, chose to struggle for success in one or more of the learned professions, or in political life, while I for one should not be at all disposed to oppose them, I cannot regard the attainment of their object in large numbers as likely; or, if secured, without grave apprehension of serious evils. The training of the young, and education, specially in its early stages, always has been in the hands of women, and is better left there. If they do this work well, I can hardly imagine a higher or wider sphere of usefulness. As to the women of the middle classes, if we were to see them in this country doing, as many of them do in France, the work of the men, it might not do any harm to the women, but it would probably lead to the multiplication of a class of idle, intemperate, dissolute men. I still hope that, in our own land, man will ever work for woman, and woman ever be the solace and comfort of man, his good spirit, his better self,—*"mein guter Geist, mein besseres Ich."*

Again, we have heard of late much about over-pressure from work in schools. This is one of the novelties of our time. No doubt it exists, and I think that it may in part be traced to some of our sanitary success. We have reduced the mortality of early infancy. Many children who would formerly

have died off hand are now saved, and find their way into the schools. They are the survivals of the least fitted. They live, but they are not strong; not so strong as the average. They have to submit to the same routine, and to be forced up, if possible, to the same standard as the rest. But the effort is too much for them. Their frames are not hardy enough to resist the mental strain. They show all sorts of nerve symptoms, disappoint the teachers, and are the types brought forward as victims of the system. The vice of the system is that it is indiscriminate. There is no revision of the recruits, and the tasks are not apportioned to the feeble powers of sanitary survivors. This is an evil which will remedy itself in time by the growing up of a larger proportion of strong children, and the present difficulty may be got over by a little patience and moderation—a little more regard to sanitary logic. The children must have training before education, and must be put upon something even less than a half-time system.

2. Of the many things which affect our comfort and well-being, some are national, some local, some residential. One of the most potent means of influencing the sanitary condition of a country is the judicious regulation of its forests. In Great Britain the Government all but ignores the subject of Forestry. There is no school for teaching the science. Every proprietor is obliged to shift for himself, or to seek foreign help. And yet by looking at the state of things in Upper India, Palestine, and Russia, we may see what mismanagement leads to. Almost everywhere, man's ignorance and recklessness has worked evil by destruction of the forests. He has deteriorated the condition of the climate, taken away the productiveness of the soil, brought on famine and pestilence. We are not suffering to this extent. But negligence and mischief are inseparable, and to urge measures for the preservation of any climatic advantages we may still have, and the restoration of those we have lost, is assuredly work pertaining to a Sanitary Institute. My friend, Dr. Lyons, when in the House of Commons, did good service in pressing the importance of tree-planting, especially in Ireland, upon the attention of the Government. Unfortunately, he is no longer a Member of Parliament; but he still continues his efforts to prove that by well-directed management the whole of the timber and forest products now obtained from abroad, at an annual cost of some 32 millions sterling, might in time be furnished by our own land and labour, and that this economy would be attended by no less desirable changes in some of our climatic conditions.

Passing from national forestry to public gardening, I should like to say a good deal about the planting of trees in our towns,

the improvements in street architecture, and the formation and better arrangements of open-air spaces for exercise and enjoyment; but this part of the subject will be treated by Lord Brabazon in one of the sections, and is certain to lead to an interesting discussion. If I were to enter upon the wide field of the residential influences which influence our health and comfort I should detain you till midnight. And I must pass on, although the ventilation of our houses, school-rooms, and places for public meetings and amusements is a very tempting theme. But this also will lead, I trust, to discussion before the Congress closes.

3. In preventive medicine, the great event of the year has been the publication of Pasteur's views on hydrophobia, and his treatment of it by inoculation. I must not anticipate the reports of Commissions still sitting; but, in connection with what I have previously said, it is worth bearing in mind that, astonishing as Pasteur's own personal work has been, he has all the way through been adequately seconded. He has found means and material forthcoming, suitable accommodation has been provided for his investigations, he has been buoyed up by judicious encouragement, and he has never been obstructed by legislative impediments. He has been a benefactor to his country and to the world in many ways, and his services have met with a just recognition. But we must not be too sanguine, form unreasonable expectations, nor jump to irrational conclusions. As he himself wisely says, in speaking of his attempts to neutralise the poison of hydrophobia, we must wait and see the results of what has been done before we can test the value of the practice. I accept the principle upon which he acts, and believe that those who are following his lead may outrival him in the good they confer upon mankind. We have made a great step in advance, and I can see that, before long, time will reveal to us in unexpected ways the importance of what has already been done. Unanimity of opinion upon questions still in the hands of experimenters need not be looked for, but we must all admit that in the cosmopolitan movement for the erection of Pasteur's hospital and laboratories we have another proof of what I have before insisted upon, that help is sure to be given upon the evidence of good work to be done.

Not content with endeavouring to prevent the spread of infective and contagious diseases, some of my friends think we should aim at their complete extinction. And if due and complete notification of every case of such disease could be ensured, and its specific germs limited in action to any particular locality, and the sick were properly isolated—in some cases subjected to specific treatment, or to inoculation—and all germs and germ-

carrying material within reach were destroyed by fire—then, so long as all these precautions were observed in any district, its safety might almost be guaranteed. But until the time arrives when there will be a universal attempt to stamp out specific diseases, infective material will be always hovering somewhere around us and making incessant protection necessary.

4. Yet, even if we were to realise the most enthusiastic visions of one of my most imaginative predecessors, and could cycle through the greater part of our century of life soundly and pleasantly, accidents must overtake some of us, and decay and infirmity must come sooner or later. This is a theme which gives play enough for intelligent thought. The rich when sick can afford the luxury of skilled attendance, and can hold out inducements enough for men of capacity to devote themselves to the study of medicine and surgery. But what are the poor to do? They can never alone, or without some aid or combination, afford adequate remuneration. Medical relief, as in legal phraseology it is called, is the first step to pauperism. Self-help in this matter is one of the first steps to independence. Provident dispensaries, giving members the right to attendance from medical men of their own choice at their own homes—the opening up of easy access, by small money payments, to the coveted advice of hospital staffs, and the foundation of clubs and cottage hospitals on sound principles, are among the best means of meeting the requirements of the sick poor. Our great establishments will always be needed for accidents and severe diseases which there is no possibility of treating successfully in cramped and ill-supplied homes. But hospitals do not necessarily pauperise. The very poor can well accept the care in them as a gracious gift, while those who have something to spare always can, and sometimes do, make a thank-offering. But on this subject you will have the advantage of hearing more in one of the sections from Mr. Bousfield and others who have studied it with care, and to them I may confidently leave the task of suggestion and discussion. Only on behalf of those who have had disease, who have been rescued from its immediate dangers, and are in a state of convalescence, with appetite, strength, spirits coming back slowly, and creating a craving for fresh air, and a longing for the few idle days so necessary to perfect recovery, I wish to impress upon all who hear me the importance of convalescent homes. They are springing up in numbers, but more are wanting to complete the work of our City hospitals. Many patients come to them from the country and return well to the country. But what is a poor town cripple now to do when he is relieved, and hospital atmosphere bars his recovery of health? And now that the urban population is yearly augmenting in such a rapid

manner, this necessity for providing for country convalescence is more and more urgent. The philanthropic sanitarian has something more to do than to fit up wards for the sick man to lie down in; he must see that in due time he may get the strength to "take up his bed and walk." If we cannot do miracles we may complete our charity.

5. Even the best regulated communities are encumbered with things which they must get rid of—human refuse, human remains. The one can be dealt with as best suits public convenience, but the other must be treated with reverence as well as security. In our "Transactions" already published, and in the forthcoming papers and discussions, you will find as much as can be told of what has been done through our instrumentality, and of the happy results that have followed. And if I may judge from the titles of promised papers, with illustrious names appended to them, upon the various aspects of sewerage, draining, the supply of water, ventilation, the purification of town atmosphere, lighting by electricity, and the extended application of gas to domestic purposes, this Congress will rival any others in the importance of the subjects brought forward. As regards the question of the disposal of the dead, I may refer you to a lecture of mine, which has been placed in your hands, with remarks upon it by Sir Lyon Playfair, Dr. Cameron, Sir Joseph Fayrer, and Mr. Seymour Haden, with two of the last letters written by the best of the Shaftesburys. Public opinion has been veering round since the publication of the Charge of Sir James Stephen. A custom known to be not illegal will be adopted by many who have hitherto been deterred by the fear of illegality; and the Society which alone in England gives facility for it, is ready to perfect its accommodation, or to give place to any administrative body upon a wider basis.

When we come to speak of the question of Legislation we, as Sanitarians, find ourselves in the same plight as the rest of the world loaded with good intentions. The waste of time and energy in Parliament in party struggles has banished all possible home legislation. We must bide our time, assured that, when this crisis of angry discussion of political complications has passed, the turn will come for practical measures. We shall then settle down to a calm consideration of what is really wanted, shall have our chance of being heard, and probably get a good deal of what we ask for. Our demands will appear so reasonable, our work so useful, and our plans so feasible, that no Committee will have the heart to suppress them, no Parliament the churlishness to refuse them. Only let us be prepared for the occasion, have our subjects chosen, our evidence forthcoming,

our arguments marshalled, and our advocates ready. We shall have ourselves to blame if we do not make sanitary legislation the popular legislation of some sessions near at hand.

In his address to the last annual meeting of the Institute Captain Galton remarked that, "if legislation is not to be ridiculous, it must be accompanied by increased knowledge in sanitary matters on the part both of the persons charged with administering the Sanitary Acts as well as of the public themselves." This is the key to the whole subject of sanitary legislation. The various classes of persons affected by sanitary measures, or concerned in carrying them out, show different degrees of sanitary knowledge, from the zero of ignorance on the part of the public, the confusion of local boards, the self-acquired information of district surveyors and inspectors of nuisances, the results, whatever they may be, of a course of hygienic medicine among the medical inspectors, up to the accumulated science of the Institute and its allies, and the acquired experience of the Local Government Board. The one fact that stands out clear above all others is that there is no definite channel by which these stores can be disseminated and employed for instruction. The course of lecture given by the professors at the London Colleges and at Netley are only intended for the use of medical students. There is no available public means of instruction in matters relating to health for the large body of surveyors, sanitary inspectors, and others whose actual duties are connected with public health; and nowhere at the present time is any systematic instruction given in practical hygiene to the general public. In the Report of our Council for this year it is stated that "the number of candidates for the examinations still continues to show a very rapid increase;" but it was only this year that, for the first time, a special course of lectures was arranged by the Parkes Museum to suit the requirements of persons preparing for the examinations of the Institute and other bodies which grant Certificates. These lectures were given by well-known authorities, and no fewer than sixty-three candidates entered for the course. This alone shows how fully justified Captain Galton was in making this further observation: that if the Sanitary Institute is to fulfil its functions of diffusing knowledge in relation to sanitary science, "it must not be content with holding periodical examinations; it must develop its educational character still further, and it must afford opportunities for students to qualify themselves for these examinations by providing lectures on practical sanitation, and by furnishing laboratories for research in sanitary matters." As regards the public, it will no longer do to trust to the voluntary efforts of

the National Health Society, zealous and worthy of all praise as they have been. Such work may be suspended at any moment; and to be certain and effectual must be undertaken by some public body in an orderly and persistent manner. The ear of the public can be easily reached by suitable addresses and house-to-house visitation; their curiosity excited and their minds enlightened by the objects exposed for examination and explanation in museums. The Parkes Collection will inevitably grow into great importance, and arrangements can be made to secure its utility. But though teaching power can never be wanting among our members, the puzzling problem is how to bring it to bear directly upon the masses. This is a point upon which I confess myself unable to give a prompt opinion. As one for solution by our collective wisdom it stands second to none. Yet when we have instructed the public and embodied our contingent of qualified agency, how are we to make sure that the agents shall act efficiently upon the public? It can never be done without elaborate organisation; and no organised body can act without full legislative authority, and then only under a responsible chief. If it be expedient to have a military medical staff, and a naval medical staff, with their grades of officers and all-powerful directors-general, for the comparatively small bodies of the combatants, why should there not be for the much more numerous civil subjects a civil medical service, equally authorised and as honourably appointed? Such a service would form an important department of a Ministry of Health.

I have taken up a great deal of your time, and I must not presume much longer on your kind indulgence. But there is one matter which I must speak of before concluding, and that is the importance of our having the unsectarian assistance of all religious teachers. Sitting as we do here under the shadow of the hallowed Minster which is the crowning and significant glory of the ancient city of York, one cannot but recall to mind how for successive ages its ministers have been the benefactors of all who came within the sphere of their action. In times of ignorance, they spread light around them. In times of distress, they gave succour to the needy and shelter to the homeless. In times of sickness and pestilence, they were ever ready, at their own risk and peril, to visit either castle or cottage, with consolation for the troubled mind and remedies for the tortured body. And now, in these later days, they, and others allied with them in the same holy work, come amongst us laymen, trained up by them in the spirit of Christian charity, to second our attempts to work the good of the people, to instruct themselves in the principles of our science, and to add the benefit of their wisdom

and experience to our efforts, with as much zeal and devotion as were ever displayed by any of the bygone generations of their revered predecessors.

With such objects in view, actuated by the same spirit of good-will to mankind, and impelled forward by an equal energy, we may promise ourselves the attainment in due time of our desired end—that of contributing to the real and stable greatness of our country, by giving to it a healthy and long-lived population; for we may rest assured that, in the words of Froude, “A sound nation is a nation that is composed of sound human beings, healthy in body, strong of limb, true in word or deed—brave, sober, temperate, chaste—to whom morals are of more importance than wealth or knowledge—where duty is first, and the rights of man are second—where, in short, men grow up and live and work, having in them what our ancestors called ‘the fear of God!’”

The Very Rev. the DEAN OF YORK proposed a vote of thanks to the President for his address, and said that to endeavour to criticise what Sir Spencer Wells had said would be an impertinence, and to endeavour to supplement it would be ridiculous. The Very Rev. Dean could only, therefore, ask them to join with him in thanking the President for the very able and exhaustive address which he had given them that night, and the best evidence of their thanks would be to pledge themselves to read very carefully the address they had listened to, which it was impossible to grasp at one hearing, and endeavour as far as they could give it practical effect. What the President no doubt wished was, not that they should merely pass a formal vote of thanks for his address, and not only that it should interest or instruct them, but that it should be productive of some definite action in the future. The President had mentioned the two channels in which that action might flow, the legal and the personal. As regarded the legal channel, no doubt it was their duty to make an effort to get beneficent laws passed as speedily as possible; but the prospect of legislation was not very encouraging. Legislation itself generally did not seem to make very rapid strides in the House of Commons, and the Dean did not see himself that there was any prospect of the way being sufficiently clear to enable the carrying out of beneficent legislation which would accomplish any good to be brought to the front. As Sir Spencer Wells said, if they thought it the right thing to do, they must agitate, and never be content until the measure they desired was accomplished. It was an old saying, “while the grass is growing the steed is starving,” and if their only hope of improving health was by legislation, he thought there would be a considerable increase in the bills of mortality before that came to pass. He did

not wish to speak disrespectfully of the power of the law, but he always felt that somehow or other things in England on the whole were carried out much more effectually eventually, and much more speedily, apart from the law. Many things he had seen in his day which seemed to almost defy the law had been overcome by the power of influence. There was in the English character a wonderful quality of sound common sense, though it might be a little difficult to arouse, and though there might be reluctance on the part of many to give up their old stereotyped prejudice, and adopt what were called new fangled ideas, yet sooner or later the good common sense of the English people, if they were convinced a thing was right and rational would accomplish great things without the aid of legislation at all. He illustrated his meaning by reference to the discontinuance of duelling in England, and to other social and moral reforms. Years ago it was thought that drunkenness could only be restrained by legal enactments, but the Temperance movement, which had made wonderful progress, had been carried on much better than would have been the case under legal enactments, and more happily apart from legal proceedings. While they did all they could to promote legislation, let them do all they could by their own influence and attention, and by their own efforts, to carry out reforms amongst themselves. There was, he thought, a certain amount of laziness in asking legislation to do everything for them, and he believed that if people would only study such matters as sanitary laws and regulations for themselves, and carry them into practice, a greater advantage would be obtained than by waiting for the work to be done by legislation. In conclusion, he asked them again to join him in heartily thanking Sir Spencer Wells for his admirable paper.

The LORD MAYOR OF YORK, in seconding the proposition, said the President had presented them with a remarkable array of facts, which it would be impossible for the most perfect listener to remember, however they might be impressed with that painstaking address. The subjects referred to would dwell upon their minds, and increase the interest that attached to the Sanitary Congress. His lordship acknowledged the beneficent work which had been done by the Sanitary Institute of Great Britain, and said it was gratifying that eminent scientific men should visit the towns of the Kingdom, and, by their influence, secure the recognition of the means they suggested for the promotion of the national health.

The proposition was carried with acclamation.

SIR SPENCER WELLS, Bart., the President of the Congress, in reply, said a vote of thanks carried in such a meeting as that was quite enough to repay him for any little trouble taken in preparing his address; and still more would he be repaid if anything he had said made them more in earnest in helping to promote the health of the people.

SECTION I.

SANITARY SCIENCE & PREVENTIVE MEDICINE.

ADDRESS,

BY PROF. F. DE CHAUMONT, M.D., F.R.S.

PRESIDENT OF THE SECTION.

It has been the custom, since our first Congress, and following older precedents of other societies, for the Chairman of each section to deliver a short address. I say advisedly a *short* address, for it is abundantly manifest that if he is to air his own eloquence and erudition in a long one, it can only be at the expense of others who have given much time to the preparation of papers, which they naturally are desirous of hearing properly if not exhaustively discussed. The time at our disposal is all too short for the work undertaken, and we are within measurable distance of a change in our arrangements, by which we must have the different sections sitting simultaneously throughout the entire duration of the meeting. This is what is done at the British Association, the British Medical Association, and other kindred institutions. The question of the utility of such addresses has been much discussed, and opinions thereon are divided. When the address is bad in matter and tedious in delivery, then it is an unmixed evil. But to suppose such a thing possible would be to pay but a poor compliment to the Council of this Institute, in whose hands the selection of the Officers of the Congress lies. And this reminds me of a duty which I have to discharge, namely, to thank the Council for the honour they have done me in placing me in this position, an honour which I feel all the more keenly that it is the second time it has been conferred upon me, the former occasion being at the Exeter Congress in 1880. I am quite sure that I was most successful on that occasion, at least in so far as brevity went, for I verily believe I gave the shortest address on record. This I trust will inspire you with