

CLASS IV.—PERSONAL HYGIENE, FOODS, FILTERS, AND  
DISINFECTANTS.

BRADBURY & Co., *Oldham*, Sewing Machines.  
SINGER SEWING MACHINE Co., *Glasgow*, Sewing Machines.  
DOULTON & Co., *Lambeth, London*, Filters of Manganous Carbon.  
GROSVENOR, F., *Glasgow*, Filters.  
HENDERSON, O., *Glasgow*, Silicated Carbon Filters.  
MAIGNEN, P. A., *London*, Anti-Calcareous Powders.  
BEVERIDGE & Co., *Glasgow*, Pickles, Sauces, and Essonce of Coffee.  
CONDENSED MILK Co., *Limerick*, Condensed Milk.  
IRVINE & Co., *Gateshead-on-Tyne*, Mustard.  
INDIAN TEA Co., *Glasgow*, Indian Tea.  
SCOTT, A., & Co., *Glasgow*, Oat-flour.  
CALVERT, F. C., & Co., *Manchester*, Sulpho-Carbolates.  
CALVERT, F. C. & Co., *Manchester*, 50% Carbolic Disinfecting Powder.  
OVERBECK, H. E., & Co., *Liverpool*, Pyridine Disinfecting Powder.  
RIMMEL, EUGENE, *London*, Aromatic Ozonizer.  
SARACEN SOAP Co., *Glasgow*, Sanitary Soap.  
STANFORD, E. C. C., *Dalmuir*, Seaweed Charcoal.  
WHEELER, J., *Ilfracombe, Pixene*.

No Award can be made of the Richardson Gold Medal, or of the Silver Medals offered by the Exeter Gas Company, until the deferred trials have taken place.

W. H. CORFIELD, M.A., M.D., Oxon., *Chairman*.  
F. S. B. F. DE CHAUMONT, M.D., F.R.S.  
W. EASSIE, C.E., F.G.S., F.L.S.  
ROGERS FIELD, B.A., M.Inst.C.E.  
H. LAW, M.Inst.C.E.  
J. W. PEGGS, Assoc.M.Inst.C.E.  
H. SAXON SNELL, F.R.I.B.A.  
ERNEST TURNER, F.R.I.B.A.

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APPENDIX.

## EXAMINATIONS IN SANITARY SCIENCE FOR LOCAL SURVEYORS AND INSPECTORS OF NUISANCES.

### BOARD OF EXAMINERS.

#### Chairman.

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

H. C. BARTLETT, PH.D., F.C.S.

PROF. W. H. CORFIELD, M.A. LOND., M.D. OXON.

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

ROGERS FIELD, B.A., M.INST. C.E.

W. H. MICHAEL, Q.C., F.C.S.

PROF. H. ROBINSON, M.INST. C.E.

M. OGLE TARBOTTON, M.INST. C.E., F.G.S.

ERNEST TURNER, F.R.I.B.A.

#### Registrar.

G. J. SYMONS, F.R.S.

THE great and increasing importance of the duties devolving upon Local Surveyors and Inspectors of Nuisances in connection with the various Acts relating to Public Health, the Sale of Food and Drugs Act, &c., has led the Council of the Sanitary Institute of Great Britain to establish Voluntary Examinations, to appoint a Board of Examiners, and to grant Certificates of Competency to Local Surveyors and Inspectors of Nuisances.

Visitors duly appointed by the Local Government Board and various bodies connected with the practical application of sanitary science are invited to be present at the Examinations.

The Examinations, which are arranged in two grades, are intended to enable Local Surveyors and Inspectors of Nuisances, or persons desirous of becoming such, or of obtaining the Certificate of the Institute, to prove their competency in the subjects of Examination. Successful Candidates will be placed on the Register of persons so certificated; this Register will be kept at the Offices of the Institute, and a copy will be forwarded to Local Boards and Sanitary Authorities on application.

Each Examination occupies a portion of two days. On the first day the Examination of Surveyors occupies four hours—viz., from 2 till 4, and from 6 till 8 p.m., and consists of written papers only. Inspectors of Nuisances have two hours' written examination on the first day—viz., from 4 till 6 p.m. On the second day the Examination, for both classes, commences at 11 a.m., and is *viva voce*,

with one or more questions to be answered in writing, *if deemed necessary*. A Certificate of competency, signed by the examiners, is granted to successful Candidates, entitling them to be designated as "Certificated by the Sanitary Institute of Great Britain."

As one person may, under the Public Health Act, 1875, be both Local Surveyor and Inspector of Nuisances, the Examinations are so arranged that Candidates who desire to do so, can enter for both Examinations on the same occasion.

Candidates are required to furnish the Board of Examiners with satisfactory testimonials as to personal character, and to give two weeks' notice to the Registrar previous to presenting themselves for Examination, stating whether they wish to be examined as Surveyors, as Inspectors of Nuisances, or as both. The fee for Examination must be paid to the Secretary, by Post-Office order or otherwise, at least six days before the day of Examination. On the receipt of the fee, a ticket will be forwarded admitting to the Examination.

The fees payable for the Examinations are as follows:—

|                                       |        |
|---------------------------------------|--------|
| For Surveyors . . . . .               | £5 5s. |
| For Inspectors of Nuisances . . . . . | £2 2s. |

Unsuccessful Candidates are allowed to present themselves a second time for one fee.

Examinations during the year are appointed to be held at the Rooms of the Institute:—

On Thursday and Friday, June 5th and 6th, 1884.

On Thursday and Friday, November 6th and 7th, 1884.

Forms to be filled up by Candidates previous to Examination will be supplied on application to the Secretary, 74A, Margaret Street, W.

#### SYLLABUS of SUBJECTS for EXAMINATION.

##### FOR LOCAL SURVEYORS.

**LAWS AND BYE-LAWS**—A thorough knowledge of the Acts affecting Sanitary Authorities, as far as they relate to the duties of Local Surveyors; also, of the Model Bye-Laws issued by the Local Government Board.

**SEWERAGE AND DRAINAGE**—The Sanitary principles which should be observed in the preparation of schemes for, and the construction of, Sewerage works; the ventilation and flushing of sewers and drains; the internal drainage and other Sanitary arrangements of houses, privies, water-closets, dry-closets, and the removal of refuse; the Sanitary details of Builders' and Plumbers' work.

**WATER SUPPLY OF TOWNS AND HOUSES**—The Sanitary principles which should be observed in the preparation of schemes for, and the construction of, Water-works; the various ways in which water is likely to become polluted, and the best means of ensuring its purity.

**REGULATION OF CELLAR DWELLINGS AND LODGING HOUSES**—General principles of Ventilation; the amount of air and space necessary for men and animals; the means of supplying air, and of ensuring its purity.

**HIGHWAYS AND STREETS**—The Sanitary principles which should be observed in the construction and cleansing of streets and roads.

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

##### FOR INSPECTORS OF NUISANCES.

A thorough knowledge of the Provisions of the Acts and Model Bye-Laws relating to the duties of Inspector of Nuisances—also of the working of the Sale of Food and Drugs Act.

A fair knowledge of the principles of Ventilation, and the simple methods of Ventilating Rooms—Measurement of Cubic Space.

A knowledge of the Physical Characteristics of Good Drinking Water—the various ways in which it may be polluted, and the means of preventing pollution—Methods of Water Supply.

A knowledge of the proper conditions of good drainage.

The advantages and disadvantages of various Sanitary Appliances for Houses—Inspection of Builders' and Plumbers' work.

A knowledge of what constitutes a Nuisance, arising from any Trade, Business, or Manufacture.

A fair knowledge of the characteristics of good and bad Food (such as Meat, Fish, Milk, Vegetables), so as to be able to recognise unsoundness.

Some knowledge of Infectious Diseases, and of the Regulations affecting persons suffering or recovering from such diseases.

A knowledge of the best Methods of Disinfection.

Methods of Inspection, not only of Dwellings, Dairies, and Milk-Shops, but of Markets, Slaughter-Houses, Cow-Sheds, and offensive Trades.

Scavenging and the Disposal of Refuse.

All persons who have passed the above Examination and received the Certificate for Inspectors of Nuisances are, by virtue of having so passed, entitled to become Associates of the Institute for Life, upon payment of Three Guineas (without Annual Subscription), in addition to the fee paid for the Examination.

LIST OF BOOKS SUGGESTED BY THE EXAMINERS AS USEFUL  
TO CANDIDATES.

SURVEYORS.

LAWS AND BYE-LAWS.

The principal Acts affecting Sanitary Authorities, viz:—

|  |                                   |
|--|-----------------------------------|
| Gas Works Clauses Acts, 1847. Price 6d.  | } Sold by<br>Eyre & Spottiswoode. |
| Water Works " " 1847. Price 1s.; & 1863,<br>price 3d.                            |                                   |
| Public Health Act, 1875. Price 5s. 7½d.  |                                   |
| " " Water, 1878. Price 4½d.  |                                   |
| Rivers Pollution Act, 1876. Price 6d.  |                                   |
| Artizans' and Labourers' Dwelling Acts, 1868.<br>Price 7½d.; and 1875, price 1s. |                                   |

Local Government Board. Model Bye-Laws for Sanitary Authorities. *Eyre & Spottiswoode. Price 4s. 6d.*

†CHAMBERS, GEORGE F. Digest of the Law relating to Public Health and Local Government. 7th Edition. *Stevens & Son. Price £1 8s.*

†FITZGERALD, VESEY. Public Health Act and Local Government Act, 1875. 3rd Edition. *Waterlow Bros. & Layton. Price 12s. 6d.*

†GLEN, W.C., Q.C. Public Health Act. *Knight. Price £1 16s.*

†LUMLEY. Public Health Act, 1875. *Shaw & Son. Price £1 5s.*

†MICHAEL & WILL. On Gas and Water. *Butterworth. Price £1 5s.*

STRATTON'S Public Health Acts, 1875. 1880 Edition. *Knight. Price 3s. 6d.*

†WOOLRYCH. On the Metropolis Local Management Acts. 2nd Edition. *Shaw & Son. Price £1 1s.*

†SMITH, WILLIAM ROBERT, M.D., and SMITH, HENRY, M.D. The Laws Concerning Public Health. *Sampson Low & Co. Price £1 11s. 6d.*

SEWERAGE AND DRAINAGE.

BOULNOIS, H. P., M.INST.C.E. Dirty Dust-Bins and Sloppy Streets. *E. & F. N. Spon. Price 3s. 6d.*

BUCHAN, W. PATON. Plumbing. *Crosby, Lockwood & Co. Price 3s. 6d.*

DENTON, J. BAILEY, M.INST.C.E. Sanitary Engineering. *E. & F. N. Spon. Price £1 5s.*

FIELD, ROGERS, M.INST.C.E. Bye-Laws and Regulations with reference to House Drainage. *E. & F. N. Spon. Price 1s.*

FOX, CORNELIUS B., M.D. Disposal of the Slop Water of Villages. *J. & A. Churchill. Price 1s. 6d.*

GALTON, DOUGLAS, C.B., F.R.S. Observations on the Construction of Healthy Dwellings. *Henry Frowde. Price 10s. 6d.*

HELLYER, S. S. The Plumber, and Sanitary Houses. 2nd Edition. *B. S. Batsford. Price 10s. 6d.*

KNIGHT & Co. Annotated Model Bye-Laws of the Local Government Board relating to—I. Cleansing of Privies, &c. II. Nuisances. III. New Buildings. *Knight & Co. Price 8s. 6d.*

LATHAM, BALDWIN, M.INST.C.E. Sanitary Engineering. *E. & F. N. Spon. Price £1 10s.*

RAWLINSON, ROBT., C.D. Suggestions as to Drainage, Sewerage, and Water Supply. *Knight. Price 3s.*

†Report of the Committee of The Local Government Board on Treatment of Town Sewage. *Hansard & Co. Price, Report 1s.; Plans 10s.*

RUSSELL, J. A. Two Lectures to Builders and Plumbers. *Simpkin, Marshall & Co., 1878. Price 1s. 6d.*

ROBINSON, HENRY, C.E., F.G.S. Sewage Disposal. *E. & F. N. Spon. Price 5s.*

WATER SUPPLY OF TOWNS AND HOUSES.

†BUCHAN, A. Introductory Text Book of Meteorology. 2nd Edition. *W. Blackwood & Sons. Price 4s. 6d.*

†HUMBER, WILLIAM, ASSOC.M.INST.C.E. Water Supply of Cities and Towns. *Crosby, Lockwood & Co. Price £6. 6s.*

PARRY, JOSEPH, C.E. Water: its Composition, Collection, and Distribution. *F. Warne. Price 2s. 6d.*

†Sixth Report of the Royal Commissioners on Pollution of Rivers. *Hansard & Co. Price 16s.*

REGULATION OF CELLAR DWELLINGS AND LODGING HOUSES,  
VENTILATION, &C.

GALTON, DOUGLAS, C.B., F.R.S. Observations on the Construction of Healthy Dwellings. *Henry Frowde. Price 10s. 6d.*

HARTLEY, W. NOEL. Air and its Relation to Life. *Longmans, Green & Co. Price 6s.*

†PARKES, E. A., M.D., F.R.S., and F. DE CHAUMONT, M.D., F.R.S. A Manual of Practical Hygiene (Chapters on Air). *J. & A. Churchill. Price 18s.*

HIGHWAYS AND STREETS.

BOULNOIS, H. P., M.INST.C.E. Dirty Dust-Bins and Sloppy Streets. *E. & F. N. Spon. Price 3s. 6d.*

CODRINGTON, T., M.INST.C.E. Maintenance of Macadamised Roads. *E. & F. N. Spon. Price 6s.*

GENERAL.

†PARKES, E. A., M.D., F.R.S., and F. DE CHAUMONT, M.D., F.R.S. A Manual of Practical Hygiene. *J. & A. Churchill. Price 18s.*

†WILSON, G., M.A., M.D. Handbook of Hygiene and Sanitary Science. *J. & A. Churchill. Price 10s. 6d.*

†MURPHY, SHIRLEY F. Our Homes, and how to make them Healthy. *Cassell & Co. Price 15s.*

## INSPECTORS OF NUISANCES.

The Principal Acts relating to the Duties of Inspectors, viz:—

- |  |                                   |
|--|-----------------------------------|
| Public Health Act, 1875. Price 5s. 7½d.  | } Sold by<br>Eyre & Spottiswoode. |
| Water, 1878. Price 4½d.  |                                   |
| Canal Boats Act, 1877. Price 3d.   |                                   |
| Sale of Food and Drugs Acts, 1875. Price 6d.; and<br>1879, price 3d.   |                                   |
| Rivers Pollution Act, 1876. Price 6d.  |                                   |
| Artizans' and Labourers' Dwellings Acts, 1868.<br>Price 7½d.; and 1875, price 1s.  |                                   |
| Alkali, &c., Works Regulations Act, 1881. Price<br>5d.   |                                   |
| Nuisances Removal Acts, 1855. Price 1s.; 1860,<br>price 3d.; and 1866, price 1½d.  |                                   |
| Local Government Board. Model Bye-Laws for Sanitary Authorities. Eyre<br>& Spottiswoode. Price 4s. 6d.   |                                   |
| Local Government Board. General Orders relating to Duties of Inspectors of<br>Nuisances, issued March 10th and 13th, 1880.   |                                   |
| Metropolitan Board of Works. Bye-Laws under the Slaughter-houses, &c.,<br>Act; eight in number.  |                                   |
| Metropolitan Board of Works. The Dairies Cowsheds, and Milkshops Order<br>of July, 1879.   |                                   |
| STRATTON'S Public Health Acts, 1875. 1880 Edition. Knight. Price 3s. 6d.   |                                   |
| †WOOLRYCH. On the Metropolis Local Management Acts. 2nd Edition.<br>Shaw & Son. Price £1. 1s.  |                                   |
| BOULNOIS, H. P., M.INST.C.E. Dirty Dust-Bins and Sloppy Streets. E. & F.<br>N. Spon. Price 3s. 6d.   |                                   |
| CORFIELD, W. H., M.A., M.D. The Laws of Health. Longman & Co. Price<br>1s. 6d.   |                                   |
| CORFIELD, W. H., M.A., M.D. Dwelling Houses: their Sanitary Construc-<br>tion and Arrangements. H. K. Lewis. Price 3s. 6d.   |                                   |
| F. DE CHAUMONT, F.S.B., M.D., F.R.S. Manuals of Health. The Habitation in<br>Relation to Health. Society for Promoting Christian Knowledge. Price 1s.                            |                                   |
| FIELD, ROGERS, M.INST.C.E. Bye-Laws and Regulations with Reference to<br>House Drainage. E. & F. N. Spon. Price 1s.  |                                   |
| KNIGHT & Co. Annotated Model Bye-Laws of the Local Government Board<br>relating to—I. Cleansing of Privies, &c. II. Nuisances. III. New<br>Buildings. Knight & Co. Price 8s. 6d. |                                   |
| HARTLEY, W. NOEL. Water, Air, and Disinfectants. Society for Promoting<br>Christian Knowledge. Price 1s.   |                                   |
| †PARKES, E. A., M.D., F.R.S., and F. DE CHAUMONT, M.D., F.R.S. A Manual of<br>Practical Hygiene. (Chapters on Water, Air, Food, and Sewage). J. &<br>A. Churchill. Price 18s.    |                                   |
| †MURPHY, SHIRLEY F. Our Homes, and how to make them Healthy.<br>Cassell & Co. Price 15s.   |                                   |

† Books marked thus are Works of Reference.

It is not necessary that Candidates should study all the works mentioned in this List, as two or three are quoted in some subjects to afford greater facilities for obtaining the information.

## CANDIDATES WHO HAVE RECEIVED CERTIFICATES AS LOCAL SURVEYORS.

- 1880, Nov. 5, BOULNOIS, H. PERCY, M.INST.C.E., Portsmouth.  
1880, Nov. 5, BURTON, W. KINNINMOND, Adam Street, Adelphi.  
1879, June 4, CAMERON, DONALD, Exeter.  
1880, June 2, CLARE, JESSE, Sleaford.  
1882, Nov. 3, COOPER, C. H., Wimbledon.  
1883, June 8, COMBER, P. F., Bray, Ireland.  
1878, June 5, GAMBLE, S. G., A.M.I.C.E., Grantham.  
1881, June 3, GRIMLEY, SAMUEL S., Ashby-de-la-Zouch.  
1878, Nov. 7, HARGER, R., Skipton.  
1880, Nov. 5, HARLAND, A., A.R.I.B.A., Stanhope Street, N.W.  
1882, June 9, HUBBER, FRANK, Exeter.  
1880, Nov. 5, INNES, COSMO, M.INST.C.E., Adam Street, Adelphi.  
1878, June 5, JENKINS, W. J. P., Bodmin.  
1883, Nov. 2, MAGUIRE, W. R., Dublin.  
1883, June 8, MAWBEX, E. G., King's Lynn.  
1880, June 2, NICHOLS, H. B., Handsworth.  
1877, Oct. 29, PARKER, J., Mansion House, Hereford.  
1877, Oct. 29, ROBINSON, H. W., Ulverston.  
1879, June 4, TOUZEAU, E. M., Strand, W.C.  
1881, June 3, WHITCOMBE, A., A.R.I.B.A., John St., Adelphi.  
1882, June 9, WITTS, J. W., Market Harborough.

## CANDIDATES WHO HAVE RECEIVED CERTIFICATES AS INSPECTOR OF NUISANCES.

- 1882, June 9, ABRAMS, H., Bromley, Kent.  
1882, June 9, ATKINS, W., Kettering.  
1882, June 9, BAXTER, J., Walnut Tree Walk, S.E.  
1877, Oct. 29, BLANCHARD, THOMAS, Evesham.  
1879, Nov. 7, BOLT, BENJAMIN, Aston, Birmingham.  
1877, Oct. 29, BOOKER, F., St. Mary's Hall, Coventry.  
1882, Nov. 3, BROWN, JOHN, Geneva Terrace, Brixton.  
1878, Nov. 7, CHUBB, T. T., Whitechurch.  
1880, June 2, CLARE, J., Sleaford.  
1879, Nov. 7, CLARKE, A. LENNOX, Union Buildings, Selly Oak.  
1881, June 3, COWDEROY, J. T., Wolverhampton.

- 1883, Nov. 2, CROGHAN, THOMAS ANDREW, Buxton.  
 1878, June 5, DALE, T. H., Town Hall, Hull.  
 1878, Nov. 7, DAVIES, H., Wrexham.  
 1883, June 8, DENT, W., Nelson, Lancashire.  
 1883, June 8, EDMONDSON, S., Walshaw, near Burnley.  
 1882, June 9, FAIRCHILD, S. G., Shorrold Road, Walham Green.  
 1882, June 9, FINLAY, A., Town Hall, Scarborough.  
 1878, Feb. 7, GANDER, C., Alcester.  
 1880, Nov. 5, HARLAND, A., Stanhope Street, N.W.  
 1878, Nov. 7, HARRIS, W., Solihull.  
 1878, June 5, HAWKES, C., Hackney  
 1883, June 8, HEARNE, W., Tavistock Street, W.C.  
 1881, Nov. 4, HORROCKS, J., Bolton.  
 1883, June 8, JOHNSON, G., Bedford.  
 1883, Nov. 2, JOYNER, W. J., Birmingham.  
 1883, Nov. 2, KEMSLEY, JESSE, Rodwell Road, Dulwich.  
 1879, Nov. 7, LAPWORTH, J., Bethnal Green.  
 1882, Nov. 3, LEGG, S. C., Gayhurst Road, E.  
 1882, June 9, LIGHTFOOT, T., Trevor Square, Knightsbridge.  
 1883, Nov. 2, MAGUIRE, J., Bolton.  
 1883, June 8, MERRIE, A. W., Bedford.  
 1879, Nov. 7, OSBORNE, J., Carlisle.  
 1877, Oct. 29, PREBBLE, W. S., Blackburn.  
 1881, June 3, RAINS, J., Kettering.  
 1882, Nov. 3, RICHARDS, DANIEL, Spencer Street, S.W.  
 1878, Feb. 7, ROBINSON, J., South Street, Park Lane.  
 1881, Nov. 4, SORTWELL, W., Retreat Place, Hackney.  
 1882, June 9, STEERS, G., Wellington Street, Bedford.  
 1882, Nov. 3, TAYLOR, ALBERT, Egremont, Cheshire.  
 1882, Nov. 3, WATSON, JAMES, Exeter.  
 1878, Feb. 7, WATTS, W. F., South Stoneham.  
 1883, June 8, WELLS, G. F., Hull.  
 1883, Nov. 2, WELLS, WILLIAM HENRY, Budleigh Salterton.  
 1878, Feb. 7, WETHERILL, W., Norfolk Street, Batley.  
 1878, Feb. 7, WILKINSON, W., Salford.  
 1881, June 3, WILKINSON, W., Bury, Lancashire.  
 1881, Nov. 4, WITTS, J. W., Market Harborough.  
 1882, June 9, WRIGHT, NOAH, Coventry.

## EXAMINATION QUESTIONS, 1883.

The following questions were required to be answered in writing.  
 A *viva voce* examination took place on the following day.

JUNE 7th, 1883.

SURVEYORS—PAPER I. 2 TO 4 P.M.

- 1.—What are the main provisions of the Rivers Pollution Act?
- 2.—Give the substance of the Model Bye-laws for Regulating—
  - (a) Cleansing of Footways and Pavements.
  - (b) Removal of House Refuse.
  - (c) Cleansing of Earth Closets, Privies, Ashpits and Cess-pools.
- 3.—Why ought sewers to be ventilated? What circumstances favour the formation of foul gases in sewers? and how can new sewers be constructed so as to prevent or greatly reduce the formation of such gases?
- 4.—What is meant by disconnecting a house drain from the sewer? Describe what adjuncts are necessary and what arrangements should be made for ventilation. Give a sketch of any two disconnecting arrangements.
- 5.—Describe the arrangements you would adopt in a town situated on the side of a hill to prevent the lower districts being flooded, or the upper districts being injured by foul gases from the sewers.
- 6.—Explain the following processes for purifying sewage, and describe the mode of action in each case—
  - (a) The Lime and one other precipitation process.
  - (b) The Irrigation of land.
 How would you lay out the land for a Sewage Farm, selecting your own conditions of situation and soil?

SURVEYORS—PAPER II. 6 TO 8 P.M.

- 1.—Explain what is meant by "Constant" and by "Intermittent" Water Supply. What are the advantages and disadvantages of each? What precautions are necessary in each case to prevent the water becoming polluted inside a house—
  - (a) With cisterns,
  - (b) Without cisterns?

2.—Mention the quantity of water supplied per head per diem in any four large towns in England. How much of this has probably been used for domestic purposes, how much for town and manufacturing purposes, and how much has run to waste? How is the amount of waste ascertained and remedied?

3.—Give a description and sketch of an ordinary Rain Gauge. Mention the points to be observed in fixing it, in order to obtain a correct record of the amount of rainfall. Is it a good plan to place a Rain Gauge on the top of a house or of a wall? State the reasons for your opinion. What is the annual amount of rainfall in some of the localities with which you are acquainted?

4.—Describe systems of ventilation that you would consider efficient for—

(a) A Church.

(b) A Dwelling House.

5.—Give the definition of a Cellar Dwelling. Under what conditions does the Act allow it to be occupied? State the most common causes of dampness in basement rooms, and what remedies you would suggest in each case.

6.—Describe the various methods of laying wood pavement. Give an explanatory sketch, and state the advantages of and objections to wood pavement.

#### INSPECTORS OF NUISANCES—4 TO 6 P.M.

1.—State the provisions of the Law with reference to Common Lodging Houses.

2.—How does the Public Health Act define a nuisance? If you find a nuisance to exist on any premises, what steps would you take?

3.—How much cubic space would you recommend per person in a sleeping room?

4.—Describe a simple but efficient plan of ventilation for a cottage of four rooms.

5.—What steps would you take if a well in a village were reported to be polluted? How may water be polluted within a dwelling?

6.—What are the objections which are inseparable from Cesspools?

7.—How can the access of sewer air to houses be prevented?

8.—In what way would you proceed to disinfect clothing after a case of infectious disease? What powers have you to disinfect rooms? Describe the methods that you would adopt.

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NOVEMBER 1st, 1883.

#### LOCAL SURVEYORS—PAPER I. 2 TO 4 P.M.

1.—What are the principal Sanitary Acts in force—

(a) In the Metropolis?

(b) In other parts of England?

What are their chief provisions?

2.—State the chief differences which exist between the powers exercised by Urban and by Rural Sanitary Authorities—

(a) As to roads, streets and buildings.

(b) As to sewers.

(c) As to gas and water supply.

3.—In what way does the size and shape of a sewer affect the velocity of the sewage flowing through it? If a 12-inch pipe sewer with an inclination of 1 in 200 gives a velocity of  $3\frac{1}{2}$  feet per second, what velocity would it give if laid at an inclination of 1 in 800 (the pipe running half full in each case)? Would this latter velocity suffice to keep the sewer self-cleansing? To what extent could this velocity be practically increased by flushing?

4.—A complaint being made that an offensive smell proceeds from a certain sewer, what steps should be taken (a) to find out the cause? (b) to remedy the same? Illustrate your answer by a sketch.

5.—What precautions should be taken in connecting house drains with sewers in order to prevent foul air from the sewers entering the houses? What kind of connections would you require for the water-closets, sinks, &c.

6.—Describe shortly the different methods of applying sewage to land, and in each case explain the conditions under which you would adopt it.

#### LOCAL SURVEYORS—PAPER II. 6 TO 8 P.M.

1.—What is meant by a "gathering ground"? Describe the conditions which have to be observed in selecting a gathering ground for the water supply of a town. Upon what data would you base your calculations for providing a sufficient supply in all seasons?

2.—The water supply of a town being undesirably hard, what means would you recommend for softening the same? Describe generally the principles involved.

3.—State the geological formations which yield hard water and those which yield soft water. State also the chief difference between river water and water derived from shallow and from deep wells.

4.—What is required in the way of ventilation to keep a room containing 1,000 cubic feet of air space, and occupied by one person, in a proper sanitary condition, there being a gas light burning in the room 6-ft. from the floor, consuming 4-ft. of gas per hour? State the amount of deterioration of the air due to the man and to the gas light respectively. Illustrate your answer by a sketch.

5.—What are the sanitary advantages and disadvantages of the modern systems of street and road making? Give a brief description of each.

6.—Describe the best methods for cleansing streets.

## INSPECTORS OF NUISANCES.—4 TO 6 P.M.

1.—Describe some of the main provisions of the Public Health Act, 1875, with reference to the duties of an Inspector of Nuisances.

2.—On being appointed to the post of Inspector of Nuisances of a district, what are the duties you would at once undertake—

(a) With regard to Inspection of Common Lodging Houses?

(b) With regard to Nuisances?

(c) With respect to the Wholesomeness of Food?

3.—Describe the method of measuring available air space in rooms. How much air space per head is desirable? How much should be insisted on?

4.—What is the object of ventilation? Describe some simple methods of ventilation which you would recommend for living and for sleeping rooms?

5.—What precautions ought to be taken in obtaining water supply from wells in the proximity of dwellings?

6.—What precautions have to be observed to prevent the pollution of a milk supply at farms and cow-sheds?

7.—If there is reason to suspect that sewer gas is escaping into houses, in what way would you proceed to examine the drains? And what points would you look to? Write a report on a supposed case such as you would send in to your Medical Officer.

8.—You are sent for to a house where two children died the day previously of scarlet fever, what steps would you take?

## EXHIBITIONS OF SANITARY APPARATUS AND APPLIANCES.

THE Exhibitions of Sanitary Appliances are held annually in connection with the Autumn Congress, and unpatented exhibits are protected by a certificate granted by the Board of Trade, under the Protection of Inventions Act, 1878.

Judges are appointed by the Council to examine the several exhibits, and award Medals and Certificates of Merit to such objects as they may consider worthy.

In addition to the Ordinary Medals, a special Medal—the Richardson Medal—is offered by the Institute, for a selected exhibit from the entire exhibition, and will be awarded by the Judges in cases of pre-eminent merit only. Selected exhibits of such a nature as to require practical trials which cannot be carried out on the spot, are submitted to such trials upon the Exhibitors defraying the necessary expenses.

The Exhibits are arranged in the following Classes:—

## CLASS I.—CONSTRUCTION AND MACHINERY.

Construction and Materials.  
Paints and other Protectives.  
Wall Papers.  
Decorative Materials.  
Machinery adapted for Sanitary Purposes.  
Washing Machines.

## CLASS II.—SEWERAGE AND WATER SUPPLY.

Water Closets.  
Dry Closets.  
Urinals.  
Sewage Treatment.  
Traps.  
Sinks.  
Baths and Lavatories.  
Apparatus for Water Supply.  
Cisterns.  
Flushing and Watering.  
Miscellaneous Sanitary Goods.

## CLASS III.—HEATING, LIGHTING, AND VENTILATION.

Heating Apparatus.  
Cooking Apparatus.

Smoke Preventing Appliances.  
Lighting, including Electric Lighting.  
Ventilation.

## CLASS IV.—PERSONAL HYGIENE, FOODS AND DISINFECTANTS.

Clothing.  
Beds, &c.  
Educational Appliances.  
Domestic Appliances.  
Foods.  
Filters, and Arrangements for Softening Water.  
Mineral Waters.  
Disinfectants.  
Disinfecting Apparatus.

## CLASS V.—MISCELLANEOUS.

*Articles of Sanitary interest not included in the above Classes, such as:—*

Scientific Instruments.  
Books on Sanitation.  
Prevention of Accidents.  
Methods for the Disposal of the Dead, &c., &c., &c.



The following were the Regulations made for the Exhibition at Glasgow, in September, 1883:—

- 1.—The Scale of Charge for Floor Space will be 12s. 6d. per foot frontage, with a depth of six feet; Corners and Special Places will be charged at higher rates; Wall Space 6d. to 1s. per square foot. No Floor Space will be allotted for a less sum than £1 5s., or Wall Space for less than 5s. All charges must be paid at the time of Allotment.
- 2.—Applications for Space must be made on the official form, and under the proper class. They must be sent to Mr. E. L. Box, the Curator of the Exhibition, at the Offices of the Institute, 9, Conduit Street, Regent Street, London, W., not later than Saturday, August 25th, 1883. No application after this date will be received unless accompanied by an extra payment of 5s. per foot frontage.
- 3.—A full and accurate description of the articles proposed to be shown must be forwarded with each application for space. (See No. 12.)
- 4.—In addition to Articles and Inventions of a strictly technical character, articles of a general character relating to domestic comfort and economy, and life and labour-saving apparatus, as well as books, drawings, and photographs, illustrative of the same, may be exhibited.
- 5.—Exhibits will be received at the Exhibition Building, Glasgow, from Tuesday, September 11th, to Tuesday, September 18th. Exhibits arriving after September 18th will only be admitted on payment of a fine of 5s. per foot frontage; but no Exhibit will, under any circumstances, be admitted after Friday, September 21st. No Exhibits shall be removed before MONDAY, the 22nd of OCTOBER, and all exhibits must be removed by WEDNESDAY, the 24th of OCTOBER, or they will be sold to pay expenses.
- 6.—The position occupied by each Exhibit will be determined by the Committee.
- 7.—Every Article exhibited shall bear a descriptive label, corresponding with the description forwarded with the application (See No. 3), and giving also the retail price at which the article can be obtained. The objects exhibited shall be either the actual Articles, Models, or Drawings.
- 8.—The Exhibition Committee reserve the right to refuse, or order the removal of, any article not deemed suitable.
- 9.—The Committee will not be responsible for insurance against fire, or in any way for the safety of any articles exhibited. The cost of conveying goods into, placing them in position in, and removing them from, the Exhibition, including unpacking and packing, must be borne by the Exhibitors.
- 10.—Under the supervision and control of the Curator, Exhibitors will be permitted to erect benches or other contrivances for displaying their Exhibits, and to make connections with the main drain, but will be responsible for the removal of their Exhibits and Fittings at the close of the Exhibition, and must make good, to the satisfaction of the Master of Works, any damage caused thereby. Gas and Water will be supplied to the Exhibitors, for use in connection with their Exhibits, and charged for.
- 11.—Exhibitors are permitted to employ persons to explain their Exhibits, and such persons may receive orders, but are prohibited from soliciting them.
- 12.—A Catalogue will be published under the authority of the Committee, mainly compiled from the information given by the Exhibitors on their application forms. A few pages in the Catalogue will be reserved for approved Advertisements. For Terms for Advertisements apply to J. MASON, 144, Fleet Street, London, E.C. Advertisements to be forwarded not later than SATURDAY, 8th SEPTEMBER, 1883.
- 13.—PRIZE MEDALS and CERTIFICATES OF MERIT will be awarded at the discretion of the Judges, and their decisions will in all cases be final. The List of Awards will be published in the Transactions of the Institute for 1883.

- 13a.—The Council appoint Judges whose office is purely honorary, in accordance with Bye Law 128, which prohibits the payment of any remuneration whatever for such services.
- 14.—It may be impossible for the Judges to come to a satisfactory decision as to the merits of certain Exhibits without practical trial, involving special testing and other investigations. In all such cases the following regulations will be adopted:—
  - (a) The Judges have power to take from the Exhibition any specimens they may require for testing.
  - (b) The Judges will select such Exhibits for further practical trial as they may deem desirable. Exhibitors of such selected Exhibits will then be communicated with, and if they desire to submit their Exhibits to a deferred practical trial they will be required to pay such an Entrance Fee as the Committee may determine, for the purpose of defraying the necessary expenses of testing the Exhibits; and also to furnish the Committee with a written or printed statement of the grounds upon which they claim special merit for their Exhibits; and in the case of Patented Inventions, a copy of the Printed Specification of the Patent.
- 15.—THE RICHARDSON MEDAL for an EXHIBIT SELECTED FROM THE ENTIRE EXHIBITION will be awarded by the Judges in case of pre-eminent merit only.
- 16.—SILVER MEDALS OFFERED BY THE EXETER GAS COMPANY.—Three Silver Medals are offered by the Exeter Gas Company for the best Gas Stoves exhibited under the following classes:—
  1. For the best Gas Stove or Gas Apparatus for cooking purposes for families, including a sufficient supply of hot water.
  2. For the best Gas Cooking Stove for an artisan's family of from four to eight persons.
  3. For the best and most economical Open Gas Fire.
- 17.—Protection in accordance with the Protection of Inventions Act, 1870, will be obtained from the Board of Trade for persons desirous of Exhibiting New Inventions.

Table giving particulars with reference to the exhibitions already held.

|                                                      | 1877.<br>Leamington. | 1878.<br>Stafford. | 1879.<br>Croydon. | 1880.<br>Exeter. | 1882.<br>Newcastle. | 1883.<br>Glasgow. |
|------------------------------------------------------|----------------------|--------------------|-------------------|------------------|---------------------|-------------------|
| Number of Exhibitors ... ..                          | 117                  | 116                | 189               | 106              | 110                 | 126               |
| Number of Exhibits                                   | 294                  | 319                | 710               | 500              | 600                 | 750               |
| Space occupied (in square ft.) ... ..                | .....                | .....              | .....             | 9725             | 14520               | 20,000            |
| Number of days Exhibition was open                   | 14                   | 16                 | 17                | 19               | 25                  | 25                |
| Total number of Visitors ... ..                      | .....                | .....              | .....             | 8955             | 8373                | 20,000            |
| Number of Medals awarded ... ..                      | 13                   | 13                 | 12                | 12               | 15                  | 18*               |
| Number of Special Certificates ... ..                | None.                | 6                  | 9                 | 7                | 4                   | 12                |
| Number of Certificates ... ..                        | None.                | 21                 | 38                | 40               | 72                  | 46*               |
| Number of Exhibits deferred for further trial ... .. | .....                | 7                  | 52                | 30               | 37                  | 44                |

\* These numbers do not include any Medals or Certificates which may be awarded for Exhibits deferred for practical trial.

## CLASSIFIED LIST OF MEDALS AWARDED AT THE EXHIBITIONS.

### RICHARDSON MEDAL.

Siemens's Regenerative Gas Burner. Mather & Armstrong, *Newcastle-upon-Tyne*.  
NEWCASTLE, 1882.  
Griffiths' Patent White. Silicate Paint Company, *Cannon Street, E.C.*  
STAFFORD, 1878.

### SILVER MEDAL.

Offered by the Exeter Gas Company.  
Dr. Bond's Euthermic Ventilating Gas Stove. Sanitary & Economic  
Supply Association, *Gloucester*. EXETER, 1880.

### MEDALS AND SPECIAL CERTIFICATES.

Exhibits which have already received Medals at previous Exhibitions of the Institute are excluded from awards of Medals; but those Exhibits to which a second Medal would otherwise be awarded receive Special Certificates, and these are distinguished in the following list by asterisks.

### CLASS I.—CONSTRUCTION AND MACHINERY.

#### (1). Construction and Materials.

Aluminium Crown Metal. Aluminium Crown Metal Co., *Glasgow*.  
GLASGOW, 1883.  
Delta Metal. Alex. Dick, *London*.  
GLASGOW, 1883.  
\*Improvements in Hollow Tile Flooring. G. E. Pritchett, F.S.A.,  
20, *Spring Gardens, S.W.* CROYDON, 1879.  
Damp-proof Concrete Pavement. W. B. Wilkinson, *Newcastle-upon-Tyne*.  
NEWCASTLE, 1882.  
Silica Glazed and Enamelled Fire Clay Bricks and Faience. Will-  
cocks & Co., *Burmantofts, Leeds*. CROYDON, 1879.

#### (2). Paints and other Protectives.

Scottish Asbestos. Scottish Asbestos Co., *Glasgow*. GLASGOW, 1883.  
Griffiths' Patent White, and for their preparations of Silicate Paint,  
Enamel Paint, and Petrifying Liquid. Silicate Paint Com-  
pany, *Cannon Street, E.C.* STAFFORD, 1878.  
Leadless "Charlton White" Paint and Dryers. J. B. Orr & Co.,  
*Charlton, London*. GLASGOW, 1883.

#### (3). Wall Papers.

Paper Hangings free from Arsenic. Woollams & Co., *High Street, Marylebone, London*.  
CROYDON, 1879.  
\*Non-arsenical Wall Papers. Woollams & Co., *London*.  
NEWCASTLE, 1882.

#### (4). Decorative Materials.

Colouring Patterns through the Substance of Wood. H. Chalk Webb,  
*Worcester*. EXETER, 1880.  
Wedgwood Ornamental Tiles. W. B. Morrison, *Glasgow*.  
GLASGOW, 1883.

#### (5). Machinery adapted for Sanitary Purposes.

Improved Six-Ton Steam Road Roller. Aveling & Porter, *Rochester*.  
CROYDON, 1879.  
Fryer's Destructor, Fryer's Carbonizer, and Firman's Dessicating and  
Rendering Apparatus. Manlove, Alliot, Fryer & Co., *Nottingham*.  
NEWCASTLE, 1882.

#### (6). Washing Machines.

Improved Washer, with table complete. J. Borwell, *Britannia Foundry, Burton-on-Trent*.  
LEAMINGTON, 1877.  
New "Shuttle" Steam Power Washing Machine. T. Bradford &  
Co., *London and Manchester*. LEAMINGTON, 1877.  
\*Shuttle Steam-Power Washing Machine. Thomas Bradford & Co.,  
*London and Manchester*. STAFFORD, 1878.  
Washing Machines. Thomas Bradford & Co., *London and Man-  
chester*. NEWCASTLE, 1882.  
\*Washing Machines. Thomas Bradford & Co., *London and Man-  
chester*. GLASGOW, 1883.

### CLASS II.—SEWERAGE AND WATER SUPPLY.

#### (1). Water Closets.

Excelsior Water Closet. D. T. Bostel, *Duke Street, Brighton*.  
LEAMINGTON, 1877.  
\*"Excelsior" Water Closet. D. T. Bostel, *Duke Street, Brighton*.  
STAFFORD, 1878.  
Full-flush Valveless Closet. Hayward, Tyler & Co., *London*.  
NEWCASTLE, 1882.  
Household Water Closet. O. D. Ward, *London*. NEWCASTLE, 1882.

## (2). Dry Closets.

- Dry Earth Closets. British Sanitary Company, *Glasgow*.  
NEWCASTLE, 1882.
- \*Improved Self-acting Earth Closets. British Sanitary Co., *Glasgow*.  
GLASGOW, 1883.
- Excreta Pail (oak) with Spring Lid. B. B. Harescough & Co., *Ben-  
tinck Street, Leeds*.  
LEAMINGTON, 1877.
- \*Excreta Pail (oak) with Spring Lid. B. B. Harescough & Co.,  
*Leeds*.  
STAFFORD, 1878.
- Dry Earth or Ashes Closet. R. R. Heap, *Manchester*.  
GLASGOW, 1883.
- Dry Closet, suitable for Ashes or Disinfecting Powder. L. Moser,  
*Southampton*.  
EXETER, 1880.
- Earth Closets. Moule's Patent Earth Closet Company, *5a, Garrick  
Street, W.C.*  
STAFFORD, 1878.
- \*Earth Closet. Moule's Patent Earth Closet Company (Limited), *5a,  
Garrick Street, W.C.*  
CROYDON, 1879.
- Dry Earth Closet. J. Parker, *Woodstock, Oxford*.  
LEAMINGTON, 1877.
- Portable Cinder Sifting Ash Closet, with Soil Pail. Sanitary Appliance  
Company, *Salford*.  
STAFFORD, 1878.
- \*Cinder-Sifting Ash Closet. Sanitary Appliance Company, *Factory  
Lane, Salford*.  
CROYDON, 1879.
- \*Moule's Earth Closet. Wippell Bros. & Row, 231 and 232, *High  
Street, Exeter*.  
EXETER, 1880.

## (3). Urinals.

## (4). Sewage Treatment.

No awards.

## (5). Traps.

- Exhibit of Stoneware Disconnecting Traps. J. Stewart, Sen., *Glas-  
gow*.  
GLASGOW, 1883.

## (6). Sinks.

No awards.

## (7). Baths and Lavatories.

- Hot-Air Bath. T. Galbraith, *Crawford Square, Londonderry*.  
LEAMINGTON, 1877.
- Concrete Bath in one piece. W. H. Lascelles, *Bunhill Row, E.C.*  
CROYDON, 1879.
- \*Concrete Bath, in one piece. W. H. Lascelles, *Bunhill Row, E.C.*  
EXETER, 1880.
- Porcelain Bath. Joseph Cliff & Sons, *Leeds*.  
GLASGOW, 1883.
- Fire-Clay Enamelled Bath. John Hall & Co., *Stourbridge*.  
GLASGOW, 1883.
- Flushing Rim Lavatory Basin and Apparatus. Tylor & Sons, *New-  
gate Street, E.C.*  
EXETER, 1880.

## (8). Apparatus for Water Supply.

- Anti-Percussion High Pressure Valves. Doulton & Co., *Lambeth,  
London*.  
CROYDON, 1879.
- \*Anti-percussion High Pressure Draw-off Valves. Doulton & Co.,  
*Lambeth, London*.  
EXETER, 1880.
- \*Anti-percussion High-pressure Valves. Doulton & Co., *Lambeth,  
London*.  
GLASGOW, 1883.
- Anti-percussion Ball Valve. Doulton & Co., *London*.  
NEWCASTLE, 1882.
- Improvements in Well Sinking Apparatus. Le Grand & Sutcliffe,  
*Bunhill Row, E.C.*  
LEAMINGTON, 1877.
- Buck's Automatic Rain-water Separator. Charles G. Roberts, *Hasle-  
mere, Surrey*.  
NEWCASTLE, 1882.
- \*Buck's Automatic Rain-water Separator. C. G. Roberts, *Haslemere,  
Surrey*.  
GLASGOW, 1883.
- \*Improvements in Internal driving of Tube Wells. Le Grand &  
Sutcliffe, 100, *Bunhill Row, London*.  
CROYDON, 1879.

## (9). Cisterns.

## (10). Flushing and Watering.

No awards.

## (11). Miscellaneous Sanitary Goods.

- Exhibit of Sanitary Appliances. W. P. Buchan, *Glasgow*.  
GLASGOW, 1883.
- Direct Acting Valveless Waste Preventer. A. T. Bean, *5, Cannon  
Row, S.W.*  
EXETER, 1880.
- Stanford's Joints for Stoneware Pipes. Doulton & Co., *Lambeth,  
London*.  
STAFFORD, 1878.
- \*Stanford's Joints for Stoneware Pipes. Doulton & Co., *Lambeth,  
London*.  
EXETER, 1880.
- \*Stoneware Pipes with Stanford's Joint. J. Stewart, Sen., *Glasgow*.  
GLASGOW, 1883.
- \*Bean's Direct Acting Valveless Waste Preventer. O. D. Ward,  
*London*.  
NEWCASTLE, 1882.

## CLASS III.—HEATING, LIGHTING, AND VENTILATION.

## (1). Heating Apparatus.

- Ventilating Tile Stove. Doulton & Co., *Lambeth, London*.  
EXETER, 1880.
- \*Ventilating Tile Stoves. Doulton & Co., *London*.  
NEWCASTLE, 1882.
- \*Ventilating Tile Stove. Doulton & Co., *Lambeth, London*.  
GLASGOW, 1883.
- Challenge Hot-water Boiler. J. Keith, *London and Edinburgh*.  
GLASGOW, 1883.

- Silicate Cotton (Slag-wool). J. A. G. Ross, *Newcastle-upon-Tyne*.  
NEWCASTLE, 1882.  
Dr. Bond's Euthermic Gas Stove. Sanitary & Economic Supply  
Association, *Gloucester*. EXETER, 1880.

## (2). Cooking Apparatus.

- Apparatus for Cooking by Gas. Billing & Co., *Hatton Garden, E.C.*  
STAFFORD, 1878.  
\*“Workman's” Cooking Stove, and other Improvements in Gas-  
Cooking Stoves. Billing & Co., *Hatton Garden, E.C.*  
CROYDON, 1879.  
Economical Cooking Range. G. H. Harris, *Bristol Street, Birming-  
ham*. LEAMINGTON, 1877.  
\*Economical Cooking Range. G. H. Harris, *Bristol Street, Birming-  
ham*. STAFFORD, 1878.  
Phoenix Portable Range, and the Birmingham Range with Reducible  
Fire without Gas. Hassall & Singleton, *Birmingham*.  
STAFFORD, 1878.  
Apparatus for Cooking by Gas. S. Leoni & Co., *Strand*.  
STAFFORD, 1878.  
“Sine qua non” Open and Close Fire Range. A. Shaw & Son,  
*Glasgow*. GLASGOW, 1883.  
Artizan Cooking Range. Walker, Turnbull & Co., *Falkirk*.  
GLASGOW, 1883.  
Improved Open or Close Range Kitchener. W. P. Wenham, *Church  
Street, Croydon*. CROYDON, 1879.  
Wilson Portable Close Cooking Range. Wilson Engineering Com-  
pany, *Holborn, W.C.* EXETER, 1880.  
Improved Wilson Range with Steel Boiler and non-conducting  
Jacketting. Wilson Engineering Company, *London*.  
NEWCASTLE, 1882.  
\*“Wilson Cooking Range.” Wilson Engineering Company, *London*,  
GLASGOW, 1883.  
Cooking Range with Revolving Fire for the Prevention of Smoke.  
Whyte & Bradford, *Bowness*. GLASGOW, 1883.

## (3). Lighting.

- Prismoidal Pavement and Floor Lights. Hamilton & Co., *Leaden-  
hall Street, E.C.* CROYDON, 1879.  
Siemens's Regenerative Gas Burner. Mather & Armstrong, *New-  
castle-upon-Tyne*. NEWCASTLE, 1882.  
Mercury Gas Governor. James Stott & Co., *Oldham*.  
NEWCASTLE, 1882.  
\*“Stott” Gas Governor. A. Brown & Co., *Glasgow*.  
GLASGOW, 1883.

## (4). Ventilation.

- Conical Ventilators. J. E. Ellison, *Leeds*. STAFFORD, 1878.  
\*Conical Ventilators. J. E. Ellison, *Leeds*. CROYDON, 1879.  
\*Conical Ventilators. J. E. Ellison *Leeds*. GLASGOW, 1883.

- Auto-Pneumatic Ventilation. Nathan Hunt, *Bristol*. EXETER, 1880.  
Glass Louvre Ventilators. J. Moore, *St. James' Walk, Clerkenwell,  
E.C.* EXETER, 1880.  
Economic Hollow Flooring. G. E. Pritchett, 20, *Spring Gardens,  
S.W.* STAFFORD, 1878.

CLASS IV. — PERSONAL HYGIENE FOODS, AND  
DISINFECTANTS.

## (1). Clothing.

No awards.

## (2). Beds, &amp;c.

- Excelsior Spring Mattress. Chorlton & Dugdale, *Manchester*.  
LEAMINGTON, 1877.  
\*“Excelsior” Spring Mattress. Chorlton & Dugdale, *Manchester*.  
STAFFORD, 1878.  
\*“Excelsior” Spring Mattress Hospital Bed. Chorlton & Dugdale,  
*Manchester*. CROYDON, 1879.  
\*“Excelsior Spring” Mattress. Chorlton & Dugdale, *Manchester*.  
EXETER, 1880.  
\*“Excelsoir” Spring Mattress. Chorlton & Dugdale, *Manchester*.  
NEWCASTLE, 1882.  
\*“Excelsior” Spring Mattress. Chorlton & Dugdale, *Manchester*.  
GLASGOW, 1883.  
“Universal” Invalid Tubular Water and Air Bed. Pocock Bros.,  
*Southwark Bridge Road*. STAFFORD, 1878.  
\*“Universal” Invalid Tubular Air and Water Bed. Pocock Bros.,  
*Southwark Bridge Road, S.E.* CROYDON, 1879.

## (3). Educational Appliances.

- School Furniture. Colman & Glendenning, *Norwich*.  
EXETER, 1880.

## (4). Domestic Appliances.

- Invalid Furniture. J. Carter, 6a, *Cavendish Street, W.*  
EXETER, 1880.  
Machine for Washing and Cooling Butter. F. & C. Hancock, *Dudley,  
Worcester*. LEAMINGTON, 1877.  
\*Machine for Washing and Cooling Butter. F. & C. Hancock,  
*Dudley, Worcester*. STAFFORD, 1878.  
Exhibit of Machines for Domestic use. F. & C. Hancock, *Dudley,  
Worcestershire*. GLASGOW, 1883.

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APPENDIX.

Arcanum Process of Silver Plating Steel. Jefferson Read, *Birmingham*.  
CROYDON, 1879.

(5). Foods.  
No awards.

(6). Filters and Arrangements for Softening Water.

Filtre Rapide. P. A. Maignen, *Great Tower Street, E.C.*  
CROYDON, 1879.

\*Filtre Rapide. P. A. Maignen, *Great Tower Street, E.C.*  
EXETER, 1880.

\*Filtre Rapide. P. A. Maignen, *Great Tower Street.* GLASGOW, 1883.  
Bischof's Spongy Iron Filter. Spongy Iron Water Purifying Com-  
pany, *Oxford Street, W.C.* LEAMINGTON 1877.

(7). Mineral Waters.  
No awards.

(8). Disinfectants.

Calvert's Carbolic Acid for disinfecting purposes. Calvert & Co.,  
*Bradford, Manchester.* LEAMINGTON, 1877.

\*Carbolic Acid. F. C. Calvert & Co., *Bradford.* CROYDON, 1879.

\*Carbolic Acid and preparations of it. F. C. Calvert & Co., *Brad-*  
*ford.* EXETER, 1880.

\*Carbolic Acid, and Preparations from it. F. C. Calvert & Co., *Man-*  
*chester.* GLASGOW, 1883.

Little's Soluble Phenyle. Morris, Little & Co., *Doncaster,*  
STAFFORD, 1878.

Sanitas Oil. Sanitas Company (Limited), *London.* NEWCASTLE, 1882.  
Chemical Preparations and Apparatus. Société Française D'Hygiène,  
*Paris.* LEAMINGTON, 1877.

(9). Disinfecting Apparatus.

Portable Disinfecting Apparatus. Fraser Bros., *Commercial Road, E.*  
CROYDON, 1879.

Acid Pump and Syphon. Chas. W. Walker, *Wandsworth Common.*  
CROYDON, 1879.

CLASS V.—MISCELLANEOUS.

Articles of Sanitary Interest not included in the above Classes,  
such as :—

(1). Scientific Instruments.

For Exhibit of Hospital and Sick Room Appliances. W. B. Hilliard  
& Sons, *Glasgow.* GLASGOW, 1883.

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(2). Books on Sanitation.

Books on Hygiène. Société d'Hygiène, *Paris.* NEWCASTLE, 1882.  
Sanitary Engineer of New York Newspaper. H. C. Meyer, *New*  
*York.* GLASGOW, 1883.

(3). Prevention of Accidents.

"Kredemmon" Life-saving Garments. F. Wentworth & Co., *London.*  
GLASGOW, 1883.

(4). Methods for the Disposal of the Dead.  
No awards.

(5). Sundries.

Ambulance Wheeled Litter. Maj. F. Duncan, *The Common, Wool-*  
*wich.* STAFFORD, 1878.

Tyndall's Smoke Respirator. J. Sinclair, *Leadenhall Street, E.C.*  
CROYDON, 1879.

## CERTIFICATES AWARDED AT THE EXHIBITIONS.

## CLASS I.—CONSTRUCTION AND MACHINERY.

## (1). Construction and Materials.

- Adjustable Shoe and Regulating Spring Hinge for Swinging Doors. R. Adams, 7, *Great Dover Street, S.E.* CROYDON, 1879.  
 Fanlight Openers and Casement Fasteners. R. Adams, 7, *Great Dover Street, S.E.* CROYDON, 1879.  
 Granite Vitrified Bricks and Paving. Candy & Co., *Newton Abbot.* EXETER, 1880.  
 Glazing without Putty. Pennycook Patent Glazing & Engineering Company, *Glasgow.* GLASGOW, 1883.  
 Revolving Shutters, with Balance Weight Motion. Salmon, Barnes & Co., *Ulverston.* EXETER, 1880.  
 Hygeian Rock Building Composition. William White, *Abergavenny.* NEWCASTLE, 1882.

## (2). Paints and other Protectives.

No award.

## (3). Wall Papers.

- "Lincrusta Walton." F. Walton & Co., *London.* GLASGOW, 1883.

## (4). Decorative Materials.

- Decorative Tiles for Covering Walls and Floors. Doulton & Co., *Lambeth, London.* CROYDON, 1879.

## (5). Machinery adapted for Sanitary Purposes.

- Improved Non-Absorbent Tub or Pail Van. J. B. McCallum, *Stafford.* EXETER, 1880.

## (6). Washing Machines.

- "Vowel E." Bradford's Family Washing Machine. Garton & King, *Exeter.* EXETER, 1880.  
 Paragon Washing Machine with Canadian Washer. Kirsop & Co., *Newcastle-upon-Tyne.* NEWCASTLE, 1882.  
 Mitchell's Patent Steam Washer. James Mitchell, *Newcastle-upon-Tyne.* NEWCASTLE, 1882.

## CLASS II.—SEWERAGE AND WATER SUPPLY.

## (1). Water Closets.

- Artizan Closet. Beard, Dent & Hellyer, 21, *Newcastle Street, W.C.* CROYDON, 1879.  
 Economical Flush-Out Closet. Doulton & Co., *Lambeth, London.* EXETER, 1880.

- Flush-out Closet. Doulton & Co., *London.* NEWCASTLE, 1882.  
 "Lambeth" Flush-out Closet. Doulton & Co., *Lambeth, London.* GLASGOW, 1883.  
 "Lambeth" Trough Closet with Automatic Flush Tank. Doulton & Co., *Lambeth, London.* GLASGOW, 1883.  
 Improved Seat for Water Closets. E. & A. E. Gilbert, *Broughty Ferry, Forfarshire.* GLASGOW, 1883.  
 Fowler's Water-closet. W. Harriman & Co., *Blaydon-upon-Tyne.* NEWCASTLE, 1882.  
 "National" Water Closet. W. B. Morrison, *Glasgow.* GLASGOW, 1883.  
 "Clear Way" Regulator Valve Water Closet, without overflow communicating with Valve Box. J. Tylor & Sons, 2, *Newgate Street, E.C.* EXETER, 1880.  
 "National" Water Closet. Henry Watson & Son, *Newcastle-upon-Tyne.* NEWCASTLE, 1882.  
 "Crown" Cottage Water Closet. Henry Watson & Son, *Newcastle-upon-Tyne.* NEWCASTLE, 1882.

## (2). Dry Closets.

- Self-Acting Earth Closet. British Sanitary Company, *Glasgow.* EXETER, 1880.  
 Moser's Self-Acting Dry Closet. J. C. Onions (Limited), *Birmingham.* CROYDON, 1879.  
 Dry Earth Commode without Separator. J. Parker, *Woodstock.* EXETER, 1880.

## (3). Urinals.

- Flush-out Urinal Basin. J. Tylor & Sons, *London.* NEWCASTLE, 1882.

## (4). Sewage Treatment.

- Iron Basket Sewage-strainer. T. Harnett Harrison, *Liverpool.* GLASGOW, 1883.  
 Pneumatic Liquid Ejector. Isaac Shone, *Wrexham.* STAFFORD, 1878.

## (5). Traps.

- Ventilating Drain Syphon. Beard, Dent & Hellyer, 21, *Newcastle Street, W.C.* CROYDON, 1879.  
 Disconnecting Drain Trap. W. P. Buchan, *Glasgow.* NEWCASTLE, 1882.  
 Disconnecting Drain Trap. W. P. Buchan, *Glasgow.* GLASGOW, 1883.  
 Grease Trap for Kitchen Sinks. W. P. Buchan, *Glasgow.* GLASGOW, 1883.  
 Buchan's Trap. J. & M. Craig, *Kilmarnock.* EXETER, 1880.  
 Buchan's Drain Trap and Drain-pipes, with Access Cover. J. & M. Craig, *Kilmarnock.* NEWCASTLE, 1882.

- Exhibit of Stoneware Disconnecting Traps. J. & M. Craig, *Kilmarnock*. GLASGOW, 1883.
- Disconnecting Gully, with back and side Entrances and iron grating. Doulton & Co., *Lambeth, London*. CROYDON, 1879.
- Reversible Inlet Gully, with Dished Stoneware Cover and Iron Grating. Doulton & Co., *London*. NEWCASTLE, 1882.
- Dean's External Drain Traps, with moveable receptacle. J. C. Edwards, *Trefynant Ruabon*. CROYDON, 1879.
- Smith's Cast Lead Syphon Traps. J. Fell & Co., *Wolverhampton*. NEWCASTLE, 1882.
- Hornibrook's Catchment Grating for Steep Gradients. Hammond & Hussey, *High Street, Croydon*. CROYDON, 1879.
- "Eagle" Sanitary Trap, for superseding Bell Traps. Hygienic Stove and Grate Company, 15, *Peel Buildings, Birmingham*. CROYDON, 1879.
- Edinburgh Air-Chambered Sewer Trap. Potts & Co., *Handsworth, Birmingham*. STAFFORD, 1878.
- Dean's Gully Trap. Rimington Bros. & Co., *Newcastle-upon-Tyne*. NEWCASTLE, 1882.
- Disconnecting Chamber for House Drains, with open Stoneware Channels. J. Stewart, Sen., *Glasgow*. GLASGOW, 1883.
- Weaver's Ventilating Sewer Air Trap. James Stiff & Sons, *Lambeth, London*. STAFFORD, 1878.

## (8). Sinks.

- White Enamelled Fire Clay Sinks. J. & M. Craig, *Kilmarnock*. NEWCASTLE, 1882.
- White Enamelled Fire Clay Sinks. J. & M. Craig, *Kilmarnock*. GLASGOW, 1883.
- "Artizans' Dwellings Sink." G. Jennings, *Stangate, London*. CROYDON, 1879.
- Swivel, Lock Plug, and Overflow for Sinks. Stidder & Co., 50, *Southwark Bridge Road, S E*. CROYDON, 1879.
- Improved Enamelled Iron Slop Sink, with Regulator Supply Valve. J. Tylor & Sons, 2, *Newgate Street, E.C.* EXETER, 1880.
- Hospital Slop Sink with Waste-not Regulator Valve. J. Tylor & Sons, *London*. NEWCASTLE, 1882.
- Fire-Clay Sanitary Sinks, and Water Troughs. Willcock & Co., *Burmantofts, Leeds*. CROYDON, 1879.

## (7). Baths and Lavatories.

- Jennings's Universal Shampooing Apparatus. Dinning & Cooke, *Newcastle-upon-Tyne*. NEWCASTLE, 1882.
- Tip-up Lavatory Basin. Doulton & Co., *London*. NEWCASTLE, 1882.
- Clark's Anti-splash Tip-up Lavatory Basin. J. Fell & Co., *Wolverhampton*. NEWCASTLE, 1882.
- Lavatory. Gillow & Co., *Oxford Street, W*. STAFFORD, 1878.

- Shower and Douche Bracket. Hayward, Tyler & Co., *London*. NEWCASTLE, 1882.
- "Universal" Shampooing Apparatus. G. Jennings, *Stangate, London*. CROYDON, 1879.
- Lavatory Basin with Flushing Rim. C. T. Maling, *Newcastle-upon-Tyne*. NEWCASTLE, 1882.
- Sanitary Earthenware. C. T. Maling, *Newcastle-upon-Tyne*. NEWCASTLE, 1882.
- Enamelled Fire Clay Bath. Rimington Bros., & Co., *Newcastle-upon-Tyne*. NEWCASTLE, 1882.
- Porcelain Baths, moulded and glazed in one piece. Ruffard & Co., *Clay Works, Stourbridge*. STAFFORD, 1878.
- Cast Iron Bath. Shanks & Co., *Glasgow*. GLASGOW, 1883.
- Porcelain Lavatories, with moveable caps for access to fittings. Shanks & Co., *Glasgow*. GLASGOW, 1883.
- "Eureka" Spray and Plunge Bath. Shanks & Co., *Glasgow*. GLASGOW, 1883.
- Flushing-rim Lavatory Basin with Quick Waste. J. Tylor & Sons, *London*. NEWCASTLE, 1882.

## (8). Apparatus for Water Supply.

- Syphon for Water Closet Cisterns. Braithwaite & Co., *Leeds*. CROYDON, 1879.
- Anti-percussion High-pressure Bib Valves. Doulton & Co., *London*. NEWCASTLE, 1882.
- Bath Locking Valves, for preventing waste of water. Doulton & Co., *London*. NEWCASTLE, 1882.
- Latham's Flap Valve. Doulton & Co., *London*. NEWCASTLE, 1882.
- Water-taps. J. Fell & Co., *Wolverhampton*. NEWCASTLE, 1882.
- Large Way Waste Plug, with Protective Cover. Finch & Co., 181, *High Holborn, W.C.* CROYDON, 1879.
- Hose Reel. Headley & Sons, *Cambridge*. CROYDON, 1879.
- Improved Paragon Valve. W. Ross, *Glasgow*. GLASGOW, 1883.
- Improved Full-Way Stop Valve. J. Tylor & Sons, 2, *Newgate Street, E.C.* EXETER, 1880.
- "Waste Not" Regulator Valve. J. Tylor & Sons, 2, *Newgate Street, E.C.* EXETER, 1880.
- Bath Locking Valves for preventing Waste of Water. J. Tylor & Sons, *London*. NEWCASTLE, 1882.
- Waste-not Regulator Valve. J. Tylor & Sons, *London*. NEWCASTLE, 1882.

## (9). Cisterns.

No awards.

## (10). Flushing and Watering.

- Waste-preventing Flushing Syphon. Henry Watson & Son, *Newcastle-upon-Tyne*. NEWCASTLE, 1882.
- Syphon Flushing Cistern. Wright & Stevens. NEWCASTLE, 1882.

## (11). Miscellaneous Sanitary Goods.

- Air-tight Man-hole Door. A. T. Angell, *London*. NEWCASTLE, 1882.  
 Air-tight Man-hole Covers. A. T. Angell, *London*. GLASGOW, 1883.  
 Exhibit of Salt-glazed Fire-clay Sewer-pipes. J. Binnie, *Gartcosh, Glasgow*. GLASGOW, 1883.  
 Stoneware Pipes. Branksea Island Pottery Company (Limited), *Poole, Dorset*. EXETER, 1880.  
 Improved Drain-pipe with Access Cover. W. P. Buchan, *Glasgow*. NEWCASTLE, 1882.  
 Brian Jones's Joint for connecting Closet with Soil-pipe. Capper, Son, & Co., *London*. NEWCASTLE, 1882.  
 Maguire's Cradle Joint for Drain-pipes. J. & M. Craig, *Kilmar-nock*. NEWCASTLE, 1882.  
 Cast Iron Channels for Stable Drainage. Dinning & Cooke, *Newcastle-upon-Tyne*. NEWCASTLE, 1882.  
 Joint for Drain-pipes. Doulton & Co., *London*. NEWCASTLE, 1882.  
 Silicon Tread for Steps. Doulton & Co., *Lambeth, London*. GLASGOW, 1883.  
 Cotton Machine Belting. M. Gandy, *Liverpool*. GLASGOW, 1883.  
 Steil's Fastener for Machine Belting. M. Gandy, *Liverpool*. GLASGOW, 1883.  
 Drain-cleaning Rods, and Stoneware Horse Manger. Oates & Green, *Horley Green Fire Clay Works, Halifax*. STAFFORD, 1878.  
 Artificial Stone Tubes. Patent Victoria Stone Company, *Kingsland Road, E.* CROYDON, 1879.  
 Rock Concrete Tubes. Sharpe, Jones & Co., *Bourne Valley Pottery, Poole, Dorset*. CROYDON, 1879.  
 Large Fire-clay Drain-pipes. Straker & Love, *Newcastle-upon-Tyne*. NEWCASTLE, 1882.  
 Cup Grating for Sinks. Thomasson & Key, *Worcester*. NEWCASTLE, 1882.  
 Joint for Lead Pipes. J. Tylor & Sons, *London*. NEWCASTLE, 1882.  
 Terry's Pedal-action for Water-closets. J. Tylor & Sons, *London*. NEWCASTLE, 1882.  
 Ransome's Artificial Stone Air Brick. Wippell Bros. & Row, 231, *High Street, Exeter*. EXETER, 1880.

## CLASS III.—HEATING, LIGHTING AND VENTILATION.

## (1). Heating Apparatus.

- George's Calorigen. Dinning & Cooke, *Newcastle-upon-Tyne*. NEWCASTLE, 1882.  
 Grates, Mantel-pieces, and Over-mantels. Dinning & Cooke, *Newcastle-upon-Tyne*. NEWCASTLE, 1882.

- Tortoise Slow Combustion Stoves. Hydes & Wigfield, *Sheffield*. GLASGOW, 1883.  
 Tortoise Laundry Stove. Hydes & Wigfield, *Sheffield*. GLASGOW, 1883.  
 Steam Heating Apparatus, combining heating and ventilating. Mather & Armstrong, *Newcastle-upon-Tyne*. NEWCASTLE, 1882.  
 Warming and Ventilating Appliances. G. E. Pritchett, 20, *Spring Gardens, S.W.* STAFFORD, 1878.  
 Corrugated Iron Hot-Water Warming Appliances. G. E. Pritchett, 20, *Spring Gardens, S.W.* EXETER, 1880.  
 Open Grate for consuming Smoke. James Smith, *Liverpool*. NEWCASTLE, 1882.  
 Thermhydic Ventilating Hot-water Open Fire Grate. H. Saxon Snell, *Southampton Buildings*. STAFFORD, 1878.  
 Tubular-Calorifer for Greenhouses. William Thornburn, *Borough Bridge*. NEWCASTLE, 1882.  
 Conservatory Boiler, with Hot-Water Pipe. Wippell Bros. & Row, *Exeter*. EXETER, 1880.  
 "Cosey" Portable Open Gas Fire, with Platinum Wire and Asbestos Packing. John Wright & Co., *Birmingham*. NEWCASTLE, 1882.

## (2). Cooking Apparatus.

- Solid Flame Boiling Stove. Arden, Hill & Co., *Birmingham*. NEWCASTLE, 1882.  
 Combined Close Fire and Gas Cooking Range. Carron Co., *Falkirk*. GLASGOW, 1883.  
 "Sunlight Stove." Chorlton & Dugdale, 19, *Blackfriars Street, Manchester*. EXETER, 1880.  
 Devonshire Cooking Range. T. J. Constantine, *Fleet Street, E.C.* EXETER, 1880.  
 Tin Cooking Utensils. Mrs. A. Lewis, *Manchester*. CROYDON, 1879.  
 Dows' Close and Open Fire, Cooking Range. W. McGeoch & Co., *Glasgow*. GLASGOW, 1883.  
 Simplex Cooking Range. Walker, Turnbull & Co., *Falkirk*. GLASGOW, 1883.  
 Cooking Stove with Warm-Air Chamber, Thos. Waller, 47, *Fish Street Hill, E.C.* CROYDON, 1879.  
 Cottage Range. Wippell Bros. & Row, *Exeter*. EXETER, 1880.

## (3). Lighting.

- Improved Gas Burners. Bray & Co., *Blackman Lane, Leeds*. CROYDON, 1879.  
 Portable Gas Apparatus for Manufacturing Gas from Gasoline, F. W. Clarke's Portable Gas Apparatus Company (Limited), *Great Queen Street, W.C.* CROYDON, 1879.  
 Albo Carbon Light. William Forrest, *Newcastle-upon-Tyne*. NEWCASTLE, 1882.



- Albo-Carbon Light. Osbert Henderson, *Glasgow*. GLASGOW, 1883.  
 Duplex Burner. T. Heron, *Manchester*. NEWCASTLE, 1882.  
 "Rheo-meter" Street Lamp Regulator. S. Leoni & Co., *Strand*,  
*W.C.* STAFFORD, 1878.  
 Hink's Duplex Lamp with Extinguisher. Mather & Armstrong,  
*Newcastle-upon-Tyne*. NEWCASTLE, 1882.  
 "Milwaukee" Glass Lantern or Hurricane Lantern. S. E. Ransome  
 & Co., 10, *Essex Street, W.C.* CROYDON, 1879.  
 Gaseliers and Gas Brackets. Willey & Co., *Exeter*. EXETER, 1880.  
 Chappuis Daylight Reflector. Wippell Bros. & Row, 231, *High*  
*Street, Exeter*. EXETER, 1880.

## (4). Ventilation.

- Method of Costless Ventilation. Peter Hinckes Bird, 1, *Norfolk*  
*Square, W.* CROYDON, 1879.  
 Glass Revolving and Sliding Ventilators. H. W. Cooper & Co.,  
*London*. GLASGOW, 1883.  
 NEWCASTLE, 1882.  
 Air Inlet Head for Drain Ventilation. H. S. Cregeen, *Bromley*.  
 "Radiator" Ventilator, with Screw Action. J. E. Ellison, *Leeds*.  
 GLASGOW, 1883.  
 Double Current Ventilators. Hill & Hey, *Halifax*. GLASGOW, 1883.  
 Outlet Ventilator. C. Kite & Co. *London*. NEWCASTLE, 1882.  
 Noiseless Chimney Breast Outlet Ventilator. C. Kite & Co., *London*.  
 GLASGOW, 1883.  
 Wall Inlet Ventilator. C. Kite & Co., *London*. GLASGOW, 1883.  
 "Imperial" Ventilating Window. U. Knell, 77, *Fore Street, E.C.*  
 CROYDON, 1879.  
 Opener for Fanlight. W. & R. Leggott, *Bradford*. GLASGOW, 1883.  
 Morgan's Stench Exhaust. Nailsworth Foundry Company. *Bristol*.  
 NEWCASTLE, 1882.  
 Ornamental Inlet Ventilators. C. H. Sharp & Co., *High Holborn*,  
*E.C.* EXETER, 1880.  
 Boyle's Mica-Valved Outlet Ventilator. Wenham & Co., *Church*  
*Street, Croydon*. CROYDON, 1879.

CLASS IV.—PERSONAL HYGIENE, FOODS, AND  
DISINFECTANTS.

## (1.) Clothing.

- Ventilatorium Waterproof Garments. Bartrum, Harvey & Co., *Lon-*  
*don*. STAFFORD, 1878.

## (2). Beds, &amp;c.

- Metallic Tubular Bedsteads and Invalid Bedrests. Thomas Allen,  
*St. Augustine's Parade, Bristol*. STAFFORD, 1878.  
 Folding Invalid Bed. Ansell Ball, *Spalding*. CROYDON, 1873.

- Spring Mattresses. Billington Bros., *Liverpool*. GLASGOW, 1883.  
 Central Tube Water Mattress. Brady & Martin, *Newcastle-upon-*  
*Tyne*. NEWCASTLE, 1882.  
 Bed Rest with Movable Arms. William Brock & Co., 177, *Fore*  
*Street, Exeter*. EXETER, 1880.  
 "Nonsuch" Adjustable Chair. William Brock & Co., 177, *Fore*  
*Street, Exeter*. EXETER, 1880.  
 Spring Mattress. Bussey & Co., *Museum Works, Peckham, S.E.*  
 CROYDON, 1879.  
 "Invalid's" Adjustable Bed. Chorlton & Dugdale, *Manchester*.  
 EXETER, 1880.  
 "Excelsior" Ships' Berth. Chorlton & Dugdale, *Manchester*.  
 GLASGOW, 1883.  
 Automaton Seat for Drapers. Colman & Glendenning, *Norwich*.  
 EXETER, 1880.  
 Spring Mattress. A. Gardner & Son, *Glasgow*. GLASGOW, 1883.  
 Parquet Flooring. A. Gardner & Co., *Glasgow*. GLASGOW, 1883.  
 Self-acting Sick Bed. E. K. Groves, *Bristol*. GLASGOW, 1883.  
 "Grasshopper" Couch. W. Hamilton, *Brighton*. STAFFORD, 1878.  
 Invalid "Grasshopper" Couch. William Hamilton, *Brighton*.  
 NEWCASTLE, 1882.  
 Fernby's "Paragon" Camp Furniture. Wippell Bros. & Row, *Exeter*.  
 EXETER, 1880.

## (3). Educational Appliances.

- School Desks with Shifting Seats. Colman & Glendenning, *Norwich*.  
 STAFFORD, 1878.  
 Dual Desk, with Separate Gangway Seat. Thomas Larmouth & Co.,  
*Salford*. STAFFORD, 1878.

## (4). Domestic Appliances.

- Automatic Chariot for Children. William Bowden, *London*,  
 NEWCASTLE, 1882.  
 Compostella Fire Lights for Lighting Fires. Compostella Fire Light  
 Company, *Fenchurch Street, E.C.* STAFFORD, 1878.  
 Stoneware Churns. F. Grosvenor, *Glasgow*. GLASGOW, 1883.  
 Dough Kneading Machine. F. & C. Hancock, *Dudley, Worcester*.  
 EXETER, 1880.  
 New Propellor Churn. F. & C. Hancock, *Dudley, Worcester*.  
 EXETER, 1880.  
 Machine for Washing and Peeling Potatoes. F. & C. Hancock,  
*Dudley*. NEWCASTLE, 1882.  
 Pendulous Food Warmers. Osbert Henderson, *Glasgow*.  
 GLASGOW, 1883.  
 Various Inventions for Promoting Domestic Economy. W. H. Hil-  
 ton, *Leamington*. STAFFORD, 1878.  
 India Rubber Gas Tubing. A. Hutchinson & Co., *Great Winchester*  
*Street, E.C.* EXETER, 1880.  
 India Rubber Vessels for hospital use. H. A. Murton, *Newcastle-upon-*  
*Tyne*. NEWCASTLE, 1882.  
 China Cups and other Vessels for invalid use. Townsend & Co.,  
*Newcastle-upon-Tyne*. NEWCASTLE, 1882.

"Noiseless Ware." Vernon's Patent China and Glass Company.  
London. GLASGOW, 1883.  
Improved Housemaid's Box with Sifter. Wippell Bros. & Row,  
High Street, Exeter. EXETER, 1880.

## (5). Foods.

Currie Powders. J. Edmunds, London. NEWCASTLE, 1882.  
Cocoa Extract and Preparations of Chocolate. J. S. Fry & Sons,  
Union Street, Bristol. EXETER, 1880.  
Mustard. Irvine & Co., Gateshead. NEWCASTLE, 1882.

## (6). Filters and Arrangements for Softening Water.

"Bijou" Filtre Rapide. P. A. Maignen, Great Tower Street, E.C.  
EXETER, 1880.  
Improved Filtre Rapide. P. A. Maignen, Great Tower Street, E.C.  
NEWCASTLE, 1882.  
Silicated Carbon Double Chambered Table Filters. Silicated Carbon  
Filter Company, Batterssea. EXETER, 1880.  
Silicated Carbon Filtering Material. Silicated Carbon Filter Com-  
pany, London. NEWCASTLE, 1882.  
Carbonised Iron Stone Mound Filter for Water. J. A. Stephan,  
Worcester. EXETER, 1880.  
Artificial Stone Filters, for Cleansing Rain Water for Domestic Use.  
Thorn & Co., Stafford. STAFFORD, 1878.

## (7). Mineral Waters.

Potash, Soda and Seltzer Waters and Lemonade. British Mineral  
Water Company, Glasgow. NEWCASTLE, 1882.  
Preparations of Lime Juice, Aromatic Ginger Ale, and Quinine Tonic.  
Carter & Co., Old Refinery, Bristol. EXETER, 1880.  
Zoedone. (Patentee David Johnson, F.C.S.) Evans & Co., Wrexham.  
CROYDON, 1879.  
Lemonade, Lime Juice, and Ginger Ale. Gulliver & Co., Aylesbury.  
CROYDON, 1879.  
Seltzer Water. Jewsbury & Brown, Manchester. STAFFORD, 1878.  
Ginger Ale and Lemonade. Newry Mineral Water Company  
(Limited), Liverpool. CROYDON, 1879.  
Seltzer, Soda, and Potash Waters, and Orange Quinine Tonic  
G. H. Skinner, 13, North Street, Exeter. EXETER, 1880.

## (8). Disinfectants.

Red Cross Yellow Fluid. Antiseptic Apparatus Manufacturing Co.,  
London. NEWCASTLE, 1882.  
Jeyes' Perfect Purifier. Jeyes' Sanitary Compound Company,  
Bishopsgate Street, E.C. CROYDON, 1879.  
Jeyes' Perfect Purifier. Jeyes' Sanitary Compound Company, Lon-  
don. NEWCASTLE, 1882.  
Jeyes' Disinfecting Fluid. Jeyes' Sanitary Compound Co., London  
and Glasgow. GLASGOW, 1883.

## (9) Disinfecting Apparatus.

Improved Vaporiser for Disinfecting. F. C. Calvert & Co., Brad-  
ford. EXETER, 1880.

Dr. Scott's Disinfecting Apparatus. Maguire & Son, Dublin  
NEWCASTLE, 1882.  
Lyon's Disinfectant. Manlove, Alliot, Fryer & Co., Nottingham.  
NEWCASTLE, 1882.

## CLASS V.—MISCELLANEOUS.

Articles of Sanitary Interest not included in the above Classes,  
such as:—

## (1). Scientific Instruments.

Largo Legible Spirit Thermometer. P. Hinckes Bird, 1, Norfolk  
Square, N.W. EXETER, 1880.  
Instruments used by Medical Officers of Health. Brady & Martin,  
Newcastle-upon-Tyne. NEWCASTLE, 1882.  
New Oven Pyrometer. Joseph Davis & Co., London,  
NEWCASTLE, 1882.  
Burn and Wound Boxes. W. B. Hilliard & Sons, Glasgow.  
GLASGOW, 1883.  
Isolating Curtain. W. B. Hilliard & Sons, Glasgow. GLASGOW, 1883.  
Thermometrical Instruments. G. E. Pritchett, 20, Spring Gardens,  
S.W. STAFFORD, 1878.  
Barometrical and Thermometrical Instruments. G. E. Pritchett, 20,  
Spring Gardens, S.W. CROYDON, 1879.  
Improvements in Thermometrical and Barometrical Instruments.  
G. E. Pritchett, 20, Spring Gardens, S.W. EXETER, 1880.  
Webster's Photometer. Webster & Co., Nottingham.  
CROYDON, 1879.

## (2). Books on Sanitation.

Exhibit of Drawings and Books Relating to Disposal of Sewage  
in Paris. A. Durand Claye, Paris. GLASGOW, 1883.  
Publications. Ladies' Sanitary Association, Berners Street, W.  
STAFFORD, 1878.  
Sanitary Publications. Smith, Elder, & Co., London.  
NEWCASTLE, 1882.  
Sanitary Publications. Smith, Elder & Co., London. GLASGOW, 1883.

## (3). Prevention of Accidents.

Safety Belt Shippers. Selig, Sonnenthal & Co. (Limited), Lambeth  
Hill, Queen Victoria Street, E.C. CROYDON, 1879.  
Chemical Fire Exterminator. J. Sinclair, 104, Leadenhall Street,  
E.C. CROYDON, 1879.

## (4). Methods for the Disposal of the Dead.

"Earth to Earth" Coffins. London Necropolis Company, Strand,  
W.C. STAFFORD, 1878.  
Folding Bier and Car for Simplifying Funerals. S. Stretton, Kidder-  
minster. CROYDON, 1879.

ALPHABETICAL LIST OF MEDALS AWARDED AT THE EXHIBITIONS.

RICHARDSON MEDAL.

Messrs. Mather & Armstrong, *Newcastle-upon-Tyne*, for Siemens's Regenerative Gas Burner. NEWCASTLE, 1882.  
Silicate Paint Company, *Cannon Street, E.C.*, for Griffiths' Patent White. STAFFORD, 1878.

SILVER MEDAL.

Offered by the Exeter Gas Company.

Sanitary and Economic Supply Association, for Dr. Bond's Euthermic Ventilating Gas Stove. EXETER, 1880.

MEDALS AND SPECIAL CERTIFICATES.

Exhibits which have already received Medals at previous Exhibitions of the Institute are excluded from award of Medals; but those Exhibits to which a second Medal would otherwise be awarded receive Special Certificates, and these are distinguished in the following list by asterisks.

Aluminium Crown Metal Co., *Glasgow*, for Aluminium Crown Metal. GLASGOW, 1883.  
Aveling & Porter, *Rochester*, for Improved Six-Ton Steam Road Roller. CROYDON, 1879.  
Bean, A. T., 5, *Cannon Row, S.W.*, for Direct Acting Valveless Waste Preventer. EXETER, 1880.  
Billing & Co., *Hatton Garden, E.C.*, for Apparatus for Cooking by Gas. STAFFORD, 1878.  
\*Billing & Co., *Hatton Garden, E.C.*, for "Workman's" Cooking Stove, and other Improvements in Gas-Cooking Stoves. CROYDON, 1879.  
Borwell, J., *Britannia Foundry, Burton-on-Trent*, for Improved Washer, with table complete. LEAMINGTON, 1877.  
Bostel, D. T., *Duke Street, Brighton*, for Excelsior Water Closet. LEAMINGTON, 1877.  
\*Bostel, D. T., *Duke Street, Brighton*, for "Excelsior" Water Closet. STAFFORD, 1878.  
Bradford, T. & Co., *High Holborn, W.C.*, for New "Shuttle" Steam Power Washing Machine. LEAMINGTON, 1877.  
\*Bradford, Thomas & Co., *Salford*, for Shuttle Steam-Power Washing Machine. STAFFORD, 1878.  
Bradford, Thomas & Co., *London.*, for Washing Machines. NEWCASTLE, 1882

\*Bradford & Co., *Manchester*, for Washing Machines. GLASGOW, 1883.  
British Sanitary Company, *Glasgow*, for Dry Earth Closet. NEWCASTLE, 1882.  
\*British Sanitary Co., *Glasgow*, for Improved Self-acting Earth Closets. GLASGOW, 1883.  
\*Brown, A. & Co., *Glasgow*, for "Stott" Gas Burner. GLASGOW, 1883.  
Buchan, W. P., *Glasgow*, for Sanitary Appliances. GLASGOW, 1883.  
Calvert & Co., *Bradford*, for Calvert's Carbolic Acid for disinfecting purposes. LEAMINGTON, 1877.  
\*Calvert, F. C., & Co., *Bradford*, for Carbolic Acid. CROYDON, 1879.  
\*Calvert, F. C., & Co., *Bradford*, for Carbolic Acid and preparations of it. EXETER, 1880.  
\*Calvert, F. C., *Bradford*, for Carbolic Acid, and Preparations from it. GLASGOW, 1883.  
Carter, J., *Ga, Cavendish Street, W.*, for Invalid Furniture. EXETER, 1880.  
Chorlton & Dugdale, *Manchester*, for Excelsior Spring Mattress. LEAMINGTON, 1877.  
\*Chorlton & Dugdale, *Manchester*, for "Excelsior" Spring Mattress. STAFFORD, 1878.  
\*Chorlton & Dugdale, *Manchester*, for "Excelsior" Spring Mattress Hospital Bed. CROYDON, 1879.  
\*Chorlton & Dugdale, *Manchester*, for "Excelsior" Spring Mattress. EXETER, 1880.  
\*Chorlton & Dugdale, *Manchester*, for "Excelsior" Spring Mattress. NEWCASTLE, 1882.  
\*Chorlton & Dugdale, *Manchester*, for "Excelsior" Spring Mattress. GLASGOW, 1883.  
Cliff, Joseph & Sons, *Leeds*, for Porcelain Bath. GLASGOW, 1883.  
Colman & Glendenning, *Norwich*, for School Furniture. EXETER, 1880.  
Dick, Alex., *London*, for Delta Metal. GLASGOW, 1883.  
Doulton & Co., *Lambeth, London*, for Stanford's Joints for Stone-ware Pipes. STAFFORD, 1878.  
Doulton & Co., *Lambeth, London*, for Anti-Percussion High Pressure Valves. CROYDON, 1879.  
\*Doulton & Co., *Lambeth, London*, for Anti-Percussion High Pressure Draw-off Valves. EXETER, 1880.  
\*Doulton & Co., *Lambeth, London*, for Stanford's Joints for Stone-ware Pipes. EXETER, 1880.  
Doulton & Co., *Lambeth, London*, for Ventilating Tile Stove. EXETER, 1880.  
Doulton & Co., *Lambeth, London*, for Anti-Percussion Ball Valve. NEWCASTLE, 1882.  
\*Doulton & Co., *London*, for Ventilating Tile Stoves. NEWCASTLE, 1882.  
\*Doulton & Co., *Lambeth, London*, for "Anti-Percussion High-pressure Valves. GLASGOW, 1883.  
\*Doulton & Co., *Lambeth, London*, for Ventilating Tile Stove. GLASGOW, 1883.  
Duncan, Maj. F., *The Common, Woolwich*, for Ambulance Wheeled Litter. STAFFORD, 1878.  
Ellison, J. E., *Leeds*, for Conical Ventilators. STAFFORD, 1878.

- \*Ellison, J. E., *Victoria Square, Leeds*, for Conical Ventilators. CROYDON, 1879.
- \*Ellison, J. E., *Leeds*, for Conical Ventilators. GLASGOW, 1883.
- Fraser Bros., *Commercial Road, E.*, for Portable Disinfecting Apparatus. CROYDON, 1879.
- Galbraith, T., *Crawford Square, Londonderry*, for Hot-Air Bath. LEAMINGTON, 1877.
- Hall, John & Co., *Stourbridge*, for Fire-Clay Enamelled Bath. GLASGOW, 1883.
- Hamilton & Co., *Leadenhall Street, E.C.*, for Prismoidal Pavement and Floor Lights. CROYDON, 1879.
- Hancock, F. & C., *Dudley, Worcester*, for Machine for Washing and Cooling Butter. LEAMINGTON, 1877.
- \*Hancock, F. & C., *Dudley, Worcester*, for Machine for Washing and Cooling Butter. STAFFORD, 1878.
- Hancock, F. & C., *Dudley, Worcester*, for Machines for Domestic use. GLASGOW, 1883.
- Haresceugh, B. B. & Co., *Bentick Street, Leeds*, for Excreta Pail (oak) with Spring Lid. LEAMINGTON, 1877.
- \*Haresceugh, B. B. & Co., *Leeds*, for Excreta Pail (oak) with Spring Lid. STAFFORD, 1878.
- Harris, G. H., *Bristol Street, Birmingham*, for Economical Cooking Range. LEAMINGTON, 1877.
- \*Harris, G. H., *Bristol Street, Birmingham*, for Economical Cooking Range. STAFFORD, 1878.
- Hassall & Singeton, *Birmingham*, for Phœnix Portable Range, and the Birmingham Range with Reducible Fire without Gas. STAFFORD, 1878.
- Hayward, Tyler & Co., *London*, for Full-flush Valveless Closet. NEWCASTLE, 1882.
- Heap, R. R., *Manchester*, for Dry Earth or Ashes Closet. GLASGOW, 1883.
- Hilliard, W. B. & Sons, *Glasgow*, for Hospital and Sick Room Appliances. GLASGOW, 1883.
- Hunt, Nathan, *Bristol*, for Auto-Pneumatic Ventilation. EXETER, 1880.
- Keith, J., *London and Edinburgh*, for Challenge Hot-water Boiler. GLASGOW, 1883.
- Lascelles, W. H., *Bunhill Row, E.C.*, for Concrete Bath in one piece. CROYDON, 1879.
- \*Lascelles, W. H., *Bunhill Row, E.C.*, for Concrete Bath, in one piece. EXETER, 1880.
- Le Grand & Sutcliffe, *Bunhill Row, E.C.*, for Improvements in Well Sinking Apparatus. LEAMINGTON, 1877.
- \*Le Grand & Sutcliffe, 100, *Bunhill Row*, for Improvements in Internal driving of Tube Wells. CROYDON, 1879.
- Leoni, S. & Co., *Strand*, for Apparatus for Cooking by Gas. STAFFORD, 1878.
- Maignen, P. A., 20 & 23, *Great Tower Street, E.C.*, for Filtre Rapide. CROYDON, 1879.
- \*Maignen, P. A., 20 & 23, *Great Tower Street, E.C.*, for Filtre Rapide. EXETER, 1880.

- \*Maignen, P. A., 20 & 23, *Great Tower Street, E.C.*, for Filtre Rapide. GLASGOW, 1883.
- Manlove, Alliot, Fryer & Co., *Nottingham*, for Fryer's Destructor, Fryer's Carbonizer, and Firman's Dessicating and Rendering Apparatus. NEWCASTLE, 1882.
- Mather & Armstrong, *Newcastle-upon-Tyne*, for Sieman's Regenerative Gas Burner. NEWCASTLE, 1882.
- Meyer, H. C., *New York*, Sanitary Engineer of New York Newspaper. GLASGOW, 1883.
- Moore, J., *St. James' Walk, Clerkenwell, E.C.*, for Glass Louvre Ventilators. EXETER, 1880.
- Morris, Little & Co., *Doncaster*, for Little's Soluble Phenyle. STAFFORD, 1878.
- Morrison, W. B., *Glasgow*, for Wedgwood Ornamental Tiles. GLASGOW, 1883.
- Moser, L., *Southampton.*, for Dry Closet, suitable for Ashes or Disinfecting Powder. EXETER, 1880.
- Moule's Patent Earth Closet Company, 5a, *Garrick Street, W.C.*, for Earth Closets. STAFFORD, 1878.
- \*Moule's Patent Earth Closet Company (Limited), 5a, *Garrick Street, W.C.*, for Earth Closet. CROYDON, 1879.
- Orr, J. B. & Co., *Charlton, London*, for Leadless "Charlton White" Paint and Dryers. GLASGOW, 1883.
- Parker, J., *Woodstock, Oxford*, for Dry Earth Closet. LEAMINGTON, 1877.
- Pocock, Bros., *Southwark Bridge Road*, for "Universal" Invalid Tubular Water and Air Bed. STAFFORD, 1878.
- \*Pocock Bros., *Southwark Bridge Road, S.E.*, for "Universal" Tubular Air and Water Bed. CROYDON, 1879.
- Pritchett, G. E., 20, *Spring Gardens, S.W.*, for Economic Hollow Flooring. STAFFORD, 1878.
- \*Pritchett, G. E., 20, *Spring Gardens, S.W.*, for Improvements in Hollow Tile Flooring. CROYDON, 1879.
- Read, Jefferson, *Birmingham*, for Arcanum Process of Silver Plating Steel. CROYDON, 1879.
- Roberts, C. G., *Haslemere, Bucks.*, for Rain-water Separator. NEWCASTLE, 1882.
- \*Roberts, C. G., *Haslemere, Surrey*, for Automatic Rain-water Separator. GLASGOW, 1883.
- Ross, J. A. G., *Newcastle-upon-Tyne*, for Silicate Cotton (Siag-wool). NEWCASTLE, 1882.
- Sanitary Appliance Company, *Salford*, for Portable Cinder Sifting Ash Closet, with Soil Pail. STAFFORD, 1878.
- \*Sanitary Appliance Company, *Factory Lane, Salford*, for Patent Cinder-Sifting Ash Closet. CROYDON, 1879.
- Sanitary & Economic Supply Association, *Gloucester*, for Dr. Bond's Euthermic Gas Stove. EXETER, 1880.
- Sanitas Company (Limited), *London*, for Sanitas Oil. NEWCASTLE, 1882.
- Scottish Asbestos Co., *Glasgow*, for Scottish Asbestos. GLASGOW, 1883.
- Shaw, A. & Son, *Glasgow*, for "Sine qua non" Open and Close Fire Range. GLASGOW, 1883.

- Silicate Paint Company, *Cannon Street, E.C.*, for Griffiths' White, and for their preparations of Silicate Paint, Enamel Paint, and Petrifying Liquids. STAFFORD, 1878.
- Sinclair, J., *Leadenhall Street, E.C.*, for Tyndall's Smoke Respirator. CROYDON, 1879.
- Société Française D'Hygiène, *Paris*, for Chemical Preparations and Apparatus. LEAMINGTON, 1877.
- Société Française D'Hygiène, *Paris*, for Books on Hygiène. NEWCASTLE, 1882.
- Spongy Iron Water Purifying Company, *Oxford Street, W.C.*, for Bischof's Spongy Iron Filter. LEAMINGTON, 1877.
- Stewart, J., Sen., *Glasgow*, for Stoneware Disconnecting Traps. GLASGOW, 1883.
- \*Stewart, J., Sen., *Glasgow*, for Stoneware Pipes with Stanford's Joint. GLASGOW, 1883.
- Stott, James & Co., *Oldham*, for Mercury Gas Governor. NEWCASTLE, 1882.
- Tylor & Sons, *Newgate Street, E.C.*, for Flushing Rim Lavatory Basin and Apparatus. EXETER, 1880.
- Walker, Chas. W., *Wandsworth Common*, for Acid Pump and Syphon. CROYDON, 1879.
- Walker, Turnbull & Co., *Falkirk*, for Artizan Cooking Range. GLASGOW, 1883.
- Ward, O. D., *London*, for Household Water Closet. NEWCASTLE, 1882.
- \*Ward, O. D., *London*, for Bean's Direct Acting Valveless Waste Preventor. NEWCASTLE, 1882.
- Webb, H. Clark, *Worcester*, for Colouring Patterns through the Substance of Wood. EXETER, 1880.
- Wenham, W. P., *Church Street, Croydon*, for Improved Open or Close Range Kitchener. CROYDON, 1879.
- Wentworth, F. & Co., *London*, for "Kredemnon" Life-saving Garments. GLASGOW, 1883.
- Whyte & Bradford, *Bowness*, for Cooking Range with Revolving Fire for the Prevention of Smoke. GLASGOW, 1883.
- Wilkinson, W. B. & Co., *Newcastle-upon-Tyne*, for Damp-proof Concrete Pavement. NEWCASTLE, 1882.
- Willcocks & Co., *Burmantofts, Leeds*, for Silica Glazed and Enamelled Fire Clay Bricks and Faience. CROYDON, 1879.
- Wilson Engineering Company, *Holborn, W.C.*, for Wil-on Portable Close Cooking Range. EXETER, 1880.
- Wilson Engineering Company, *London*, for Improved Wilson Range with Steel Boiler & non-conducting Jacketting. NEWCASTLE, 1882.
- \*Wilson Engineering Co., *London*, for "Wilson Cooking Range." GLASGOW, 1883.
- \*Wippell Bros. & Row, 231, *High Street, Exeter*, for Moule's Earth Closet. EXETER, 1880.
- Woollams & Co., *High Street, Marylebone*, for Paper Hangings free from Arsenic. CROYDON, 1879.
- \*Woollams & Co., *London*, for Non-Arsenical Wall Papers. NEWCASTLE, 1882.

### ALPHABETICAL LIST OF CERTIFICATES AWARDED AT THE EXHIBITIONS.

- Adams, R., 7, *Great Dover Street, S.E.*, for Adjustable Shoe, and Regulating Spring Hinge for Swinging Doors. CROYDON, 1879.
- Adams, R., 7, *Great Dover Street, S.E.*, for Fanlight Openers and Casement Fasteners. CROYDON, 1879.
- Allen, Thomas, *St. Augustine's Parade, Bristol*, for Metallic Tubular Bedsteads and Invalid Bedrests. STAFFORD, 1878.
- Angell, A. T., *London*, for Air-tight Man-hole Door. NEWCASTLE, 1882.
- Angell, A. T., *London*, for Air-tight Man-hole Covers. GLASGOW, 1883.
- Antiseptic Apparatus Manufacturing Co. (Limited), for Red Cross Yellow Fluid. NEWCASTLE, 1882.
- Arden, Hill & Co., *Birmingham*, for Solid Flame Boiling Stove. NEWCASTLE, 1882.
- Ball, Ancell, *Spalding*, for Folding Invalid Bed. CROYDON, 1879.
- Bartrum, Harvey, & Co., *London*, for Ventilatorium Waterproof Garments. STAFFORD, 1878.
- Beard, Dent, & Hellyer, 21, *Newcastle Street, W.C.*, for Artizan Closet. CROYDON, 1879.
- Beard, Dent, & Hellyer, 21, *Newcastle Street, W.C.*, for Ventilating Drain Syphon. CROYDON, 1879.
- Billington Bros., *Liverpool*, for Spring Mattresses. GLASGOW, 1883.
- Binnie, J., *Gartcosh, Glasgow*, for Salt-glazed Fire-clay Sewer Pipes. GLASGOW, 1883.
- Bird, Peter Hinekes, 1, *Norfolk Square, N.W.*, for Method of Costless Ventilation. CROYDON, 1879.
- Bird, Peter Hinekes, 1, *Norfolk Square, N.W.*, for Large Legible Spirit Thermometer. EXETER, 1880.
- Bowden, William, *London*, for Automatic Chariot for Children. NEWCASTLE, 1882.
- Brady & Martin, *Newcastle-upon-Tyne*, for Central Tube Water Mattress. NEWCASTLE, 1882.
- Brady & Martin, *Newcastle-upon-Tyne*, for Instruments used by Medical Officers of Health. NEWCASTLE, 1882.
- Braithwaite & Co., *Leeds*, for Syphon for Water Closet Cisterns. CROYDON, 1879.
- Branksea Island Pottery Company (Limited), *Pool, Dorset*, for Stoneware Pipes. EXETER, 1880.
- British and Foreign Mineral Water Company, *Glasgow*, for Potash Soda and Seltzer Waters, and Lemonade. NEWCASTLE, 1882.

- British Sanitary Company, *Glasgow*, for Self-Acting Earth Closet.  
EXETER, 1880.
- Brock, W. & Co., 177, *Fore Street, Exeter*, for Bed Rest with Moveable Arms.  
EXETER, 1880.
- Brock, William & Co., 177, *Fore Street, Exeter*, for "Nonsuch" Adjustable Chair.  
EXETER, 1880.
- Bray & Co., *Blackman Lane, Leeds*, for Improved Gas Burners.  
CROYDON, 1879.
- Buchan, W. P., *Glasgow*, for Improved Drain-pipe, with Access Cover.  
NEWCASTLE, 1882.
- Buchan, W. P., *Glasgow*, for Disconnecting Drain-trap.  
NEWCASTLE, 1882.
- Buchan, W. P., *Glasgow*, for Disconnecting Drain Trap.  
GLASGOW, 1883.
- Buchan, W. P., *Glasgow*, for Grease Trap for Kitchen Sinks.  
GLASGOW, 1883.
- Bussey & Co., *Museum Works, Peckham, S.E.*, for Patent Spring Mattress.  
CROYDON, 1879.
- Calvert, F. C., & Co., *Bradford*, for Improved Vaporiser for Disinfecting.  
EXETER, 1880.
- Candy & Co., *Newton Abbot*, for Granite Vitrified Bricks and Paving.  
EXETER, 1880.
- Capper, Son & Co., *London*, for Brian Jones's Joint for connecting Closet with Soil-pipe.  
NEWCASTLE, 1882.
- Carron Company, *Falkirk*, for Combined Close Fire and Gas Cooking Range.  
GLASGOW, 1883.
- Carter & Co., *Old Refinery, Bristol*, for Preparations of Lime Juice, Aromatic Ginger Ale, and Quinine Tonic.  
EXETER, 1880.
- Chorlton & Dugdale, *Manchester*, for "Sun-light Stove."  
EXETER, 1880.
- Chorlton & Dugdale, *Manchester*, for "Invalids'" Adjustable Bed.  
EXETER, 1880.
- Chorlton & Dugdale, *Manchester*, for "Excelsior" Ships' Berth.  
GLASGOW, 1883.
- Clarke, F. W., Portable Gas Apparatus Company (Limited), *Great Queen Street, W.C.*, for Portable Gas Apparatus for Manufacturing Gas from Gasoline.  
CROYDON, 1879.
- Colman & Glendenning, *Norwich*, for School Desks with Shifting Seats.  
STAFFORD, 1878.
- Colman & Glendenning, *Norwich*, for Automaton Seat for Drapers.  
EXETER, 1880.
- Compostella Fire-Light Company, *Fenchurch Street, E.C.*, for Compostella Fire Lights for Lighting Fires.  
STAFFORD, 1878.
- Constantine, T. J., *Fleet Street, E.C.*, for Devonshire Cooking Range.  
EXETER, 1880.
- Cooper, H. W. & Co., *London*, for Glass Revolving and Sliding Ventilators.  
GLASGOW, 1883.
- Craig, J. & M., *Kilmarnock*, for Buchan's Trap.  
EXETER, 1880.
- Craig, J. & M., *Kilmarnock*, for Maguire's Cradle Joint for Drain-pipes.  
NEWCASTLE, 1882.
- Craig, J. & M., *Kilmarnock*, for Buchan's Drain-trap and Drain-pipes, with Access Cover.  
NEWCASTLE, 1882.

- Craig, J. & M., *Kilmarnock*, for White Enamelled Fire-Clay Sinks.  
NEWCASTLE, 1882.
- Craig, J. & M., *Kilmarnock*, for Stoneware Disconnecting Traps.  
GLASGOW, 1883.
- Craig, J. & M., *Kilmarnock*, for White Enamelled Sinks.  
GLASGOW, 1883.
- Cregeen, H. S., *Bromley*, for Air Inlet Head for Drain Ventilation.  
NEWCASTLE, 1882.
- Davis, Joseph & Co., *London*, for New Oven Pyrometer.  
NEWCASTLE, 1882.
- Dinning & Cooke, *Newcastle-upon-Tyne*, for Cast Iron Channels for Stable Drainage.  
NEWCASTLE, 1882.
- Dinning & Cooke, *Newcastle-upon-Tyne*, for George's Calorigen.  
NEWCASTLE, 1882.
- Dinning & Cooke, *Newcastle-upon-Tyne*, for Jennings's Universal Shampooing Apparatus.  
NEWCASTLE, 1882.
- Dinning & Cooke, *Newcastle-upon-Tyne*, for Grates, Mantel-pieces, and Over-mantels.  
NEWCASTLE, 1882.
- Doulton & Co., *Lambeth, London*, for Decorative Tiles for Covering Walls and Floors.  
CROYDON, 1879.
- Doulton & Co., *Lambeth, London*, for Disconnecting Gully, with back and side Entrances and iron grating.  
CROYDON, 1879.
- Doulton & Co., *Lambeth, London*, for Economical Flush-Out Closet.  
EXETER, 1880.
- Doulton & Co., *London*, for Anti-Percussion High-pressure Bib Valves.  
NEWCASTLE, 1882.
- Doulton & Co., *London*, for Bath Locking Valves, for preventing waste of water.  
NEWCASTLE, 1882.
- Doulton & Co., *London*, for Latham's Flap Valve.  
NEWCASTLE, 1882.
- Doulton & Co., *London*, for Joint for Drain-pipes.  
NEWCASTLE, 1882.
- Doulton & Co., *London*, for Reversible Inlet Gully, with Dished Stoneware Cover and Iron Grating.  
NEWCASTLE, 1882.
- Doulton & Co., *London*, for Flush-out Closet.  
NEWCASTLE, 1882.
- Doulton & Co., *London*, for Tip-up Lavatory Basin.  
NEWCASTLE, 1882.
- Doulton & Co., *Lambeth, London*, for "Lambeth" Trough Closet with Automatic Flush Tank.  
GLASGOW, 1883.
- Doulton & Co., *Lambeth, London*, for "Lambeth" Flush-out Closet.  
GLASGOW, 1883.
- Doulton & Co. *Lambeth, London*, for Silicon Tread for Steps.  
GLASGOW, 1883.
- Durand Claye, A., *Paris*, for Drawings and Books Relating to Disposal of Sewage in Paris.  
GLASGOW, 1883.
- Edmunds, J., *London*, for Currie Powders.  
NEWCASTLE, 1882.
- Edwards, J. C., *Trefymant, Ruabon*, for Dean's External Drain Traps, with moveable receptacle.  
CROYDON, 1879.
- Ellison, J. E., *Leeds*, for "Radiator" Ventilator, with Screw Action.  
GLASGOW, 1883.
- Evans & Co., *Wrexham* for Zoedone. (Patentee David Johnson, F.C.S.)  
CROYDON, 1879.

- Fell, J. & Co., *Wolverhampton*, for Clark's Anti-splash Tip-up Lavatory Basin. NEWCASTLE, 1882.
- Fell, J. & Co., *Wolverhampton*, for Smith's Cast Lead Syphon Traps. NEWCASTLE, 1882.
- Fell, J. & Co., *Wolverhampton*, for Water-taps. NEWCASTLE, 1882.
- Finch & Co., 181, *High Holborn, W.C.*, for Large Way Waste Plug, with Protective Cover. CROYDON, 1879.
- Forrest, William, *Newcastle-upon-Tyne*, for The Albo Carbon Light. NEWCASTLE, 1882.
- Fry, J. S. & Sons, *Union Street, Bristol*, for Cocoa Extract and Preparations of Chocolate. EXETER, 1880.
- Gandy, M., *Liverpool*, for Cotton Machine Belting. GLASGOW, 1883.
- Gandy, M., *Liverpool*, for Steil's Fastener for Machine Belting. GLASGOW, 1883.
- Gardner, A. & Son, *Glasgow*, for Spring Mattress. GLASGOW, 1883.
- Gardner, A. & Son, *Glasgow*, for Parquet Flooring. GLASGOW, 1883.
- Garton & King, *Exeter*, for Vowel E. Bradford's Family Washing Machine. EXETER, 1880.
- Gilbert, E. & A. E., *Broughty Ferry, Forfarshire*, for Improved Seat for Water Closets. GLASGOW, 1883.
- Gillow & Co., *Oxford Street, W.*, for Lavatory. STAFFORD, 1878.
- Groves, E. K., *Bristol*, for Self-acting Sick Bed. GLASGOW, 1883.
- Grosvenor, F., *Glasgow*, for Stoneware Churns. GLASGOW, 1883.
- Gulliver & Co., *Aylesbury*, for Lemonade, Lime Juice, and Ginger Ale. CROYDON, 1879.
- Hamilton, W., *Brighton*, for Invalid "Grasshopper" Couch. STAFFORD, 1878.
- Hamilton, William, *Brighton*, for Invalid "Grasshopper" Couch. NEWCASTLE, 1882.
- Hammond & Hussey, *High Street, Croydon*, for Hornibrook's Catchment Grating for Steep Gradients. CROYDON, 1879.
- Hancock, F. & C., *Dudley, Worcester*, for New Propellor Churn. EXETER, 1880.
- Hancock, F. & C., *Dudley, Worcester*, for Dough Kneading Machine. EXETER, 1880.
- Hancock, F. & C., *Dudley*, for Machine for Washing and Peeling Potatoes. NEWCASTLE, 1882.
- Harriman, W., & Co., *Blaydon-upon-Tyne*, for Fowler's Water-closet. NEWCASTLE, 1882.
- Harrison, T. Harnett, *Liverpool*, for Iron Basket Sewage-strainer. GLASGOW, 1883.
- Hayward, Tyler & Co., *London*, for Shower and Douche Bracket. NEWCASTLE, 1882.
- Headley & Sons, *Cambridge*, for Hose Reel. CROYDON, 1879.
- Henderson, Osbert, *Glasgow*, for Albo-Carbon Light. GLASGOW, 1883.
- Henderson, Osbert, *Glasgow*, for Pendulous Food Warmers. GLASGOW, 1883.
- Heron, T., *Manchester*, for Duplex Burner. NEWCASTLE, 1882.
- Hilliard, W. B. & Sons, *Glasgow*, for Isolating Curtain. GLASGOW, 1883.

- Hilliard, W. B. & Sons, *Glasgow*, for Burn and Wound Boxes. GLASGOW, 1883.
- Hill & Hey, *Halifax*, for Double Current Ventilators. GLASGOW, 1883.
- Hilton, W. H., *Leamington*, for various Inventions for Promoting Domestic Economy. STAFFORD, 1878.
- Hutchinson, A. & Co., *Great Winchester Street, E.C.*, for India Rubber Gas Tubing. EXETER, 1880.
- Hydes & Winfield, *Sheffield*, for Tortoise Slow Combustion Stoves. GLASGOW, 1883.
- Hydes & Winfield, *Sheffield*, for Tortoise Laundry Stove. GLASGOW, 1883.
- Hygienic Stove and Grate Company, 15, *Peel Buildings, Birmingham*, for "Eagle" Sanitary Trap, for superseding Bell Traps. CROYDON, 1879.
- Irvine & Co., *Gateshead*, for Mustard. NEWCASTLE, 1882.
- Jennings, G., *Stangate, London*, for "Artizans Dwellings Sink." CROYDON, 1879.
- Jennings, G., *Stangate, London*, for Universal Shampooing Apparatus. CROYDON, 1879.
- Jewsbury & Brown, *Manchester*, for Seltzer Water. STAFFORD, 1878.
- Jeyes' Sanitary Compound Company, *Bishopsgate Street, E.C.*, for Jeyes' Perfect Purifier. CROYDON, 1879.
- Jeyes' Sanitary Compound Company, *London*, for Jeyes' Perfect Purifier. NEWCASTLE, 1882.
- Jeyes' Sanitary Compound Co., *London and Glasgow*, for Jeyes' Disinfecting Fluid. GLASGOW, 1883.
- Kirsop & Co., *Newcastle-upon-Tyne*, for Paragon Washing Machine, with Canadian Washer. NEWCASTLE, 1882.
- Kite, C. & Co. *London*, for Outlet Ventilator. NEWCASTLE, 1882.
- Kite, C. & Co., *London*, for Noiseless Chimney Breast Outlet Ventilator. GLASGOW, 1883.
- Kite, C. & Co., *London*, for Wall Inlet Ventilator. GLASGOW, 1883.
- Knell, U., 77, *Fore Street, E.C.*, for "Imperial" Ventilating Window. CROYDON, 1879.
- Ladies' Sanitary Association, *Berners Street, W.*, for Publications. STAFFORD, 1878.
- Larmouth, Thomas & Co., *Salford*, for Dual Desk, with Separate Gangway Seat. STAFFORD, 1878.
- Leggott, W. & R., *Bradford*, for Opener for Fanlight. GLASGOW, 1883.
- Leoni, S. & Co., *Strand, W.C.*, for "Rheometer" Street Lamp Regulator. STAFFORD, 1878.
- Lewis, Mrs. A., *Manchester*, for Tin Cooking Utensils. CROYDON, 1879.
- London Necropolis Company, *Strand, W.C.*, for "Earth to Earth" Coffins. STAFFORD, 1878.
- McCallum, J. B., *Stafford*, for Improved Non-Absorbent Tub or Pail Van. EXETER, 1880.
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- Parker, J., *Woodstock*, for Dry Earth Commode without Separator. EXETER, 1880.
- Patent Victoria Stone Company, *Kingsland Road, E.*, for Artificial Pennycook Patent Glazing and Engineering Co., *Glasgow*, for Glazing Stone Tubes. CROYDON, 1879.
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- Potts & Co., *Handsworth, Birmingham*, for Edinburgh Air-Chambered Sewer Trap. STAFFORD, 1878.
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- Sinclair, J., 104, *Leadenhall Street, E.C.*, for Chemical Fire Exterminator. CROYDON, 1879.
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ADDRESSES TO SECTIONS.

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| SIR ANTONIO BRADY.                          | President Section III. | EXETER,         | 1880. |
| DR. ALFRED CARPENTER.                       | " "                    | I. CROYDON,     | 1879. |
| PROF. F. S. B. F. DE CHAUMONT, M.D., F.R.S. | " "                    | I. EXETER,      | 1880. |
| DENNIS EMBLETON, M.D., F.R.C.S.             | " "                    | I. NEWCASTLE,   | 1882. |
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| CAPT. DOUGLAS GALTON, R.E., C.B., F.R.S.    | " "                    | II. CROYDON,    | 1879. |
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| R. RAWLINSON, C.B.                          | " "                    | II. EXETER,     | 1880. |
| PROF. HENRY ROBINSON, M.INST.C.E.           | " "                    | II. NEWCASTLE,  | 1882. |
| R. ANGUS SMITH, M.D.                        | " "                    | III. GLASGOW,   | 1883. |
| PROF. T. ROGER SMITH, F.R.I.B.A.            | " "                    | II. GLASGOW,    | 1883. |
| G. J. SYMONS, F.R.S.                        | " "                    | III. CROYDON,   | 1879. |

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1880.
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 PROF. CAVALIERE MARINO TURCHI, All'Università di Napoli, Italia.

## FELLOWS [89].

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 1881. Dec. ADAMS, G. E. D'Arcy, M.D., S.S.C., CERT. CAMB., 1, Clifton Gardens, Maida Vale, W.  
 1880. May. AITKEN, PROF. William, M.D., F.R.S., Woolston, near Southampton.  
 1880. Dec. ANGELL, Lewis, M.INST.CE., Town Hall, Stratford, E.  
 1880. Dec. BARTLETT, GEN., J.P., Exmouth, Devon.  
 1878. Dec. BARTLETT, H. Critchett, PH.D., F.C.S., 39, Duke Street, Grosvenor Square, W.  
 1879. Jan. BASS, Hamar, M.P., Burton-on-Trent.  
 1878. Dec. BELL, C. W., J.P., D.L., Bramblehurst, East Grinstead, Sussex.  
 1878. Dec. BRABAZON, RT, HON. LORD, 83, Lancaster Gate, Hyde Park.  
 1880. Jan. BRAYE, RT. HON. LORD, 40, Grosvenor Street, London, and Stanford Park, Rugby.  
 1878. Dec. BRIGHTEN, W. G., 4, Bishopsgate Street Without, E.C.  
 1881. Nov. BROWNING, Benjamin, L.R.C.P., M.R.C.S., F.C.S., S.S.C., CERT. CAMB., 70, Union Road, Rotherhithe.  
 1878. Dec. BURBERY, J. Stone, Beatrice Villa, Lorn Road, Southsea, Hants.  
 1878. Dec. BURDETT, Henry C., F.S.S., 39, Gloucester Road, Regent's Park, N.W.  
 1882. Feb. BURGESS, Peter, M.A., M.B., Commercial Bank of Scotland, Wishaw, Lanarkshire, N.B.  
 1878. Dec. CAREW, R. R., Carpenders, Watford, Herts.  
 1880. Feb. CARPENTER, Alfred, M.D. IOND., M.R.C.S., C.S.S. CAMB., Duppas House, Croydon.  
 1878. Dec. CARTER, R. Brudenell, F.R.C.S., 69, Wimpole Street, Cavendish Square, W.  
 1878. Dec. CHADWICK, Edwin, C.B., Park Cottage, East Sheen, Mortlake, S.W.  
 1883. Nov. CHARLES, Edmonston, Limehurst Spring Grove, Isleworth.



1880. July. CHILDS, CAPT. James, *The Terrace, Clapham Common.*  
 1878. Dec. CLARK, Daniel, *Carlisle.*  
 1881. July. COLES, William R. E., 44, *Berners Street, Oxford Street, W.*  
 1880. Dec. COLLINS, H. H., F.R.I.B.A., 5, *Randolph Road, W.*  
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 1878. Dec. DENISON, A., 6, *Albermarle Street, W.*  
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 1878. Dec. DOULTON, Henry, *Lambeth, S.W.*  
 1878. Dec. DREWRY, G. Overend, M.D.  
 1878. Dec. DYKE, T. J., F.R.C.S., *The Hollies, Merthyr Tydfil.*  
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 1881. Oct. EATON, John, M.D., *Orchard House, Cleator Moor, Cumberland.*  
 1880. Apr. ELLIS, W. Horton, F.R.MET.SOC., *Hartwell House, Exeter.*  
 1878. Dec. EVANS, T. W., *Allestree Hall, Derby.*  
 1878. Dec. FIELD, ROGERS, B.A., M.INST.C.E., 5, *Cannon Row, Westminster, S.W.*  
 1879. Jan. FORTESCUE, RT. HON. EARL, 40, *Belgrave Square, London; and Castle Hill, South Molton, Devon.*  
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 1878. Dec. GILCHRIST, J., M.D., *Crichton House, Dumfries.*  
 1880. July. GRANTHAM, R. B., M.INST.C.E., 22, *Whitehall Place, London, S.W.*  
 1878. Dec. GRIFFITHS, E. F. G., ASSOC.M.INST.C.E., *Abingdon Street, S.W.*  
 1880. Jan. GRIMSHAW, Thomas Wrigley, M.D., *Priorsland, Carrickmines, Dublin.*  
 1878. Dec. HARKER, J., M.D., *King Street, Lancaster.*  
 1881. May. HARRIS, Thomas, F.R.I.B.A., 20, *High Holborn, W.C.*  
 1879. Feb. HAVILAND, A., M.R.C.S.  
 1880. Apr. HIME, Thomas Whiteside, A.B., M.B., L.R.C.S., 217, *Glossop Road, Sheffield.*

1881. May. HODGSON, George, ASSOC.M.INST.C.E., *Town Hall, Loughborough.*  
 1878. Dec. HOWARD, James, *Clapham Park, Bedfordshire.*  
 1878. Dec. JONES, LIEUT.-COL., V.C., ASSOC.M.INST.C.E., *Hafod-y-wern Farm, Wrexham.*  
 1878. Dec. LEAF, Charles J., F.L.S., F.S.A., *Pain's Hill, Cobham, Surrey.*  
 1878. Dec. LEAF, W., *Pain's Hill, Cobham, Surrey.*  
 1883. Jan. LEWIS, PROF. T. Hayter, F.S.A., F.R.I.B.A., 12, *Kensington Garden Square, S.W.*  
 1878. Dec. LIVESEY, J., M.INST.C.E., 9, *Victoria Chambers, Westminster, S.W.*  
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 1878. Dec. LUBBOCK, SIR JOHN, BART., D.C.L., F.R.S., *Lombard Street, E.C.*  
 1878. Dec. MACKEY, John Alexander Dixie, 1, *Westbourne Terrace, London, W.*  
 1878. Dec. MARSH, Lory, M.D., *Greenhithe, Kent.*  
 1878. Dec. MASON, J., J.P., *Eynsham Hall, Witney, Oxford.*  
 1878. Dec. MOLYNEUX, HON. Francis G., *Earl's Court, Tunbridge Wells.*  
 1880. Dec. NORTHCOTE, RT. HON. SIR STAFFORD, *Carlton Club, and Pynes House, Exeter.*  
 1878. Dec. NORTHUMBERLAND, HIS GRACE THE DUKE OF, D.C.L., LL.D., 2, *Grosvenor Place, S.W.*  
 1878. Dec. OHREN, Magnus, ASSOC.M.INST.C.E., F.C.S., *Lower Sydenham.*  
 1878. Dec. OLLARD, J. F., *Lloyds, E.C.*  
 1878. Dec. OLLARD, William Ludlam, *Musticott House, Walsoken, Wisbeach.*  
 1878. Dec. PAGET, J., J.P., *Stuffynwood, Mansfield.*  
 1880. Dec. PEGGS, J. Wallace, ASSOC.M.INST.C.E., 21, *Queen Anne's Gate, S.W.*  
 1883. July. PLUMBE, Rowland, 13, *Fitzroy Square, W.*  
 1878. Dec. RICHARDSON, Benjamin Ward, M.D., LL.D., F.R.S., 25, *Manchester Square, W.*  
 1878. Dec. RICHARDSON, J., M.INST.C.E., *Methley Park, Leeds.*  
 1881. Jan. ROBBINS, W. Morgan, 107, *High Street, Ilfracombe.*  
 1881. Oct. ROBINS, Edward Cookworthy, F.S.A., F.R.I.B.A., 14, *John Street, Adelphi.*  
 1882. May. ROBINSON, Henry, PROF. M.INST.C.E., 7, *Westminster Chambers, S.W.*

1878. Dec. RUSSELL, HON. F. A. Rollo, *Pembroke Lodge, Richmond Park.*
1878. Dec. RUSSELL, COUNCILLOR James A., M.A., M.B., B.SC., *Woodville, Canaan Lane, Edinburgh.*
1878. Dec. SALT, Thomas, M.P., 85, *St. George's Square, S.W.*
1881. Nov. SMITH, William Robert, M.D., F.R.S.E., F.C.S., B.SC., S.SC. CERT. CAMB., *Bayshill Villa, Cheltenham.*
1880. Jan. SNELL, H. Saxon, F.R.I.B.A., 22, *Southampton Buildings, W.C.*
1878. Dec. STEPHENS, Henry C., F.C.S., *Avenue House, Finchley.*
1879. July. SYMONS, G. J., F.R.S., 62, *Camden Square, N.W.*
1880. Dec. TEMPLE, RIGHT REV. Frederick, D.D., LORD BISHOP OF EXETER, *The Palace, Exeter.*
1880. June. THOMPSON, John, M.D., F.R.C.S., J.P., *Lynton House, Bideford.*
1878. Dec. TURBERVILL, COL. T. Picton, *Ewenny Priory, Bridgend, Glamorgan.*
1878. Dec. TURNER, Ernest, F.R.I.B.A., 246, *Regent Street, W.*
1879. Aug. URE, J., *Helensburgh, N.B.*
1880. Dec. WARING, COL. G. E., JUN., C.E., *Newport, Rhode Island, U. S. America.*
1882. Feb. WHITELEGGE, Benjamin Arthur, B. SC., M.D., S.SC. CERT CAM., *Knutsford, Cheshire.*
1879. Jan. WILSON, George, M.A., M.D., 23, *Claremont Road, Leamington.*
1878. Dec. WYATT-EDGE, REV. E., B.A., 40, *Grosvenor Street, W.*

## MEMBERS [201].

\* Life Members. † Passed examination for Local Surveyors.

‡ Passed examination for Inspectors of Nuisances.

1879. Dec. ADDIS, William Judson, C.E., M.S.A., R.A.S., *Prome, British Burmah.*
1882. July. ALCOCK, Samuel, *Sunderland.*
1877. Mar. ALLEN, Henry Robert, *North Street, Hackney, E.*
1882. Oct. ANDERSON, Alexander McGlasban, M.D., L.R.C.S., 26, *South Tay Street, Dundee.*

1882. July. ANDREW, CAPT. C. W., 286, *Kennington Park Road, S.E.*
1876. July. ANNINGSON, Bushell, M.A., M.D., *Cambridge.*
1876. July. ATKINS, F. H., 62, *Fleet Street, E.C.*
1878. July. ATWOOL, J., *Sydney Lodge, Farncombe Road, Worthing.*
1878. July. BAKER, R., *Ballingdon House, Green Lanes, N.*
1883. Nov. BALFOUR, James Spence, M.P., *Wellesley House, Croydon.*
1876. . . . BALL, F., 18, *Bell Street, Henley-on-Thames.*
1878. Jan. BANNER, E. G., 11, *Billiter Square, E.C.*
1876. July. BARBER, Samuel J., *Eastwood, Notts.*
1877. . . . BARROW, B., F.R.C.S., J.P., *Southlands, Ryde, Isle of Wight.*
1879. Dec. BARR, William Alexander, M.D., M.R.C.S., 45, *Abington Street, Northampton.*
1877. July. BARRY, J. G., 87, *Cannon Street, E.C.*
1882. Jan. BARTLETT, Robert V. O., 1, *St. John's Place, Newport, Isle of Wight, and Brixton, S.W.*
1878. Oct. BAUGH, Alfred Charles, C.E., 3, *Temple Row, Wrexham.*
1877. . . . BEARD, Neville, *The Mount, Ashbourne.*
1876. July. BELL, Thomas, L.R.C.P. LOND., *Uppingham, Rutland.*
1878. Oct. BEMROSE, Henry H., *Lonsdale Hill, Uttoxeter Road, Derby.*
1877. . . . BENNET, J. Henry, M.D., *The Ferns, Weybridge.*
1877. July. BENNETT, Hugh, M.R.C.S., *Builth Wells, Brecon.*
1877. Aug. BERRINGTON, R. E. W., *Roschaugh, Shrewsbury.*
1876. July. BEST, Frederick A., M.R.C.S., *Church Hill, Walthamstow.*
1878. July. BICKERSTETH, E. R., F.R.C.S., 2, *Rodney Street, Liverpool.*
1881. June. BINDON, William J. Vereker, D.SC. PUB. HEALTH EDIN., M.D.
1878. Sept. BIRCH, R. W. Peregrine, M.INST.C.E., 2, *Westminster Chambers, S.W.*
1877. Sept. BIRD, Peter Hinekes, F.R.C.S., S.SC. CERT. CAMB., 1, *Norfolk Square, W.*
1883. May. BLASHILL, Thomas, 10, *Old Jewry Chambers, E.C.*
1881. Nov. \*BOND, Frederick Adolphus, M.B., C.M. EDIN., S.SC. CERT. EDIN., *Brinklow, Coventry.*
1877. . . . BOSTEL, D. T., 19, *Duke Street, Brighton.*
1878. Oct. BOSTOCK, H., *The Oaklands, Rowley Avenue, Stafford.*
1880. Nov. †\*BOULNOIS, H. Percy, M.INST.C.E., *Borough Engineer Portsmouth.*

1877. Oct. BOWER, Thomas, *Lytham, Lancashire.*  
 1876. July. BRETT, A. T., M.D., *Watford House, Herts.*  
 1881. Jan. BROOKS, James, F.R.I.B.A., 35, *Wellington Street, Strand.*  
 1876. July. BROWN, P., M.D., *Blaydon House, Blaydon-on-Tyne.*  
 1883. Sept. BURNET, John, 167, *St. Vincent Street, Glasgow.*  
 1883. Sept. \*BURNET, John James, *St. Kilda Dowanhill Gardens, Glasgow.*  
 1876. . . . BURNS, R. Scott, C.E., *Oak Lea, Edgely Road, Stockport.*  
 1880. Dec. †\*BURTON, W. Kimminmond, 1, *Adam Street, Adelphi, W.C.*  
 1878. Oct. BUTLER, G. J., *Shrewsbury.*  
 1876. Aug. CARLINE, John, ASSOC.M.INST.C.E., *Lewisham Board of Works, S.E.*  
 1882. Jan. CARRITT, Ernest, 18 & 19, *Great St. Helens, E.C.*  
 1881. May. CHESTON, Horace, A.R.I.B.A., 1, *Great Winchester Street, London, E.C.*  
 1883. Feb. CHRISTIE, James, A.M., M.D., 2, *Great Kelvin Terrace, Hillhead, Glasgow.*  
 1880. Jan. COLLINGRIDGE, W., M.A., M.D., S.SC. CERT. CAMB., *Port of London Sanitary Offices, Greenwich.*  
 1878. Sept. COLLINS, SIR W., 3, *Park Terrace, East Glasgow.*  
 1876. . . . COLLINS, W. J., M.D., 1, *Albert Terrace, N.W.*  
 1883. June. †\*COMBER, P. F., 4, *Prince of Wales Terrace, Bray, Ireland.*  
 1882. Nov. †\*COOPER, C. H., A.M.INST.C.E., A.R.C.S.C.I., *Local Board Offices, Wimbledon.*  
 1878. Sept. CORBETT, J., 24, *Barton Arcade, Manchester.*  
 1883. May. CROMBIE, James, *The Butts, Brentford.*  
 1877. Sept. CROWLEY, Frederick, *Ashdell, Alton, Hants.*  
 1883. June. CUTLER, Thomas William, 5, *Queen Square, Bloomsbury.*  
 1877. Oct. ‡DAVIES, Hugh, 1, *Hill Street, Wrexham.*  
 1881. Oct. DAY, Ernest, 5, *Foregate Street, Worcester.*  
 1878. May. DENNIS, W., M.INST.C.E., 3, *Victoria Street, Westminster.*  
 1877. July. DODD, J., 6, *Thomas Street, Liverpool.*  
 1878. Oct. DOUGLAS, George, *Burslem.*  
 1877. . . . DOULTON, James D., *Lambeth, S.W.*  
 1876. Dec. DOWSON, A., ASSOC.M.INST.C.E., 3, *Great Queen Street, Westminster, S.W.*  
 1883. Dec. \*DOYLE, Patrick, C.E., *Madras.*  
 1877. Aug. DYER, F., 66, *High Street, Camden Town, N.W.*  
 1877. Aug. EBURY, RT. HON. LORD, P. C., *Moor Park, Rickmansworth.*

1882. Oct. EMBLETON, Dennis, M.D., F.R.C.P., 4, *Eldon Square, Newcastle-on-Tyne.*  
 1881. Dec. FARR, Archer, L.R.C.P. EDIN., S.SC. CERT. EDIN., 37, *Queen Street, E.C., and 370, Coldharbour Lane, Loughboro' Park, S.W.*  
 1883. Sept. \*FAWCETT, William Milner, M.A., F.R.I.B.A., 1, *Silver Street, Cambridge.*  
 1878. June. FORSHAW, Edward, *Bank Chambers, Hanley.*  
 1879. Dec. \*FOSTER, Reginald Le Neve, F.C.S., *North Road, Droylson, Manchester.*  
 1878. July. FRY, Miss C. A., *St. Catherine's, Oxford.*  
 1883. Oct. GAIRDNER, PROF. W.T., M.D., LL.D., *The College, Glasgow.*  
 1878. . . . GENTLES, Thomas Lawrie, L.F.P.S. GLASG., *Wellington House, Derby.*  
 1878. June. GILL, D., *Farleigh, Weston-super-Mare.*  
 1878. Oct. GRIFFITHS, Robert, *County Surveyor, Stafford.*  
 1878. July. GRIFFITHS, Thomas, 10, *King's Road, Clapham, S.W.*  
 1878. Mar. GRIGGS, R., 11, *Gray's Inn Square, W.C.*  
 1877. Aug. HAMILTON, SIR, R. N. C., K.C.B., *Avon Cliffe, Stratford-on-Avon.*  
 1881. June. HAMMOND, Frederick, 2, *Coleman Street Buildings, Moorgate Street, E.C.*  
 1876. July. HARKER, THE REV. W.  
 1880. Nov. ††\*HARLAND, A., A.R.I.B.A., P.A.S.I., 170, *Stanhope Street, N.W.*  
 1882. June. HARRIS, Alfred E., L.R.C.S., L.R.C.P., M.O.H., 14, *The Avenue, Sunderland.*  
 1877. Sept. HARRISON, C., M.D., S.SC. CERT. CAMB., *Newland, Lincoln.*  
 1882. June. \*HARRISSON, Thomas Harnett, ASSOC.M.INST.C.E., 21, *Harrington Street, Liverpool.*  
 1876. July. HARTLEY, R., L.R.C.P. EDIN., *Pemberton, Wigan, Lancashire.*  
 1883. Nov. HINTON, James Thomas, M.D. MUNICH, 38, *High Street, Croydon.*  
 1878. May. HOLT, H. P., ASSOC.M.INST.C.E., F.G.S., *Fairlea, Palatine Road, Didsbury, Manchester, and 5 Westminster Chambers, S.W.*  
 1878. July. HOOKER, J., F.O.S., 104, *Upper Thames Street, E.C.*  
 1877. July. HOOPER, Rev. R. P., M.A., F.R.G.S., 31, *Cambridge Road, Hove, Brighton.*  
 1877. Mar. HOWARD, E., 84, *Upper Whitecross Street, E.C.*

1882. June. †\*HUBBER, Frank, *George Street, Exeter.*  
 1878. Mar. HUMPHRY, PROF. G. M., M.D., F.R.S., *Cambridge.*  
 1878. June. HUSBAND, H. Aubrey, M.R.C.S., M.B., C.M., B.S.O. PUB. HEALTH EDIN., 27, *Chalmers Street, Edinburgh.*  
 1878. Sept. HYDE, Samuel, M.R.C.S., *Clifford Lodge, Buxton.*  
 1877. June. LIFFE, W., M.R.C.S., *Hartington Street, Derby.*  
 1878. Sept. INGILBY, SIR Henry D., BART., 9, *Hereford Gardens, Park Lane, W.*  
 1883. Nov. JACOB, Edward Long, B.A. LOND., M.R.C.S., 8, *Altenburg Gardens, Clapham Common, S.W.*  
 1883. July. JONES, Thomas Inman, 8, *Townsend, Beaumaris.*  
 1882. July. JONES, John Watkin, *Maesyffynon, Tonalaw, near Pont-y-pridd, South Wales.*  
 1883. Dec. \*KELLY, Charles, M.D., M.B., F.R.C.P., *Broadwater Road, Worthing.*  
 1876. July. LATHAM, Baldwin, M.INST.C.E., F.R.MET.SOC., F.G.S., 7, *Westminster Chambers, S.W.*  
 1878. May. LAW, Henry, M.INST.C.E., 5, *Queen Anne's Gate, S.W.*  
 1878. July. LAWSON, R., *Lansdowne Road, Notting Hill.*  
 1877. Oct. LAYTON, Thomas, *Kew Bridge, Middlesex.*  
 1878. Oct. LEE, John, *Church Street, Ashbourne.*  
 1883. Dec. LEE, R. J., M.D., 1, *Saville Row, W.*  
 1876. July. LE GRAND, A., 100, *Bunhill Row, E.C.*  
 1878. Oct. LEMON, James, M.INST.C.E., F.R.I.B.A., *Lansdowne House, Southampton.*  
 1877. . . . LEON, George I., 1, *First Avenue, Hove, Brighton.*  
 1880. Dec. \*LINGARD, J. Edward, ASSOC.M.INST.C.E., *Rodney Chambers, Derby.*  
 1877. July. LLOYD, Thomas, *The Square, Winchester.*  
 1882. Apr. LYTE, F. Maxwell, F.O.S., F.I.C., *Union Club, Trafalgar Square.*  
 1878. July. MCARTHUR, A., M.P., *Raleigh Hall, Brixton Rise.*  
 1882. Oct. MCCARTHY, J. Desmond, M.D., F.G.S., F.R.G.S., *Darlington; and Largs, West Africa.*  
 1879. July. MACFARLANE, Walter, *Saracen Foundry, and 22, Park Circus, Glasgow.*  
 1878. Nov. MACKAY, John B., 2, *Bouverie Street, Fleet Street, E.C.*  
 1878. Oct. MACLAGAN, James McGrigor, M.D., *Riding-Mill-on-Tyne, Northumberland.*  
 1883. May. †\*MAGUIRE, William Robert, 10, *Dawson Street, Dublin, and Town Hill, Dalkey, Co. Dublin.*

1878. May. MANSERGH, James, M.INST.C.E., 3, *Westminster Chambers, Victoria Street, S.W.*  
 1878. Oct. MARTEN, H. J., M.INST.C.E., *The Birches, Codsall, Wolverhampton.*  
 1878. Sept. MARTIN, J. M., C.E., *Castle Chambers, Exeter.*  
 1878. Sept. MASON, Hugh H., M.R.C.S., *Abbey Lodge, Barking.*  
 1883. Nov. MASTERS, Henry, 18, *Meridian Place, Clifton, Bristol*  
 1883. June. †\*MAWBAY, E. G., BOROUGH SURVEYOR, *King's Lynn.*  
 1876. . . . MEGGET, A., 7, *Huntris Row, Scarborough.*  
 1878. . . . MEIKLEJOHN, J., *Dalkeith, N.B.*  
 1877. Oct. MELISSENO, G. C. A., *Melisurgo, ASSOC.M.INST.C.E., Palazzo Cocozzo, 76, Via Poerio, Naples.*  
 1878. Sept. MILLER, John Faure, M.D., 28, *Rue de Matignon, Faubourg St. Honoré, Paris.*  
 1873. June. MOORE, J. H., *St. Michael's Lodge, Bournemouth.*  
 1883. Jan. MORCOM, Augustus, L.R.C.S., *Montpelier House, Dunstable, Beds.*  
 1879. Feb. \*MOSELEY, George, F.R.C.S., 27, *Willbury Road, Hove, Brighton.*  
 1882. Oct. \*MYNORS, Walter Charles Towers, *Little Ingestre, Stafford.*  
 1882. Apr. NANSON, Thomas, 9, *Park Crescent, Stockwell Park Road, S.E.*  
 1877. Sept. NELSON, E. M., *Hanger Hill House, Ealing.*  
 1877. Sept. NELSON, George H., *The Lawn, Warwick.*  
 1878. Sept. NICHOLS, G. B., C.E., *Handsworth, Birmingham.*  
 1876. July. NIXON, Charles J., *Addiscombe, Cranborne Road, Bournemouth.*  
 1878. May. NORMAN, W. S., 13, *Warwick Road, W.*  
 1881. Mar. \*PAGE, Herbert Markant, M.D., S.SC. CERT. CAMB., M.R.C.S., 16, *Prospect Hill, Redditch.*  
 1877. . . . PAGLIARDINI, T., 75, *Upper Berkeley Street, Portman Square, W.*  
 1878. May. PARKER, J., *Woodstock.*  
 1877. . . . PARKER, W. C., M.INST.C.E., *Whitehall Club, S.W.*  
 1883. Oct. PARKES, Louis Coltman, M.D., 51, *Cadogan Square, S.W.*  
 1878. . . . PATTINSON, S., *Ruskington, Sleaford, Lincoln.*  
 1877. June. PEEL, Edmund, *Brynfys Ruabon, North Wales.*  
 1882. Jan. PERRY, Henry Robert, A.R.I.B.A., *Oak Cottage, Western Bank, Derby.*

1881. June. PERRY, John Tavenor, 9, *John Street, Adelphi.*  
 1883. Nov. PHILPOT, Charles William, M.D. LOND., 58, *North End, Croydon.*  
 1879. Dec. \*POWELL, George Thompson, *Rotherwood, Sydenham Hill, and 11, Pancras Lane, E.C.*  
 1877. .... \*POWELL, J., 10, *St. George's Crescent, Liverpool.*  
 1878. June. PRITCHARD, E., M.INST.C.E., F.G.S., 2, *Storey's Gate, Westminster, S.W., and 37, Waterloo Street, Birmingham.*  
 1877. .... PRITCHETT, G. E., F.S.A., 20, *Spring Gardens, S.W., and Oak Hall, Bishop's Stortford.*  
 1877. Aug. PULLIN, T. H. S., M.D., *Sidmouth.*  
 1877. Sept. RAE, Robert, 337, *Strand, W.C.*  
 1881. Jan. RAINGER, Charles Henry, 9, *Bath Place, Cheltenham.*  
 1883. Dec. RAWLINSON, Sir Robert, C.D., *Local Government Board, Whitehall.*  
 1876. July. REDWOOD, T. Hall, M.D., *The Lawn, Rhymney.*  
 1881. June. REED, Frederick H., A.R.I.B.A., 10, *Belmont Hill, Lee, S.E.*  
 1878. Oct. RUSSELL, J. B., M.D., *Medical Officer of Health, Glasgow.*  
 1878. July. SANDYS, MAJOR M., 87, *Jermyn Street, S.W.*  
 1881. July. SCHMIDT, E. W. C. F., A.R.I.B.A., *Eastbourne, Sussex.*  
 1876. Oct. SHAFTESBURY, RT. HON. EARL OF, K.G., 24, *Grosvenor Square, W.*  
 1876. July. SHONE, Isaac, ASSOC.M.INST.C.E., *Wrexham.*  
 1878. Oct. SHRIMPTON, Charles, M.D. PARIS, 11, *Willswood Park, Torquay.*  
 1877. .... SILLAR, W. C., *St. James' Lodge, Kidbrooke Park Road, Blackheath, S.E.*  
 1883. Oct. SIMPSON, PROF. P. A., M.D., *The College, Glasgow.*  
 1882. Nov. SIMPSON, William John, M.D., S.S.C.CERT.CAMB., 110, *Crown Street, Aberdeen.*  
 1878. Nov. SKRINE, Henry Duncan, *Claverton Manor, Bath.*  
 1877. .... SLADE-KING, Edwyn, M.D., LIC. IN STATE MED.R.C.P. EDIN., *Croft Side, Ilfracombe.*  
 1883. Mar. SLATER, John, B.A., 14, *Bedford Row, W.C.*  
 1877. June. SMITH, R. W., *Mount Rundell Harborne, Birmingham.*  
 1877. May. SMITH, W. R., *Clifton House, Clifton-by-Ashbourne Derbyshire.*  
 1878. Oct. SPRUCE, Samuel, *Beech House, Tamworth.*  
 1878. July. STAINTHORPE, W. Waters, M.D., S.S.C. CERT. EDIN., *Kirkleatham, Redcar.*  
 1876. July. STIFF, E., *London Pottery, Lambeth.*

1883. Dec. STRONG, Henry J., M.D., 64, *North End, Croydon.*  
 1876. July. SUTCLIFFE, R., 100, *Bunhill Row, E.C.*  
 1877. Sept. SWETE, Horace, M.D., S.S.C. CERT. CAMB., F.C.S., *The Grove, Worcester.*  
 1880. Jan. \*SYKES, J. F. J., B.S.C. PUB. HEALTH, M.B., L.R.C.P., M.R.C.S., 7, *Thayer Street, Manchester Square.*  
 1876. Oct. TAYLOR, John W., M.D., D.S.C., *Rothsay House, Scarborough.*  
 1881. Nov. TAYLOR, Shepherd T., M.B. LOND., L.R.C.P., M.R.C.S., *Grove House, Norwich.*  
 1877. .... TEMPLETOWN, GEN. RIGHT HON. VISCOUNT, K.C.B., 49, *Charles Street, Berkeley Square.*  
 1878. July. THOMAS, W. Cave, 53, *Welbeck Street, W.*  
 1878. .... THORNLEY, J. E., *Lyndon, Bickenhill near Birmingham.*  
 1883. Dec. TREW, J. Fletcher, *Lyndon House, Park End Road, Gloucester.*  
 1878. Oct. TROTTER, Arthur E. H., *Stockton-on-Tees.*  
 1879. July. TYLOR, William Alfred, 2, *Newgate Street, E.C.*  
 1882. July. VIGERS, Edward, A.R.I.B.A., F.S.I., 38, *Parliament Street, S.W., and 79, Elgin Road, Paddington.*  
 1877. June. WALKER, J. H., L.R.C.P. EDIN., *Pickering, Yorkshire.*  
 1877. Sept. WALLER, Thomas, 47, *Fish Street Hill, E.C.*  
 1881. May. WEBB, Phillip, 1, *Raymond Buildings, Gray's Inn, W.C.*  
 1878. Oct. WELFORD, J., 4, *Warwick Place, Paddington, W.*  
 1880. May. WHITE, William, F.S.A., F.R.I.B.A., 30A, *Wimpole St., W.*  
 1877. Sept. WHITWILL, Mark, *Redland House, Durdham Park, Bristol.*  
 1878. July. ‡ WILKINSON, William, *Town Hall, Salford.*  
 1883. July. \*WILLIAMS, Owen, 5, *The Crescent, Bangor.*  
 1881. July. \*WITHERS, J. B. Mitchell, F.R.I.B.A., 5, *Surrey Street, Sheffield.*  
 1882. July. †† WITTS, J. W., *Market Harborough.*  
 1877. Sept. WOOD, Jacob, M.P.S., 186, *Highbury Park, N.*  
 1878. Sept. \*YUILL, W., ASSOC.M.INST.C.E., 3, *Fenchurch Avenue, E.C.*

## ASSOCIATES [32].

\* Life Associates. † Passed Examination for Inspectors of Nuisances.

1883. Sept. AITKEN, Charles, 7, *Dyncvor Gardens, Richmond.*  
 1881. May. BAMLETT, Adam Carlisle, *Thirsk, Yorkshire.*  
 1882. June. †\*BAXTER, John, 2, *Walnut Tree Walk, Kennington Road, S.E.*  
 1879. Dec. \*BLAKE, Edward Thomas, M.D., 47, *Seymour Street, Hyde Park, W.*  
 1879. Aug. BOLDING, John T., 19, *South Moulton Street, W.*  
 1883. Oct. BUCHAN, W. Paton, *Fairyknowe, Cambuslang, Lanarkshire, N.B.*  
 1883. Nov. BUCHANAN, Kenneth Hugh, 8, *Wilson Street, Derby.*  
 1883. Dec. BURNS, J. Cleland, *Park Gardens, Glasgow.*  
 1879. Nov. †\*CLARKE, A. Lennox, *Union Buildings, Selly Oak, King's Norton.*  
 1883. Dec. †\*CROGHAN, Thomas Andrew, 37, *Devonshire Gardens, Buxton.*  
 1882. Mar. DENSHAM, Charles A., 55, *Cochrane Street, St. John's Wood.*  
 1880. Feb. EMTAGE, Daniel, *Dane Hill Sanitary Works, Margate.*  
 1882. Oct. GODDARD, Frederick K., *Newcastle-on-Tyne.*  
 1883. Sept. †\*HEARNE, William, 26, *Fermoy Road, Paddington.*  
 1883. Oct. HONEYMAN, John, F.R.I.B.A., 7, *Blythswood Square, Glasgow.*  
 1881. Nov. †\*HORROCKS, Joseph.  
 1883. Dec. †\*KEMSLEY, Jesse, *Rodwell Villa, Rodwell Road, East Dulwich, S.E.*  
 1882. Feb. KENNINGTON, Thomas, 47, *Sheffield Sanitary Company, Moorhead, Sheffield.*  
 1880. Feb. KINSEY, W. Barns, 5, *Carteret Street, Westminster.*  
 1879. Nov. †\*LAPWORTH, J., *Vestry Hall, Bethnal Green, E.*  
 1883. Nov. †\*LEGG, S. C., 62, *Gayhurst Road, Dalston, E.*  
 1882. July. †\*LIGHTFOOT, Thomas, 3, *Trevor Square, Knightsbridge.*  
 1883. Sept. \*PALLISER, Christopher, *Northallerton.*  
 1881. Nov. †\*RAINS, Joseph, *Kettering.*  
 1882. Nov. †\*RICHARDS, Daniel, 3, *Spencer Street, Park Road, Battersea.*  
 1881. Nov. †\*SORTWELL, W., 9, *Retreat Place, Paragon Road, Hackney, E.*

1882. June. †\*STEERS, George, *Wellington Street, Bedford.*  
 1883. Oct. STEWART, James, Sen., 25, *Lynedoch Street, Glasgow.*  
 1883. Jan. WALLIS, Arthur Gay, 45, *Gough Road, Edgbaston.*  
 1883. Feb. WELCH, Henry, M.B., B.S.C. EDIN., 4, *Queen Street, Lancaster.*  
 1883. June. †\*WELLS, G. F., 37, *Prospect Street, Hull.*  
 1881. June. †\*WILKINSON, W., 48, *Canning Street, Bury.*

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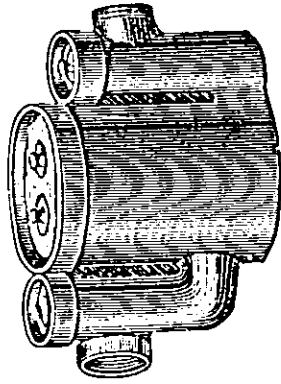
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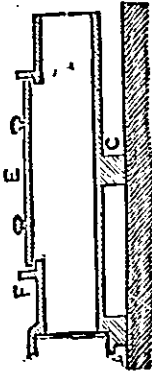
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When tested in London in 1880  
Buchan's Exhaust Ventilator excelled  
all the principal Makers' Cows and  
Ventilators by about 64,000 feet in 21  
hours, and is still the Champion.



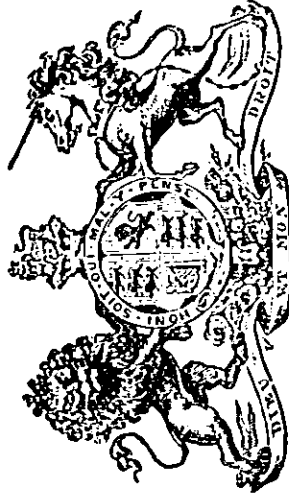
Prize Medal Grease Trap, for Kitchen  
Sinks, &c. Prevents chokeage of the  
Drain with Grease.



Prize Medal Access Pipes for good  
Drainage work. Very useful in practice  
for examination and cleansing.  
Latest Awards—See the account of the  
Glasgow Exhibition of the Sanitary  
Institute, A.D. 1883.

*These Appliances are Patronized by the*

*Illustrated Price Lists and Testimonials of the Exhaust Ventilators—may be had from W. P. BUCHAN, M.S.A., Assoc. San. Inst.,  
Practical Sanitary Engineer, 21 KENFREW STREET, GLASGOW. Of the Ventilating Traps-Grease Traps, Access-Pipes, Slop-Stones, &c., in Fire-clay, from the Makers, J. & M.  
CRAIG, Kilmarnock, or their local Agents. London Agents—J. FINELL & Co., 3 Buckingham St., Strand, W.C. The "Carmichael" Closets from the Makers, ROBT. BROWN &  
SON, Ferryhill Works, Paisley. Also in London, from Mr. F. BORRINO, 6 Baker Street, Portman Square. At the request of the Exhibition Committee of the Sanitary Institute  
Buchan's "Carmichael" Closets and Exhaust Ventilators were fitted up for the Lavatories attached to the Exhibition Buildings, Glasgow, Sept. 25th to Oct. 20th, 1883.*



By Royal Letters Patent.

## BUCHAN'S SANITARY APPLIANCES,

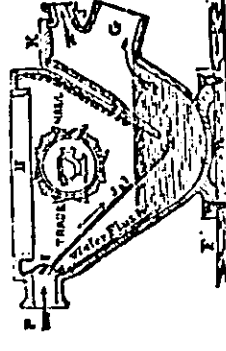
THE BEST AND CHEAPEST IN THE MARKET.



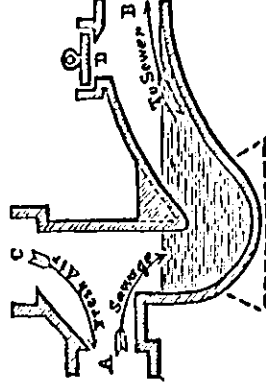
PRIZE  
MEDAL  
AWARDED.

GLASGOW  
CONGRESS,  
A.D. 1883.

Disconnecting and Ventilating Drain  
Traps. Also, Grease Traps, Access-Pipes,  
Fire-Clay Slop Stones, &c., for Drains.



THE "CARMICHAEL"  
A First-class Complete Closet.  
All above the Floor. In various styles.



No. 2 Disconnecting Trap. About  
25,000 "Buchan's Traps" in use. The  
above Closet and Trap got the only  
Medals awarded in the Sanitary Section  
at Glasgow in 1880.

Also

Sanitarians in the Kingdom.

For the awards given by the Institute see Appendix, pages (21) and (27).

*For the awards given by the Institute see Appendix, page (26).*

## LINCRUSTA-WALTON.

### *The Sunbury Wall Decoration.*

This Beautiful Material has been Greatly Reduced in Price, owing to Improvements in the Manufacture.

SEE NEW PRICE LIST FOR 1884.

LINCRUSTA-WALTON has obtained TEN PRIZE MEDALS, and has been used in numerous Mansions and Clubs, and in most of the leading Hotels; has also been adopted by the London and North-Western, Midland, Great Eastern, Lancashire and Yorkshire, and other Railway Companies; also by H.M. Vessels, the P. and O. Steamers, the Cunard, White Star, Inman, and other Steamship Lines.

LINCRUSTA-WALTON DRAWING-ROOM, TOILET, TABLE, and DINNER MATS, executed in beautiful designs in Solid Relief, and only require to be seen to be appreciated for their chaste and elegant appearance, their durability, and their extraordinary cheapness.

London Showrooms: 9, BERNERS STREET, W.  
AND CRYSTAL PALACE, SYDENHAM.

*Certificate of Merit from the Sanitary Institute of Great Britain—  
Glasgow Exhibition.*  
*Gold Medal and First Class Certificate from the Calcutta International Exhibition.*

Offices & Works:—SUNBURY-ON-THAMES.

*For the awards given by the Institute see Appendix, page (19).*

AWARDED UPWARDS OF  
270 GOLD AND SILVER MEDALS,

INCLUDING



SILVER MEDAL,  
Royal Agricultural  
Society of England, 1883



GOLD MEDAL,  
Amsterdam, 1883.

SPECIAL CERTIFICATE FOR WASHING MACHINES—GLASGOW, 1883.

## THOMAS BRADFORD & CO., STEAM LAUNDRY ENGINEERS.

MANUFACTURERS OF

WASHING MACHINERY for  
CLEANSING EVERY KIND  
OF FABRIC.

WRINGING AND DRYING  
MACHINERY & APPARATUS  
MANGLING & CALENDERING  
MACHINERY.

DISINFECTING APPARATUS.

LAUNDRY FITTINGS of every  
Description.

PUBLIC & PRIVATE BATH  
FITTINGS.

APPARATUS FOR DYERS.  
CLEANERS, & FINISHERS.

CHURNS, BUTTER WORKERS,  
& Dairy Appliances of all kinds.

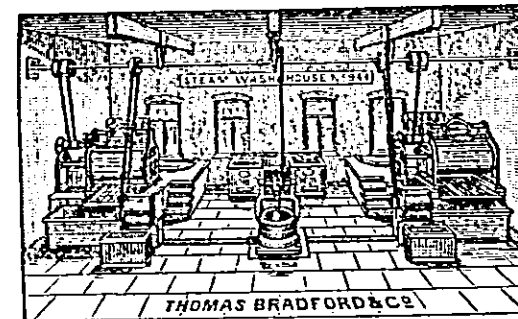
### CONTRACTORS

For all kinds of Laundry, Asylum, Hospital, Work-  
house, and Hotel Engineering.

*Catalogues free by post.*

CRESCENT IRON WORKS: Salford, Manchester;  
Victoria Avenue, Manchester; 130, Bold Street, Liverpool;  
140, 141, 142, & 143, HIGH HOLBORN, LONDON.

Plans and  
Estimates  
furnished for  
any size or  
description of  
Hand Power  
Laundry.



Plans and  
Estimates  
furnished for  
any size or  
description of  
Steam Power  
Laundry.

For the awards given by the Institute see Appendix, pages (20) and (27).

**J. TYLOR & SONS,**  
Hydraulic, Hot Water, and Sanitary Engineers and  
Brassfounders,  
No. 2, NEWGATE STREET, LONDON, E.C.

MANUFACTURERS OF  
**SANITARY APPLIANCES:**  
WATERCLOSETS, LAVATORIES, BATHS, URINALS, DRAIN,  
DISCONNECTING AND GREASE TRAPS, PATENT  
WATER METERS, WATER WORKS FITTINGS.

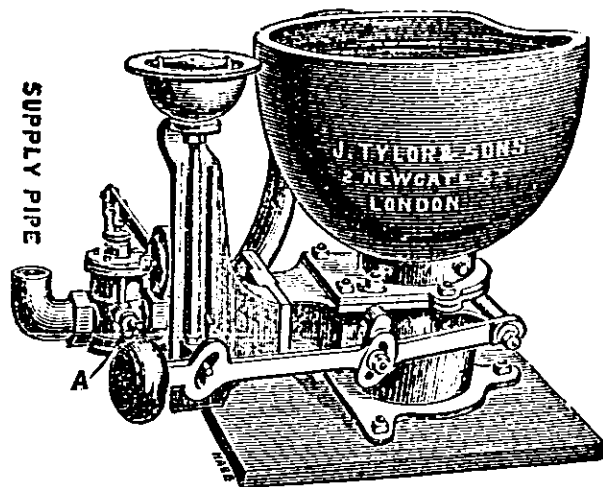


FIG. 1.

**J. Tylor & Sons' Patent "Clear Way" Regulator Valve Closet.**  
Improved Collar and Pull-up, with Patent Parallel Motion. With After Flush  
for trapping, perfectly flushed patent basin (without fan), and  
box enamelled inside.

14-inch supply pipe recommended. The outgo of this closet is larger, and  
therefore requires a larger inlet pipe to trap.

Price from £5 8s. 6d.

Cheaper Valve Closets from £2s. 2s.

**CAN BE SEEN IN ACTION AT 2, NEWGATE STREET.**

Baths, Lavatories, Laundries, Fountains, Fire Mains, Heating  
and Pumping Apparatus fitted up.

**HOUSE DRAINAGE CARRIED OUT ON THE MOST SANITARY PRINCIPLES.**

Estimates Given on Particulars being sent.

**ILLUSTRATED CATALOGUE ON APPLICATION.**

For the awards given by the Institute see Appendix, page (19).

**WALL PAPERS,**  
GUARANTEED FREE FROM ARSENIC.

To be obtained of all the Principal Decorators and Contractors.

**WM. WOOLLAMS & Co.,**  
Manufacturing  Paperstainers.

ORIGINAL MAKERS

OF THE FOLLOWING

**SPECIALITIES,**

Artistic Wall-Papers, Hand-made, of superior qualities, including  
our New Patent Embossed Flocks, Dado Decorations, Raised  
Flocks for Painting over, and Embossed Imitation Leather  
Papers, all free from arsenic.

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Practical Drawings made from Rough Sketches.

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Designed and Coloured by the following Eminent Architects:—

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ALSO AGENTS FOR AND PRINTERS OF

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**PRIZE MEDALS AND AWARDS:**

Society of Arts, 1849. London, 1851. New Zealand, 1865. Dublin, 1865. Paris, 1867 and 1878.  
Sydney, 1879. Sanitary Institute, 1879. Melbourne, 1880. Adelaide, 1881. International  
Medical and Sanitary Congress, 1881. Bradford, 1882. Christchurch (N.Z.) 1882. Amster-  
dam, 1883. National Health Society, 1883, for Paper Hangings free from arsenic.

N.B.—A Prize Medal was awarded by the Sanitary Institute of Great Britain  
in 1879, for "Paper Hangings free from Arsenic," after an exhaustive examination by their  
Analysts of a large number of Samples cut from Pattern Books extending over a series  
of ten years; and we also received an "Award of Merit" from the Judges at the Inter-  
national Medical and Sanitary Congress, 1881, and a Special Certificate at Newcastle for  
similar papers.

MANUFACTORY AND SHOW ROOMS,

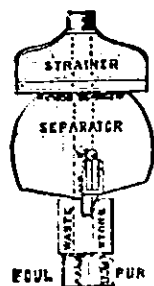
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☞ Sole Address. Write for Patterns. No Travellers employed.

*For the awards given by the Institute see Appendix, page (21).*

Medal awarded by Sanitary Institute, 1882; and Special Certificate awarded by Sanitary Institute, 1883.



## THE RAIN-WATER SEPARATOR

REJECTS THE DIRTY AND STORES  
THE PURE WATER.

1st. It prevents the first portion of the rainfall (which brings down impurities from the roof) passing into the storing tank.  
2nd. It cants after a certain quantity has passed through, and stores the water when the roof has been washed by the rain.

For Roof 600 to 1000 ft. area £2 10 | For Roof 2000 to 3000 ft. area £4 0  
" " 1000 to 2000 ft. " £3 5 | " " 3000 to 4000 ft. " £4 15

The Patentee will be pleased to supply Members of the Sanitary Institute with Separators on loan for six months with option of purchasing or returning them free of cost at the end of the trial.

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The MUSEUM is open Daily from 10 a.m. to 7 p.m., and on Mondays and Saturdays to 9 p.m.

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SECRETARY:  
E. WHITE WALLIS.

*For the awards given by the Institute see Appendix, page (32).*

By Appointment to the War Office, and Contractors to the Admiralty.



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FOR

VENTILATING, HEATING, LIGHTING,

AND

SMOKE PREVENTING OPERATIONS,

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### AWARDS.

Gold Medal, New Zealand, 1882.  
Silver Medals, Dairy Shows, 1880-1881.  
Medals and Awards of Merit at Brighton, Eastbourne, International Medical, and many other Sanitary Exhibitions.

KITE'S VENTILATORS FOR DRAINS.

KITE'S VENTILATORS FOR CHURCHES.

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For the awards given by the Institute see Appendix, page (19).

# THE SILICATE PAINT COMPANY

(J. B. ORR & CO., Proprietors),

PATENTEES AND SOLE MANUFACTURERS OF

## HYGIENIC PAINTS AND COLOURS,

FOR ALL PURPOSES AND CLIMATES,

AND OF

### "ORR'S CHARLTON WHITE,"

THE FAMOUS RIVAL TO WHITE LEAD—INNOCUOUS  
IN CHARACTER—UNCHANGABLE IN COLOUR—  
ECONOMICAL & DURABLE;

ALSO OF

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A washable Tempera Paint—a Distemper Treatment  
superior to oil paint in its effect, and at  
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GLASGOW—173a, St. Vincent Street.

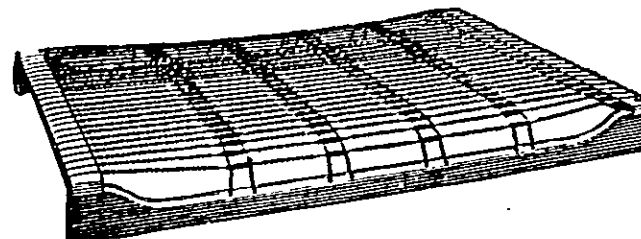
For the awards given by the Institute see Appendix, pages (23) and (33).

Patronised by Royalty, the Nobility, the Medical Profession, &c.

# THE "EXCELSIOR" PATENT SPRING MATTRESS

AWARDS.

10 PRIZE  
MEDALS.



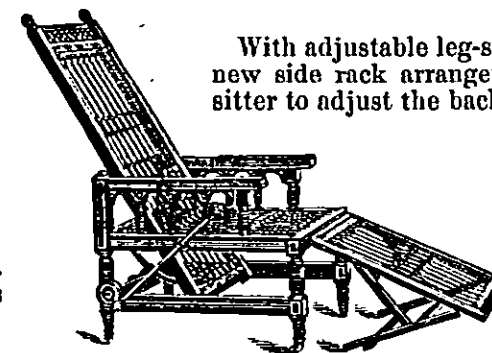
AWARDS.

14  
CERTIFICATES  
OF MERIT.

MATTRESS on polished pitch-pine frame. Made any size to fit wood, brass, or iron bedsteads. The principle of arrangement permits the free movement of one sleeper without inconvenience to the other, admits of complete isolation of each, and effectually prevents depression in the centre.

## THE "EXCELSIOR" INVALID CHAIR.

THE "EXCELSIOR"  
BED-REST.



With adjustable leg-support, castors, and new side rack arrangement, enabling the sitter to adjust the back to any angle.

THE "MATLOCK"  
BED-REST.

For supporting an  
Invalid when in bed.  
Adjustable to various  
angles.

The leg-support  
when detached,  
as it easily can be,  
forms an admir-  
able Bed-rest.  
Made in MAHOG-  
ANY, WALNUT,  
and OAK.

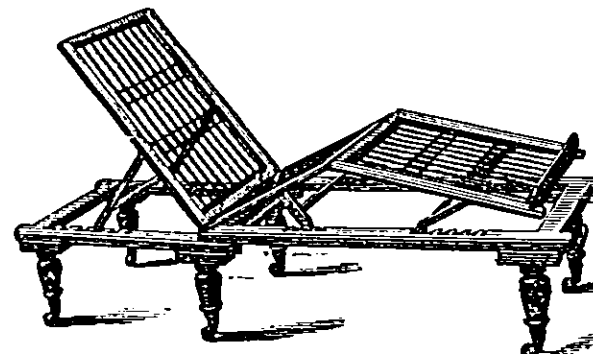
## THE "EXCELSIOR" INVALID BED.

THE "MATLOCK" INVALID COUCH.

## THE "EXCELSIOR" INVALID COUCH.

With Swivel  
arrangement  
reducing  
length from  
6 ft. 9 in. to  
4 ft. 3 in.

Also made in  
one length  
(not reducible)  
6 ft. 9 in. long.

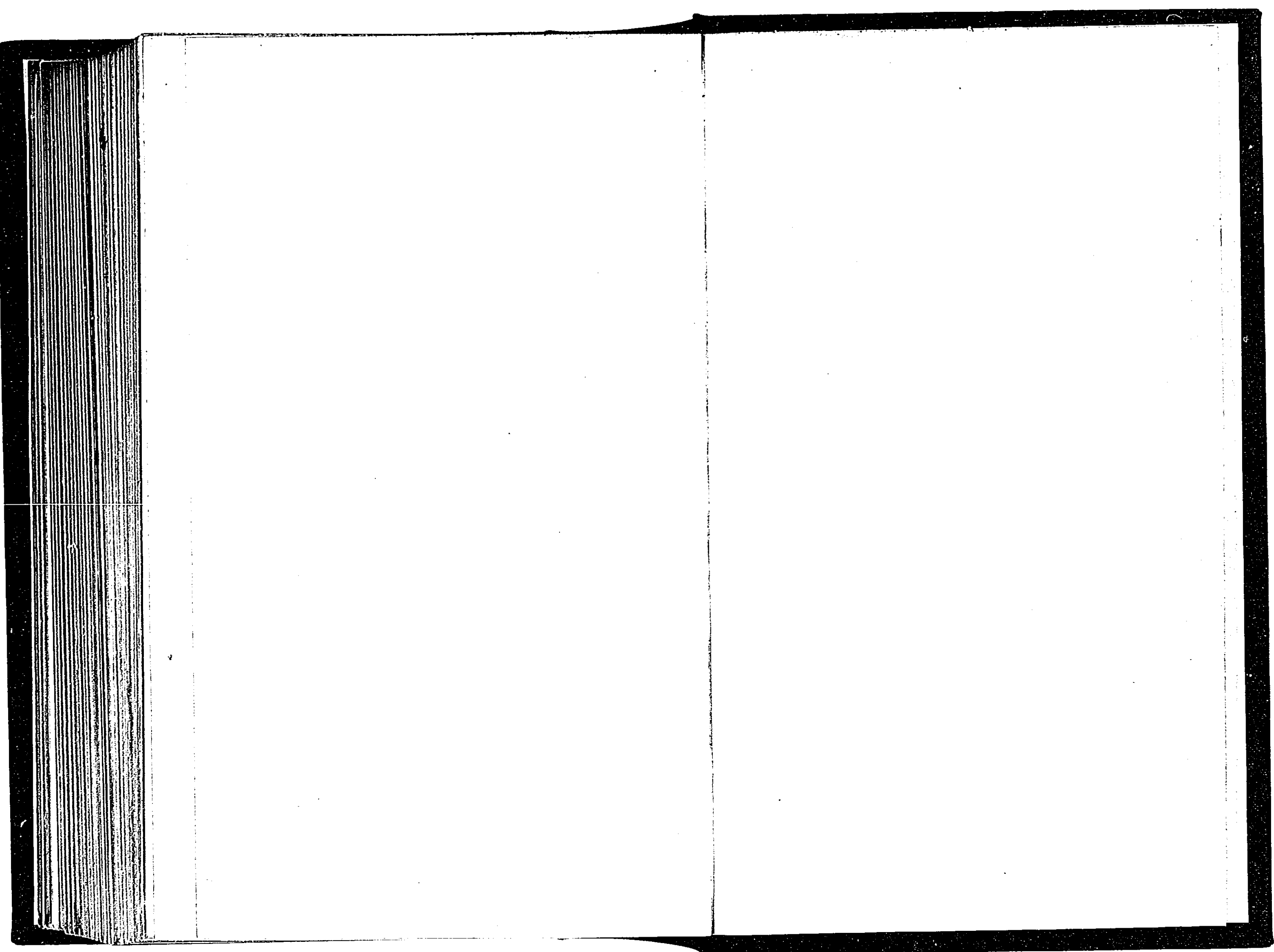


An elegant  
and useful  
article of  
Furniture  
made in  
MAHOGANY,  
OAK,  
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