

SOCIETY FOR THE ENCOURAGEMENT OF ARTS, MANUFACTURES, & COMMERCE,
JOHN-STREET, ADELPHI, LONDON, W.O.

1877.
REPORT
OF THE
CONGRESS ON DOMESTIC ECONOMY,
TO BE TAUGHT AS A BRANCH OF
GENERAL EDUCATION,
AND ACTING IN CONNECTION WITH THE EDUCATIONAL INSTITUTIONS
IN THE COUNTIES OF STAFFORDSHIRE, WARWICKSHIRE, AND
WORCESTERSHIRE,
HELD IN BIRMINGHAM,
BY PERMISSION OF THE ROYAL BIRMINGHAM SOCIETY OF ARTISTS, AT THEIR ROOMS, NEW-STREET,
ON THE 17TH, 18TH, AND 19TH JULY,
1877.

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1877.

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FOR THE 124th SESSION, 1877-8.

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NOTICES.

**I.—EXTRACT FROM THE MINUTES OF COUNCIL OF THE SOCIETY
OF ARTS, 21ST MARCH, 1877.**

It was moved, pursuant to notice, and duly seconded—"That measures be taken for holding, in populous districts of the kingdom, a Congress annually to promote the knowledge of Domestic Economy as defined by the Education Code, and that the first meeting be held at Birmingham, as a centre for the counties of Warwick, Worcester, and Stafford."

II.

The Members of the Society of Arts in Birmingham formed the nucleus of the Local Committee (see p. 3), which acted under the presidency of the Mayor (Geo. Baker, Esq.).

III.

The second Congress will be held in connection with the educational institutions of some centre where a large number of Members of the Society are resident.

II.

NOTES ON THE CONGRESS.

Suggested by the Birmingham Executive Committee for consideration, and submitted to the Annual Congress to be held in Lancashire in 1878.

I.

Before the termination of the Congress, the following resolution was passed unanimously:—

"That with the view of obtaining practical results from this Congress, it is desirable that the Local Committee and Sub-Committees remain in action until the next Annual Congress, which has been announced by the Society of Arts to be held in Lancashire in 1878."

To give effect to this resolution, the Birmingham Executive Committee have endeavoured to collect the general views expressed at the Congress, which they have embodied in the following notes. These they now issue for general circulation among managers of Public Elementary Schools, and others interested in introducing efficiently DOMESTIC ECONOMY into elementary education, and submit them for the consideration of the next Annual Congress on Domestic Economy.

The Committee purposely abstain, at the present time, from formulating any collective opinion, their object being solely to keep alive discussion upon the important questions raised at the Congress.

II.

1. The annual reports submitted to the Queen by the Lords of the Committee of Council on Education repeat their complaints to her Majesty that the results of the present system of public elementary education are "unsatisfactory and meagre," although the estimated cost of such education has increased from £1,707,055 in 1876 to £1,910,829 in 1877. (See Report of 1876-7.)

2. It was unanimously agreed at the Congress that great changes in the Education Code were necessary, in order to enable Domestic Economy to be properly introduced into elementary education, and to produce generally more satisfactory results, whilst promoting greater economy in the administration.

3. It was urged that the aims of the Code were in great measure misdirected, regard being had to the educational needs of the three millions of children of the wage-earning class, their ages, and the circumstances of their daily life.

4. It was urged that, even before the teaching of reading, writing, and arithmetic was properly secured, undue prominence was given (by the

regulations under which the grant was awarded) to grammar, history, and geography, as compared with other subjects of equally great, if not greater, educational value to such children.

5. To remedy this, it was submitted that a selection from a larger number of optional subjects should be encouraged, such selection to be free from all undue official restraints, and the choice of the subjects being left, as much as practicable, to the judgment of local managers of schools, who must know better than any centralised administration what subjects are most suitable to their respective schools.

6. That, as the subjects embraced under DOMESTIC ECONOMY relate to improving the homes and elevating the daily lives of the wage-earning class, they afford the best means of cultivating the arts of reading, writing, and arithmetic, and preserving the use of those arts in after-life, and therefore these subjects should be encouraged before any others by payments on results; and they would be well adapted to any half-time system.

7. That, for promoting greater efficiency and economy in public elementary education, the mode of inspection and examination should be reorganised, and a clear division made between the personal inspection, and the individual examination of the scholars, of a school.

8. That H.M. Inspector's annual visit to a school should have for its object inquiring (according to instructions formally laid down and published) into the discipline (including gymnastic drill, not military, which should be specially examined), organisation, the general efficiency of the class teaching, and the teaching power of the staff.

9. That the individual examination of the scholars should be independent of this official visit of the Inspector, and should be carried out, as far as practicable, by written papers, under regulations such as those adopted by the Science and Art Department for the examination of drawing in public elementary schools.

10. That writing from dictation and arithmetic by the scholars in Standard II,* and upwards, and all the optional subjects should be tested by results sent up from each school, and referred to special examiners on the same principle as the examinations

* A higher standard might be taken at first.

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are conducted by the Science and Art Department, and that the subjects, such as botany, physiology, &c., already undertaken by the Science and Art Department, should be examined in only by that Department.

11. That each subject embraced in Domestic Economy should be kept separate for the purposes of examination, and grants be earned on each subject.

12. That Needlework should be tested by work done in the presence of superintending authorities, and sent up from each school to qualified examiners.

13. That examination in the practice of Cookery should be conducted by qualified official examiners, who should visit local centres annually for that purpose.

14. That Singing should be tested by results ascertained by qualified official examiners, who should visit schools or local centres annually for that purpose.

15. That, for simplifying the machinery for conducting the examinations referred to above, all schools should, as far as practicable, be examined in the same subjects, in all parts of the country, simultaneously.

16. That the Inspector, his assistants, or other competent recognised authorities should superintend the examination by papers, examine in reading, read the passages for dictation, and see that the regulations for the conduct of the examination are being strictly carried out.

17. That the written report of the Inspector's official visit should be forwarded to the Education Department, to be considered in conjunction with the examiners' reports on results, and upon both of these grants should be earned by a school.

(By Order)

E. F. M. MACCARTHY, M.A., } Hon. Secretaries.
ELIZ. A. MATHEWS,

Birmingham, 8th October, 1877.

18. That the scale of grants (Code, Art. 19) should be re-adjusted, so as considerably to reduce the grant on attendance, and proportionately increase the grant to be earned on the reports of the Inspector and the Examiners.

19. That, as the clause requiring 250 attendances as a condition of presentation for examination (Code, Art. 19 B) acts prejudicially to education, it should be modified, with proper safeguards, so as to provide that all the scholars present on the day of examination shall be examined, and be eligible for earning grants for their school, on the understanding that the failure of those who have not made a given number of attendances, or have not been a given length of time under instruction, should not be statistically recorded against a school.

20. That Women should be eligible for appointment as inspectors.

21. That Women should be appointed as examiners in needlework, clothing, household matters, &c.

22. That Military Officers, non-commissioned officers, or pensioners should inspect military drill.

23. That the Medical Officers of Health already appointed throughout the country might be employed with efficiency and economy in reporting upon the fitness of the school buildings, their ventilation, heating, sanitary arrangements, &c.

Managers may obtain copies of the Notes on application (with an addressed halfpenny postage wrapper enclosed), to the Honorary Secretaries, Birmingham, or to the Secretary, Society of Arts, Adelphi, London, W.C.

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 Kenrick, T., J.P., Maple-bank, Edgbaston
 Kettle, Rupert, J.P., Meridale, Wolverhampton
 Kitchener, F. E., M.A., L.L.M., F.L.S., School-house, Newcastle, Staffs
 Kitchie, Rev. E. H., B.A., Boldmere Vicarage, New Oscott, Birmingham
 Kynnersey, T. C. B., Salaried Magistrate, Police-court, Birmingham

Lambert, Rev. Brooke, The Vicarage, Tamworth, Staffordshire
 Langford, J. A., L.L.D., Parkbrook, Birmingham
 Lanning, Charles, Chairman of Bol-hall and Glasco School Board, Glasco, Tamworth
 Langford, James, Brumgove
 Lea, Rev. Canon, M.A., St. Peter's, Drottwich
 Lea, Thomas J.P., The Larches, Edgbaston
 Lee, Rev. Charles, M.A., the Vicarage, Bilston
 Lege, Rev. James, Tarncliffe house, Hanley, Staffs.
 Leigh, the Lord, Lord-Lieutenant of Warwickshire, 37, Portman-square, W.
 Leighton, Stanley, M.P., Sweeney-hall, Oswestry, and 81, Eccleston-square, S.W.
 Leighton, Stanley, Mrs., Sweeney-hall, Oswestry, and 81, Eccleston-square, S.W.
 Litchfield, the Earl of, Shugborough, Stafford
 Longman, the Very Rev. Canon, Bishop's-house, Birmingham
 Lupton, M. S. (Hon. Sec. Yorkshire School of Cookery), Beechwood, Leeds
 Lyttelton, Hon. and Rev. W. H., M.A., Hagley Rectory, Stourbridge
 Lyttelton, the Lord, Hagley-hall, Stourbridge
 MacCarthy, Rev. R. F. M., M.A. (Hon. Sec.), King Edward's School, Birmingham
 Mardale, Rev. Blain, M.A., Chairman School Board, Bishop's Cleeve, Leamington
 Mander, Miss A. M. (Hon. Sec. to Sec. A), The Mount, near Wolverhampton
 Martin, Robert, Overbury-court, Tewkesbury
 Martineau, Councilor H. F., Edgbaston, Birmingham
 Mason, Sir Josiah, Erdington, Birmingham
 Masie, Prof. J. M.A., Leam-terrace, Leamington
 Mathews, C. E., Augustus-road, Edgbaston
 Mathews, Mrs. C. E. (Hon. Sec.), Augustus-road, Edgbaston
 Maville, Rev. D., Willey Rectory, Stourport
 Middlemore, William, Elvetham-road, Edgbaston, Birmingham
 Milward, Rev. H. C., M.A., St. Clement's Vicarage, Birmingham
 Milward, R. H., Waterloo-street, Birmingham
 Minton, Mrs. Herbert, Stoke-on-Trent
 Mottersam, James, Q.C., Judge of the County Court, Birmingham
 Morse, Rev. T. D. C. (Hon. Sec. to Section C), Drayton Rectory, Nuneaton
 Muniz, G. H. M., Church-hill-house, Handsworth
 Oster, A. Follett, F.R.S., Harborne-road, Birmingham
 Oster, Henry P., 50, Carpenter-road, Edgbaston
 Oster, Miss, South-lark, Edgbaston
 Oster, Mrs. Alfred, 44, Wheelers-road, Edgbaston
 Pakkington, Hon. J. S., King's-end, Worcester
 Parker, Lawley, Chad-lodge, Edgbaston
 Peel, Arthur W., M.P., 70, Eaton-place, S.W.
 Peel, the Right Hon. Sir Robert, Bart., M.P., Tamworth
 Peile, Rev. T. W., Cannock Vicarage, Staffs.
 Penfather, Rev. S. E., M.A., Kenilworth
 Phelps, Lieut.-Col. Boralla, Greenfield-crescent, Edgbaston
 Phelps, Rev. H. C., M.A., St. James's, Ashted, Birmingham
 Phipson, Mrs., Westbourne, Edgbaston
 Poulton, Rev. W. H., M.A., Warden of Queen's College, Birmingham
 Price, Rev. Newton, B.A., Oxhay, Watford
 Ratcliff, Col. Charles, Wyddington, Church-road, Birmingham
 Ratcliff, Mrs. Chas.
 Ridley, W. Wel, Bromfield, Alkerton, Leamington
 Ritson, Rev. J., M.A., Brinklow Rectory, Coventry
 Sargent, Mrs. W. L., 9, Augustus-road, Birmingham
 Scott, E. A., M.A., Rugby School
 Seaton, Rev. J. M., M.A., Chastown Vicarage, Walsall
 Sidgwick, Arthur, M.A., Rugby School
 Skev, George, J.P., Chairman Wilkes School Board
 Slater, James, Chairman Wednesbury School Board
 Smith, E. O., Alden-hall, Solihull
 Smith, Rev. Albert, M.A., Grammar School, Sutton Coldfield
 Smith, Rev. J. H. Ch., Aldridge Rectory, near Walsall
 Stamer, Ven. Archdeacon Sir Lovelace T., Bart., M.A., Stoke-on-Trent
 Stone, J. B., J.P., F.G.S., Dartmouth-street, Birmingham
 Sutherland, the Duke of, K.G., Stafford house
 Timmins, Sam, J.P., F.S.A., Elvetham-lodge, Birmingham
 Tonks, Edmund, Packwood-grange, Knowle
 Tonks, Mrs. Edmund
 Tonks, W., The Bookery, Sutton Coldfield
 Twist, John R., Chairman of Stoke School Board, Stoke-house, near Coventry
 Underhill, Thomas, M.D., J.P., Chairman School Board, West Bromwich, Staffs.
 Vardy, Rev. A. H., M.A., King Edward's School, Birmingham
 Vardy, Mrs.
 Waton, Rev. Alfred, The Rectory, Burslem
 Watson, Rev. H. W., Berkswell Rectory, near Coventry
 Watson, Rev. J., M.A., Parsonage, Hanley
 Wel, S. Thomas, Chairman Hasely School Board, Hasely, Warwick
 White, Councilor William, Moor-street, Birmingham
 Wiggin, H. J.P., Harborne, Birmingham
 Wilkison, Rev. Charles P., B.A., Peckridge, Staffordshire
 Wilkison, Rev. Canon, D.D., St. Martin's Rectory, Birmingham
 Wilks, Rev. W. B., M.A., Vicar of St. Luke's, Birmingham
 Willett, P., The Vicarage, West Bromwich
 Willoughby de Broke, the Lord, Compton Verney, Warwickshire
 Wilson, Isham R., Chairman Shipston-on-Stour School Board
 Wood, Rev. Canon, M.A., Worcester
 Worcester, the Lord Bishop of, Hartlebury, Kidderminster
 Wrottesley, the Lord, Wrottesley-hall, Wolverhampton

DOMESTIC ECONOMY CONGRESS.

The first annual Congress on this subject, suggested by the Society of Arts, was held in Birmingham on Tuesday, Wednesday, and Thursday, the 17th, 18th, and 19th July, by permission of the Royal Birmingham Society of Artists, at their Rooms, New-street. The Congress was opened by a *conversazione*, at 8 o'clock, on the evening of the 17th. The rooms had been prepared for the occasion under the kind direction of Mr. C. Edward Mathews. The Royal School of Art Needlework lent some fine work. A floral and ico trophy adorned the centre of the room. Better ventilation only was wanted for the enjoyment of a crowded audience. About 600 persons were present. The following were present, amongst others:—

The Mayor of Birmingham in the chair, Genl. F. C. Cotton, C.S.I. (Chairman of the Council), Mr. E. Chadwick, C.B., Sir Henry Cole, K.C.B., Mr. R. Rawlinson, C.B., Mr. Danby Seymour, Mr. E. C. Tufnell, Mr. J. A. Youl (Members of the Council), Mr. G. O. T. Bartley, Prof. Huxley, Mr. Alan Cole, Mr. P. Le Neve Foster (Secretary), Mr. H. T. Wood (Assistant Secretary), Mr. Charles Critchett (Educational Officer).

Mrs. W. Kenrick, Miss Chamberlain, Miss Kenrick, Lady Cole and daughters, Mrs. Matthews, Mrs. Wigen, Miss Cobden, Mrs. Tonks, Mrs. Le Neve Foster, Miss Chessar, Miss Rosa Adams, Miss Mander, Mrs. C. J. Bracey, Mr. Pope, Alderman Heaton, Councilors White, R. F. Martineau, Mathews, Barker, M. J. Hart, F. Wright, and Shammon; the Revs. Canon Bowlby, A. R. Vardy, E. F. M. MacCarthy, Brooke Lambert, T. W. Peart, H. W. Crosskey, C. Clarke, E. Templeman, H. Watson, A. J. Smith, and Newton Price; Col. Ratcliff, Col. Phelps; Drs. Heslop, A. Hill, Welch, Lloyd, Foster, Pope, Carter, Wynne Thomas, and J. A. Langford; Messrs. J. D. Goodman, G. W. Hastings, H. Wiggin, J. T. Chance, J. H. Chance, F. Osler, W. Bragg (Sheffield), R. Peyton, E. Tonks, J. A. Cooper, J. T. Collins, T. Kekowich, C. Davies, W. S. Harding, L. Parker, J. Derrington, Allen E. Everitt, T. Beston, E. O. Smith, D. Baker, J. C. Lord, G. Glossop, D. S. Hasluck, J. Creese, G. H. St. Clair, A. W. Dale, R. H. Vertegans, E. W. Tyrer, T. Griffiths, Marigold, Yeoville Thomason, Ross Jordan, H. A. Barnard, F. Rawlings, H. Edmunds, C. J. Bracey, E. Edwards, Mander (Wolverhampton), H. Harris.

At half past eight o'clock Sir H. Cole stated that, in the absence of Lord Leigh, the Mayor of Birmingham (Alderman G. Baker) had consented to preside.

The Mayor, on taking the chair, said he was very sorry to have to inform them that Lord Leigh was pre-

vented from being there through an accident which had occurred to his son. As Mayor of the town, he was happy to see such a large company on that interesting occasion, and he hoped that the meeting was an augury of the success of the Congress to be held during the next two days.

The Rev. E. F. M. MacCarthy then read the following letter from Lord Leigh:—

"Stoneleigh Abbey, Tuesday Afternoon,
17th July, 1877.

"MY DEAR SIR,—Since receiving your telegraph message this morning, I regret extremely to say that my second son (Dudley) has met with a serious fall riding, accompanied by a slight concussion of the brain, and although I am glad to say that he is going on favourably, I do not like to leave him for the next few hours; consequently, I trust that you will kindly excuse my attending the *conversazione* this evening, and explain the cause of my absence to the meeting. I should very much like to have had the pleasure of attending it, as I have always felt the great importance of introducing industrial occupations into our parochial and Board schools, and I should like to have shown by my personal attendance there the interest I take in the subject.

"I was reading the other day, with great interest, some remarks made by Mr. Leveson Gower (chairman of the Kensington School of Cookery), who has taken great interest for some time past in the important subject of domestic economy, and chiefly as regards cookery. In speaking on this subject, he remarked that most of the large towns in England and Scotland had now schools for cookery, but that those schools were chiefly attended by the wives of shopkeepers, whereas there was a great difficulty in getting the wives of the labouring classes, who are so much interested in the question, to attend; and he thought (and I think justly so) that the only way to reach this class is to teach children cookery in our schools.

"I am aware that there may be some difficulty in instructing children in this art in day schools, where children do not board or lodge; but papers will be read at the Congress by persons of experience in these matters (and amongst others I see the name of my old friend Mr. Brown Olayton, who for many years has taken a great and practical interest in the subject), and I hope they may be able to point out how the difficulty I have suggested may be overcome.

"Again regretting my unavoidable absence, believe me to be, yours very truly,
"LEIGH."

Mr. P. Le Neve Foster, M.A., Secretary of the Society of Arts, then read the following

INTRODUCTORY STATEMENT.

1. Soon after the holding of the Exhibition of the Works of Industry of all Nations, in 1851, which was originated by the Society of Arts, the Society, in 1854, at the suggestion of Mr. Harry Chester,

one of its most active members, held an exhibition of all kinds of works and appliances used in elementary education, which Dr. Whewell and many of the foremost promoters of education actively assisted.

2. This work led to the formation of the educational branch of the South Kensington Museum, and a section of it was devoted to objects of domestic economy, especially promoted by Mr. Thomas Twining.

3. The Society followed up this action by establishing examinations and giving prizes throughout the country, which have had a great influence on the Committee of Council on Education in organising the details in the Code for Elementary Education, and the work of the Department of Science and Art; both following the course first carried out in many ways by the Society of Arts.

4. During the last two years the Society has instituted examinations, with prizes, for papers on housekeeping and thrift, cookery, clothing and its materials, &c., health. The result of these examinations will be spoken of in another paper.

5. Finding several subjects of domestic economy adopted by the State and Parliament in the Code for Elementary Education, but no regulations, or suggestions, officially laid down for giving effect to this truly wise proceeding, the Society offered prizes of £30, £20, and £10 for the best syllabus, which will be duly awarded after the report has been received from the Committee appointed to decide them.

6. It has appeared to the Council that the time has arrived when public attention should be systematically and seriously drawn as well to the subjects of domestic economy which are of the greatest national importance, as the means for teaching it, and the Council therefore announced its intention of holding a Congress yearly in some great centre of population. Looking to the advanced state of public interest in Birmingham on most of the subjects embraced in domestic economy, the Council felt that no place seemed so appropriate as Birmingham for the first Congress, and the result has proved the correctness of this view.

7. The Council propose that the second Congress shall be held in 1878, in connection with various educational institutions, in Lancashire.

The Rev. E. F. M. MacCarthy stated that letters of apology had been received from the following:—The Right Hon. Lord Sandon (Vice-President of the Committee of Council on Education), who wrote: "Lord Sandon wishes to express his regret that his official and Parliamentary duties will not permit him to have the pleasure of attending the *conferenza* and the meetings of the Congress; but he hopes that the interest which he feels in the subject will be known by his action in his official capacity, and by the expressions he has used in reference to domestic economy in the House of Commons." Sir John Lubbock, M.P., "fully recognised the importance of the movement." Mr. P. H. Muntz, M.P., wrote: "For years it has been my opinion, founded on observation in this and foreign countries, that cleanliness and domestic economy should form part of our educational system. The first promotes self-respect, so essential to our well-doing; and cooking, sewing, &c., enable the poorer classes to enjoy many comforts which their present ignorance of good management puts beyond their power. I, therefore, cordially wish you that success which the important subject of the Congress merits." The Lord Bishop of Worcester, in

his letter, said: "The subjects proposed for discussion at the Domestic Economy Congress are of very great importance for the happiness and welfare of the people. I rejoice at the opportunity given by the Congress for the full discussion of them, and I wish all success to the meeting." The Earl of Harrowby wrote: "If the Congress can give a practical impulse to the wise consideration of the various subjects of their discussion, as no doubt they will, they will have made no small contribution to that effort for improving the habits and condition of the people on which the nation and Parliament are so earnestly bent." The Earl of Lichfield wrote: "I attach so much importance to the advantages to be derived from the deliberation of the Congress that I will make a point of attending if possible." Mr. Alexander Brogden, M.P., wrote: "I look upon the Congress as the inauguration of an effort of great importance to benefit the whole community, for there can be nothing upon which the comforts and happiness, and consequent sobriety and culture, of the population are more dependent than a knowledge of domestic economy." Rev. Dr. Cowie, Dean of Manchester, wrote: "I shall be much interested in reading the account of your proceedings, and hope that social progress may be the result." Lord Hampton wrote: "I hoped at one time I should have been able to attend, and to express in person my approbation of the objects of the Conference and my good wishes for its success. It seems to me that an attempt to increase and improve the knowledge of the public in the various branches of domestic economy is a natural, if not a necessary consequence of the recent efforts to extend elementary education, and I trust the approaching discussion at Birmingham may lay the foundation of much and permanent public good." Mr. C. Minton Campbell, M.P., wrote: "I regret my non-attendance, the more because domestic economy is now of paramount importance, and I believe that the study and appreciation of the subject enumerated would tend much to secure happy homes, and do more, in my opinion, to stem the tide of intemperance than any legislative enactment." The Duke of Sutherland wrote that he felt "greatly interested in this subject, and did not doubt that much good will arise from the meeting and discussion of the subjects proposed in the various sections." The Marquis of Hertford wrote: "The object is excellent and must do practical good; and I wish it all success." Lord Wrottesley wrote: "You will permit me to assure you that I wish much success to the work of the committee in their endeavour to direct general attention to subjects which must be of so much practical utility in the common affairs of each one's daily life." Letters of apology had also been received from the Right Hon. John Bright, M.P., the Right Hon. W. E. Forster, M.P.; Mr. R. W. Hanbury, M.P., the Rev. J. Montague Seaton, and the Hon. F. Leveson Gower.

The Rev. E. F. M. MacCarthy next stated the arrangements made for the transaction of the business of the Congress.

Professor Huxley, at the request of the Chairman, then delivered a short address. He said he was very glad on that occasion to have the opportunity of saying a few words upon the objects of the Congress and the expediency of arousing public feeling in regard to the importance of the objects which it had in view, because that particular subject of domestic economy was one which had always possessed a very great amount of interest for him, and it happened to be one upon which in former years he had expressed very decided opinions. In fact, he thought he could go back as far as the year 1868, when it was his business to address a working men's college upon the subject of what constituted a liberal education; and although he was exceedingly loth to quote himself, yet if they would allow him, as he could say nothing better, he would trouble them with just a paragraph or two. What he said upon that

occasion was, "If any one is interested in the laws of health it is the poor workman, whose strength is wasted by ill prepared food, whose health is sapped by bad ventilation and bad drainage, and half whose children are mangled by disorders which might be prevented. Not only does our present primary education carefully abstain from hinting to the workman that some of his greatest evils are traceable to mere physical agencies, which can be removed by knowledge, patience, and frugality, but it does worse. It renders him, so far as it can, deaf to those who would help him, and drives him to substitute an Oriental submission to what is falsely declared to be the will of God for his natural tendency to strive after a better condition." He believed that those words remained as true now as he thought he might venture to say they were ten years ago; and although it was perfectly true that since that time the Education Act had been passed, which, whatever any of them might think about its details or about the extent of the ground which it covered, must nevertheless be admitted by all to have been a step in advance of the first magnitude—yet that primary Education Act had not in reality touched any of the points which were referred to here. He did not quarrel with those who passed that great Act, but the inculcation of the solid substance of knowledge was altogether forgotten in it. He thought there might have been very great reasons for legislation in that direction at the time that that legislation was carried out. But happily, in consequence of the Education Act principally, and also in consequence of the immense stir which had been given to thought upon this subject by the elections, which had been held in every town in which a School Board had been instituted, public opinion had been very largely educated, and was now competent to deal very much better than it could formerly have dealt with this question of education; and he thought it had come to be seen that what was the obvious, and plain, and common sense view of the matter must be adopted. He meant that people would know what they were taught. It did not require much reflection to see that if they were taught reading, writing, and arithmetic, they would know reading, writing, and arithmetic; but, however well they might know their reading, writing, and arithmetic, such knowledge afforded no guarantee that they would understand anything about their social duties, or of those conditions upon which their health and their welfare depended, or indeed any one of those matters which it was important to them as members of society to know. And he thought it was the impression of that conviction on the public mind which had led to the formation of Congresses such as this. If he might say so with due respect, he believed it was supposed to be one of the advantages of the Government of this country that it lagged a little behind the people, and that it had become, after going through a long series of changes, a purely representative Government. But representative Government is pretty much the same thing as Government by row. He meant to say that nothing was done until there had been a very considerable row about it—what they called discussion and talk, endless and often confused talk, out of which, however, in the course of time something definite emerged; and that definite thing presented itself to the Government as something that had a vote at the back of it, and therefore must be listened to. So in this case of introducing a number of new elements into education, if it were, as he believed it to be, true that the conviction that something of this kind must be done had laid hold of the minds of the most intelligent persons who were conversant with the wants of the working classes, then there was only one course to obtain what they wanted. They must have a Congress; they must talk; they must follow the precept of the Scripture, and look upon the Legislature as occupying the place of the unjust judge, who did not give his decision out of justice, but on account of the frequent importunity of the

widow. The association must put itself in that position, and year by year, by operating on the political forces of the country, it would doubtless, sooner or later, get what it wanted. That, he supposed, was in plain words the meaning of the Congress.

General Cotton proposed a vote of thanks to the Mayor for presiding, and remarked that he was sure they could not have found a city in England more able and ready to help forward the object which the promoters of the Congress had in view.

Mr. J. D. Goodman seconded the motion, and it was carried with acclamation.

The Mayor acknowledged the vote, and expressed his sympathy with the objects of the Congress, and his gratification at Birmingham having been selected as the first place of the meeting.

The Sections met on the 18th and 19th. The following was the order of proceedings:—

Wednesday, July 18th. *Morning Sitting*, 10.30 to 1.30. Section A.—(1) Needlework—Clothing and its Materials, 10.30 to 11.25; (2) Cleanliness—Washing, 11.25 to 12.30. Section B.—(1) Health—12.30 to 1.30. *Afternoon Sitting*, 2 to 5. Section C.—(1) Methods of Teaching Domestic Economy—Text Books, 2 to 3.10; (2) Inspection—Government Grant—Female Inspectors—Working of the Society of Arts' Examinations, 3.10 to 4.10; (3) Thrift—Savings Banks, 4.10 to 5.

Thursday, July 19th, *Morning Sitting*, 10.30 to 1.30. Section B (continued).—(1) Sickness—10.30 to 12; (2) The Dwelling—Warming and Ventilation, 12 to 1.30. *Afternoon Sitting*, 2 to 5.30. Section A (continued).—Food and Cookery.

The subjects were discussed in the order laid down in the Programme. Each speech was limited to ten minutes on each separate head specified in the Programme. The Papers, which were, as far as practicable, printed and distributed in the room, were not (except under special circumstances, at the discretion of the Chairman) read, but each writer of a Paper was allowed five minutes for stating the substance of it, in addition to any speech. Speakers were called upon in the order in which their names were sent up to the Chairman.

The following is the full list of papers brought before the Congress:—

WEDNESDAY, JULY 18TH.—*MORNING SITTING*, 10.30 to 1.30.

SECTION A.

1. *Needlework—Clothing and its Materials*, 10.30 to 11.25.

"Results obtained in some Elementary Schools," Miss Kenrick; "Needlework," Miss Mary Willis; "Clothing and its Materials," Mr. Joseph Pope, Staff Surgeon (retired), late Royal Artillery.

2. *Cleanliness—Washing*, 11.25 to 12.30.

"Head to Foot Washing," Mr. Edwin Chadwick, C.B.; "Baths and Swimming for Children," Miss Chessar; "Washing," Rev. Harry Jones; "The Methods of Training Young Servants in habits of Cleanliness," Mrs. Watson.

SECTION B.

1. *Health*—12.30 to 1.30.

"Elementary Instruction to Children in Physiology," Professor Huxley, F.R.S.; "Substitution of Scientific Subjects for Fancy Work in Girls' Education," Mrs. Frances Elizabeth Hoggan, M.D.

AFTERNOON SITTING, 2 TO 5.

SECTION C.

1. *Methods of Teaching Domestic Economy*—Text-books, 2 to 3.10.

(a.) "The Practical Development of Elementary Education through Domestic Economy," Sir Henry Cole, K.O.B.

(b.) "Text-books," Rev. J. P. Faunthorpe, Principal of Whitelands Training College; "Text-books on Domestic Economy, their Objects, Scope, Preparation, and Circulation," Rev. Edward T. Stevens, M.A.

2. *Inspection—Government Grant—Female Inspectors—Working of the Society of Arts Examinations*, 3.10 to 4.10.

"Mode of Inspection and Administration of Government Grant," Rev. E. F. M. MacCarthy, M.A.; "Importance of Female Inspectors;" "Working of the Examinations of the Society of Arts in Domestic Economy," Mr. Charles Critchett, B.A., Educational Officer of the Society of Arts.

3. *Thrift—Savings Banks*, 4.10 to 5.

"School Savings Banks," Mr. G. O. T. Bartley, Manager of the National Penny Bank; "A Birmingham Board School Bank," J. A. Langford, LL.D.; "The Influence of Order, Method, and Cleanliness in Factories and Workshops, upon the Home Life of Industrial Populations of large Towns," Mr. S. Wall Richards.

THURSDAY, JULY 19.—MORNING SITTING, 10.30 TO 1.30.

SECTION B.—CONTINUED.

1. *Sickness*, 10.30 to 12.

"Nursing," Mrs. W. E. Gladstone; "Nursing in connection with Education," Miss Helen Taylor; "Provident Dispensaries—a means of providing for Sickness," Mr. Lawson Tait, F.R.O.S.; "Ladies' Sanitary Association," Miss Rose Adams; "Sanitation, &c.," Mr. E. Chadwick, O.B.

2. *The Dwelling—Warming and Ventilation*, 12 to 1.30.

"Buildings for Working Men" Mr. R. Rawlinson, O.B.; "House Drains in their relation to Health," Dr. Alfred Hill, Medical Officer of Health and Borough Analyst, Birmingham; "The Appearances and Appearance of the Workman's Home," Mr. Frank Curzon, Organising Secretary of the Yorkshire Union of Mechanical Institutions; "Warming and Ventilation," Captain Galton, O.B., F.R.S.

AFTERNOON SITTING, 2 TO 5.30.

SECTION A.—CONTINUED.

Food and Cookery.

(a.) "The National Training School for Cookery," Mrs. Charles Clarke; "The Art of Preparing Food; its Place in General Education," Miss Guthrie Wright, Hon. Sec. of the Edinburgh School of Cookery; "Teaching of Domestic Economy in Conjunction with Cookery in Elementary and Secondary Schools," Mrs. Fenwick; "Combination of Practice with Theory in Cooking Lessons for Public Elementary Schools," Mrs. Rowland Williams.

(b.) "Cookery in Public Elementary Schools," Rev. Newton Price; "Several Years' Experience of Cookery taught in various Schools," Mr. R. Browne Clayton; "The Practical Use of the Food Collection of the Science and Art Department," Mr. W. Stephen Mitchell, M.A.; "Errors in Diet," Dr. Wilson, Medical Officer of Health.

P A P E R S .

The following Papers were printed to be used during the Discussions:—

NEEDLEWORK.—RESULTS OBTAINED IN SOME ELEMENTARY SCHOOLS.

By Miss Kenrick.

Needlework is not so well taught now as it was forty or fifty years ago, or it would, perhaps, be more correct to say that girls now leaving our elementary schools do not sew as well as their mothers and grandmothers did.

It is not difficult to explain the causes that have brought about this result. At that time it was considered very doubtful how much reading and writing it was wise to teach girls, but there was no doubt on the advisability of making them good needlewomen, and they were taught much younger than it is now usual to begin. It was not an uncommon thing for girls of seven to have made a shirt, and I know of one instance of a girl who, before she was six, had entirely made one, the front of which was elaborately frilled and pleated, as was then the fashion. It would be wearisome to quote from the old manuals on the subject in support of these remarks, many of which were, however, more exacting than Schedule 3 of the Code of 1877, the publication of which created in March last such feelings of dismay in the minds of teachers and managers of elementary schools. Such feelings were not surprising, for, for many years, the Educational Department had contented itself with insisting that needlework should be taught, but no rules were laid down as to how it should be taught, nor was any standard of proficiency fixed; at the same time the standard in other subjects was being slowly but constantly raised; more must be taught in the schools; the pupil teachers were expected to learn more. The same process was going on in the training colleges. The evil reached its height when payment by results for other subjects became the order of the day.

It is well known that the average attendance in girls' is lower than it is in boys' schools. If a child is wanted to help at home it is always a girl who is kept; but if a mistress was to earn the same amount of grant that a master did she must teach the same subjects and in less time; if, in addition, three or four hours a week were devoted to sewing, the difficulty was increased, and unless the inspector of the district was particular, or the school managers made a point of its being thoroughly taught, the temptation to shirk the subject was

great. To remedy this, the Department was asked to make needlework one of the subjects for passes in which a grant could be earned. This was done, but as it was left to each inspector to fix the standard for his district, the standards varied greatly in different parts of the country.

There is still another difficulty that teachers have to contend with; the method of teaching is defective. The plan that answered for a few scholars utterly fails when tried with a number. Our large schools would utterly break down if the teaching were what it was fifty years ago. Reading is now taught collectively instead of individually, and the same change must be made with needlework before we can hope for satisfactory results.

The London School Board, more than three years ago, laid down a well-considered scheme of needlework, in which the different stitches were arranged progressively and apportioned to the six standards.

This scheme has worked admirably, and wherever it has been honestly tried, in connection with position drill and simultaneous teaching, has produced results little short of marvellous, especially in infant schools. Children of four can be taught to turn their own hems without assistance, to their great pride and pleasure. At the same age they may be seen threading needles, No. 7, egg-eyed. Both these exercises are good training for eye and hand, and are not any more difficult than some of the kinder-garten lessons, and are equally useful. Long before they are seven, these little maidens will be able to make a plain pinafore, and the mothers are not a little proud of their attainments, the demand for garments made in infant schools far exceeding the supply. The head mistress of an infant school expressed her astonishment at the interest and intelligence shown by the children, who discussed with her how the work should be done. In another school, which had only been opened two months, pinafores were being made; in a third, the children were unexpectedly called on to fix, sew, and fell seams before her Majesty's Inspector, which they did well and correctly in 25 minutes. There were 500 children in average attendance, and garments were being well made by children of four and five. In a fourth school, twenty-six infants, just going to be transferred to the girls' department, all showed one or more garments besides knitting,

one five and another seven well made garments as her year's work. In a very poor part of Lambeth infants under six make pinafores entirely without assistance, and have done so for two years. At another school, infants fix their own work, including pleating, and in many schools gathering is done by children under seven. At St. Clement's School, Bristol, the most intelligent of the infants were taught marking by their late mistress. Besides their sewing, all these children were taught knitting. The experience of many teachers is, that the little ones "so love knitting;" and many infant schools can show muffatees—four needles—and socks made by children under seven. In one, at least, the boys are also taught knitting, and all this is the result of only three hours teaching per week. Let us now pass to the girls. In one school opened in August, 1875, on 23rd of October, 1876, 360 were seen, each one diligently at work on a garment, and almost every one was fixing her own work. In another school were 300 girls, nearly all from the streets, in three months from the time of opening, all were seen at work on garments. Again, where the average attendance was 136, and the staff consisted of a head mistress, one assistant, and one candidate, in the first thirteen months 110 garments were sold, and 100 were in hand, besides knitting. At another all the first class—girls of 12—cut out, and a half-timer cut out entirely alone, and tacked together a child's frock body. Placing and cutting out are most important parts of needlework, and as long as they are untaught a mistress fails as much in this subject, as she would in arithmetic, if she were satisfied with teaching her pupils to work their sums after herself writing them on their slates. Undoubtedly compulsion presses hardly on the mothers, and the efficient teaching of sewing may, therefore, be advocated as a matter of good policy, for if a girl learns at school to make and mend the family's clothes, she will be such a help to her mother as will go far to reconcile her to the additional work that has been thrown on her by her daughter's attendance at school.

Appended is a list of the needlework shown in connection with this paper:—

NEEDLEWORK (GIRLS).

Plain print pinafore, made in 3 hours 25 minutes; age of maker, 8 years.

Chemise (unbleached calico), by girl who had not been in infant school; age of maker, 8 years.

Holland pinafore, with full body, and skirt put into band. I. Standard.

Print pinafore; sides fixed and hemmed, and part of bottom fixed in 2 hours. II. Standard. Age of maker, 9. 12 months after this school was opened every girl fixed her own work.

Boy's shirt (white calico); neck, wristbands, and neck gussets stitched; button-holes well made. School only opened two years. Schedule 3 in full operation.

Boy's shirt, with tucked front. Mixed school.

Chemise (full size), white calico, gathered into band at neck; entirely fixed and made by girl aged 11 years.

Boy's shirt (white calico); stitching of neck and wristband very fine; button-holes excellently made; age of maker, 11 years.

Child's print frock, with full body, set into band at neck and waist; skirt tucked; entirely fixed and made by girl aged 11. All the class, taught by pupil-teacher in her third year, doing the same. Premises inconvenient, and in poor part of Poplar. Patching on print;

pattern joined; patches triangular and on the cross. IV. and V. Standards.

Stocking web darning; 4 specimens. Standard VI. Table-cloth darned at back; 4 specimens.

KNITTING.

Dish-cloth, or duster, made of squares of plain and purl knitting, with plain darning and grafting. Mixed school.

Bath towel made of strips of garter knitting.

INFANT'S WORK.

Item turned down by child aged three years ten months.

Strips (calico) hemmed and seamed together by child aged four years eight months.

Ditto, by child aged five years seven months.

Ditto, by child aged six years eight months.

Strips hemmed and seamed together, made into duster; patchwork, scraps of holland with border of hemmed calico (economy combined with difficult practice); plain print pinafore (three yards of hemming made in 2½ hours) by child aged seven years.

Holland pinafore seamed on shoulder by child aged seven years.

Shaped holland pinafore put into band at waist by child aged seven years.

Plain print pinafore seamed on shoulder, the result of one year's teaching of child aged under seven.

Shaped holland pinafore pleated into band by child aged under six years.

Patch, white calico, excellently seamed and hemmed by child aged seven years.

Baby's shirt entirely fixed and hemmed by child aged seven years.

Child's chemise gathered into band, entirely fixed and made by child aged seven years.

Plain print pinafore made in three weeks (nine hours), by child aged five years six months.

Holland pinafore with gussets to armhole and string sewn on, entirely made by child three years ten months.

KNITTING.

Bath towel made of strips (cotton), knitted by boy aged seven.

Strip knitted by girl aged seven.

Muffatees, wool, plain and purl, two needles, by girl aged six years eight months.

Ditto, by girl aged six years eight months.

Leg of sock, plain and purl at top, four needles, by girl aged six years eight months.

Ditto, by girl aged six years five months.

Ditto, by girl aged five years nine months.

NEEDLEWORK.

By Mary W. Willis.

1. Needlework, as we know, is one of the most ancient of the arts, and the results achieved, and the ingenuity in it, appear to have been highly prized in the earliest ages. In the song of Deborah, for example, the glories of the victors' "spoils of needlework" are celebrated; and we read in the 45th Psalm of the "raiment of needlework" of the bride. Needles made of the bones of fishes and other animals are among the earliest relics we have of antiquity, and we still admire and wonder at such works as the Bayeux tapestry and various church vestments, which must have been produced with the rudest implements.

2. In these days, when every mechanical appliance in the shape of perfect needles, sewing threads and silks, to say nothing of the wonderful sewing-

machine, combine to facilitate and lighten work, it is to be regretted that the standard of excellence so commonly falls short of that attained in former times, with far inferior materials.

3. In the reign of Mary Tudor, there was only one needle-maker in England, a Spanish Negro slave, and the needles he made must have been inferior to those still used in some outlying districts of the Continent, which bend at every stitch, though they have the one advantage of not breaking. When women lived much shut up, and books were few or none, the best and most cultivated of our sex found solace and delight in the art which, in this nineteenth century, has afforded to women like Harriet Martineau and Mary Somerville rest and relaxation from their severe mental labours.

4. It would be easy to fill a longer paper than this is intended to be with an account of needlework as a decorative art; but it is our present object to view it from the severely practical side—skill in plain needlework, meaning, as it does to thousands, personal decency, comfortable homes, and tidy children, in whose minds may be planted by its means the first seeds of love of order, cleanliness and respectability.

5. Much has been said of the superiority of French needlework, but a Woodstock glove is a sufficient proof that in England high mechanical excellence is attainable in needlework as well as in other handicrafts, such as cabinet-making, metal-work, &c., in which the English mechanic is unsurpassed. In mentioning the beauty of the stitching of the glove-makers, however, I am reminded of a melancholy fact attendant upon restricted mechanical skill, viz., that in the villages where gloves are made to perfection, it was not long ago impossible to get a sheet or table napkin tolerably hemmed, much less a shirt made. This shows the necessity of avoiding as much as possible too great monotony in the kind of needlework taught in schools. I believe that attention is now being paid to improving the teaching of this important branch of female education, which, indeed, is much needed, for how few servant girls, fresh from school, can be trusted with even the ordinary mending required in a household. An exhibition of school needlework was held last year in the theatre of the Albert-hall, under the presidency of the Princess Louise. It is true that this can hardly be accepted as a sufficient test, as it was difficult to get together an adequate number of exhibitors on short notice, but it is instructive to mark that the work on the whole was not of high quality; the patterns were very inferior, which is largely to be accounted for by the fact that the school-mistresses complain that they cannot spare the time required to teach needlework properly, in order to reach the standard required by the inspectors in other valuable but, I really believe, less practically useful studies.

6. Occupation which encourages the use of the hands has, besides, a valuable moral influence upon children, but is not half enough considered in our schools for boys as well as girls. It is not found that Scotch children are behind ours in book-learning, though the shepherd lads knit their own stockings, and much of the fine cambric embroidery used for trimmings is, in Scotland, made by boys.

7. After the first rudimentary instruction in

plain needlework, it will be found that cutting out and shaping garments, requiring as it does more thought and ingenuity, is generally neglected; but every possible means should be taken to enable children to apply the knowledge they have acquired, to the making up and cutting out of their own frocks and pinafores. And here we would strongly urge the taking some thought for prettiness and taste, in colour and design. The delight of quite young children in working the Kindergarten pricked patterns, in bright coloured wools or cotton, shows that a love of bright colour is instinctive in human nature, and is even beneficial when wisely directed. A reaction towards vulgar and extravagant finery is ever found strongest in those girls who have passed their youth in the colourless and ugly uniform of a charitable institution. Mr. Ruskin's Quaker student at the Working Men's College, we may remember, effected some useful improvements in the manufacture of certain colours, none of which could be found at a cheap rate pure and bright enough to satisfy eyes weary of gray and drab.

8. In most parishes there are Dorcas societies, where ladies who are above—and sometimes, I fear, incapable of—making their own clothes, expend their benevolent and kindly feelings for their poorer neighbours in constructing fearfully and wonderfully shaped garments. It has been our experience to see really beautiful needlework wasted on clothes, the inappropriate materials and radical errors in the cutting out of which must prevent either comfort or durability in wear—ill-fitting necks, arm-holes either too large for shapeless sleeves, or too small for the arms of the wearer, causing tearing out in a part where mending is most difficult and unsightly. There is another useful institution, common in most places, "The Needlework Society," which provides women with plain needlework cut out and prepared by the subscribers to the society. The few shillings a week to be thus earned are much sought after by wives and mothers, who thereby add to the scantier winter earnings of the men, whilst they have the advantage offered them that they can, at their option, purchase the garments they have made at the mere cost of the materials. Of the work of these poor women I say nothing; it is sad to see mothers of families who ought to have been taught the use of their needles at school, painfully overcoming this deficiency of their early training, as some (though alas but few), do later in life, and expressing their warm gratitude to the ladies who have helped them to surmount the difficulty.

9. It is not impossible, as it was some time ago, for ladies who wish to make, or at least cut out, their own dresses and under-clothing to procure excellent paper patterns, but these are costly, and for the most part unsuitable to the requirements of working people. It has to be remembered that the shirt for a gardener, blacksmith, or day-labourer, requires to be of a much ampler and totally different cut from that which would be suitable and comfortable for a clerk, or the man who does not use his arms in laborious work; and the shift for a working woman, which alas! has often to serve the purpose of nightgown as well, must be of thicker material and more voluminous cut than the corresponding garment of

the lady of the present day, which, reduced to a minimum, threatens, as in the time of the first French Empire, to disappear altogether.

10. The question of patterns and cutting out seems to me a highly important one; why should not the Society of Arts undertake to publish good proved patterns, which might be registered, each garment in three sizes, pasted on cotton cloth, with clear instructions as to making up, the quantities required, &c.? These might be supplied at a low price to schools and work societies, and could be lent out, and used in teaching the children the art of cutting out and planning.

11. In the Society of Arts Examination of this year for needlework, I was again greatly struck by the want of the most elementary knowledge of pattern-making displayed by nearly all the candidates, most of whom passed well in the other branches of the subject.

12. In these days of progress, when materials unsurpassed in beauty and cheapness (let the admirers of "the good old times" say what they will) are ready to our hand, we hope to see a reaction against that foolish notion of gentility, which looks upon skill in the humbler branches of one of the most delightful, as it is the most useful, of handicrafts, as vulgar and degrading. The sad lamentations over "nothing to do" are not heard, and the actual vice which springs from idleness among women of all classes is not found, among those who have been in youth trained to delight in industry and order, with their resulting love of beauty and fitness in all things.

13. I will conclude with a quotation from that great author who has done so much to further a reverence and love for work, and who raised his voice in his 80th year to protest against the spirit of "all slimness and imperfection in handicraft," which he feared in this nineteenth century was gaining ground in England. "Work is the mission of mankind on this earth. A day is over struggling forward, a day will arrive, in some approximate degree, when he who has no work to do, by whatever name he may be named, will not find it good to show himself in our quarter of the solar system; but may go and look out elsewhere, if there be any idle planet discoverable. Let all honest workers rejoice that such law, the first of nature, has been made good on them."

CLOTHING AND ITS MATERIALS.

By Joseph J. Pope,
Staff-Surgeon, Army (retired).

It is only possible, in the allotted time, for me to offer you a few short notes on this important subject; yet I trust they may receive at your hands some further consideration. I shall avoid troubling you with any historical or commercial facts, or descriptive accounts of the sources or manufacture of the varied articles of modern clothing, preferring to draw your attention to some points which I think of interest and importance, as affecting our individual hygienic and domestic economy.

Clothing, a distinguishing characteristic of man, is essentially a result of civilisation, and has borne a relation to its advancement or decline, in

quantity, character, and variety. Man, as a wild animal, could doubtless exist with little or no clothing, but such a state would demand continued energy and incessant activity, a condition of life not natural to the human race. And we find, therefore, that as man has become civilised, associated with commerce and society, he has provided himself with sheltering arrangements and put on clothing.

The principal use of clothing is the maintenance of animal heat, whilst its secondary uses will combine protection from external heat, defence from the bite of insects, prevention of the accumulation of dirt, and removal of undue pressure on certain parts, as we see in the use of sandals and shoes. It is fit, however, that the marked distinction between the maintenance and production of warmth should be recollected. Clothing cannot create animal heat. Food, and food alone, is the legitimate source, and clothing merely supplementary. "The best fuel in winter is a well-filled stomach." Sir John Ross truly said, "that starvation from cold follows too soon starvation from food." Being an adjunct to food, it follows that, in colder climates, the warmer we are clad the less necessity for increased fuel, and so we find furs and flannels for our Arctic travellers, whilst we hear from Captain Speke, that the wardrobe of a native African chief frequently consists of an iron bracelet and collar.

Man has adapted substances from both animal and vegetable kingdoms, to make into clothing. Those of animal origin—furs, hair, wool, silk, and leather, being all worse conductors of heat, and so warmer, than the vegetable fibres of cotton, flax, hemp, and jute. The raw material should be light, porous, and durable, and a bad conductor of heat. For all these qualities wool certainly claims the first place. Cotton, which is a species of vegetable wool, has, however, but a small share of these properties, for it is exceedingly hard, does not absorb water, nor shrink in washing, and its conducting power is much more rapid than in wool itself. Linen is the coolest and smoothest of all materials used as clothing. It is the presence of air in a substance that makes it a bad conductor of heat, and this you may realise at once by the different sensation experienced on touching wood and iron.

The wool and hair of animals, and the fibres of plants, contain air in their structure, and in direct proportion to its amount, so they vary in their warmth-maintaining power. Dr. Hammond's experiments are very decisive on this point. He found that a vessel of water, temperature 150° Fahr., cooled down to 140° Fahr., if left uncovered, in 5 min. 11 sec. If, however, the vessel were covered with linen shirting, it lost the 10 degrees of heat in 7 min. 24 sec., with cotton shirting in 9 min. 42 sec., with white flannel in 12 min. 35 sec., and with woollen cloth (dark blue), in 14 min. 5 sec.

If we desire to use clothing as a protection from direct solar heat, we have but to attend to colour. Texture has nothing whatever to do with it. In the shade colour has no result, and we obtain our effect from mere thickness of material and conducting power. As far as colour is concerned, white reflects direct heat and light (some of the latter rays being converted into heat rays), and at the same time it radiates much less than black or darker

colours. Grey, yellow, pink, blue, and black, follow in order.

It is curious how we have, in our colour of dress, gone directly opposite to nature. Everywhere around us we see white associated with cold, and yet it is in the hottest season that we employ it as a covering for ourselves. May it not be worthy a thought that the radiating power of black and darker colours offers a facility for rapidly throwing off heat generated within. And, again, white clothing would really form the warmest in winter, due regard being paid to power of conduction and thickness of material. The old coachman was correct when he stuck to his white duffel coat as the proper thing for winter and summer.

There can be no doubt but that the wearing of dark clothes has arisen simply from principles of economy—the expense of soap and water—and not comfort or use. We must mind our economy does not harm us; dark clothes get as dirty as light ones, and the fact that we do not notice this, may cause suffering and disease that could be easily avoided.

Woollen articles of clothing have a more vitally important character, they absorb water freely, not only into the fibres (hygroscopic water), but between and amongst the fibres, in the interstices of the material (water of interposition). It is this power that renders wool so superior to cotton and linen.

Professor Parkes has proved that, in comparison to either cotton or linen, the absorbing power of wool, according to relative weight, is double, and according to surface, quadruple.

In condensing the watery vapour constantly given off from the skin of the healthy human body, woollen material restores the latent heat to the system, and is thus always warm. I maintain that its free use is imperative in our alternating and fickle climate. Chills are most fatal conditions, and if they are to be avoided, and a healthy standard of warmth maintained, wool must be worn next the skin. There is but one disadvantage in the use of woollen clothing. It shrinks in washing, and the fibres become smaller, harder, and lose a proportion of their absorbent power. Our manufacturers would do well to battle further with this evil, and by mixtures of wool, or various combinations of silk, cotton, or other material, to produce an article free from the objection, and yet possessed of water-absorbing power. Wool will bear a mixture of 40 to 50 per cent. of cotton, and yet act satisfactorily as a chill-preventing agent.

To the minds of some, the mere mention of woollen garments suggests an overheated and irritable condition. I would impress upon them the fact that wool can be, and is, woven into material of an almost gossamer-like character, as well as into thick mufflers and heavy blankets, and its use can be adapted to all times and seasons.

But it is at night time that the protective influence of flannel is so valuable. During sleep, the nervous system quiescent, the circulation slow, the senses numbed and at rest, the body is less able to resist changes of temperature, chills, and other evils. Then, flannel clothing is the best guardian of our health and comfort. Further, let me add a word on behalf of babies and young children, who are also unable to resist the external influences of

cold. They should always be more warmly clad than adults. The notion that is still held of the possibility of "hardening children," by exposure and cold bathing, cannot too soon be abandoned. It is cruel, wrong, and often fatal. The younger the animal, the less power has it of resisting cold. John Hunter's rules should be written in every nursery. For rearing children healthily, he says, there must be "Plenty of sleep, plenty of milk, and plenty of flannel."

May I also hint that low dresses are dangerous luxuries. It is a fact that, within the past few weeks, the powers at the Admiralty have issued orders for the flannels of our seamen "to be cut square across the breast, and close up to the neck, so as to afford more protection to the chest."

How strangely this contrasts with the stringent order for "low dresses" at all her Majesty's drawing-rooms and receptions. It suggests either a sad want of consideration, a disregard of individual health, or the foolish conclusion that ladies are in this respect harder and more capable of enduring exposure than the weather-beaten tars of the British Navy.

There may be some who look upon my earnest support of woollen clothing with favour, but who regret its extra pecuniary cost. To such I would point out that in common paper—white, brown, or even newspaper—we have an almost equally warmth-sustaining material to wool. For the poor it is invaluable, and can be employed as a lining to a coat or waistcoat, as a blanket or quilt, or even as a petticoat. Ordinary brown paper was our grandmother's "Allcock's Plaster," and right good service it did. Wadding or wool, quilted between two sheets of paper, forms the best and lightest chest protector, and I need not say the cheapest.

An Irishman, talking of his experiences as a sailor in the Arctic Expedition, said, "Deed, indeed, yer honor, cowl'd was'n't the name for it. If it hadn't been for my paper blanket, I believe, sir, I'd have died every blessed noight of my life."

One point with reference to the water-absorbing power of articles of clothing requires attention. I rarely see now the large "clothes-horse" in front of the kitchen fire on a Saturday night. As a boy, to have put on clean linen without it had been "well aired," would have been treated as a suicidal act, and been met with prompt punishment. All clothes should be aired. An ordinary shirt, exposed to no unusual circumstances, contains $\frac{1}{2}$ of an ounce of water, a pair of trousers an ounce, a coat two ounces, and a waistcoat $\frac{1}{4}$ ounce, and so on in proportion. This necessarily is evaporated by the loss of heat from the body, which is thus more or less reduced. With sick, feeble, or aged persons, with infants and young children, this becomes an important consideration, and should receive attention at your hands.

I cannot now offer any remarks upon the style of modern clothing. I would only say that having selected the material with a due regard to its properties, it should be worn with more respect to comfort than custom, with more deference to the laws of health, than those of fashion.

The great points are avoidance of undue compression, while the vital parts are protected and the healthy temperature carefully sustained. Chimney-pot hats, stiff collars, corsets, false and heavy head-dresses, trailing skirts, high heels,

and low cut dresses fail in all these requirements.

When our clothing shall be placed more effectually under the rule of reason and science, and freed from the fatal incubus of fashion, we may hope to see it occupy its proper position in our domestic economy.

SKIN CLEANLINESS; HEAD TO FOOT WASHING; PUBLIC MEASURES PROPOSED FOR ITS PROMOTION.

By Edwin Chadwick, C.B.

Personal cleanliness is one of the greatest topics of sanitation. In our children's institutions, where reductions of sickness and death-rates by one-third have followed the production of clean air; by the constant removal of putrescible matter, by self-cleansing drains and sewers, and by ventilation—there reductions of the sickness and death-rates by another third have followed the production and maintenance of clean skins by regular head to foot ablutions with tepid water. We found in the school stages of life in England and Wales an excess of some fifty thousand deaths, a large proportion of which there was reason to believe was occasioned by massing filthy skinned and filthy clothed children in ill-ventilated schools, which are centres of ravaging children's epidemics. Skin cleanliness is certainly a great preservative against passing epidemics and against visitations of the most infectious and contagious diseases. Experienced trained nurses, regularly attending scarlatina patients, give themselves regular head to foot ablutions twice a day, and a change of clothes once a day. Medical men of experience, who serve amidst plagues and the most terrible epidemics, do the like. Whether it be that beside foul insects, the imagined germ spores of disease find their lodgement on filthy skins, and their entrance thence into the human system, has not, that, I am aware, been shown, but certain it is that skin cleanliness affords so powerful an immunity from the attack of epidemics, that if I had again to serve as a member of a General Board, and had to exercise authority in providing defences against epidemics, I would propose regulations for the immediate and general "tubbing" of the population, and have it seen to as sedulously as vaccination for protection against small-pox. For I observed, in my service at the General Board of Health, that during the cholera visitation, the attacks upon the cleanly, the "tubbed" classes, were extremely rare. Whatever infectious property there might be in the disease, it came in clouds, but amongst the washed prisoners in the prisons of this country there was an immunity, whilst amongst unwashed prisoners in some Indian prisons, equally protected from contagion, the ravages have been terrific, as was the case in our own prisons before Howard's time and before sanitation. Skin cleanliness has a great effect on the assimilation of food. It has been proved that pigs that are washed put on a fifth more flesh than pigs that are unwashed. Indeed, in well ordered, first-class stables, horses are washed from head to foot daily, and I am assured that the work is considered to be remunerative. I might adduce the like evidence, at length, in respect to the effects on the human subject. A

friend of mine, in command of a brigade in Spain, was hemmed in, and his men were put upon very short rations, and to amuse them—it being summer time—he encouraged them to bathe daily in a river close by, and he marked, as a result he had not expected, that his men were in as good strength as the unwashed soldiers on their full rations. In well-kept prisons the prisoners increase in strength and health on very simple dietaries, costing some 1s. 6d. a-week, and are exempted from epidemics, and have a general sickness and death-rate greatly below that of the outside unwashed population. I attribute this result, in great part, to forced frequent head to foot ablutions. The loss from waste of some fifth of a nation's food, and of a power of sustaining a fifth more of a family and of population, forms a heavy item in a nation's budget, surely to be commended for serious national consideration and distinct public exertion.

There is also a large public moral and social element involved in the maintenance of conditions of personal cleanliness. Persons of limited knowledge of the conditions of the lowest class of the population are apt, on view of rags and filthy clothes, and filthy persons, to take them as outward and visible signs of blameless poverty, and of reasons for the gratification of benevolent impulses—to bestow immediate relief in alms. But relieving-officers and others, the police, accustomed to deal with such cases, see in the foul skins the outward and visible signs of moral depravity, of idleness, mendicancy, and the lowest vice. And as a rule they are never in default in their stern conclusions in respect to them. Mendicant filth and depravity are inseparable. Foreign hygienists are of accord with us on the social evils attendant on filth. Fonssagrives cites Schmalz, who says:—"Not only does the health of man depend largely upon cleanliness, but cleanliness is a condition of their activity, of their good temper, of their eternal satisfaction, and even, to a certain degree, of their morality. It is in dirty villages and hovels that idleness, degradation, theft, lying, and all vices flourish. Want of cleanliness not only sullies the purity of the body, but that of the soul too." If cleanliness be next to godliness, filthiness is next to devilishness.

I was invited by two ecclesiastical friends to write sanitary sermons, which I was promised should be preached in one, and probably two, cathedrals; but I was obliged to forego that honour, from feeling that it was not in my vocation, and, moreover, that it would have launched me into polemics, for I must have denounced prevalent doctrines in respect to baptism as pernicious heresies; the doctrine that treats the use of water as merely typical and symbolical; the doctrine, no matter of what sect, that accepts as sufficient the dipping the finger in water and leaves the entire body in filth and impurity, and by consequence, the *morale* also. The plague of insects, and other pains attended on conditions of bodily filth, may be taken as visitations upon them and as appointed penalties. The account of the condition of filth into which the depressed populations of the Holy Land now are, may be taken as being the same as that in which they were, for which baptism in the literal sense of physical personal purifications was then, as it

it is now, the great remedy. This is not the place for such a discussion, but I cannot help believing that literal personal purification is a Christian ordinance, and that the symbolical sense in which baptism is now regarded is a pernicious heresy. It is shown by Bingham that the early Christians had baptistries in their houses. This would not merely be to dip the finger in as a typical ceremony. Our Saviour reproved Simon for a neglect of duty in not providing water for the cleanliness of the person, and ointment for its agreeableness; and we have the text "Wash and be clean;" and I might cite other texts in vindication of personal cleanliness as a literal Christian ordinance and duty. However, a distinguished prelate, with whom I recently conversed on the subject, proposed a compromise which I deem acceptable on the question. Admitting the extent of the evils, he said, "We should have a division of labour to overcome them. I would leave to you the work of cleansing the outside, provided you leave to me that of cleansing the inside."

The sanitary evil of the personal filth of the population is of such a magnitude as to call for large special exertions by a great national league for its remedy, a "Cleanliness League," of greater importance than a temperance league, which would, I would venture to submit to Sir Wilfrid Lawson, find, in conditions of filth, conditions of depression provocative of the evil against which he directs his exertions. Cleanly classes are not of the intemperate classes. Personal filth and intemperance are found together.

In answer to the appeal made to me to give a paper on the subject to the Congress, I might have answered that it was too large to be mixed up with the discussions on any other subjects, and I only appear to offer a vindication of its distinct importance as a high sanitary policy. The Ladies' National Health Society, of London, are ready to devote themselves to such work, and I hope they may have the support of a "health society" in Birmingham.

I submit for consideration a course of exertion. Primarily it would be to direct attention to the civic duty of providing appliances for cleanliness by water carried into houses and into the apartments, of all houses of every degree, with means for the immediate discharge of all fouled water through self-cleansing channels.

In the next place it is a civic duty to remove the causes of bodily filth from dust and dirt, by better cleaning the streets and public thoroughfares, as we have contended by street washing. Exertions should then be directed to the enforcement of cleanliness in the infantile stage, most particularly at schools. An honourable member, a representative of the specially unwashed of Sheffield, told me that he was taken to see one of the new schools there, when he found the smell from the children so overcome him that he was obliged to get out of the school. The children were led before him at the door, but he found the smell there intolerable. The evil habit of filth is not confined to the poorest classes. A lady manager of an elementary school in London for girls, comprising children of the class of shopkeepers, with clean faces and clean hands, and clean clothes, found from the smell that they were, nevertheless, untubbed. She undertook to give them a head-to-foot washing

herself. Their condition was of incredible filth, and she was made seriously ill and suffered permanently by the effort. Clean clothes in our towns too commonly cover foul skins. The best examples of cleanliness are at some of our district half-time schools of orphan children near London, which give the extraordinary sanitary results of a death-rate of not more than three in a thousand, with almost an immunity from "children's diseases." Moreover, these clean-skinned "half-timers" are equal in book attainments to the filthy-skinned "long-timers" of the Board and common elementary schools; whilst they exceed them in aptitudes for labour, imparted by suitable bodily exercises. The duty is well attended to in the best schools of Holland. The school teacher has an attendant, a *bonne*, who, if any child, on removing some of the clothes, appears not to have been properly cleaned, takes it aside with provision of water, and remedies the neglect. If the conditions are found to be frequent, serious admonitions are conveyed to the mother for her culpable failure in maternal duties.

The extent of the common neglect in this country are now beyond belief. Compulsory attendance at common schools, in the existing conditions, is compulsory exposure of children to disease, and good mothers of the cleanly classes may well feel repugnance to it; and many pay largely for private schooling, though so far as the book teaching goes, it is of an inferior character. The danger is, moreover, aggravated by long-time school teaching, which is long-time exposure; the filth of the children is a barrier to that common elementary education which is admitted to be so desirable. To be rid of dirt is a main end of education. All schools ought to be provided with proper appliances for the use of tepid water, for its solvency, and superior cleansing power, as well as for its agreeableness. One teacher of a ragged school whom I knew, being oppressed and made ill by the foul air from the filthy skinned children, in self-defence tried to enforce head-to-foot ablutions, but it was with cold water, which drove them away. Cold is painful, and the cleansing rites repulsive to persons of low circulation. He then used tepid water, which made the operation agreeable, and it brought them back again. The agreeableness of the operation should be everywhere studied. Filthy children should not be allowed to be at large in the streets, but should be taken home, with admonitions to their parents for the neglect of duty. School inspectors or officers of health should be required to see to due provisions. Provisions for cleansing should be required to be attached to all workshops and manufactories of the dirty trades. I long ago pointed out the use of the waste, warmed, condensing water of the steam-engines of factories for the purpose, and very good examples have been provided by intelligent and benevolent manufacturers. Officers of health, as factory inspectors, should be empowered and required to see to the enforcement of proper provisions and their applications.

The provision of such appliances are not taxes, but means of relief from taxes—from the heavy taxes of excessive sickness and premature disability, loss of productive power, and the interruption of the manufacturer's operations. I have estimated

that, by combined sanitation, comprehending the condition of the habitation, of the places of work, and of habits of which skin cleanliness forms a large proportion, the duration of the British artisan's working ability may be extended by some ten years.

Provision of mechanical conveniences and appliances must precede and facilitate the formation of habits. Hence the provision of water supplies should be on a public footing, and the distributary apparatus of the house service pipes should be carried into all private tenements and maintained from the rates. There should be no fetching and carrying of water from out-door stand-pipes, or the labour will be omitted and the cleansing too.

A considerable improvement in the collective work of head to foot washing, with a large economy of time and of water, deserving of extensive application, has been made in France. At the large prison of Rouen, containing about a thousand prisoners, the work of head to foot cleansing by the common bath was found to be very inconvenient, occupying a long time, and with prisoners, whose skins had never been washed for years, the work was not very completely done by simple immersion. Open recesses were constructed in which squads of prisoners, after they are undressed, are placed. Over the head of each is a spreader, from which a spray or douche of tepid water to cover the whole body is sent down in a shower. At command each soaps himself from head to foot. Immediately that is done, another shower descends upon each person simultaneously. Another soaping and another shower may be given. Each prisoner then wipes himself dry with the towel, and the work is done. They dress, and are marched away, and another squad succeeds. The operation of complete washing is thus effected in five minutes instead of the twenty minutes, or more, occupied by the method of the bath, with a tenth the quantity of water needed for the common bath and with greatly less of filth, as the bath, if not changed, becomes unutterably filthy.

This method commends itself for introduction in public institutions, in schools, and in workshops.

At the Congress of Hygiene, at Brussels, we had some very improved shower baths, by sprays with tepid water, for use at hospitals. For washing on the same principle by the spray in private houses, a hand-bucket may be used, with a pump fixed in it, an adaptation of the pump called the "Tozer," used for the extinction of fires, with a flexible hose. The pump may be worked with one hand by the individual, and the hose, with a spray such as is now used by hairdressers for head washing and shampooing, may be directed with the other. Tepid water should be used in the bucket. The individual may stand upon a Mackintosh bath-sheet, such as are now in much use. With these appliances the work of head to foot ablution may be most quickly performed, in places where there are no baths or fixed apparatus, and may be performed with great rapidity and comfort. Washing by the spray or the douche has the advantage over washing by the common bath, that the same dirtied water is not used over again, and that the whole operation is performed with clean water—with "running water"—mark the old orthodox provision for baptism. The work of washing

children by this method may be made very agreeable to them. Where, however, such apparatus is not to be had, the work may be performed in a little more time (as described by Miss Florence Nightingale in her notes on nursing) for which all that is wanted is a wash-hand basin three parts full of warm water, the commonest soap, a stiff brush, a sponge, and a rough towel.

If we have national compulsory attendance at school, I repeat that it should be compulsory attendance in a condition of scrupulous personal cleanliness—the habit of personal cleanliness being one of the most important elementary trainings that can be given to them. Dirty children should on principle, and as a measure of police, be driven from the streets and sent home, with the admonition to the mother—"You are not to allow your children to go at large in that vile, filthy condition." In the workshops it is abominable to see women, as well as men and children, without stockings, with their legs and feet that have never been washed, encased in dirt. It should be the province of the medical officer of health, or the factory or workshop inspector, to see to this evil, and treat it as an offence against decency as well as against health. The condition of our population, as the great unwashed, is worse than is conceived. Medical officers who have to inspect men as recruits are frequently made sick by the odour of the rooms from their filthy skins. A large proportion of well-to-do people never wash, as hairdressers who have to stand over them experience. Amongst our higher classes the use of the tub is, however, in most beneficial and exemplary extension. It was not always so, and they partook of the personal filth of the general population. The Order of the Bath, the institution of which was of the most ancient times, as the records tell us, was really a personal distinction. The initiation was not by the sword, by the accolade, but by bathing and putting on clean linen, with vigils and prayers to give solemnity to the habit and the duty. It was the Order of the Washed. A washed and clean man, with clean linen, was admitted as a companion of the bathed, "the tubbed," the distinction from the filthy. The Dean of our Order, Dean Stanley, says I am correct as to its origin, and that Evelyn mentions that he was present at a *séance* of the knights of the Bath, under Charles II. when they were all in their baths. A small tooth comb was once an emblem of nobility. There now are few well-appointed houses where the host is amenable to our Saviour's reproof to Simon for his neglect of the duty of providing the means of personal cleanliness; and it will be a happy advance in sanitation and civilization, if by a due consideration of the evils to be prevented and adequate exertion, we can achieve a general levelling upwards, and a national abolition of all distinctions in this respect of the washed and the unwashed.

The cause may be seriously commended to the active special exertions of school teachers as well as to those who, having to serve amidst befouled atmospheres, have a more serious interest than they are commonly aware of in the maintenance of the purity of the air which they have to breathe daily during long hours. The service of school teachers, amidst atmospheres from closely-packed, foul-skinned children—the impurity of which is

measured by the thermometer from the heat and indicated by the smell—is, I know, a service that entails upon them excessive sickness, premature disability, and the loss of several years of life by premature mortality. Whilst the mean death-rate of adults in various comparatively healthy conditions is some sixty-five years, the mean age of death of schoolmasters in England and Wales appears, from the Registrar-General's return, to be not more than fifty-three years. Their doom, from the existing conditions of their profession, is, therefore, of some ten years' loss of life. Their lot, as to their means of livelihood, is mitigated since the time of Erasmus, but the lot of a large proportion of the school teachers in the common, long-time elementary schools is little better than that he described as the lot of the grammar-school teachers in his day, "always to be damned to be choked with the dust of their unswept schools (schools shall I call them, but rather Bridewells and houses of correction!), to wear themselves out in fretting and drudging, and deafened with the noise of hawling boys, and stifled with heat and stench."

My early colleague, and most esteemed friend, Sir Alfred Power, the worthy executive chief of the Local Government Board for Ireland, has warmed up to his sanitary service, and has written some sanitary rhymes, which he has done me the honour to dedicate to me. Permit me to commend them for popular circulation and school teaching, and to quote some lines on our topic for your judgment:—

There's a skin without, and a skin within,
A covering skin and a lining skin;
But the skin within is the skin without,
Doubled inwards and carried completely throughout.

The palate, the nostrils, the windpipe and throat,
Are all of them lined with this inner coat.
Which through every part is made to extend,
Lungs, liver and bowels, from end to end.

The outside skin is a marvellous plan
For exuding the dregs of the flesh of man,
While the inner extracts from the food and the air
What is needed the waste of the flesh to repair.

Goo! people all have a care of your skin,
Both that without and that within
To the first, give plenty of water and soap,
To the last little else but water we hope.

All you who thus kindly take care of your skin
And attend to its wants, without and within,
Need never of ch-ch-ers feel any fears,
And your skin may last you a hundred years.

This verse, I apprehend, expresses the true prophylactic. "As a rule," as he states, "diseases arise from some deterioration of the blood; and again, as a rule the latter proceeds from some hindrance or abuse of the functions of the skin, noxious matters being introduced thereby into the blood. Bad air, bad water, bad food thus take effect through the inner skin. With regard to the external skin, it must be noted that the "dregs" spoken of are taken up by the blood vessels and conveyed to the skin for expulsion through the pores. A true skin-washer will never be found who has not realised the nature of perspiration, &c., which is nothing more or less than an excremental deposit from the blood, which should be constantly washed away from the three or four million of orifices, in order to encourage the free escape of what comes after it; otherwise

the orifices do not act, and the excrement remains in the blood. It is, in fact, the last stage of the "sewage" of the body, which Carpenter alludes to in his account of water in his "Animal Physiology."

BATHS AND SWIMMING FOR THE CHILDREN OF ELEMENTARY SCHOOLS.—WORK OF THE LONDON SCHOOLS' SWIMMING CLUB.

By Miss Chessar.

It is not the purpose of this paper to enlarge on the advantages of bathing; these are too obvious to be mentioned. Nor will it be necessary to say much as to the special need which we, as a maritime people, have for learning to swim. It is a fact that the baths and places where swimming can be taught are very few. In London, with its population of nearly four million, the public baths number only twenty-seven, some of which are extremely small. It is also another fact that the art of swimming is possessed by comparatively few of our population, and that daily experience near canals, rivers, docks, and the seaside, shows that the want of a knowledge of swimming causes many otherwise avoidable deaths. In London, the deaths in the River Lea alone are so numerous that, by a grim figure of speech, it has been called the River of Death.

In swimming, as in other physical exercises, it is true that the younger the learner—provided only he be old enough to have some sense as to taking care—the more easily is the art taught. "After thirty," said a swimming teacher, "it is very difficult to learn to swim." But children learn easily, and retain their power of swimming when once the art has been acquired.

I am about to describe an effort which has been made to introduce the use of the bath, and to teach swimming to the children of elementary schools in London. I am not aware that a similar effort has been made in any other town, but I hope that the mention of the subject may induce persons in other places to take the matter up. I also hope that, public attention being drawn to the subject, more opportunities may be afforded for children to learn to swim, and, specially, that more facilities may be given for the teaching of girls and of women to swim, and for the opening of baths to females. In the case of boys, the difficulty as to their learning is one which has arisen merely from the small number of baths and of places where they could bathe and swim. In the case of girls, there have been additional difficulties arising from the following facts. Of the whole number of baths in London, only three make special provision for women, and when girls and women are admitted to other baths, they can only be so by reserving them for a day or part of a day; this bath proprietors have shown themselves most unwilling to do, declaring, generally without trial, that women and girls would not come in sufficient numbers to pay for the reservation of the baths for their use. Again, with boys, so many already know how to swim, and so many men have been found willing to act as teachers, that there has been no difficulty in getting them taught, and even when fees have been paid for teaching, they have been but small. On the other hand, the women and girls have had to be taught, and as there are very

few women who professionally teach swimming, high fees have had to be paid in order to get teaching. In one case, indeed, a class which was formed could not be carried on for want of a teacher. This, however, is a difficulty less felt this year than before, and one which will be still less felt as time goes on. Some teachers and pupil-teachers who have learnt to swim will be found ready to take the part of instructors either gratuitously or for very small fees. The slight expense of the provision of a bathing-dress has not proved a hindrance to those girls and teachers who have learnt to swim.

The effort to teach swimming to the children of elementary schools has been made by the London Schools' Swimming Club. This club originated among the clerks of the School Board for London; but, at the suggestion of Sir Edmund Hay Currie, it was extended so as to take in teachers, both men and women, of all grades. It followed almost inevitably that a desire was felt to admit children to such benefits as might be derived from learning to swim, and it was soon found that boys and girls came forward in considerable numbers anxious to learn the art.

The first meeting of the London Schools' Swimming Club was held at the Harp-alley Board Schools, in March, 1875. Mr. John MacGregor (the well-known Rob Roy) then a member of the Board, was in the chair, Sir E. H. Currie, Dr. Bennett, and other gentlemen being present. It was suggested that permission might be obtained to use the lake in the Victoria-park as a bathing-place; and, on the application of Sir E. H. Currie, Her Majesty's First Commissioner of Works, Lord Henry Lennox, granted the use of the swimming lake to the male members of the club and the boys of elementary schools. (It may be noted in passing that, though the club was originated by persons connected with the School Board for London, its members belong to elementary schools of all kinds.) Of this privilege, the boys at once largely availed themselves. The average attendance at Victoria-park every Saturday morning, when between the hours of 9 and 11 a.m., they were collected to receive instruction both from voluntary and paid teachers, was about 1,500 for the first three months, commencing June 12, 1875. During the summer of 1876, the attendance was equally great, and, in the season which is now in progress nearly 1,000 present themselves for instruction every week. The instruction is now given chiefly by lads who have themselves learnt in connection with the club; but there are always present many gentlemen who attend to see that all is being properly conducted. Teachers also, who bring their scholars, remain with them to see that due order is kept. The park-keepers also assist in this work. All round the lake stations are marked off at which the boys collect according to arrangement, certain stations being appointed for certain schools. The teachers sometimes enter the water, sometimes they take their places on the pontoons at the ends of the lake, sometimes on platforms on wheels, which can be moved to whatever place is desired for the lesson. To guard against accidents, two boats row up and down during the whole time that the boys are bathing. I am told that, on bright mornings, the greenness of the park trees, the bright costumes of the park-keepers, and

the eager liveliness of the boys contribute to make the scene of the bathing most interesting and picturesque. In addition to the large number of boys taught at Victoria-park, a nearly equal number are receiving instruction in twelve baths in different parts of London, at the reduced rates which have been conceded to those who learn in connection with the club—namely, a penny or three half-pence for each visit to the bath, in addition to three pence entrance fee paid to the club by each child. By far the largest number are being taught at the Lambeth Baths. The total number of boys under instruction at present is about 2,000.

The classes for the female members of the club, owing to the difficulties before stated, have not effected so much for women and girls as the classes for male members have done for men and boys, although they have been organised at much greater expenditure of both time and money. It is obvious that "Victoria-park," or any other lake is not available for women and girls, and long distances to be travelled to reach the bath not only take up much time, but add greatly to the expense. In each year, however, two classes for female teachers and pupil-teachers have been held, and one class for children. This year three classes for female teachers are already at work, and we hope to have two more; while two classes for girls have been already established, and we hope that the arrangements for two more may speedily be completed. Little as it has been possible to do, the committee of the club yet feel that some progress has been made. They have at least discovered that when classes for women and children are opened, they will attend, and that the use of the bath having been once learnt, is a thing which is not willingly dropped. In this lies their hope for the future. Almost all that can be done for this year has now been set going; but it is intended in next year to attack the bath proprietors early in the year, and to endeavour to get more baths open.

The length of the course of instruction has varied from 8 lessons to 16. It will be asked whether much has been accomplished in that time. In answer, it may be said that in one course of lessons boys quite unacquainted with swimming have learnt enough to enable them to swim across the Victoria-park lake, and for the length and back of the Lambeth Bath, (244 ft.). The girls, at their competition at the end of last season, swam across the Marylebone Bath and back (132 ft.), and some were able to swim the length of the bath and back (146 ft.) several times. The children also have learnt to dive and swim in different ways. I cannot, personally, speak of the feats of the men swimmers; but the female teachers who have joined the classes have all learnt to swim, and some three or four can be pointed to who swim with as much ease and grace as their professional teachers. All who learn are willing to join again, and to induce others to come. The classes of women teachers have varied in numbers from 15 to 30, and of girls have averaged about 30.

During the last two seasons more than 6,000 teachers and scholars, male and female, received instruction under the club, and it is hoped that at least 3,000 more will be added to the number of

those who have acquired the art of swimming by the work of this season.

The work which the club does is chiefly by paying the expense of swimming lessons, by endeavouring to obtain for its members, and for children, additional facilities for bathing and swimming, and by enabling scholars to purchase bath tickets at reduced prices. The members of the club (not scholars) have no benefit from reduced prices of ticket. They have either to provide, or to pay for, the use of their bathing-dresses, and they pay the price of entrance to the bath each time. They get, however, instruction, and they have a chance of winning prizes in the competitions which take place at the end of the season.

The club has not only ordinary members—whose subscription is 5s. per annum for those over 19 years of age, and 2s. 6d. for those under—but it has honorary members, who subscribe a guinea a-year, and life members, who become so by a donation of five guineas. The President is Sir Charles Reed, Chairman of the London School Board; the Vice-President is John Macgregor, Esq., while the Rev. John Rodgers (Vice-Chairman of the London School Board) is the treasurer. The committee has both ladies and gentlemen as members, many of them teachers, some clergymen, others members of the present or of the late Board.

A considerable amount of general interest has been shown in the movement. In 1875, shortly after the commencement of the club, a meeting to promote its objects was held in the Mansion-house, under the presidency of the then Lord Mayor (Alderman Stono). Prizes to be competed for have also been given. Watches and silver medals have been given each year as rewards, both of skill and of diligence and success in teaching scholars to swim, and medals, work-boxes, and books have been distributed, through the kindness of various friends, to the best swimmers among the children, both boys and girls. It is hoped that, as the work of the club becomes more known, it will not only receive more of the support which it so much needs, but that it may be successful in rousing up so strong a general interest in the matter that baths will be thrown open to teachers and children more readily than they are now.

ON WASHING.

By the Rev. Harry Jones,

Rectory, St. George's-in-the-East, London, E.

We are fond of praising our modern civilisation, but, though there can scarcely be anything which marks a civilised state more than cleanliness, there is nothing in which we have come behind the ancients more than in washing. There are Roman ruins in England which testify that in those old times what is now looked on as an expensive luxury for the rich was a cheap provision for the poor. A sumptuous public bath was part of the inevitable equipment of every community, and the people bathed to an extent which is now inconceivable to many. St. George's-hall, at Liverpool, is said to be the most exact copy in modern times of a part of one of those edifices in which the Romans washed themselves. The whole building, however, is less than one-fourth of the size of the central mass of a large Roman bath, and therefore

gives but little idea of the immensity of one establishment for washing in old times.

Other ancient nations notoriously bathed much. In the Bible we see washing raised to a sacred eminence. And existing peoples use water or the bath to a degree which we in England hardly realise. A bath is a necessary of life in Russia, and is to be found in every village. The Japanese are, perhaps, the most universally sedulous nation in the matter of washing themselves. The cheap native prints of scenes in their domestic life generally contain a representation of the family tub or spout. The ablutions of the Mohammedan and Hindoo are well known. I remember, moreover, when on the scene of the making of the great Atlantic Railway across America, which was partly built by Chinese navigators, that one great wonder and complaint of these pigtail labourers, on being brought near the Irish navy, was that he did not wash himself after his day's work.

It might be difficult to trace our decline into that form of uncleanness which is exhibited in the neglect of washing. But the fact is that, practically and generally, the average Briton does not wash himself. Even the tub, which is now used widely by one class, was, not so very many years ago, regarded as almost a sign of eccentricity, and it is at present chiefly used only in houses which contain dressing-rooms. It has not come into anything like general use. The phrase, "cleaning one's self," common among working people, is mostly considered to be realised after what Sam Weller called a "rinse," and, perhaps, the putting of a fresh shirt over an unwashed skin. The habit, moreover, of wearing the beard among those who are engaged in dirty or dusty businesses restricts still further the small surface touched by the water and the towel.

I might remark, in reference to even partial washing, that disease may easily be, and often is, taken into the system by the mouth, and that, as the hands may have been in unconscious contact with the germs of death, if they are not washed before eating, neglect may be speedily and seriously avenged.

I must, however, in this passing glance at a great subject content myself with general reflection. And I would therefore submit this. Considering that each man, roughly speaking, is made of a peck of solids and so many pails of water, and that provision is made by nature for the continuous distillation of this liquid through thousands of pores over the whole of his body, and that the natural clogging of these drains is aggravated by the wearing of the same unwashed clothes, in many instances, for considerable periods, it does not need much physiological perception for anyone to perceive that, especially if he be a working-man, earning his bread by the sweat of his body, he might take a lesson from the old Roman and the modern Chinese in washing, unless he is content to carry about on his person and in his clothes the worst deposits of those innumerable drains with which he is furnished by nature, and from the outflow of which he is intended to be freed.

It would be difficult to exaggerate the importance or necessity of fixing this impression on the minds especially of the young. Washing, bathing, and swimming should be prominently explained and encouraged as an integral part of education.

British conceit in current civilisation should be diligently assailed by showing how far other nations, whom we consider inferior to us in many respects, have been and are superior to us in the civilised habit of personal cleanliness. This is a matter which might well be taken up vigorously by every School Board and teacher. And, where possible, the addition of a bath to the equipment of a school might be ranked along with the provision of a playground.

We have, indeed, so much lee-way and lost time to make up, in respect to washing, that some can hardly at first perceive how far we have fallen behind in this branch of civilisation, and be tempted to rest content in the furnishing of a school with a few taps, basins, and towels, and calling the result by the imposing name of a lavatory, whereas it seldom involves more than such a temporary cleaning of hands as shall retard the smearing of the books which the children use.

I might add that, beyond the direct sanitary benefits which follow from a proper use of water in washing the whole person, we might reckon the encouragement of much self-respect and of a radical distaste for, or repugnance to, manifold phases of dirt. Habit is the act of yesterday; and a man who has once thoroughly washed himself immediately afterwards resents the presence of what is stale and sour. He will not endure a stuffy room or offensive drain with the forbearance with which he tolerated it in his unwashed state, when he carried about with him a cognate atmosphere. The habit of cleanliness will tell all round—in his house, his family, and daily surroundings. Being clean himself, he will shrink from, and protest against, many other forms of uncleanness which are depressing and degrading.

Thus, washing carries a train of wholesomeness behind it besides directly producing a sentiment of healthiness. Some good deeds are followed at a long interval by their results. We have to wait patiently for a return. But there is nothing in which cause and effect can be so immediately and easily connected and enjoyed as in obedience to the great law and command of the kingdom of God, where that which is fair ever fights against the foul, as "Wash, and be clean."

THE IMPORTANCE OF TRAINING YOUNG SERVANTS IN HABITS OF CLEANLINESS.

By Mrs. Watson.

I am invited to communicate to the meeting a paper on "Cleanliness." Under this designation I shall include everything that is meant by order and neatness, whether in person or in household matters, and not the absence of dirt.

That cleanliness is next to godliness, is a household proverb so firmly established among us, that many people can with difficulty be persuaded that it is not to be found in the Bible. But, though a household proverb, it is far from being an established household principle of action.

True, indeed, the reputation of England for cleanliness stands high among the nations; but when we come to absolute and not merely comparative merit, we have indeed many shortcomings to deplore. Where, then, does the responsibility rest? To what quarter are we to look for improve-

ment in our standard of domestic cleanliness? My answer is, emphatically, to the wives and mothers of England; to those who have the direction and superintendence of households, whether large or small, and who are entrusted with the care and management of domestic servants, both male and female.

The work must be a work of time. It will take a generation or more to carry it out; and it can only be effected by rousing those who have the management of households and the ordering of servants, to a sense of the responsibility they are under in properly training those servants. Every mistress of a household, whether she has one or a dozen servants, should regard them, and especially the female servants, as the master of a trade regards his apprentices, as people entrusted to her care, not only to work for her, but to be taught by her; not only to do tasks assigned to them, and to be scolded, or perhaps dismissed, when the work is badly done, but to be taught, and guided gently and firmly; to have their faults pointed out, and to be encouraged to overcome them. Then these girls, when in time they marry, and become mothers, will hand down to their children the habits of order and cleanliness they have themselves acquired. For it needs only that the habit should be formed, to render cleanliness and order as easy and natural as dirt and disorder. The means of ensuring it are so cheap and simple as to be within the reach of the humblest peasant family.

Now, it will require, as I have said, a generation, if not longer, to bring about such a state of things as this. Because it can only be done effectually by imparting the love of cleanliness and order to the wives and mothers of our poorer classes. At present they are sadly deficient in this respect, and they can only be improved by the influence of those above them. The best and most effectual way in which they can exert this influence is in their dealings with them as servants in their families.

The majority of the female children of our peasants and artisans go to service on leaving school at thirteen and fourteen, and continue at service for something like ten years on an average. It is exactly in these ten years that the training they so much require should be imparted to them. They cannot get it to any purpose while at school—no sufficient time can be spared for it. They must learn while at school, if they ever are to learn, the rudiments of their very simple education, reading, writing, and arithmetic, with the extremely important item of needlework. Neither do I anticipate any very marked results from resort to a training school, for the express purpose of learning domestic work after leaving the national school. At the most, but a very small proportion of the whole number could afford the time for this additional instruction, even if the money were forthcoming. A few months' actual work under the superintendence of a conscientious and able mistress would be more valuable than as many years' theoretical instruction in a training school. It would necessarily be theoretical, for each day would have its regularly appointed routine, and the countless interruptions and unforeseen hindrances which have to be encountered in even the best conducted households, could not be provided for. Indeed, I have, of my own experience, known cases (and, for the reasons

I have just referred to, I can easily believe that they might frequently occur) in which a course of instruction in a training school has proved a hindrance rather than an advantage to the pupil. I knew a scullery-maid in a large family, who had been brought up in an admirably-conducted training school, and she actually thought it an insupportable grievance to be called upon to prepare the plates for dinner on Sunday, because in her training school she had never been accustomed to Sunday work.

The real training schools for the daughters of our poorer classes should be the families in which they are employed as domestic servants, and the training mistresses should be the ladies presiding over these families, and the servants under them, each in their several degrees. Their work will be generally slow, and frequently disheartening; they will have to battle with many defects of character and intelligence, with obstinacy, timidity, irritability, and stupidity, and, worst of all, with that impatience of control which will often induce a girl to throw up a good place, where she has received careful, conscientious instruction. This is a great drawback, but it is unavoidable, for, though unfitted to be their own mistresses, the position of servants when earning their own living makes them, however young, independent even of their parents, and gives them the power of throwing up a place for the merest whim. Still, the mistress should always remember that some good has been done. The girl is certain to carry away with her some fruits of the care and pains bestowed upon her.

It is, indeed, sad to see how terribly ladies who have the charge of servants neglect their duties to them; not only those ladies who devote themselves chiefly to enjoyment, but those who are conscientiously endeavouring to make themselves useful in their generation. They occupy themselves abroad, and forget the vast field for their labours which lies neglected at home. They are busy teaching in schools, or attending public meetings, perhaps in distributing tracts, and in all this work they forget the claims upon their attention of the poor servant girls, who are entirely dependent upon them for that supervision and instruction which is necessary to make them more careful in their walk through life.

In such a paper as the present it would be impossible to enter into all the details of the domestic management of a household. But no house, however small, ought to be without a set of rules committed to writing, and accessible to all whom they may concern. At first sight, and to a superficial glance, such a code of rules might appear as needlessly minute, vexatious, and intricate as the receipts in a cookery-book, but a little attention would prove how easy it would be for every one to follow them, and how compliance with them would make the work of the day a pleasure rather than a burden. By implanting a feeling of responsibility for the education of their servants in the minds of mistresses, and by a little judicious management on their part, the trivial round and common task of household duties would no longer be a dull and irksome routine, but would be transformed into bright and holy work. Mistresses would feel that in themselves and their servants they were making their daily labour and

their religion one. They would impart to those under them a practical, and not a mere pedantic, notion of the dignity of work. They would make them feel that even the humble tasks of sweeping and dusting have a share, as well as our Bible readings and church-goings, in disciplining our souls for God's service. And instead of ladies seeking abroad, as many do, for opportunities for doing good, and meeting with disappointment and failure, they might find their work all ready to their hand—a work at which they might labour with the certainty that their labour would in time, although possibly not in their own time, return a rich harvest.

ON ELEMENTARY INSTRUCTION IN PHYSIOLOGY.

By Professor Huxley, LL.D., F.R.S., Ph.D.

The chief ground upon which I venture to recommend that the teaching of elementary physiology should form an essential part of any organised course of instruction in matters pertaining to domestic economy, is, that a knowledge of even the elements of this subject supplies those conceptions of the constitution and mode of action of the living body, and of the nature of health and disease, which prepare the mind to receive instruction from sanitary science.

It is, I think, eminently desirable that the hygienist and the physician should find something in the public mind to which they can appeal; some little stock of universally acknowledged truths, which may serve as a foundation for their warnings, and predispose towards an intelligent obedience to their recommendations.

Listening to ordinary talk about health, disease, and death, one is often led to entertain a doubt whether the speakers believe that the course of natural causation runs as smoothly in the human body as elsewhere. Indications are too often obvious of a strong, though perhaps an unavowed and half unconscious, undercurrent of opinion that the phenomena of life are not only widely different in their superficial characters and in their practical importance from other natural events, but that they do not follow in that definite order which characterises the succession of all other occurrences, and the statement of which we call a law of nature.

Hence, I think, arises the want of heartiness of belief in the value of knowledge respecting the laws of health and disease, and of the foresight and care to which knowledge is the essential preliminary, which is so often noticeable; and a corresponding laxity and carelessness in practice, the results of which are too frequently lamentable.

It is said that among the many religious sects of Russia, there is one which holds that all disease is brought about by the direct and special interference of the Deity, and which, therefore, looks with repugnance upon both preventive and curative measures as alike blasphemous interferences with the will of God. Among ourselves, the "Peculiar People" are, I believe, the only persons who hold the like doctrine in its integrity, and carry it out with logical rigour. But many of us are old enough to recollect that the administration of chloroform in assuagement of the pangs of

childbirth was, at its introduction, strenuously resisted upon similar grounds.

I am not sure that the feeling, of which the doctrine to which I have referred is the full expression, does not lie at the bottom of the minds of a great many people who yet would vigorously object to give a verbal assent to the doctrine itself. However this may be, the main point is that sufficient knowledge has now been acquired of vital phenomena, to justify the assertion that the notion that there is anything exceptional about these phenomena receives not a particle of support from any known fact. On the contrary, there is a vast and an increasing mass of evidence that birth and death, health and disease, are as much parts of the ordinary stream of events as the rising and setting of the sun, or the changes of the moon; and that the living body is a mechanism, the proper working of which we term health; its disturbance, disease; its stoppage, death. The activity of this mechanism is dependent upon many and complicated conditions, some of which are hopelessly beyond our control, while others are readily accessible, and are capable of being indefinitely modified by our own actions. The business of the hygienist and of the physician is to know the range of these modifiable conditions, and how to influence them towards the maintenance of health and the prolongation of life; the business of the general public is to give an intelligent assent, and a ready obedience based upon that assent, to the rules laid down for their guidance by such experts. But an intelligent assent is an assent based upon knowledge, and the knowledge which is here in question means an acquaintance with the elements of physiology.

It is not difficult to acquire such knowledge. What is true, to a certain extent, of all the physical sciences, is eminently characteristic of physiology—the difficulty of the subject begins beyond the stage of elementary knowledge, and increases with every stage of progress. While the most highly trained and best furnished intellect may find all its resources insufficient when it strives to reach the heights and penetrate into the depths of the problems of physiology, the elementary and fundamental truths can be made clear to a child.

No one can have any difficulty in comprehending the mechanism of circulation or respiration; or the general mode of operation of the organ of vision; though the unravelling of all the minutiae of these processes may, for the present, baffle the conjoined attacks of the most accomplished physicists, chemists, and mathematicians. To know the anatomy of the human body, with even an approximation to thoroughness, is the work of a life; but as much as is needed for a sound comprehension of elementary physiological truths, may be learned in a week.

A knowledge of the elements of physiology is not only easy of acquirement, but it may be made a real and practical acquaintance with the facts, as far as it goes. The subject of study is always at hand, in oneself. The principal constituents of the skeleton, and the changes of form of contracting muscles, may be felt through one's own skin. The beating of one's heart, and its connection with the pulse, may be noted; the influence of the valves of one's own veins may be shown; the movements of respiration may be observed; while the wonderful phenomena of

sensation afford an endless field for curious and interesting self-study. The prick of a needle will yield, in a drop of one's own blood, material for microscopic observation of phenomena which lie at the foundation of all biological conceptions; and a cold, with its concomitant coughing and sneezing, may prove the sweet uses of adversity by helping one to a clear conception of what is meant by "reflex action."

Of course, there is a limit to this physiological self-examination. But there is so close a solidarity between ourselves and our poor relations of the animal world, that our inaccessible inward parts may be supplemented by theirs. A comparative anatomist knows that a sheep's heart and lungs, or eye, must not be confounded with those of a man; but, so far as the comprehension of the elementary facts of the physiology of circulation, of respiration, and of vision goes, the one furnishes the needful anatomical data as well as the other.

Thus, it is quite possible to give instruction in elementary physiology in such a manner as not only to confer knowledge, which, for the reason I have mentioned, is useful in itself; but to serve the purposes of a training in accurate observation, and in the methods of reasoning of physical science. But that is an advantage which I mention only incidentally, as the present Conference does not deal with education in the ordinary sense of the word.

It will not be suspected that I wish to make physiologists of all the world. It would be as reasonable to accuse an advocate of the "three R's" of a desire to make an orator, an author, and a mathematician of everybody. A stumbling reader, a pot-hook writer, and an arithmetician who has not got beyond the rule of three, is not a person of brilliant acquirements; but the difference between such a member of society and one who can neither read, write, nor cipher is almost inexpressible; and no one now-a-days doubts the value of instruction, even if it goes no further.

The saying that a little knowledge is a dangerous thing is, to my mind, a very dangerous adage. If knowledge is real and genuine, I do not believe that it is other than a very valuable possession, however infinitesimal its quantity may be. Indeed, if a little knowledge is dangerous, where is the man who has so much as to be out of danger?

If William Harvey's life-long labours had revealed to him a tenth part of what may be made sound and real knowledge to our boys and girls—he would not only have been what he was, the greatest physiologist of his age, but he would have loomed upon the seventeenth century as a sort of intellectual portent. Our little knowledge would have been to him a great, astounding, unlooked-for vision of scientific truth.

I really see no harm which can come of giving our children a little knowledge of physiology. But then, as I have said, the instruction must be real, based upon observation, eked out by good explanatory diagrams and models, and conveyed by a teacher whose own knowledge has been acquired by study of the facts; and not the mere catechismal parrot-work which too often usurps the place of elementary teaching.

It is, I hope, unnecessary for me to give a formal contradiction to the silly fiction, which is assidu-

ously circulated by fanatics who not only ought to know, but do know, that their assertions are untrue, that I have advocated the introduction of that experimental discipline which is absolutely indispensable to the professed physiologist, into elementary teaching.

But while I should object to any experimentation which can justly be called painful, for the purpose of elementary instruction; and, while, as a member of a late Royal Commission I gladly did my best to prevent the infliction of needless pain, for any purpose; I think it is my duty to take this opportunity of expressing my regret at a condition of the law which permits a boy to troll for pike, or set lines with live frog bait, for idle amusement; and, at the same time, lays the teacher of that boy open to the penalty of fine and imprisonment if he houses the same animal for the purpose of exhibiting one of the most beautiful and instructive of physiological spectacles, the circulation in the web of the foot. No one could undertake to affirm that a frog is not inconvenienced by being wrapped up in a wet rag, and having his toes tied out; and it cannot be denied that inconvenience is a sort of pain. But you must not inflict the least pain on a vertebrate animal for scientific purposes (though you may do a good deal in that way for gain or for sport) without the license of the Secretary of State for the Home Department, granted under the authority of the Vivisection Act.

So it comes about, that, in this present year of grace 1877, two persons may be charged with cruelty to animals. One has impaled a frog, and suffered the creature to writhe about in that condition for hours; the other has pained the animal no more than one of us would be pained by tying strings round his fingers, and keeping him in the position of a hydropathic patient. The first offender says, "I did it because I find fishing very amusing," and the magistrate bids him depart in peace; nay, probably wishes him good sport. The second pleads, "I wanted to impress a scientific truth, with a distinctness attainable in no other way, on the minds of my scholars," and the magistrate fines him five pounds.

I cannot but think that this is an anomalous and not wholly creditable state of things.

ON THE SUBSTITUTION OF SCIENTIFIC STUDIES FOR FANCY WORK IN THE EDUCATION OF GIRLS.

By Frances Elizabeth Hoggan, M.D.

In the education of our upper and middle-class girls, fancy work still plays a part as one of the branches taught in fashionable schools; and, after a girl returns home, at the expiration of school life, it, in common with the three-volume novel, frequently monopolises her life, to the exclusion of more useful kinds of work.

Much diversity of opinion exists as to the proper place which fancy work ought to occupy. Some assert that it is utterly to be condemned, as a mere waste of time; others, again, claim for it that it develops the taste, that it is a graceful and womanly accomplishment and one of the lesser fine arts. The first opinion is, as regards the generality of girls, not far from the truth. Mere mechanical copying, even of prettily designed objects, has no very elevating effect on the mind, affords no training which can be strictly so called,

and has a direct tendency to foster habits of frivolity and idleness; and when it comes to be, as it often is, the copying of impossible flowers and leaves, unnatural birds, and other purely conventional objects, still less can be said in its favour. When, however, there is found originality to devise and execute pretty fancies, a plea may be put in for fancy work as a lesser fine art, immeasurably inferior to all other fine arts, but still worthy to occupy a place in a woman's life. But, even where such pleasing facility is found, fancy work is, properly, but the pastime of a leisure hour or the means of gaining a livelihood, and should be only taught in technical schools. Being of no educational value, it should not be allowed to encroach on the valuable time of school life, which ought to be entirely devoted to studies of a more serious kind.

It has already come to be recognised by thoughtful parents and teachers that a girl's education is incomplete if she be not taught the rudiments of certain sciences, as for instance botany, which has been largely introduced of late years into the higher schools for girls. I am, however, by no means inclined to admit that it is usually taught to the best advantage. Too often the whole aim of teachers seem to be to teach the classifications and name of British plants, and more especially the Latin names. To my mind nothing could be more unsatisfactory than a string of long names which leave the pupil as ignorant as ever of the beautiful features and lessons of plant life, which can only be learnt by the aid of the microscope and a little easily acquired skill in preparing the tissues for examination. With the scientific knowledge accumulating at the present day, a microscope should be considered as indispensable as a piano in every school. What a store of inexhaustible interest is to be found in botany so studied, where the pleasure grows with the application, and what study more fitting to engage the leisure of our gentlewomen than the varied and beautiful arrangements with which organic life, whether vegetable or animal, abounds. I, however, in no way desire to place such knowledge above the great practical lessons which ought first to be taught to enable the pupil to recognise some of the more important natural orders and their peculiarities, a knowledge which may be of the greatest service in the emergencies of life. Every one ought, for instance, to be able to recognise the *cruciferae*, and to know that every member of that great class is useful as food, if ever hunger renders that knowledge necessary. In the same way it should be generally known that all members of the poppy family are narcotic, as by this knowledge relief from pain may be obtained in countries where there is no medicine chest at hand. Again, one ought to know that the members of the *ranunculaceae* are for the most part acrid and poisonous, and ought therefore to be avoided. These lessons are of primary importance, but after these ought to come the search after the wonders of plant life. Luckily the manipulation required is of the simplest description and easily learnt, and it never causes the feeling of repulsion which the handling and preparation of dead animal tissues often engenders. Such a study forms a fitting and natural introduction to the more difficult but more important study of the elements of animal life, and into that study every apt pupil would pass easily and without effort.

Professor Huxley has indicated the pleasure and advantage that there would be for the young in the study of physiology, but he has had the misfortune to be misunderstood by well-meaning persons, who feared that the study of the elements of animal life meant the study of the elements of animal torture. I may almost claim to be exempted from the same misunderstanding, while I fully share his hope that physiology will at no distant period come to be regarded as an indispensable branch of a girl's education. To bring the young into close relationship with the beautiful facts of physiology, to teach in the most practical manner, that is, by direct observation, with the aid of the microscope, of the different animal structures, is what should be aimed at. Those who learn, while the heart is still young and fresh, to admire the marvels of arrangement and construction in all created beings, will carry with them into mature life such feelings of tenderness towards living creatures in general as will be the best preventive against cruelty of various kinds; and surely at no age are lessons of kindness to animals more needed than in the ignorant age of childhood, of which Lafontaine has so appropriately said, *cet âge est sans pitié*. The sooner the lesson is taught that cruelty is the worst kind of immorality the better, and who does not see what high moral training there would be in keeping constantly before the minds of children that they must curb their curiosity whenever its indulgence would result in suffering to even the meanest creature. Taught in this humane spirit, physiology would be fruitful of good, and is deserving of an honoured place in every school.

But not alone in favour of the above two sciences may a strong plea be put in against the superficial accomplishments which have so long found favour with those whose duty it is to direct the education of girls; with equal force might the claims of physics, chemistry, and geology be advocated, if girls are to share, as share they must, in the intellectual movement of the age.

But how can all this be compassed? How can sound instruction of even the most elementary kind be given in these various sciences, without unduly taxing the strength of growing school girls, who are even now almost always kept at their desks for too many hours, and especially for too many consecutive hours in the day? Assuredly only by carefully weeding out unnecessary accomplishments, and by substituting for them serious studies of a kind calculated to strengthen the powers of observation, develop the reasoning faculty, and stimulate into healthful activity the natural curiosity of the young mind. Banish altogether from the school such idle tasks as that of tearing out bright or dull coloured wools and silks into fantastic shapes, and substitute for such frivolities one or other branch of scientific study. Again, let it not be supposed that one teacher can reasonably be required to teach all or many branches of science, and let due provision be made for getting the best and most varied teaching-power for scientific subjects, attaching to them the same honour and remuneration as are now attached to music and other so-called accomplishments.

Leaving aside altogether the question of plain

needlework, which girls must learn at some period of their life, and which it would be no disadvantage to boys to know something of, I am strongly of opinion that fancy work should be relegated entirely to those more mature periods of life with which educationalists have nothing to do, when individuals have a right to choose for themselves, both their occupations and their pastimes, and that it should never be allowed to form part of the school course. I would also urge that a certain amount of instruction in the use of the microscope be given in all middle and high class schools for girls, as that is in itself the first step towards a right conception of the wonderful phenomena of life and of the causes which may lead to health or disease. The example of Mrs. Somerville ought to familiarise the mind with a type of woman not necessarily unskilled in the refinements of needlework, and yet admirable as a student and teacher of science—a type which it would be well to find oftener in our English homes.

Unfortunately, the great objection to the substitution of one study for another arises from the unwillingness of teachers who have spent much time and labour in acquiring the power of teaching any particular branch, to see that branch cut off. As a matter of fact, however, from ten to twenty special lessons ought to be sufficient to qualify any ordinarily intelligent teacher for teaching the use of the microscope and the preparation of objects for examination, and the foundation might thus be laid of what would be at once an employment and a pastime of the highest value throughout the whole of life. One, and not the least, of the advantages which would in this way be gained, would be the facility girls would acquire in the manipulation of instruments other than the needle, which has been supposed to be typical of their sex. When a boy would have presented to him a knife or a hammer, and would be using both in the manufacture of whistles, boats, and other toys, anything besides a needle has been considered unfeminine in the hands of a girl of the same age. The consequence is, that on reaching adult life, a woman can seldom mend a pen or pencil or handle any simple tool properly, unless it be in the exceptional case of only daughters, who have shared their brothers' studies, employments and pastimes. If a woman has acquired in early life the taste for scientific knowledge, and has the energy and will afterwards to continue in its pursuit, she will have no monotonous, weary hours, will escape much of the nervous suffering which clings like a Nemesis to idle, aimless lives, will have the satisfaction of adding one to the patient army of searchers after truth, and will, if she marries, be none the less able to fulfil her duties as a wife and mother, the helper of her boys equally with her girls, and the true helpmate, as well as the companion of her husband.

ON THE PRACTICAL DEVELOPMENT OF ELEMENTARY EDUCATION THROUGH DOMESTIC ECONOMY.

By Sir Henry Cole, K.C.B.,

Late Secretary of the Science and Art Department.

1. The arts of reading, writing, and arithmetic, are the three principal instruments for educating

or drawing forth the faculties which God has given to the child, and are of necessity the basis of any system of public elementary education. When a child can read, write, and cipher well, he is started on the high road, if he possesses any divine power, to become a Prime Minister of this country, like Thomas Cromwell, the son of a blacksmith; or a poet, like Robert Burns, the son of a poor gardener; or a preacher, like John Bunyan, the son of a tinker; or a great mechanical engineer, like George Stephenson, son of an engine-tenter, who first earned 2d. a day in a colliery; or a philosopher, like William Whewell, the son of a wheelwright; or a statesman-soldier, like George Washington, the first President of America, who was taught only these three arts before he took to measuring land.

2. These arts can be taught, but they cannot be properly cultivated or well preserved without constant and intelligent use. What our State machinery has, up to this time, been able to effect in instilling a knowledge of the three arts, is shown by the report of the Committee of Council on Education for 1876-77. I shall avoid statistics as far as possible, but I cannot give an idea of what is done for nearly the two millions expenditure spent yearly, without a few general figures. In 1876 there were nearly three millions of children registered as being under instruction, in reading, writing, and arithmetic, in England and Wales. One million two hundred thousand "passed" what is called "a satisfactory examination" in these three arts, and of this number nearly seven hundred thousand, i.e., about one-fourth, "passed" the prescribed test without failure "in any one of the three subjects." But the Duke of Richmond and Gordon, and Lord Sandon report to the Queen, that "they are obliged to repeat the remarks which they used last year, that the results are not satisfactory." And that the "nature of the results attained by many of those examined are meagre." Their Lordships say, "only thirty-eight in every hundred of children above ten years of age were presented in standards appropriate to their age," and not twelve in a hundred presented passed in the Standards IV. to VI.

3. Six standards of examination in reading, writing, and arithmetic are fixed, and, after the first standard, grammar, geography, and history are made compulsory subjects of examination. The returns of the report for 1876 show how the numbers presented for examination decline as the standard rises, beginning with 327,412 in Standard I and going down to 20,763 in Standard VI.

4. This result might have been expected if we try to realise what the mental capacity of the three millions of children under instruction is likely to be. They are the offspring of parents mostly earning weekly wages, which start from twelve shillings, and even less, and rise up to, say, forty shillings. The majority live crowded together in small rooms, badly built, badly heated and ventilated, not over clean or neat, often in the midst of debauchery and disease, poorly and foolishly clothed. Many children are not overfed, and with food not well cooked. Is it possible to train the minds of such children, under such bad physical conditions, on any large scholastic system, to a very high standard? Genius will always assert itself without system, and even with bad food; whilst

great men and women, or great individual works, never come out of any system, as Dr. Newman, our neighbour, says. But I should call that system successful which gave to three millions the power to read, write, and cipher well, and thus start them on the way to become what their native abilities enable them.

5. Let us look into what the education system proposes to do. The little child of an agricultural labourer, of eight or nine years old, is expected, in Standard II., to read with intelligence, to write a sentence from dictation, to know the four first simple rules in arithmetic, as far as long division. Besides, it is "to point out the nouns, the definitions, the points of the compass, the form and motions of the earth, and the meaning of a map!" The very enumeration of these demands appals me. How many, even of this audience, will come forth and stand this examination? Who will volunteer to be the examiner except one of H.M. Inspectors? but none of these, I am told, can be present here. Shall we send into those parts of this town of Birmingham, which were lately shown to Mr. Cross as condemned to removal, and take at hap-hazard any ten children under 13 years of age, in tatters of finery, dirty, emaciated perhaps, and see what comes actually out of this present system? Shall they stand as illustrative specimens in the exhibition? Do I, then, condemn learning grammar, geography, and history? God forbid. But I gravely doubt if the teaching of them takes its right place in our present system of State education.

6. I believe the three arts—reading, writing, and arithmetic—should be practised, not on the moon and sun, but on objects which come within the daily life and experience of the poor, which would influence the child's well-being and conduct all through life. The child's reading and writing should be exercised on those subjects of first importance, as laid down in the Code, "habits of punctuality, good manners and language, cleanliness and neatness, cheerful obedience to duty, consideration and respect for others, honour and truthfulness in word and act;" and the knowledge and practice of these virtues will not end at 13 years of age, when the child goes to the field or factory, where he will probably ponder very little on the metaphysics of language, the nouns and verbs, and parsings and complex sentences, or on the compass, or the motions of the earth, or the conquest of England or Henry VII., unless he has a leaning towards them. The Code places properly these moral subjects before reading, writing, or arithmetic, but does not lay down definite rules for their being taught.

7. I now come to what the Code calls "Domestic Economy" for girls, which it places as the last and tenth division after nine others, being—1, English literature; 2, mathematics; 3, Latin; 4, French; 5, German; 6, mechanics; 7, animal physiology; 8, physical geography; 9, botany; and 10, domestic economy. Will anyone venture to say that a knowledge of health, good food, thrift, and the like is not of much greater value to every one of the three millions of children of working people (under 13 years of age), than Latin and every other of the subjects I have named, and yet the teaching of domestic economy is discouraged unless the child "parses a simple sentence, and knows the geographical outlines of the colonies!"

8. Daily attention in schools to one or more of the subjects of domestic economy will lay the foundations of knowledge the most useful throughout a whole life. This knowledge is easy to acquire; it is not abstract, but practical, and not easy to be forgotten. It cultivates all the faculties. Its elements may be taught in the infant school, and may be made most interesting. Children may begin with it even before attempting the three great arts. Moreover, domestic economy will impress the value of public education far beyond anything else on the minds of the working classes, and make them friendly to it.

9. It is my conviction that if the several subjects embraced under domestic economy, and none others, were connected with reading, writing, and arithmetic, throughout all the six standards, and all other subjects whatever, of grammar, geography, and history, were made optional, and left to night classes, the results of the State systems would be much less "meagre" than my Lords of the Education Committee at present deplore that it is.

10. But we ought to be grateful to the Duke of Richmond and Gordon, and Lord Sandon, for being the first to introduce domestic economy, even in its present humble and mis-recognised position, and I, for one, heartily am so; but if they desire to see the work done effectively, I think they must seek for better advisers and far more earnest administrators, who really know what the children of the labouring classes are.

11. I venture to suggest that her Majesty's Government refer the question of the practical value of a knowledge of domestic economy in the cultivation of the three primary arts to a small Commission of five persons permanently sitting, two of whom should be women, which might also consider the use and economy of the present public examinations. I have no doubt that a result would follow which would commend itself to the judgment of the Government, the Parliament, and the people.

12. Every branch of domestic economy is directly connected with the health of the people. I conclude with reminding you of the eloquent words which the most powerful man in this country at the present time lately uttered:—"The health of a people is really the foundation upon which all their happiness and all their power as a State depend. It is quite possible for a kingdom to be inhabited by an able and active population; you may have successful manufactures, and you may have a productive agriculture; the arts may flourish, architecture may cover your land with temples and palaces; you may have even material power to defend and support all these acquisitions, you may have arms of precision and fleets of fish-torpedoes; but if the population of the country is stationary or yearly diminishing—if, while it diminishes in number, it diminishes also in stature and in strength, that country is doomed. The health of the people is, in my opinion, the first duty of a statesman."

So said the Earl of Beaconsfield. I say Amen! and add that the pathway to health is found in a knowledge of the principles of domestic economy acquired through the three arts—reading, writing, and arithmetic.

TEXT-BOOKS ON DOMESTIC ECONOMY.

By Rev. J. P. Fauntorpe, M.A.,
Principal of Whitlands College, Chelsea.

The Names.—I have been requested by Sir H. Cole, who is vigilant to ask and determined to have, to prepare a short paper on text-books on domestic economy.

Domestic applies to everything in and about a house.

Economy has become degraded in meaning. Economy, economical, and economising, have come to mean parsimony, stingy, and saving. The original Greek word has a much wider and nobler meaning. The same root covered all these meanings: house, home, householders, and everything in connection with them; such as, to manage, order, arrange, or be conversant with the management, order, or arrangement of a house. The functions of housekeeper, housewife, steward, bailiff, &c., came under the same term.

The Congress treats the term in this wider sense, and is at one with Dr. Johnson, who makes it include—

1. The management of a family; the government of a household.
2. Distribution of expenses.
3. Frugality, discretion of expense, laudable parsimony.
4. Disposition, regulation of things.
5. The disposition or distribution of everything in its proper place.

Limitations for this Paper.—Of course, all these cannot be taught in our schools, whether primary or secondary, but the principles of them all can. Of course, further, I cannot enter into anything like even a list of books on these subjects, much less an exhaustive treatment of any of them. It will be well, then, now to limit the meaning of domestic economy to what it is made to include in the fourth schedule of the Code, p. 28:—

Stage 1. Food and its preparation. Clothing and materials.

Stage 2. The Dwelling; warming, cleaning, and ventilation. Washing materials and their use.

Stage 3. Rules for Health. The management of the sick room. Cottage income, expenditure, and saving.

These stages have to be taken in schools of the first grade (public elementary schools) in separate and successive years.

Text-books.—These stages have produced text-books innumerable. That demand creates supply we have heard *ad nauseam*. Most of the enterprising publishers have a series more or less good, more or less bad, chiefly the latter. Most of them have been done in a hurry. The consequence is, they are crude, ill-considered, pitch-forked together, without arrangement, and without interest. They are written either by teachers who did not know the subjects; or by professors who know the subject and knew nothing of teaching; or by mere book-makers.

A friend of mine, who has gone carefully over most of the manuals on this subject for a special purpose, makes the following criticisms:—

Criticisms.—"1. The radical fault is that most of the school books on this subject have no fundamental idea, no foundation.

"2. Scientific terms are misunderstood or misapplied, and yet abundantly used.

"3. There is no attempt at organic treatment of the whole.

"4. In almost every book scientific truth and scientific theory are hopelessly jumbled.

"5. Instead of a broad principle, carefully worked out, they are taken up with trifling detail; each lesson having no connection with what has gone before, or with what follows:—A class-book on domestic economy ought not to be a cookery-book, or a recipe-book.

"6. Morality is dragged in by the heels."

Some writers do not know what teaching is; some do not know their subject except in the most superficial, notes of lesson manner; some do not know what real live children are capable of learning.

Mistakes may be classified as (1) ignorant, (2) learned.

1. Ignorant mistakes have been made by those who know superficially, or not at all—mistakes, not only of fact, but of principle, even of common scientific principles. This has taken place in books of a story or dialogue form.

2. Learned mistakes. These are chiefly over-estimates of what children can learn, and teachers can teach, in the given time. Teachers and pupils alike become disgusted. The children addressed are imaginary beings, inhabitants of cloud-cuckoo-land, not real girls of flesh and blood, daughters of labourers and artisans, and the future mothers of labourers and artisans.

Illustrations.—The illustrations in many cases are poor, worn-out plates, not good as pictures; utterly worthless as illustrations.

Some have tried to enlist a series of writers, and kept the arrangement in their own hands. But in this method of treatment there can be no unity of method, nothing fundamental. The Rev. C. A. Stevens has three excellent little volumes on the subject in hand; but they are open to this criticism.

Principles on which Text-books should be Prepared.—There should be a foundation well laid, well explained, out of which the subjects should arise naturally and connectedly. Their foundation should be scientifically correct and capable of easy illustration. The writer should have a complete grasp of his subject. If not a teacher, the book should pass through an experienced teacher's hands, with free powers to him or her to alter and amend.

Classification of Books.—The number of books is legion. I will attempt some classification. Books on domestic economy are required for—1. Teachers. There is no good book in existence. 2. Children in schools. 3. Children at home.

1. *Books for Teachers.*—Teachers should have some knowledge of physiology and chemistry. They should, if possible, pass the Science and Art examinations in physiology. In any case, they should have a good manual of physiology. The Society of Arts has offered a prize for a book, which ought to be a good book for teachers. Physiology—Huxley, 4s. 6d.; Kirke, 12s. 6d.; Dr. Carpenter, 28s. Tegetmeier's "Economy" (Home and Colonial School Society) is about the best yet produced, and it is cheap. Dr. Mann's "Book of Health" and "Knowledge of Life."

Many of the little works published by the Ladies'

Sanitary Association are excellent in their way for teachers, children at schools, children at home, or parents. I have suggested that these works be not called tracts. People expect tracts to be goody-goody. I have also suggested that they be not labelled for poor people. A man that can bring up his family and pay his way is not poor.

2. *Books for School Use.*—A really good book is still to be written. That published by Messrs. Nelson is about the best. The information is carefully given, carefully graduated, and arranged into convenient lessons. A really good book for teachers might be drawn up on the model of this little work. Such a book should be scientific, simple, and should give abundant data. Many of the works of the Ladies' Sanitary Association are suitable for school use. The children should be encouraged to buy them. Few children cannot afford 1d. or 2d. for a book which is to be their very own, which is to have their name written in it, and which they may take home.

3. *Books for Home Use.*—I have suggested some above. Children might buy, also, Messrs. Nelson's book, and use it both at home and in school. Mr. Stanford is publishing a series of little works at 3d. each, suitable for home use.

It is taken for granted that teachers do not spoil the natural thirst for knowledge which every child possesses.

Some Suggestions on the Subjects.—Books on this subject should aim, first, at spreading sound knowledge. Let it be true. Let the consequences of obedience and disobedience be pointed out, and then leave the subject to tell its own tale. One of the best ways of teaching kindness to animals, is by lecturing on the anatomy of the donkey. It has been proved on costermongers. Harriet Martineau proved that the best incentive to temperance was a graphic and true account, illustrated by large diagrams, of the vital organs of an intemperate.

Food.—Information sound and good is needed. The vulgar prejudice that cheap foods are bad needs to be dispelled. The very poor refuse Australian mutton, as Sir John Bennett has proved. Some of the workhouses have proved it too. Cheap fish, salads, soups, oatmeal, and brown bread are not eaten by the wage-earning population.

Cooking.—All girls ought to be taught to cook. All girls, not all poor girls. How to turn food to the best account, how to make it look nice, how to make it tasty—these things are yet to be taught.

Cleanliness.—Our labourers are not cleanly. If it were really proved to them that a good wash in warm water when they came home would make them comfortable, many of them would stay there.

The security and safety of a nation is its home life, as the Earl of Beaconsfield wisely said, when presiding at the opening of the Victoria-buildings for artisans, in Battersea-park-road. If a man like his home, he will stay there; he will like the nation and the country which affords it him; he will be a loyal and contented citizen. If he dislike his home, he will, perhaps, become a drunkard, a thief, a rebel.

Ventilation.—The value of pure air has yet to be learnt by cottagers, especially in towns. What many a district visitor and clergyman can say of the air of the rooms they are compelled to enter!

One's gorge rises at the recollection of it. And it is the result of gross ignorance.

Clothing.—Judicious information needs to be given on clothing. It is no use preaching against ribbons and fine dresses. Let people know what is best worth money, what will wear best, what will look best, what will work best, keep its colour best, and why, and they may be trusted. Let the advice on finery be:—"Do not imitate the goose with the peacock's feathers. If you want any finery, buy the best. If you cannot afford that, go without till you can." Many do not practically know so simple a fact as that the English climate necessitates flannel to be worn next the skin.

Providence needs enforcing by precept and example. I shall be repaid if every one who reads these few words will see that his or her maid or man servant saves money. Help them to save. Encourage them to save. Help them to begin. It is a lamentable fact that hardly two per cent. of our servants have saved anything. It would be a helpful thing if men on weekly wage were always paid on Friday night.

Above all, girls should be taught needlework, thrift, and neatness. It is the slatternly, dressy, gossiping wives that send husbands to beer and the Devil. Anyone that helps to make a working man's home in any sense a *dulce domum* deserves well of his country.

DOMESTIC ECONOMY; TEXT-BOOKS.

By Rev. Edwd. T. Stevens, M.A.,

Vicar of Sibford Gower, Banbury.

The *Times* of December 10, 1875, speaking of the wisdom of the Education Department in making domestic economy one of the specific subjects of secular instruction, for which additional grants would be given to elementary schools, says:—"Unheralded by any flourish of trumpets, the Education Department, last Session of Parliament, in a modest way, introduced a feature into the Revised Code of Education of high national importance, which is destined to have a great influence on the future development of public education, more or less affecting all classes of the people."

The importance of this step is here by no means overstated, and its object being to make the homes of the people happy, it is one which must commend itself to every philanthropist, every statesman, and every loyal citizen. For "the home is the unit of civilisation, and from it spring all those influences which give a character to society, either for good or for evil, either of a beneficial or disturbing character. The man who feels that his home is 'Home, sweet home,' is proud of the community in which he dwells; but the man who feels that his home is a den of misery and crime, immediately assails that society of which he believes that he is the unjust victim."

Not the least important outcome of this action of the Education Department is the present Congress, which, it may reasonably be expected, will do a great deal towards removing many of the difficulties which at present stand in the way of domestic economy as a branch of general education, and will help to lay down the lines on which in-

* Earl of Beaconsfield, June 23, 1877. Inauguration of "Victoria Dwellings' Association."

struction in the subject should be built up, and of the best modes in which the work can be carried out.

Probably only those persons who are not experimentally acquainted with the great education question, imagine that practical domestic economy, by which I mean the actual cooking of food, making or mending clothes, washing of pans, scouring of kettles, nursing of babies, tending the sick, and the many other kinds of labour involved in the term, can be taught in day schools, whether of the poor or the well-to-do. There may be, and are, schools of cookery, as well as classes for cookery, held in connection with elementary schools; but there are thousands of places in England, to say nothing of Ireland and Scotland, where these cannot be maintained on account of the expense connected with them; and cookery, however important a branch of the subject, is by no means the whole of it.

It follows then, from this and other considerations, that in most localities, all or nearly all the domestic economy taught in schools for the poor, except sewing, knitting and cutting out, must be taught from books and by means of oral lessons given by the teachers. There might, indeed, be in every country and town parish, however small, a weekly class, in which those ladies who take an interest in the subject, should voluntarily teach all the girls of a suitable age who choose to come to them for instruction, practical cookery, washing, cleaning furniture, and the like; but, still, the bulk of the children from the 4th to the 6th Standard in elementary schools, must, even under the most favourable circumstances, be mainly dependant on "Text-books of Domestic Economy," and those children who have learnt most about the practical part will be likely to take most interest in the theoretical, and *vice versa*.

The action of the Education Department in adopting the system of payments of grants by results, has been a very beneficial one, for the art of reading has, of late years, been far better attended to than formerly, so that girls in the 4th Standard, when domestic economy must be one of the subjects taken up for a special grant, can now read any ordinary book placed in their hands. A few years ago, however, it was not seldom found that children in elementary schools were unable to read any book to which they were not accustomed. Not that teachers were less diligent then than now, or less qualified, but the temptation to give undue attention to geography, history, grammar and other subjects, the poverty of the schools, and consequent inadequate supply of fresh reading-books, together with the irregular attendance of most of the children, combined to produce the results I mention, and which led to the introduction of the present system.

Those who can spend all their girlhood at school, may well be expected to have at least a general acquaintance with geography, history, English literature, and the like, but a child who must leave school at 12 or 13 years of age, to become general servant, or nurse-girl, or mill-hand, or home-helper, can have little if any time for them, and it may even be desirable to diminish the quantity of arithmetic demanded of them under the Code—useful as the mental discipline involved in the study of it is—in order to afford more time for

domestic economy. It is a subject, too, which most girls will like better than arithmetic (especially "puzzling" Rule of Three, and "maddening" Practice), and they will not only remember it better, but will derive greater advantage from their knowledge of it than from any of the so-called "higher subjects," and it will not have so great a tendency as these to "puff them up" with the "little knowledge," that is the "dangerous thing."

Reading-books on domestic economy, should, therefore, occupy the first place, next to the Bible, in every girls' school, and especially in those attended by the children of the poor. But these books must be as interesting as they can be made. A cookery book, say "Cookery by a Lady" for instance, which has reached, I believe, an almost fabulous number of editions, would not be very interesting reading for little girls from 10 to 12 years of age, nor would "Enquire Within," nor Soyer's well-known "Shilling Book of Cookery," chatty and funny as they are; nor Cassell's ponderous "Household Guide," however important a contribution to the literature of domestic economy it may be. Publications of this kind are out of the question for girls' schools. Books must be specially prepared for them, instructive, reliable, written in plain language, but made interesting by means of pictures, stories, conversations, and sketches, so that the children may take pleasure in them.

A great deal is said by some writers against this method of conveying instruction to the young; but if it seemed good to the Great Teacher of spiritual things in the case of grown up persons, surely we may think it good in imparting knowledge of secular matters to children. Besides, it is just as well to take learning in rather small doses at a time. "Treat your mind like a narrow-necked bottle, and don't try to learn too much at once," said my old schoolmaster to me when I left his roof to begin the battle of life; "If you try to fill the bottle too fast, very little will go into it." Every mother knows well how to give "baby" a powder, and the principle must be borne in mind in the preparation of text-books on domestic economy for little girls. For why should they be content with dull books, any more than you and I are content with dull sermons, or an after-dinner auditory with a dull speech, though the theology of the one, and the political economy of the other, may be alike unimpeachable?

In such books then as I speak of, there will be no recipes given to be "learnt by heart," nor anything of the sort. Indeed, the New Code specially warns teachers and school managers against attempting to teach domestic economy "by rote;" but the various branches of the subject will be treated in such a way as to include useful knowledge, and, above all, sound principles.

Such text-books would be suitable for girls of the age referred to, in schools of all grades, and, if generally and intelligently used, though by no means superseding the desirableness of practical instruction in cookery, needlework, &c., would pave the way for it, and could be used at times when, and for those to whom, the practical instruction could not be given.

Manuals of domestic economy suitable for housekeepers and ladies who manage the home affairs

of large or small households, exist in plenty. They are, for the most part, very good, but are necessarily beyond the means of the poor, for whose use at home it would seem advisable that a series of tracts on the subject should be prepared and sold at 1d. or 2d. each. One might be devoted to food, and contain rules for judging of its quality, as well as recipes, especially for preparing cheap and nourishing dishes where mouths are numerous and means limited. A second might take up the subjects of water and air; a third, clothing and furniture; a fourth, sanitary matters and domestic medicine; a fifth, the treatment of children; a sixth, savings' banks, building societies, benefit clubs, and the like; a seventh, cottage gardening and pig and bee keeping.

I scarcely need say that these "tracts" should be written in good plain English, avoiding technical terms wherever possible, and carefully explaining them where they are necessarily used, and they should be illustrated with suitable engravings where needful.

The preparation, publication, and circulation of these tracts among the poor throughout the country would be a work of real utility. But they must be made to reach the people; must be taken to their homes, and, probably, if they could be published at the low price I have mentioned, the clergy, ministers of various Christian bodies, and district visitors would be able to induce many thousands to purchase them.

As to the scope of the school text-books, the divisions of the subject laid down in the 4th Schedule of the new Code, 1876, will do as well as any other for the three standards that will take it up for examination. They are as follow:—

1st year, for Standard IV.—Food and its preparation. Clothing and materials.

2nd year, for Standard V.—The dwelling: warming, cleaning and ventilation. Washing materials and their use.

3rd year, for Standard VI.—Rules for health: the management of a sick room, cottage income, expenditure, and savings.

Under the head of food, instruction will be given as to the properties of various kinds: flesh-forming, heat-giving, &c.; how to choose and how to cook them; the nutritious value of fish, and the cheaper kinds of food, such as liver, tripe, fry, and how to cook them in the least wasteful and most palatable manner; the importance of avoiding waste, and how to make good and nourishing soup out of what many persons throw away; the importance of cleanliness in person and apparatus whilst cooking; instructions for the economy of fuel, and other kindred subjects.

Under the head of clothing will be taught the importance of adapting it to the circumstances, employment, and means of the wearer; the most serviceable kinds of material for the clothing of women and children, and how to preserve, clean, and repair it. Instruction in sewing and knitting must be given by the teacher. I once tried to learn plain knitting from a MS. on the subject, which was sent me with a view to its publication as a text-book for school use, and I failed ignominiously. It was an experiment of mine, to ascertain whether it would be worth while to print such instructions for the use of little girls, and I decided that it would not.

In the second year's book, for Standard V., information will be given as to the dwelling, i.e., in what the healthiness or unhealthiness of it consists, showing that while the average death-rate in the filthy slums of our large cities is from 40 to 60 per 1,000 of the population every year, and that for the whole of London is 22 to 25, that in the improved dwellings for the poor is only 14. The pupils will be told how the dwelling may be duly warmed without unduly excluding fresh air, especially in the bedrooms at night; how the air, inside and out, should be kept as pure as possible, by removing all refuse; how to clean the house, and how and when scrubbing should and should not be done; how the furniture should be cleaned and preserved; the need for frequent washing of articles of wearing apparel, especially those worn next the skin; the principles which should prevail at the wash-tub and the ironing-board; something about the deleterious effects of certain washing powders; with other similar subjects.

In the third book, for Standard VI., various general rules should be given, especially the advantages resulting from temperance, and a good wash from head to heel before going to bed at night; the symptoms of common, especially infantile, ailments, and their mode of treatment, with instructions what to do till the doctor comes, in cases which appear serious; the dangers arising from breathing foul air and drinking impure water; the value of vaccination; the importance and means of disinfection; the management of the sick-room; the treatment of children; the duties of various classes of servants, &c. Something can be said, too, of savings banks and cottage incomes and expenditure, showing the proportion which one item should bear to another, though, of course, no hard-and-fast rule can possibly be laid down for all. I have known agricultural labourers to bring up large families of eight or more children respectably, and have them sufficiently educated at the parish school, on an average income of certainly not more than 16s. a week, with an occasional addition from the wife's earnings. The father of one of these families, an excellent fellow, could neither read nor write, but his wife was a pretty fair scholar and a capital manager, and she and her three younger children who attended school, were always among the neatest and best dressed in the parish. The man himself, his wife, and four grown-up sons and daughters, were parishioners of my own, and communicants of the Church of England. I mention this fact to prove, what many deny, that the thing can be done, because it has been and is done. And any man or woman who will show the English workman how to do it, and persuade him and his wife to carry it out, will perform a great and good work. The Education Department has done well in calling attention to the subject, and a chapter or two about it in a school text-book on domestic economy, will at least open up the question and lay down some lines for guidance.

In these text-books, principles should receive the first consideration. If these are carefully inculcated and properly appreciated, and some necessary details mastered during the school period, a good foundation will be laid, and an interest will be excited which will be of the greatest service to those who may have the

opportunity of attending classes for the practical study of cookery, needlework, or any other branch of domestic economy.

The poor woman, at home or in service, will perhaps require text-books that will enter more closely into details, giving a good collection of recipes for her use, and partaking of the character of hand-books or books of reference. The "tracts" and other books I have mentioned, together with those published by Mr. Buckmaster and Mr. Tegetmeier, will afford an abundant choice, and, probably, any one of the larger works would convey more than all the information required by the public generally, as well as by students in training colleges.

But over and above all these, it appears to me probable that a well-edited, well-illustrated, and well-printed magazine, devoted mainly to the subject of domestic economy in all its bearings, with an attractive running story, and published at a half-penny or a penny weekly, and circulated through every parish in the United Kingdom by means of commissioned agents, or the clergy and district visitors, would be calculated to do as much good as any other of the thousand-and-one magazines published. But it must be as good and as interesting as any, and then, in the course of two or three years, it might reach the hands of every poor man's wife in the country. It would probably, however, be too costly and hazardous an undertaking for any mere private person.

Girls brought up in homes where filth, and squalor, and drunkenness reign, and where the inexcusable and wicked extravagance of to-day is often followed by privation to-morrow, cannot be expected to make good servants or good wives, unless some strenuous efforts are made to counteract the evil example and training such homes afford. This must be done in school if done at all, and the dissemination of text-books on domestic economy, whether they take the form of school reading-books, or tracts, or magazines, or all three, cannot but be attended with good results, and do something towards making the women of the future better servants, more helpful daughters, wiser mothers, more thrifty wives, and better qualified mistresses than those of the past.

THE MODE OF INSPECTION, AND ADMINISTRATION OF GOVERNMENT GRANT, FOR SUBJECTS INCLUDED UNDER DOMESTIC ECONOMY.

By the Rev. E. F. M. MacCarthy, M.A.,
Member of the Birmingham School Board.

This paper points out the most practicable conditions under which Domestic Economy may be included in the curriculum of our public elementary schools, as far, at least, as the action of Government, by its code of regulations and its administration of grants, is concerned in the settlement of that curriculum.

1. The old proverb says, "You may take a horse to water, but you cannot make him drink." As a matter of fact, the horse will only drink under two conditions, both of which are necessary to be fulfilled: first, he must desire to drink; and, secondly, the water must be such as will help him to support

life. Now, public elementary schools are, in respect of this subject of domestic economy, in exactly the same position as the horse in the proverb. First, they must see the desirability of the subject, and towards that we may fairly hope that the discussions at this Congress will materially assist; but, further than this, they must be quite satisfied that the subject will help to support them. Those who are familiar with the working of public elementary schools, are aware that every subject of instruction is, by the existing payment-by-results method of apportioning Government grants, contributory to the school expenses; and, as experience has shown that a subject which is not thus contributory stands but a sorry chance of admission into the school curriculum, domestic economy must be no exception in this respect. This second question, then, viz., under what conditions domestic economy may be made to pay its fair share of the school expenses, is of the utmost practical importance, so much so, that little way will have been made in the matter, if the attention of this Congress be confined to simply proving the desirability of its introduction into schools. Obviously, considerable ground is covered by this question. We ought to consider the most suitable range for this subject to take, when taught in elementary schools; the best subdivisions of the subject into groups or stages, so as to form a programme of progressive study both for scholars and pupil-teachers; the nature of the inspection and examination, with the mode of conducting the latter; and, lastly, the apportionment of grant. This paper will devote itself solely to the question of inspection and examination.

2. The best way will be to consider, in order:—(a.) What the Code does for domestic economy at the present time; (b.) What it does not do; (c.) What it might do.

(a.) All the subjects which the Congress is considering under the heading Domestic Economy, have already, with one exception (Practical Cookery), a place in the Code, and, consequently, are at this moment, to a greater or less degree, subjects for which grants may be earned. Of these needlework occupies by far the most prominent position, standing in quite a different category to the others. Before any grant is made to a girls' day school, the Education Department must be satisfied that the girls are taught plain needlework and cutting out, as part of the ordinary course of instruction (Code, Art. 17, (f.)). The sum of 4s. per scholar (reduced to 2s. under certain circumstances), in average attendance above seven years of age, is paid, if the classes from which the children are examined in Standards II.-VI., pass a creditable examination in needlework and one other subject. (Code, Art. 19, c. 1.) Needlework must be taught according to a system approved by the inspector, who will judge of it by specimens worked on the day of inspection by girls or classes selected by him for the purpose. A schedule laying down standards of needlework for girls in Standards I. to VI., and also for infants, has been added in the Code of 1877 (Schedule III.), and after the 31st of March, 1878 (which date Lord Sandon has, I believe, promised in the House of Commons shall be extended to the 31st March, 1879), the examination in needlework will be conducted according to the standards prescribed in this schedule.

Passing on to another part of the Code (Schedule IV., column 10), we find the following subjects classed under the heading Domestic Economy:—(1) food and its preparation, (2) clothing and materials, (3) the dwelling, warming, cleaning, and ventilation, (4) washing materials and their use, (5) rules for health, the management of a sick-room, (6) cottage income, expenditure, and savings.

These subjects first found their way into the Code in 1875, and the regulations concerning them came into operation on 31st of March, 1876. They figure in the Fourth Schedule as a three years' course of study in domestic economy for girls in the upper standards, and a grant of 4s. per head is made for every girl presented in Standard IV. to VI., who passes in the year's course. Thus domestic economy is one out of ten specific subjects of instruction for which this grant is payable under Code, Art. 21; the other subjects with which it is classed being English literature, Latin, French, German, mathematics, mechanics, animal physiology, physical geography, and botany; but, unlike those other subjects, domestic economy is restricted to girls. By the Code of 1877, as modified in the House of Commons, it is enacted that on the 31st March, 1878, every girl presented under Art. 21, must take domestic economy as a subject of examination; which is equivalent to saying that no girl will be qualified to earn a grant in any other subject in this schedule—French for instance, or botany, who is not presented at the same time in domestic economy. The importance attached by the Education Department to this subject, as part of the higher training of girls in our public elementary schools, is strongly brought out by this regulation.

(b.) Next, let us notice what the Code does not do for the important branch of education whose claims we are considering. While provision has been made, as above described, that in future needlework shall be thoroughly, systematically, and universally taught in girls' schools, the Code has somewhat overlooked the needs in this respect of the pupil-teachers, upon whose efficiency as teachers of needlework depends so largely any real advance in the standard of needlework attainments in the schools. Pupil-teachers are engaged for three, four, or five years, and at the end of each year have to pass a progressive series of examinations in the subjects which they are teaching or will eventually be called upon to teach. The subjects of examination are graduated, and appear in a tabular form in the First Schedule of the Code—with the exception of needlework, which is relegated to a note at the bottom of the page, to the following effect:—"Female pupil-teachers, before admission, must produce a certificate from the school-mistress and managers that they possess reasonable competency as sempstresses, and at the annual examinations must bring certified specimens of plain needlework to the inspector. The inspector at the time of examination, or afterwards, will obtain the opinion of some competent person upon the merit of the needlework." It is obvious that this provision affords a very inadequate guarantee for

* It must be noted that the term Domestic Economy as used by the Code, only includes the subjects here named, and therefore is not co-extensive in definition with the term as used by this Congress, which embraces in addition, needlework, practical cookery, &c.

good needlework among pupil teachers, and experience proves that such is the case. Miss Kenrick, speaking at the Birmingham School Board on this matter, stated that she had had considerable experience, some years ago, in examining pupil-teachers' needlework in a neighbouring district, and this experience showed her that this branch of education was very much neglected, and that many specimens of work were inferior to what might have been expected from girls in the second or third standard. On Miss Kenrick's representations to this effect, the Birmingham School Board resolved to memorialise the Education Department, suggesting "that it would be desirable to introduce into the first schedule of the new Code a graduated scheme of examination in needlework for the several years of pupil-teachership, and that the plan laid down in the work, entitled 'Plain Needlework in Six Standards,' with a slight modification, be recommended as the scheme for pupil-teachers under this schedule." Again, as regards domestic economy, no provision is made that female pupil-teachers shall show a progressive knowledge of the subjects classed under that heading in the Code, during the several years of their apprenticeship. The note to the first schedule, quoted above, simply requires that they shall bring with their specimens of needlework "a statement from the schoolmistress, specifying whether they have been receiving practical instruction in any other kind of domestic industry." It is extremely doubtful whether a statement that they have not received such instruction would at all prejudice their position in the eyes of the Department. The note further draws their attention to the fact, that "a paper of questions on domestic economy is given to the female candidates for admission to training colleges," in other words, that if they wish at the expiration of their apprenticeship to obtain Queen's Scholarships, some knowledge of domestic economy will be of service to them. In that examination, the subject is an important though not a qualifying one. Students of training colleges are examined in needlework, and in domestic economy, but in neither of these subjects does failure exclude a candidate from her certificate.

Here, however, for the first time, we find that absence of all practical knowledge of domestic economy subjects will be a positive disadvantage to the elementary teacher, that is, if the following note may be considered to have, in practice, the intended effect:—"Only a per-centage of the marks for domestic economy will be given in the case of those students who do not present a certificate signed by the superintendent, to the effect that she is satisfied with their practical proficiency in some specified portion of the work usually comprehended under the name of industrial training." Speaking, then, generally of the practical side of domestic economy studies, it is evident that the recognition it meets with, at the present time, from Government, whether in the way of inspection, examination, or grant, is—needlework excepted—almost microscopically small. For scholars in day-schools it is, with the above exception, absolutely nil, and in the case of pupil-teachers' and training college examinations, her Majesty's inspectors have to be satisfied with the statement of the mistress of the school under inspec-

tion, in the one case, or the certificate of the superintendent of the training college under inspection, in the other, that they are satisfied that some utterly indefinite amount of practical proficiency in some branch of domestic economy has been attained. But if the importance of practical cookery and practical laundrywork for girls in elementary schools is only second to that of practical needlework, as many educationists are now beginning to believe, it is quite certain that it will be the paramount duty of Government not only to put facilities in the way of these subjects being taught in elementary schools, but also to see that they are taught, and to pay a grant per head upon the results of examination.

(c) Supposing, then, that public opinion is found to be ripe for the addition of these practical studies to the curriculum of our schools, and that Parliament has decided to carry out the national will in this matter, the question remains: What form should the inspection and examination of these subjects take? We have already one subject of a practical kind—needlework—in the Code; is the mode in which inspection and examination of this subject is conducted so satisfactory, that it may be repeated with good effect in the case of these other subjects? The experience of many members of this Congress will, I feel sure, suggest a prompt answer in the negative. The facilities for the study of needlework at Oxford and Cambridge are not very great, and her Majesty's inspectors consequently do not all enter upon the duties of their office, in respect of needlework, with that confidence which inspires the performance of their other duties. Nor do they all find those opportunities for overtaking their ignorance in the subject, which the proficiency of a sister or a wife might afford—nor, even given such opportunities, are they all equally capable of making such good use of them as to become adepts in the art. The consequence is, that as everybody knows, needlework lies under great disadvantages and discouragements in the districts of some of her Majesty's inspectors we wot of. One has heard of needlework as a subject of class instruction under Code, Art. 19, being quite unknown in some districts, owing to the strong predilection shown by the inspectors of these districts for history, or geography, or English grammar, in preference to, or to the exclusion of, needlework. Nothing, too, can be more unsatisfactory than the almost universal appeal of the judge from his own verdict to that of parties interested in the suit,—to the wife of the vicar or squire, to the School Board inspector of needlework, and to the statements or certificates of mistresses and superintendents. If this be done in the green tree, what will be done in the dry? We have a definite schedule of needlework for each year of school life, from 5 to 13, coming into operation shortly. Under these circumstances may not even the vicar's wife fail the inspector in the hour of need? And what will happen if we have practical cookery also in the Code, and standards of attainment precisely laid down and to be tested annually? May not even the vicar's wife be altogether insufficient for these things, and fail the inspector in the hour of his still greater need? Then, again, as to that subject, domestic economy, which now stands in the table of specific subjects (Code, Fourth Schedule), and which is compulsory

upon all girls examined under Act 21, after the 31st of March next—although it is intended to be got up from text-books, yet will not some of the ablest of her Majesty's inspectors distrust their own powers of testing the value of answers upon food, clothing, washing, and the like?

It must be borne in mind that circumstances have very much altered the relations of inspectors towards specific subjects, since they were first introduced. Previous to 31st March, 1870, teachers had considerable latitude in the choice of extra subjects of instruction; even domestic economy, although not distinctly specified, might have been taught, but there was a "protection-order" for inspectors in the shape of a memorandum that "Teachers intending to introduce an extra subject should confer with the inspector when he visits the school, and settle with him the plan to be pursued during the year, so as to ensure its acceptance at the next examination of the schools." This memorandum obviously gave the inspector complete control over, and, we may say, a direct veto upon, the specific subject to be introduced. But henceforward he will have no option but to examine upon domestic economy when a school returns that subject upon the examination schedule, with the risk of exposing his own ignorance or discharging his duties perfunctorily—it may be, by means of an unaccredited sub-examiner.

There are other subjects at this moment in the Fourth Schedule of a purely technical or scientific character, such as animal physiology and botany, for instance, which are not likely to be strong points with the majority of inspectors of schools. Is it likely that, with the inspectors' present control of the time-tables of elementary schools—which is great—they will encourage the introduction of these subjects into the schools in their districts, notwithstanding that the individuality of a particular school, from the special knowledge of the head teacher, or the surroundings of the school, would make the introduction of one or other of such subjects peculiarly suitable?

Lastly, is it not more than probable that the fact of the strain upon the omniscience of her Majesty's inspectors being already very great, will make the Government very loth to put a further strain upon it, by the introduction of fresh subjects, especially subjects of a practical and technical character, such as cookery, laundry-work, &c.? Is it not most certain that this consideration will largely operate upon the Government in the direction of maintaining the *status quo*; and, therefore, that our best chance of gaining our object is to show that all danger of present or future strain of this kind may be averted by a modification of the present system of inspection and examination of schools? To this end we suggest:—(1) The appointment of special inspectors, who shall be women, for the practical part of the education of girls, such as needlework, cookery, laundry-work, &c., throughout the country. Inspectors of singing and music (as now employed in training colleges) might be appointed for elementary schools. (2) The separation of the examination in all scientific and technical subjects of instruction from the ordinary school inspection and examination.

This first question will be treated of in another paper in this section of the Congress. But, with regard to the second, it appears to me that a great

gain on all sides will accrue if the work of her Majesty's inspectors be confined, as far as examination is concerned, to the ordinary subjects, reading, writing, arithmetic, history, geography, grammar, and the specific subjects of a literary kind, viz., English literature, Latin, French, German, and, in addition, mathematics—surely a wide enough range of knowledge for one man—and that the other subjects, singing and music, and needlework (Code, Art. 19), domestic economy (not restricted to girls), mechanics, animal physiology, physical geography, and botany (Fourth Schedule), and such subjects as mensuration, agricultural chemistry, physics, practical cookery, &c., to be hereafter added, be placed under other examiners, under the direction of the Science and Art Department of the Committee of Privy Council on Education, or some other body.

The Science and Art Department naturally suggests itself as the proper authority for carrying out these examinations, because (1) it is only another department of the Committee of Council on Education, and, therefore, is under the same supreme control as the Education Department; (2) it has already introduced its machinery into elementary schools; it undertakes the examinations in drawing for day scholars, pupil-teachers, and students in training colleges. It examines scholars in elementary schools who have passed Standard VI. and candidates for admission to, and students in, training colleges, in those very subjects—mechanics, animal physiology, physical geography, botany—in which her Majesty's inspectors are required to examine when these subjects are taught to scholars in elementary schools, who are in Standard IV. and upwards. There does not appear to be any ground to justify this remarkable anomaly. That some clashing of the Education and Science and Art Departments has already occurred, in consequence of this divided authority over scientific subjects, is apparent from the proviso (Code, Art. 21*d* and note) ensuring that scholars shall not earn a grant in science in the same year from both Departments. The principle of separation of examination from inspection has already been admitted and applied, more or less, in the following cases: (a) Drawing, as above stated; (b) the ordinary examination of pupil-teachers, in which the papers are set by examiners at the Education Department in London, and distributed all over the country, all those schools whose school-year ends in a certain month having their pupil-teachers examined simultaneously. The papers are looked over by the respective inspectors of the schools, but are returned with the results to the Department, and the verdict of the inspectors is, as I understand, subject to revision at headquarters; (c) again, in the Training College examinations, the examination papers are set in London, and the work of the students is distributed among the whole body of inspectors, according to the subjects for which they are considered to be specially qualified, so that the inspectors of schools constitute with the examiners at the head office a special Board of Examiners for the purpose.

With the examination of "Domestic Economy" under the Science and Art Department, an expansion of the subject would be immediately practicable beyond the narrow limits of the meagre information which can be procured from text-books

(these might still be used as reading-books in the Standards with good effect) without practical work of any kind, and which at present is all that is required in order to earn a grant under Schedule IV. These limits must inevitably remain narrow as long as the present arrangements hold good, for this reason—if for no other—that it would not be fair to exact from the present body of examiners—her Majesty's inspectors of schools—considerable knowledge of subjects so purely technical as those included under domestic economy.

Practical educationists have already come to see that in the suggested transfer of domestic economy to the Science and Art Department, lies the solution of the real difficulty which threatens the general adoption and free extension of this subject as part of the education of our public elementary schools. In the spring of the present year, a large number of memorials went up from School Boards in England and Scotland to the Education Department, asking that a modification of the Code regulations might be made, somewhat in this direction. A copy of that forwarded by the Birmingham School Board is appended to this paper:—

TO THE RIGHT HONOURABLE THE LORD PRESIDENT, THE LORD VICE-PRESIDENT, AND THE LORDS OF THE COMMITTEE OF PRIVY COUNCIL ON EDUCATION:—

The Memorial of the School Board of Birmingham.

RESPECTFULLY SHEWETH,—That your memorialists consider a knowledge of Practical Cookery, as part of the education of girls in public elementary schools, to be of the utmost importance.

That while regarding with satisfaction the introduction of Domestic Economy into the Education Code, as a specific subject for girls, your memorialists are of opinion that many of the subjects at present classed together under that heading, and especially that of "Food and its Preparation" (which should include Practical Cookery), are of such importance as to justify a division of the subject (Domestic Economy) into two or more separate subjects, upon each of which grants could be earned.

Your memorialists therefore humbly pray:—

1. That your Lordships would be pleased to provide in the Education Code that grants may be made on the results of instruction in Practical Cookery, as a distinct subject, on the same principle upon which grants are now made to elementary schools through the Science and Art Department.
2. That aid be given towards the proper fitting up and furnishing of places for practical instruction in cookery; and
3. That female teachers be encouraged to pass special examinations with a view to the teaching of Cookery. And your memorialists, &c.

THE EXAMINATIONS OF THE SOCIETY OF ARTS IN DOMESTIC ECONOMY.

By Charles Critchett,

Educational Officer of the Society.

The examinations in domestic economy, held under the auspices of the Society of Arts, were originally commenced so far back as 1861, and may be said to have been mainly originated by the late Mr. Harry Chester, one of the assistant-secretaries to the Committee of Council on Education, and for many years a most active member of

the Council of the Society of Arts. Mr. Chester induced his friend, the late Dean of Hereford (the Very Rev. Richard Dawes), well-known as a warm and steady advocate of the education of the people, to undertake the office of examiner, and a programme was drawn up, embracing the whole subject of domestic economy in a somewhat popular form. It then formed one of the twenty-nine subjects in which examinations were held; a first prize of £5, and a second prize of £3 being given to the two best candidates in each subject, provided they obtained First Class Certificates.

The subject was defined as meaning a knowledge of the management of household matters, and the principles on which they are conducted, the "why and the wherefore" of everything under this head. This included food—animal and vegetable—how differing in nutriment; cookery; clothing of various kinds, how best fitted for varying climates, seasons, and occupations; the sanitary regulations of the house, such as ventilation, warming and lighting, drainage, &c.; a knowledge of weights and measures, prices of provisions, &c.; in fact, how to make the most of a small income. The principles of the savings bank, of the benefit society, and of present and deferred annuities, also formed portions of the subject, and it may be interesting to quote at random a few of the questions from the first paper set:—

For the site of a house what soils are best? What soil is the worst? What aspects are best, and what aspect is the worst, and give your reasons for your opinion?

Explain why ill-ventilated and crowded cottages are prejudicial to health; and give any reasons or proofs of this from your own experience.

Describe the various causes which make a chimney smoke, and the modes by which you would endeavour to cure it.

Which is most conducive to health, an uniform or varied diet? Give reasons and illustrations of your answer.

Of the modes of cooking—roasting, baking, and broiling, frying, boiling, stewing. Explain each process briefly, and state which is the most economical.

Candles and soap. At what time of year should a stock be laid in? Why? What precautions are requisite in storing them?

Detail the weekly expenses of a family, consisting of a man earning 18s. per week, his wife and four children aged 4, 6, 8, and 12 years, for food, fuel, and light.

In household management, what is meant (1) by necessary, (2) by current, (3) by occasional, and (4) by contingent expenses, and what things does each embrace?

What are the advantages to a family of paying ready money, and never running into debt; and the disadvantages of not doing so. Explain the necessity of keeping an exact account of income and expenditure?

How is the domestic economy of the labourer or operative affected by having part of his wages on a truck system, such as a dwelling rent-free; drink, as in the cider counties, as a part of wages throughout the year, or any other article of food on truck?

My object in quoting these questions is to show that, in the first instance, no attempt was made to give a scientific character to the examination, which, it will thus be seen, merely required such familiar practical knowledge as was capable of being readily and quickly acquired by any fairly educated person.

In the first year, as will be seen by the accompanying table, only four candidates appeared, all

	Prizes.		Examined.	Passed.	Male.	Female.
	M.	F.				
1861	..	..	4	4	..	4
1862	1	..	8	7	1	0
1863	1	..	11	8	5	3
1864	2	..	10	8	7	1
1865	2	..	13	11	9	2
1866	2	..	0	0	6	1
1867	2	1	34	29	12	17
1868	4	2	32	19	9	10
1869	2	1	31	25	13	12
1870	2	..	13	10	7	3
1871	2	1	29	27	23	4
1872	2	..	13	8	7	1
Totals..	22	5	204	162	98	64

of them being females. The number gradually rose to thirteen, in 1865, but in 1866 there was a falling off. In 1867, however, the attention of the Council was more especially directed to the encouragement of female education, and special prizes for female candidates were offered in several subjects, including domestic economy. Owing to the stimulus thus given, and to other causes no easy to discover, the number of candidates rose from six, in 1866, to thirty-four in the following year. In 1868, Mr. Thomas Twining, one of the Society's Vice-Presidents, offered four additional prizes in this subject, and in that and the following year the number of candidates did not materially vary, though it may be remarked that the proportion of females was less.

In 1865 an attempt was made to induce candidates to base their knowledge of this subject on something like a scientific foundation. The programme for that year says:—

"Domestic economy being mainly based on the applications of chemistry and physiology, both male and female candidates will be required to show an acquaintance with the rudiments of these sciences. It should embrace the phenomena of nutrition, respiration, the functions of the skin, &c.; the rationale of lighting, warming, ventilating, cleaning, disinfecting, &c.; of cooking, preserving, &c.; and the origin and manufacture of household articles, as far as this may be necessary for a correct appreciation of their relative value for use, and for the detection of defective quality, adulteration, or fraud; the essentials of a healthy and comfortable dwelling—clothing in relation to sanitary principles—food; dietaries; effects of stimulants and narcotics; fuel, and other household stores; weights and measures; keeping of household accounts.

"The questions for male candidates will refer to such subjects as the materials and appliances involved in the construction of dwellings; co-operative building and investment societies; savings banks and annuities. Those for female candidates include the management of infants, and the care of the sick."

In 1867, the Dean of Hereford died, and Mr. E. Carleton Tufnell, one of Her Majesty's Inspectors of Schools, a gentleman whose especial devotion to the cause of education has long been known, undertook the office of examiner. By him the scientific element in the examination was still further developed. The programme for 1868, which was drawn up by him, says:—

"Candidates will be expected to possess such a knowledge of the essential elements of mechanical and chemical physics, chemistry, and physiology, and of the general outlines of natural history, as may enable them to describe the origin and properties of the articles, and the rationale of the processes indicated or suggested by the following heads, as well as to explain the practical rules which science suggests for the promotion of health and comfort, and for turning limited means to the best advantage."

After giving the heads referred to, he adds:—

"Sound practical notions of the most essential points throughout the whole range of subjects are desired, rather than a deep knowledge of a few of them."

The examination was conducted by Mr. Tufnell on this system up to and including 1872, but the candidates continued to be but few, and there was a remarkable falling off in the number of females who came forward.

In the programme for 1873 several of the subjects were omitted, amongst them being domestic economy, and it was not till the year 1876 that it was again inserted; this time, however, in an improved and expanded form. The importance of the subject as a branch of education, especially for females, was beginning to be acknowledged, and when again restored to the Society's list, it was divided into four heads—(1) Clothing and its materials, (2) Health, (3) Housekeeping and thrift, (4) Cookery. The programme for that year says:—"These examinations apply particularly to women, but there is no reason against men taking certificates in them. In the Code of the Education Department they are limited to girls, and this is a good reason why young men should not be excluded from the Society of Arts' examinations in them, if they please to attend to these important subjects. The object of the examination is not to test the power of candidates to repeat what they have acquired only from books, but, as far as possible, to elicit evidence of practical knowledge and skill in each subject. The questions will, therefore, be framed with this special object."

This examination, which is still continued annually, is conducted, as before, by papers of questions, and the examiners are as follows:—In Clothing, Miss Mary Willis; in Health, Dr. Wm. Ogle, Medical Officer of Health for East Hertfordshire; in Housekeeping, Miss Emily Shaw-Lefevre; and in Cookery, the National Training School for Cookery.

The candidates in Clothing are required to draw or cut simple patterns for the making and cutting-out of clothes, such as a child's pinafore, &c., giving the quantities required, and to state the reasons for and experience in selecting different kinds of materials for dress and underclothing—their comparative usefulness, economy in wear, durability, &c. They should also show a knowledge of the sewing-machine as well as of hand work.

Under the head of "Health," candidates are asked questions as to the structure and management of drains and closets, water-supply, warming and ventilation, diet, disinfection, precautions in case of infectious disease, and all other matters, not being strictly professional, which affect domestic health. Candidates for a first-class are also expected to have (1) so much knowledge of domestic medicine as will enable them to act

judiciously in sudden emergencies before the arrival of a medical man; (2) so much knowledge of sanitary law as is practically required by a householder; (3) so much knowledge of health statistics as will enable them to calculate death-rates, to judge of their being excessive or otherwise, and generally to draw fair inferences from such returns as are periodically issued by the Registrar-General; (4) as much knowledge of the preventible causes of disease as can be expected from non-professional persons.

The papers in Housekeeping and Thrift contain questions on the purchase of house furniture, especially bedsteads, bedding, carpets, and kitchen utensils. Questions are asked as to the care and airing of bedding and linen; as to the use of cleaning materials for house and kitchen; as to the purchase of grocery stores; as to the economical purchase of meat, bread, and fish; as to the different modes of lighting rooms, and their comparative economy; also as to the harmful preparations used in washing household linen, &c. Candidates should also be able to write out a table of weekly expenditure for a small family, and to answer questions respecting the investment of small savings; on the comparison of the Post-office with other savings banks; on the relative results of life and deferred annuities; and other kindred subjects.

The subject of Cookery, the immense importance of which seems, strange to say, to be only now beginning to be seriously recognised in this country, forms the last sub-division. Under this head questions are asked to ascertain the candidates' knowledge of the first principles of cookery, and the reasons on which they are based; of the reasons for employing various kinds of food in reference to nourishment, &c.; what are the essentials of good cookery; what the candidates can cook and how to cook it.

The following table shows the number of male and female candidates examined and passed in the two years during which this new examination

	Prizes		1876.			
	Males.	Females.	Examined.	Passed.	Males.	Females.
Clothing	2	1	10	5	1	4
Health	1	1	8	1	1	..
Housekeeping ..	1	1	9	5	1	4
Cookery	2	2	10	10	1	9
	2	5	37	21	4	17
1877.						
Clothing	1	1	16	15	2	13
Health	2	..	35	9	8	1
Housekeeping ..	1	1	17	9	4	5
Cookery	..	2	26	26	9	17
	4	4	94	59	23	36

has been held. It will be seen, that not far short of three times as many candidates were examined in the second as in the first year, and considering the large amount of attention now being drawn to the subject, especially that branch of it that

includes drainage, ventilation, and other sanitary questions, we may fairly anticipate a large increase in future years.

I feel that I should give but an imperfect sketch of the action of the Society of Arts in reference to domestic economy were I to omit to mention the efforts of Mr. Thomas Twining, long one of its Vice-Presidents, whose interest in this subject was evinced many years ago by the formation of a Museum of Domestic and Sanitary Economy, under the auspices of the Council of the Society. The movement was first designed by Mr. Twining in 1850, sanctioned by the Council of the Society of Arts in 1852, and inaugurated by an Exhibition of Domestic Economy at Paris, in 1855, on which occasion the Cross of the Legion of Honour was conferred on its originator. Other temporary exhibitions were held in various parts of Europe, thanks to M. Duepetiaux, of Brussels, M. Helm, and other eminent philanthropists. The collection formed by Mr. Twining, which was designed to be of a permanent and educational character, was begun at the House of the Society of Arts, in 1856. The Food Department was exhibited in embryo at South Kensington, and gave rise to Dr. Playfair's Food Museum. The next year it was transferred to the Polytechnic Institution, where other classes were added. In 1860, the collection was removed for more convenient development to a special building at Twickenham, close to Mr. Twining's own residence. Unfortunately, in 1871, the building, with most of its contents, was destroyed by fire, but a full description of it is given in a work by Mr. Twining himself, entitled "Technical Training, a suggestive sketch of a National System of Industrial Instruction, founded on a general diffusion of Practical Science among the People." In speaking of the collection, Mr. Twining says:--

"This repository of useful information for every-day life has been established with a view to impart, in a manner at once scientific and entertaining, that knowledge of common things, which is so necessary for securing health and comfort. Here all classes of society, and especially those whose income is small, are shown how their dwellings should be constructed in accordance with sanitary principles, what household improvements they may derive from the discoveries of science, or borrow from the customs and appliances of other nations, what fabrics they should wear, what food they should eat, and how it ought to be cooked, how they may distinguish things which are genuine, wholesome, substantial, durable, and really cheap, from those which are cheap only in appearance, and in short how they may live with judgment, and get the best money's worth for their money."

I may mention that a museum of hygiene, as a memorial to the late Dr. E. A. Parkes, is being formed at University College, Gower-street, which covers nearly the whole ground of Domestic and Sanitary Economy, and of which a member of the Committee says that "those who remember the Twickenham Museum will, it is hoped, have the satisfaction of seeing many of its best features resuscitated in the Parkes' Museum."

As bearing immediately upon the objects of this Conference, I ought to mention that, some months since, the Council of the Society of Arts, with the view of aiding in the teaching of domestic economy in elementary schools, offered three prizes of £30,

£15, and £10 respectively, for the best syllabuses of a course of instruction in that subject. The conditions state that "under the head of domestic economy are included (1) food, cookery, and clothing; (2) health, the management of the dwelling, and the sick room; (3) cottage expenditure and thrift. The syllabus should give in detail the heads of such instruction as can be taught in an ordinary elementary school; and should be accompanied by explanatory notes as to the manner of imparting the instruction, and the various requirements for conducting the classes efficiently." It was made an essential condition that the subject should be treated in a manner suitable for elementary schools, but that long dissertations should be avoided; the syllabus, to be, in fact, a skeleton course of instruction, to be filled in by the teacher, with such notes and suggestions as the author has found practically useful. It was also to be carefully framed with reference to the time and opportunities of instruction available in the elementary schools of the country.

Thirteen competitors have appeared, and the judges nominated by the Council; viz., the Rev. Canon Tinsley, the Rev. Newton Price, Major Donnelly, R.E., and Miss Chessar, a member of the School Board for London, with the valuable aid of Prof. Huxley, have kindly undertaken the duty of examining the syllabuses, and adjudicating upon them. Their award is expected shortly.

SCHOOL PENNY BANKS.

By George C. T. Bartley,

Manager, National Penny Bank (Limited), 269 and 270, Oxford-street, London.

Thrift is the quality by which small and apparently unimportant atoms are turned to the best account. We measure most things in money, and hence the idea has sprung up that thrift merely means the saving of money. This is, however, not the case. Thrift has a far wider signification. We can be thrifty in the use of time, in the use of dress, in the use of food, in the management of our strength, in the arrangement of our daily duties; and, in short, thrift can, and indeed, should, underlie the whole of our work, if we would really live to the best advantage, and do our utmost to advance the welfare of our fellow-creatures and ourselves.

In considering the subject generally known as domestic economy, it will be found that thrift is, as it were, the groundwork on which all the other branches must necessarily be built. In the selection of food, in cooking, in clothing, in the management of the house, and in the general expenditure, cost of materials, money, and time, thrift enters so largely that without it these various branches of the subject cannot with advantage be studied. It will, however, be convenient to allow the different sections of domestic economy each to treat on the subject of thrift from its own standpoint, and for me, in this paper, to take up the more common and limited idea of thrift, namely, that which more or less confines itself to the saving of small sums of money. With this view I shall inquire, first, whether the inculcation of this habit in schools among children is desirable; and second, if it be desirable, how it can best be promoted.

It would seem to be hardly necessary to argue as to whether the inculcation of thrift among children is desirable, after having shown that it enters, or should enter, so largely into the everyday habits of life. I should not, indeed, propose to do so were it not for some common and popular erroneous notions concerning the subject of thrift among children. Not a few regard thrift and economy as desirable, important, and even essential among grown-up persons, while among children they hesitate to approve of these habits, lest they should degenerate into niggardliness, meanness, and selfishness. No doubt there is some apparent truth in this; but, on investigation, it will be found that the danger of these evil dispositions arises, not from any inherent mischief in the habit of thrift itself, but from enforcing the duty from a wrong and a selfish motive. The act of saving, *per se*, is not meritorious, and even the motive for saving may or may not be commendable. A child saving his pocket-money merely to be able to boast that he has more than his school-fellow, is doing far worse than another who spends his all in toffee which he shares with his friends. A boy who saves in order to get enough to buy a cricket-bat is doing a good, though a selfish, act, for he foregoes the present pleasure of spending what he has in order to obtain a future and, as he thinks, a greater pleasure. A child who saves even to an extreme in order to help a friend, or to do a kindness or an act of love for a sister or a parent, is acting nobly, and runs little danger of ever becoming niggardly or mean.

The danger of the inculcation of thrift degenerating among children arises from the careless way in which it may be taught, even by those who mean well. The motive for saving and for being careful and thrifty is the most important consideration with all, but especially with young children, who, of course, have not those ties which come later, and which render saving for the wants of the individual and his family a distinct and imperative duty. To tell a child to save and to be careful of his pocket-money in order that he may have a large sum, is wrong. The accumulation by a child of pence, for the purpose of possessing a shilling, is of itself no virtue, and the teacher fails in his duty who cannot point to some higher motive, and who cannot instil a habit of thrift among his pupils based on a far nobler and more unselfish foundation.

The real aim of thrift must always be not only to teach us how to save but how to spend. The miser saves to perfection, but we rightly despise him. The practical use and benefit of inculcating thrift must be to teach children how to husband their resources, in order that they may spend well and to the best advantage, so that by their spending they may do the most good to their own circle and to the community at large. Spending well is far more difficult than simply saving, and the basis of teaching thrift must always bear this in view. If this is done, there will be little danger of thrift degenerating into niggardliness, meanness, or selfishness.

Considering how essential thrifty habits must be to the comfort and happiness of us all in after life, it is strange that an inculcation of these principles has not long since been insisted on by educational and social reformers. We teach a child to read,

and, if we can, to write, not only for the moral good it does him, but because of the practical use it will be to him hereafter. We apprentice him to a trade in the same manner, and for the same object; but yet the habit of thrift which enters into his domestic every day life, and may make his home happy and comfortable, and remove daily anxiety from his mind, we expect to come naturally to him as a matter of course. Some may think that in teaching morality and religion thrift will be included, and though it should form part, and no mean part, of such instruction, yet as a matter of practice it rarely does so. Thus, for one cause or another, the practical lessons of thrift are unattended to or overlooked, and our boys and girls, from one generation to another, grow up with little or no knowledge of the blessings that this habit would be to them. The consequences of this omission are to be met with, not only in the paupers who burden our rates and in the recipients of our so called charities, but in the thousands and tens of thousands of those who all their lives long are struggling with poverty, and hanging, as it were, on the verge of destitution and misery.

The assertion is sometimes made that habits of thrift will come later in life, when the important need of saving for a family is experienced, and that we, therefore, need not worry children with such matters, or trouble them during the bright and gay period of life with anything so unpalatable as an idea of saving for the wants of the future. Is this, however, really true? Do young men and women, never accustomed to look ahead beyond the present week and its earnings—except perhaps to forestal their income—as a matter of fact, gradually in later life grow thrifty? Do they not almost invariably continue when in middle-age as they begin life in youth or childhood? Further, even if it were the case that they do thus change, and grow careful and thrifty when the needs of a family force them to do so, would they not have to be taught, by the hard and bitter experience of the consequences of a want of thrift—at a time, perhaps, of sickness either to themselves, their wives, or children—lessons which, if inculcated in childhood, would have prevented many of such misfortunes from ever occurring to them.

Seeing, then, that thrift, when based on worthy and proper motives, is in itself a good and noble quality; seeing also that it is not—certainly in England at the present time—a natural or usual quality; seeing, further, that its effects are so beneficial, not only to the individual, but to the community at large, I think it is clear that its inculcation in any school should be a matter of course, and that, especially in our elementary schools, time devoted to a consideration of this subject will be wisely and profitably spent.

I now come to consider the best way in which habits of thrift, as regards money especially, may be inculcated in schools among children. First, I may say that, unless a careful and thrifty example is set by the teachers and enforced on the pupils in small matters, and with so-called unimportant little things, such as paper, slate-pencils, slates, books, &c., a great deal of the benefit to be derived from direct lessons and special agents for promoting thrift will be lost. It is, unfortunately, common in schools, and not only in those of an expensive

character—where, by-the-bye, it is equally mischievous—to find a great disregard to the way in which some little things are wasted, and others are not turned to the best account. Look at the books in use; how few of them are fairly worn out, and how many are wantonly or carelessly destroyed. No doubt children are told not to spoil their books, and at times they may even be punished for so doing; practically, however, but too little attention is given to such matters. The same with slates, pencils, desks, forms, and almost all the properties of school life. Inattention to these considerations is so much practical instruction in carelessness, waste, and recklessness, qualities altogether as incompatible to the growth of thrift as rank weeds and briars are to the springing up of good seed. It is, indeed, true that even earlier in life these undesirable habits are allowed to flourish, from the way in which little children are but too often permitted wantonly to destroy or misuse their toys. Of course, most toys cannot be very long-lived, and broken playthings often afford as much amusement and pleasure as new ones, but the natural wear and tear of the nursery articles is altogether a different thing to the wanton destruction which is but too often allowed, and even encouraged, among the young.

The first step, then, towards inculcating a habit of thrift among children, both at home and at school, must be by a careful attention to the proper use of the things they handle, both by example and precept, discouraging waste of any kind in those materials and objects with which they have to deal.

The second mode of practically inculcating thrift is by a careful economy of time. At all ages there is great waste in time. I do not now refer to that waste caused by indolence, but that brought about by a careless or thoughtless arrangement of the day's work. In school this is often especially the case. Time is lost in getting to work, in changing lessons, and even in getting to play. Much practical good will result from a careful saving of time throughout the day, and the teacher should set the example of this important branch in practice, as well as impress the theory by precept on the pupils. Again, by the thorough use of time thrift may be inculcated. The listless half-attention, half-playing, half-reading, whether for lessons or recreation, is all so much time partly wasted. If by thorough attention a work may be mastered in an hour which is dawdled over for two, an hour is wasted, and a worse effect is produced by far than if the work were done in an hour, and the whole class slept during the remainder of the time. It will be idle to lay great stress on thrift in pence when time is wasted by the hour. Children are very quick and more logical than is often supposed.

I will now say a few words on the direct means of inculcating habits of thrift among children, by the establishment of penny banks in schools. It will be convenient to consider, first, what we mean by a penny bank in a school; secondly, how such a penny bank may practically be managed; thirdly, the advantages of such a penny bank being established and carried on.

1st. A penny bank in a school is an arrangement by which, at some fixed hour or hours each week, provision is made for receiving and paying out such

sums of money as the pupils may wish voluntarily to pay in or draw out. The voluntary element is essential, for where all the pupils are required to place their money in a teacher's hands and to ask him for it as they want it—a plan adopted in some schools—the main uses and good derivable from a voluntary penny bank are lost. It is also important that, not only should money be taken in without question, but also that it should be allowed to be withdrawn without inquiry. It is a mistake to suppose that any check should be put upon withdrawals. True, a child may save up a good deal and then draw it out for some unwise or even mischievous object, but the penny bank should have nothing to do with this. If a child is not allowed to have his or her money out of the bank without giving a satisfactory reason for wanting it, or even if much moral pressure is used to prevent the withdrawal, the only consequence will be that the money will not be put in. Children, fearing the questions to which they may be liable if they want some money from the penny bank, will keep their pocket money themselves, and conceal it, if necessary, so as to retain their control over it. Of course, if money in a school is spent wastefully or mischievously, the fault will be corrected as a fault, but even this should give no pretext for an intimation, or threat, of in any way limiting or controlling the power of perfect free action as regards withdrawing from the penny bank. One of the best and surest modes of preventing waste, or foolish expenditure, is the possession by each child of a penny bank account, and one of the most effectual ways of preventing them from opening accounts is to allow any greed, or suspicion even, of awkward questions being asked as to the purpose for which withdrawals are required.

2nd. How a penny bank may be practically carried on in a school.

a. By being established in connection with the Post-office.

b. By being established in connection with such an institution as the National Penny Bank.

a. By being established in connection with the Post-office.

This plan is the only one available for villages and small towns, where no other organisation exists. All that is necessary is for two or three persons—the school managers should take the lead—to consent to act as trustees, and for one of the teachers to act as collector. The rules which are settled by the Post-office are very simple, the main one being that no person is to have more than £5 in the penny bank, and that, directly any one's deposits amount to £1, he or she will be encouraged to transfer it to the Post-office Savings Bank in a separate account. The small pass-books (one of which is given to each depositor) are supplied by the Post-office free of charge, and in them the rules, and, if it is wished, the name of the penny bank are printed. The collector each week, at some fixed hour, and in some fixed place in the school, opens the bank. It is best if one of the trustees, or one of a committee formed for that purpose, is also present, but this is at times difficult, or impossible.

The books required are two, the cash-book and the ledger. The cash-book should be ruled with four columns, the first about an inch wide, then

a money column, then one of two inches wide, and then another money column, leaving a space for remarks. The first column is for the number of the pass-book, the second is for the amount deposited, the third is for the name of the depositor or withdrawer, and the fourth for the amount withdrawn. The ledger should be a wide book, ruled with two, three, four, or five money columns on the page, each column being divided by a thick line. Each of these columns contains one depositor's account.*

When the bank is being held, the collector should take the cash-book and the committee-man the ledger, and entries in both should be made direct from the depositor's pass-book. The collector should retain a small sum, say 10s. or £1, in hand, so as to be able to repay ordinary withdrawals at once if wanted. All the remainder of his takings should at once be paid into the Post-office, into the account opened in the names of the trustees. When money is wanted out of this account, the notice will have to be signed by one of the trustees. Nothing is simpler than this arrangement, which is described in full detail in Provident Knowledge Papers, Nos. 4 and 5, price one penny.†

If the school be large, and the penny bank is very successful, so that most of the children join, some little difficulty may arise, owing to the tax on the teachers' time. This, however, can be got over by inducing the pupil teachers to assist.

The interest given to depositors is a matter which must be mentioned. Where accounts on reaching £1 are transferred to the post-office, interest is unimportant, and not considering it will save a good deal of trouble. If it be preferred, however, to pay some interest, it should only be given on sums, say, of 10s., left in a complete calendar month, and each child's account—the greater number will not have enough in the bank to get interest under this rule—should be made up, and the interest added, at the end of the year, or when the child wishes to close it.

b. *School Penny Banks in connection with such an institution as the National Penny Bank.*—The action of the National Penny Bank has hitherto been

* Suitable books may be obtained, price 15s. the pair, for 500 accounts, from the National Penny Bank, Limited, 269 and 270, Oxford-street.

† List of Provident Knowledge Papers, which can be had on application, for stamps or P.O.O., at C. Williams, 112, Brompton-road, London:—

1. Pensions.—How to set about buying them by small payments, weekly or otherwise.
2. Insuring One's Life.—How to set about it by small payments, weekly or otherwise.
3. Easy Tables, showing what a Few Pence a-Week will do towards Insuring one's Life, or buying a Pension.
4. Penny Banks in every Town, Village, and Manufactory.—How to start them.
5. Penny Bank in every Elementary School.—Why they should exist, and how to start them.
6. Money in the Bank.—How every one may have a Banker.
7. Collectors of savings.—How to have a Collector of Weekly Savings where you work, and to have him paid by the Post office.
8. Interest and Security.—What these words mean, and the danger of getting too much for one's money.
9. Pawnbrokers.—How every man may be his own Pawnbroker.
10. Domestic Servants.—How to have a place always to fall back upon.
11. Incomes without Income Tax.—Governesses, Clerks, and all persons who pay no Income Tax. What to do instead.
12. A Penny a Week, or who earns enough to put by anything? Or, is a Shilling, Sixpence, Threepence, Twopence, or One Penny a-Week, worth putting by?
13. What's the Good of Saving?
14. Provident Dispensaries in Villages, Factories, Workshops, large and small Towns.

confined to London, where 25 branch penny banks in schools have been established. The great advantage of schools being enabled to avail themselves of such an organisation is, that the collector is supplied independently of the teachers, and beyond one school manager, teacher, or pupil teacher being present when the bank is open, and keeping the ledger, the whole trouble of the management of the bank, the keeping of the cash and of the books, &c., is undertaken by the paid collector of the National Penny Bank. The detailed way of conducting the bank is the same as that above described. The main difference, beyond that important one just referred to, is that there is no £5 or other limit to the amount of deposits, and consequently it does not form an essential rule that depositors of £1 should transfer their money to the Post-office, though there is no objection to this being done if wished.

In towns either where branches of the National Penny Bank can be formed, or where independent organisations can be established to carry on penny banks, in a similar way to that adopted by the National Penny Banks, the arrangement last described is certainly the best; there is a complete audit, and the collector is checked just as in an ordinary business. In country villages and other places, however, not having these advantages, or until these establishments extend throughout the country the former plan may be made to work very well, only the local interest is maintained.

3rd. *The advantages of Penny Banks in Schools.*—*The Encouragement of Thrift.*—This will be an obvious result of the penny bank, and from what I said in the beginning of my paper, if the right motive for thrift be inculcated, there will be no danger of meanness or miserly habits being promoted.

The Learning of the real Use of Money.—Perhaps few practical lessons in life are acquired with greater difficulty. What many people earn by hard labour, they seem to be altogether ignorant of how to use with advantage. The penny bank will do much practically to teach children the real uses of money, before they have to learn them in a harder experience of life.

The Appreciation of the Importance of Small Things.—This may be said to be thrift, and so it is, but it is important enough to be specially mentioned. It is an old saying, that if we take care of the pence the pounds will take care of themselves; but few practically realise this in its literal sense, and fewer still act upon it. The power of the pence is often theoretically, but not practically, understood. Few qualities could tend to reduce poverty and distress in after-life more than acquiring, through the agency of the school penny bank, an appreciation of the importance of small things.

The habit of Restraining Present Indulgence for Future Advantage.—This habit lies at the bottom of all social improvement. No doubt the national tendency is for most of us to enjoy at once what we have, like that of the child is to spend all his pence immediately in sweets. We learn by experience that this is not only not wise, but that it affords us less real pleasure than a careful and judicious husbanding of our resources. The school penny bank teaches this lesson forcibly, and in a practical way.

The Inculcation of Unselfish Habits.—Besides the last quality, the virtues of unselfishness may be inculcated by the uses of the penny bank. The habit of saving, and the consequent possession of a sum of money—even though it be but small—spared from present indulgence, and available at any time for any emergency, may often enable the holder to do a kind and useful act to a parent, a relation, or a friend. Children frequently, when any misfortune or otherwise happens, wish they could do something, however small, to show their sympathy. They often do much, very tenderly and nicely by acts of kindness, but they frequently regret that they have spent all their pence as they had them, for otherwise they feel they would be able to get such or such an article which would be of use. This is a feeling much to be encouraged, and their little accounts at the school penny bank will be found of great value. Those children who have such accounts will be able to carry out their wishes, and will earn the pleasure of so doing, whilst those who have not joined the bank will see the advantage of so doing at the earliest opportunity.

The Habit of Banking.—The inculcation of the habit of banking must be mentioned—not a few persons have an idea that the way to save is to hoard up money in some place of concealment. The Post-office Savings' Bank has done much to get rid of this notion, but it exists largely still. School penny banks will teach the children that it is wiser, for many reasons, to put our savings in some safe bank out of our possession and the temptation of spending them. Even those who do not join the school penny bank will see the practical good of such institutions, and when they leave school they will the sooner join the Post-office or some other savings bank. Whenever possible, on children leaving school, their money, if they have as much as a shilling, should be paid into the Post-office Savings' Bank, and an account opened in their names. The presentation of a Post-office Savings' Bank-book, or a National Penny Bank-book, on a child leaving a school may form one of the best possible presents or prizes that can be given him.

The Habit of Independence and Self-reliance.—Nothing promotes the feeling of independence and self-reliance more than the knowledge that we possess a resource of our own for any emergency that is likely to occur. The penny bank begins this feeling in a small way at school. If the habit of forming a reserve fund is—as it will be in many, if not in most cases—continued after leaving school, independence and self-reliance will become the characteristic of the child. Instead of that miserable habit of reliance on others, either from charity or from the parish on the first week of illness, or immediately on being out of work, the young man and woman will feel that they have something of their own, to enable them to weather the storm of adversity or trouble. Living from hand to mouth without any such provision is like going to sea in an open boat. The least ripple is alarming, whilst a wave over which we should ride with ease in a suitably provided craft will swamp us altogether, and oblige us to depend for safety on the accident of others being near us and able to assist us. This feeling is altogether in-

compatible with independence and self-reliance, qualities which must form the backbone of social progress and individual happiness and comfort.

I have now endeavoured to give some of the chief advantages which the establishment of school penny banks may be expected to promote. There are many others which will strike you perhaps, and which may differ in different localities, among different children. I trust, however, that I have said enough to convince you that some systematic and practical instruction in thrift is not only desirable and beneficial, but that it is more. I would rather have it thought to be an essential part of school instruction without which much power for social usefulness will be forfeited, and much domestic comfort throughout life will be lost. I trust also that I have shown how little need be the trouble, compared with the benefit secured, of establishing school penny banks; and, in conclusion, I will only say that I shall be most happy to assist any one, in any part of the kingdom, in promoting this branch of practical domestic economy.

A BIRMINGHAM BOARD SCHOOL BANK.

By J. A. Langford, LL.D.,
Of Birmingham.

On the publication of Mr. J. F. Fitch's proposal for the establishment of savings banks in Board schools, the Education and School Management Committee, of the Birmingham School Board requested one of its members to examine and report upon the scheme, with a view to its adoption by the Board, and the subsequent opening of banks in the various Board schools. The report was presented in June, 1875, and stated that in the opinion of the writer the plan was worthy of adoption by the Board; that it would entail little trouble on the part of the masters and mistresses; could be simply and easily carried out; and that the establishment of such banks in the Board schools would be productive of much good to the scholars. The report concluded by recommending:—

1. That in each Board school a savings bank be opened.

2. That the head-master, or one of the assistants, be appointed for that purpose, receive the deposits from the boys; the head-mistress, or one of the assistants, from the girls; and the mistress of the infants' school from the infants.

3. That two or three managers be appointed to act as trustees of the bank, who need not necessarily be members of the School Board. Their duties would be to open accounts with the Post-office Bank, to see that all accounts were properly kept, and that the sums received from the children, when they had reached a fixed amount, were deposited in the Post-office Savings Bank.

4. The duties of the receivers would be, to receive the small sums from the depositors, enter them in each depositor's book, and at stated times, to pay over the sums to the trustees.

The controller of the savings bank department will supply forms, and deposit books for the use of the children without any charge, and the authorised rules issued by the department for such banks are:—

1. Deposits of one penny and upwards will be received at every from till o'clock.

2. The money received will be invested in the Post-office Savings Bank, on behalf of the above-named penny bank, in the following names, being those of the trustees of the said penny bank.

3. Depositors may withdraw all or a portion of their deposits on giving one week's notice. The deposit book to be left with the trustee in attendance.

4. Women and children may deposit and withdraw money in their own names.

5. No person will be allowed to have in this penny bank more than £5 in all. So soon as the amount paid by any depositor reaches £1, he will be assisted to open a separate account in his own name at the Post-office Savings' Bank, and he will thus be able, if he wish it, to make his subsequent payments direct to the Post-office. As, however, no deposit less than one shilling can be received at the Post-office Savings' Bank, he may continue to pay into the penny bank as before.

6. Each depositor will be furnished with a bank-book free of charge, but should it be lost he will be charged twopence for a new one.

7. Strict secrecy will be observed respecting all deposits.

8. Interest will be allowed at the rate of 2½ per cent. per annum.

The report and its recommendations were approved by the Committee, and afterwards adopted by the Board. It was determined that the experiment should be tried for a time in one school only, and that in Elkington-street was selected for the purpose. Mr. J. S. Wright, vice-chairman of the Board, consented to act as trustee or treasurer. The bank was opened, and the first deposits received in June, 1876, so that at the time of writing this paper the bank had been in existence for a year, a period sufficiently long to enable us to form a judgment as to the probable usefulness of such institutions, and the desirability of establishing one in every school.

The average attendance of children at the Elkington-street School is:—Boys, 315; girls, 301; total, 616. During the year the number of depositors has been:—Boys, 247; girls, 152; total, 399, or more than half the average school attendance. The total amount of deposits has amounted to £121 11s. 4d., of which sum the boys had deposited £61 10s. 2d., and the girls, £60 1s. 2d., which shows that a larger capacity for saving has been displayed by the girls, the average amount of the individual deposit being, for each boy depositor, 4s. 11½d., and for each girl, 7s. 10½d.

At the present time, June, 1877, the total number of depositors is 187: boys, 97; girls, 90; the sum in the bank being only £36 2s. 8d., of which amount £18 3s. 6d. stands to the credit of the boys, and £17 19s. 2d. to the credit of the girls. This is not a large sum, nor is the number of depositors satisfactory; but it must be borne in mind that a great depression of trade has been felt for a long time, and that almost all the children attending the Board schools belong to the working classes, whose means for saving, small in the best of times, are entirely taken away when trade is bad. Much good has, doubtless, been effected by the working of this Board school bank. Habits of thrift have been contracted by the children, which may be productive of incalculable good in their future lives. They have also been taught

the value of a little foresight in providing for some object which they desired to obtain, for the largest amount of withdrawals from the bank has been at Christmas, Easter, and Whitsuntide, which shows that they were saving for the purpose of obtaining extra clothing in winter, or, perhaps, for a healthy holiday in summer, both of which objects are deserving of encouragement and praise. Altogether, I think the results of this little history of a Birmingham Board school bank are sufficiently encouraging to justify the Board in establishing one in every school under their management and control; and I trust, before this Congress holds its next annual meeting, that this will be done. Every one who has paid any attention to the subject will, I feel assured, agree with me that the establishment of such banks will be productive of great good to the children, the parents, and the community at large, and will join with me in wishing them every success.

THE INFLUENCE OF ORDER, METHOD, AND CLEANLINESS IN FACTORIES AND WORKSHOPS UPON THE HOMES OF THE INDUSTRIAL POPULATION OF LARGE TOWNS.

By S. Wall Richards,
Of Birmingham.

Among the subjects in which instruction is most urgently needed by the industrial population, and to which attention should frequently be drawn in any course of education on domestic economy, there are few more important than the one I have endeavoured to illustrate in the following paper.

Having had frequent opportunities of comparing workmen's homes in the textile districts of Lancashire and Yorkshire with workmen's homes in Birmingham and neighbourhood, I have been led to inquire into the cause of the differences between them.

Many of the houses of the operatives of the northern counties are characterised by an air of cleanliness, freshness, and an appearance of general comfort that is altogether wanting in a similar class of houses here.

A different spirit seems to pervade the household, and is a striking feature to a resident of the Midland Counties.

There is no doubt in my mind that the superior manner in which houses are built, the more complete domestic arrangements that are made by architects and builders of this class of property in the North, has a great deal to do with the general cheerfulness of home life there.

But what are the influences at work that create the taste and demand for this class of house, influences not in operation here?

I have never seen ordinary workmen's homes here that would compare at all with those there.

In Yorkshire there is on the ground-floor a living-room, with a second apartment in the rear, that serves the purpose of slop-kitchen and wash-house, being fitted with open furnace or boiler; also a good supply of water laid on, and, what is very important, a current of air could pass through these two lower rooms.

The living-room is invariably fitted with what is known as the "Yorkshire range," with an open fire, and on one side a hot-water boiler, on the

other side a large baking oven, large enough to bake a batch of bread; the fire-grate itself, with sufficient polishing surface to tempt a "Lancashire lass" that was "house proud" to try what "Baker's brilliant blacklead" would do towards supplying a mirror for the use of the family.

But the marked features of the northern home do not end here; under the bars of the grate there is always to be seen a bright red glare; no accumulation of ash; no contrivance for hiding dirty sides running back to the chimney. Ashes are not allowed to accumulate, because the floor immediately underneath the bars is invariably whitened over with a brush and wet whitening, and the ash that falls is removed frequently.

Working men and working women in this neighbourhood have not the remotest notion of the attraction of a Yorkshire fireside. Whether the bright hearthstone is the complement of the general cleanliness of the walls, which are painted (not covered with a tawdry paper, as with us), or the whitened ceiling, a crowning feature of the whole, is a moot point.

The advantages of painted walls are well known by those who live in high-rented houses, where, as a rule, the best kitchens are always painted, and cleaned frequently with soap and flannel.

Well, the walls of the living-rooms of the northern dwellings have many of them an occasional cleaning with soap and flannel, and the ceilings are whitewashed twice a year.

I once remarked on seeing a ceiling of a living-room whitewashed at Christmas, that I had observed being whitewashed at Midsummer, "Why do you whiten them twice a year?" the reply was, "We should be dirty people if we allowed them to go as long as the factories before they were done, that is, only once in fourteen months."

Happy operatives, indeed, are they who can speak of the factories they may work in being whitewashed once a year.

Now, what is the interior of the homes of the operatives in Birmingham? How compares it with the same class of house in the North?

A single living-room on the ground floor in a court of houses, a "cul de sac," with no second apartment; a cramped room with a ridiculously small fire-grate, no hot-water boiler, a small baking-oven on one side only (nine or ten inches square) divided in two parts, a fire-grate, perhaps the cheapest, commonest, and most useless design ever made; no back apartment, wash or slop kitchen, no painted walls, but, instead, walls covered with a cheap, showy paper, that is never cleaned or changed for years, a contrivance for harbouring loathsome insects; and ceilings that are whitewashed at long intervals of years also.

That adjunct of comfort, and promoter of cleanliness and health, a good supply of water, the operatives here are also denied; a common pump in the centre of the court, into which the sewage may percolate, and be of serious mischief, is the usual, and in most cases the only supply, and the wash-kitchen, or wash-house, available by the housewife, is a general one, common to the whole of the neighbours in turns, and used only on certain days, or portions of days, as when there are more than six houses to only one wash house. Each tenant cannot have the wash-house for even one whole day out of the six.

This very slight sketch of the houses inhabited in Yorkshire and Lancashire by the operative classes, and of houses inhabited by the same class here, will, perhaps, enable those not having an acquaintance with either to form an idea of the conditions of home-life in the two districts.

The immense difference so much in favour of Lancashire and Yorkshire I attribute to the order, method, and cleanliness observed in factories there, and the entire absence of corresponding rules and regulations in factories and workshops here till recently.

Since the Act of Sir Robert Peel, in 1802, and subsequent Acts of 1833 and 1814, controlling and regulating labour in factories, and determining the conditions upon which it shall be carried on in the interests of the physical growth and health of children, young persons, and females, it may be said these northern districts had enjoyed advantages during the period represented between the dates 1802 and 1867 that have not been permitted to operatives here.

The magnificent factories, with every appliance and contrivance that could be suggested by human ingenuity for securing the most favourable conditions upon which the gigantic industries could be carried on, have aroused and kept alive the desire of the factory employees for clean, convenient houses. To these causes I attribute their growth and development; and, where they do not exist, something exceptional has come in the way.

What has been the rule, method, or custom here? Most factories in Birmingham may be said to consist of a series of workshops that have grown from month to month and year to year, without symmetry or design, that the largest of them are, with few exceptions, agglomerations of shops, all shapes and sizes, forming irregular masses of buildings (very frequently a *congeries* of six or seven houses, communication with each other through two holes in the walls) with no principle observed, securing to the workers either proper light, ventilation, or cleanliness. All these important considerations have been ignored, so that, as a rule, places are built subject to no supervision, and, in consequence, are in direct contravention of the laws of health, and sometimes even of decency.

Systematic cleanliness in workrooms is a term almost unknown, I regret to say. Except in rare instances, observed, perhaps, in not more than 10 per cent. of the various trades of Birmingham; and, if a hundred workshops or manufactories were visited, I doubt whether, previous to the Factories Act Extension Act, 1867, more than 5 per cent. of them had been whitewashed in a decade, and since, from the relaxations embodied in that Act after the most persistent opposition by our Chamber of Commerce, and especially to the whitewashing clause, I doubt very much, up to the present time, whether the practice of whitewashing has by any means been general.

From the above outline of the different influences and surroundings of those occupied in daily labour in the North—and it must be remembered that females are more largely employed there than here; as many as 800,000 are computed to be engaged in the textile trades—it will be seen, and admitted, that the character of these surroundings is all-important.

The members of this Congress will be able to account for the less favourable appearance here of operatives, generally in their dress, which partakes of the character of their homes—tawdry, not substantial, not what a Yorkshire lass would call wholesome or cleanly—and their contentment with a state of things that would not be tolerated in some parts of Lancashire and Yorkshire for 24 hours.

It is wearying to hear the working classes so continually rated for their shortcomings and preached to, whilst the class above, who have so many opportunities, and so many obligations to discharge, neglect both.

It has always appeared somewhat of a mockery to me that such efforts should be made by a community to erect hospitals to cure diseases, whilst so little is done by the same community to prevent them. Birmingham in every part of it is busily occupied in its thousand different trades daily, carelessly and thoughtlessly; aye! in the majority of workshops and manufactories preparing patients for the different hospitals and dispensaries, by its utter neglect and failure to observe the common rules of cleanliness.

It seems a sweeping charge to make, that our principal manufacturers, who live in suburban villas, surrounded with most of the luxuries of modern life, should be content to drive into town to their different places of business, and remain content when they see their workpeople occupied in the most loathsome of workshops, so unwholesome that they would be indignant if they were asked to use such workshops and hovels as stabling for their horses. Their stables and carriage houses, or even dog-kennels at their homes, are palaces compared with very many of their manufactories, and members of this Congress may, if they are so disposed, easily test it. Whilst they would be shown over the suburban establishment and have all the newest appliances explained to them, if they were anxious to penetrate the dirty hives that contain the sinful working bees some plausible excuse would be offered for not gratifying their curiosity.

I once knew a wealthy Birmingham brass founder who kept an expensive horse to ride backwards and forwards to his place of business; the horse was stabled at the manufactory during the day. The owner observing the horse was frequently unwell when in town, sent for a veterinary surgeon to examine the stable, and see if he could discover the causes of the animal's illness. This the "vet" soon did. "See," said he to the brass-founder, "the fumes that pour out from the doors and windows of this casting shop, adjoining the stable, affect the horse's health; you must build him a stable in another part of the premises." This was done at once, the animal's health improved, but the brass-casters—who were only men, whose health was not considered, and whose lives were certainly not so valuable from his point of view as the life of a horse—worked on under the same unhealthy conditions as before, and those of them not killed off by the noxious fumes continue working without a thought being given to them.

Till we have better influences pervading the towns generally—and I am sorry to say, Birmingham does not stand alone, all the towns surrounding Birmingham resemble us very much—till we

have an "ideal" of what cleanly life should be, whether the ideal be created by our better educated and larger employers of labour, or whether the municipality set up the standard? till then, much of the philanthropic work of the many philanthropic institutions in our midst is neutralised. The late George Dawson once said, "What a famous thing it would be for this country if we could have a national annual scrubbing day." A people lost in dirt are lost to much of their self-respect; lift them out of this dirt, and you elevate both man and woman in their own and general esteem. The elevating process is going on slowly. When women were prohibited from the degrading labour of working in coal mines, an immense advance was made in the home-life of the collier, and when they are prohibited from working on the pit banks another great step will be taken forward.

I have within the past year seen a pianoforte being taken into the cottage of a working collier in Bilston.

Again, Mr. Robert Baker, of Leamington, and Mr. George Smith, of Coalville, have done the greatest kindness to the wives of brickmakers in their efforts to limit the labour of females in the degrading occupation of brickmaking.

Whenever a female loses her personal identity in the very dirty and repulsive occupations of some kinds of daily labour, from that moment one may expect self-respect to be on the decline. My experience of a quarter of a century amongst the various trades of Birmingham has taught me that the dirtiest shops in any trade are shunned till all others are solicited for employment and have failed; and that the dirtiest trades are only resorted to by females of the very lowest class, and only then from unfitness or disqualification, and all other occupations have been closed to them; and when once entered, they seldom are able to emancipate themselves.

To further restrict the employment of females in degrading labour I believe to be the surest means of improving their condition, physically, socially, and morally, the lady advocates for unrestricted employment of females notwithstanding.

Slow as all these changes are brought about, a change is coming over the habits of Birmingham industrial life; thanks to the unremitting efforts and untiring zeal, coupled with long experience, of Robert Baker, Esq., her Majesty's inspector of factories of this district.

When Birmingham trades were placed under the law in 1867, license, liberty, and irregularity were rampant in many of them; men, women, and children were employed how and when some employers chose to employ them, and under any conditions. Mr. Baker kindly, but firmly, told the irregulars that this state of things would have to be altered, peacefully if they chose, but altered nevertheless. Happily his tact and urbanity reconciled the most incorrigible to the change, and the improved physical appearance of children, half-timers, consequent upon more wholesome factories and workshops, is largely owing to his labours.

There are other influences also at work; new manufactories are being built more rapidly than at any former period. These new buildings are now constructed with some regard to health and to the

requirements of kindly, exacting, and beneficent legal enactments.

When labour generally is carried on, and the conditions of it are influenced by a healthy public opinion, very many of the faults with which the working classes are now charged will have passed away. Give them these altered conditions, and they will not long remain content with the miserable shoddy houses that are provided for them by a sordid, soulless class of speculators—notorious in this locality for the impunity with which they outrage, and cause to be outraged, the commonest decencies of life.

"House pride," a phrase in the North, that to most women belonging to the working class is and acts as a "talisman," is not understood or acted upon here.

Tens of thousands of our operatives, male and female, have never had any other school from childhood upwards, but the dirty, disorderly workshop, with its Saint Monday devotees as exemplars; and its early and late hours as the week advanced, its grand device for recovering time lost in drunken bouts at the beginning.

The influences of the factory and workshop are undoubtedly the most powerful in the life of an operative; they may be good or bad; the employer is frequently the only person occupying a higher social position than the employed comes in daily contact with; how important then, that the influence should be of the right kind; what a powerful agency it may and could be made.

In these modern days, the large employer of labour occupies a position relatively the same as that occupied in feudal times by the barons, when the welfare of those about them as retainers was a prime consideration.

We have had an Akroyd, a Crossley, and a Titus Salt, to remind us that these great responsibilities are not universally ignored, but these noble representatives of the old love and care for dependents are too few and far between.

As a manufacturer, engaged in one of the staple industries of Birmingham, I maintain that there are not any insuperable difficulties to be overcome, by four-fifths of the trades here, in any endeavours employers may choose to make to bring about a better state of things. If they desire order, method, and cleanliness in their establishments, the reforms are easy of accomplishment, and the inclination for them exists. The great variety of trades, and large number of small masters—who are constantly with their workpeople, and, therefore, are supposed to have the influence of personal supervision—make the attempt easy.

If it is urged that reform may be brought about in the smaller establishments, whilst it would be difficult in the large ones, I still maintain that the will only is wanted to reach the desired end.

My firm employ upwards of 400 operatives, three-fourths of whom are females; and I do not know of any beneficial change that suggested itself for our consideration, that we should hesitate to make.

The time-honoured institution of Saint Monday, for example, is not known with us. For many years the Saturday half-holiday is an institution that has been observed. We should not tolerate absence from work on Mondays, through idleness, from the most skilled operatives we employ.

Again, we have a rule which is cheerfully obeyed, and it is this: that the floors of every room in the factory in which any persons are employed be scoured with soap, soda, and hot water once the last week in every month. Some of the rooms are 150 feet in length. Every alternate month we have another rule, that the windows be cleaned throughout the works, and what is the result? why, an amount of cheerfulness and brightness not common in Birmingham manufactories.

It is scarce necessary to say that we have an annual whitewashing, so that each new year in the works is begun with clean rooms.

There is a library of upwards of 1,000 volumes which is free to all the *employés*; there is also a sick society, or club, in which for each penny paid as subscription, 2s. is received weekly in case of sickness, no one being allowed to subscribe more than 5d. per week.

We do not compel all who are in the works to become members; therefore, many who are seldom ill are not inclined to join.

The average sickness last year was four days for each member. Not having any knowledge of sick clubs that may be in existence in other manufactories, I cannot tell how it compares.

We had a very striking instance of how this habit of cleanliness in the workshops re-acted and stimulated to increased cleanliness. The works are heated by steam conveyed through 4-inch iron pipes, between one and two thousand feet, running through the different workrooms and warehouses. We never gave any orders about these pipes being kept clean at any time or in any particular manner, however, every month the females employed will laboriously blacklead them, and when asked why they do so, as some of them are partially out of sight, replied, "they looked so untidy against the clean walls and floors if not done." One day we noticed some girls industriously polishing the brass gas-pipes, quite a voluntary proceeding on their part. I mention these very small matters, but they are gratifying and encouraging to those desirous of cultivating a love of cleanliness and order in small things.

In conclusion, I would urge those employers who are sceptical of these good results to follow our example; the pecuniary outlay is not large for soap and flannel, or hot water, or for whitewash for the whole year. I would also urge these same employers willing, but doubtful, to try the experiment of meeting all their hands together annually at a social gathering. We have done it now for some years; the pleasure has been mutual. Working men and women are not surrounded by overwhelming refining influences, rather the contrary. An evening spent over a cup of tea with music and singing at intervals, a good supply of microscopic and other interesting objects, have an interest for those who have had as their only pleasant resort hitherto, the casino, the public house or the gin-palace, and it demonstrates to them the possibility of spending an evening rationally and enjoyably without having resource to stimulants. It would be unjust to insinuate that these better influences were thrown away on them; it would to ourselves, as employers, be disheartening if it could be proved it was not productive of latent good.

These sanitary considerations and improvements affect the relations between employers and *employés* in many ways. They lengthen the service, and make that service a pleasure while it lasts. In our own establishment the feeling of attachment to us is shown by the following statistics of the length of service rendered by those at present in our employ:—

	Per cent,
Under 3 years	30
Over 3 and under 5 years	30
" 5 " 10 "	20
" 10 " 15 "	10
" 15	10

The business has only been in existence about 20 years.

At the present moment we have not a healthy public sentiment influencing the masses in the matter of cleanliness. The municipal authorities and other governing bodies of our town give little heed to it.

After our factories and workshops, the next dirtiest buildings belong to the Corporation and public bodies. Only last week the chaplain of the borough prison made formal application to have the rooms and passages of his residence (which belong to the town) whitewashed and coloured, pleading at the same time that they had not been done for six years.

Perhaps the most unwholesome public room that we have ever had in Birmingham is the lecture theatre of the Midland Institute; a room that is used periodically for the delivery of lectures on the laws of health. To my knowledge it has gone as long as six or seven years without a coat of whitewash. Again, our School of Art was whitewashed and cleaned down a year ago, the first time for eight or ten years.

If the governors of a town are so negligent on this subject, and practice at such long intervals the habits of cleanliness, it is sheer hypocrisy to upbraid the "governed" with their shortcomings.

Dirt hangs like a pall over Birmingham, Wolverhampton, and Sheffield, and very many of our manufacturing centres, injuring the health of the mass of their several populations at the same time that it is degrading and debasing them. It is all the more remarkable that Birmingham, occupying such an advanced position in many matters, should be so indifferent to this momentous and vital question.

Finally, I attribute the more comfortable homes of the working classes in the textile districts to the wholesome influences that have been silently at work so many years, through the periodic and systematic observance of cleanliness in the manufactories there.

The homes of the same class here are as unlike as it is possible for them, and still be called by the same name. In the former, life is enjoyed; home comfort is a reality. In the latter, life is endured from necessity, so absolutely devoid is it of the commonest appliances that should and do contribute to domestic enjoyment.

Employers of labour, many of whom—

"From want of thought,
Rather than want of will,"

neglect to inculcate the love of order, method, and cleanliness, by not observing and not practising the same in their own workshops and manufactories.

Municipal and other public bodies, whether literary, scientific, or educational, forget all the means of usefulness at their command, if they do not systematically, by their own example, inculcate the love for, by the practice of cleanliness. Corporate bodies should observe this in the scrupulous cleanliness of the public buildings in their charge, their various offices, &c. Other institutions of an educational character in their lecture-halls, classrooms, reading-rooms, libraries, &c.

As a large ratepayer of this borough, I should look upon the liberal disbursement of the rates for this purpose as one of the most legitimate items of outlay during the year.

If this paper should be the means of calling attention to a subject that has hitherto received but scant consideration, I think it may, another year, be taken up by abler hands, treated as a new branch of domestic economy, and form an interesting portion of the proceedings of your next Congress.

ON NURSING FOR ARTISANS AND COTTAGERS.

By Mrs. W. E. Gladstone.

1. The blessing of education is, happily, more and more considered, and we are all learning to value sound elementary teaching in our national schools. Why, then, is such gross ignorance upon matters of health allowed to prevail among the poor? A cry might well be raised, as we visit cottage after cottage in times of sickness, and find the most simple sanitary facts of sick nursing unknown, without teaching or method, and often without thought. It is true there are methods of training professional nurses, but why are not the elementary principles of nursing added to the subjects already taught in schools, so that they may become part of the regular instruction of young girls? How often is the little daughter or friend of 10 or 12 years old the only attendant the poor father or mother can have in case of sudden illness, and how much can even a mere child do who has learnt to think and observe, and to understand a few easy rules about a sick room! Men of experience, and great physicians, have advised the matter being taken in hand—why is it so utterly neglected?

2. The reasons are only too plain:—

First. The very ignorance which exists about illness stifles all desire to learn what can be done, and blinds the poor to the crying necessity of the case.

Secondly. People do not know the exceeding interest as well as usefulness of really intelligent nursing, a work they might love if once they understood it. It is true that the beautiful gift of nursing does exist naturally in some, but, even in cases where the natural "turn" for it is strong, it needs guiding and development.

3. Whilst waiting and hoping for some scheme that shall bring about such a development, I venture in this short paper to try and spur, if I may so express it, in the right direction, my hearers, members of School Boards, teachers throughout the country, and the Education Department in particular. I attempt to show that something can be done to save time and even lives before a more perfect plan can be organised. Life

is so holy a thing, shall we not see and think how to preserve it best? Cottage-nursing being my special point, I go at once to the subject. Now, as I have said before, a mere child may be so taught to nurse as to give her what is really a high and holy aim. She may learn thoughtful, cleanly, gentle, sensible ways, and thus become a treasure in her home at a time of sickness.

4. Let me draw a little picture of the cottage where ignorance prevails. The heavy hand of sickness has been laid on the dwelling—the mother is laid low. What happens? Poor little Polly has leave to stay away from school. She does her best. She knows nothing about the poison of bad air and of fresh air being all-important—her one object is warmth, and warmth too often means foul air. She draws the bed-curtains close, stuffs up the chimney, and shuts every window and door. Neighbours assemble round the sick bed talking, gossiping, wondering, almost killing with well-intended kindness, and all helping to exhaust the air and disturb the patient, fuss prevails, and every one has a piece of ignorant advice to give; but where is common sense and presence of mind?

5. Let us now look at another picture, and see the contrast. Here we have little Jenny, no older than Polly, but Jenny has had a few sensible rules put into her head. She has learnt that four good things are first of all to be secured in a sick room, namely, fresh air, cleanliness, quiet, and comfort; these Jenny can see to before a doctor arrives. Before helping her mother to bed, she thinks of what is needed to make the bed tidy and comfortable. Whatever is likely to be wanted she puts neatly upon a table, which is cleared of other matters, so that medicine, a feeding cup, clean glasses, spoons, &c., are always at hand. If there is, as we must hope, a chimney in the room, she takes care that nothing may block it up, no stuffing of boards or paper to exclude air; she knows the chimney will carry off the impure air, she manages to have some window open, if possible at the top, so as to gain fresh air and avoid a draught. We can see how in these little ways a child can practice presence of mind, and gain that confidence which in itself soothes and comforts the patient.

6. Let us go a little further, and try and show how that confidence and simple wisdom can be practised. I only give in this paper a few simple facts which can be found elsewhere far better expressed and drawn out.

7. *As to Fresh Air and Ventilation.*—Ventilation is absolutely necessary for the preservation of health, because the very air we breathe purifies the blood, and supports life. If this be so important in health, what must it be in sickness, when the blood is disordered? Let the little nurse then be taught to look about and see how best to procure pure air. If the room is so small and inconvenient that it is impossible to keep the window constantly open without exposing the patient to draughts, the next best thing is to change the air from time to time, by opening the window for a few minutes. It is easy, when airing the room, to cover up the patient for two or three minutes, to avoid chills. Bad air is poisoned air to the lungs. The air we breathe should, if possible, be as pure as the external air, and that need not mean cold air. The mischief which bad air causes is not always felt at once, just as there

are slow poisons which do not at once discover themselves, but, sooner or later, the poison does its work. Do not allow unnecessary people to go in or out, or to stay in the room; each person consumes so much air, just as candles or gas will do, and the usually small space in a cottage calls for special thought on this matter.

8. *Light.*—The light of heaven is good in an invalid's room; when the body is sick and the whole heart is faint, warm and cheerful rays should enter a sick room. It is always easy, when the eyes are weak or the head aches, to arrange a little blind as a temporary guard, and the patient's own wishes should be consulted, but sunshine brings joy and gladness, and is in itself life-giving.

9. *The Bed.*—As to mattresses and bedding, feather beds are unwholesome from the excessive heat they produce, and the difficulty of thoroughly airing and purifying them. Curtains drawn round make the bed into a trap for foul air; none should be allowed excepting perhaps at the bed head.

10. *Cleanliness.*—Keep the sick room scrupulously clean, the less carpet the better; give attention to the floor under the bed and in corners; do not allow anyone but the patient to eat meals there. Do not conceal utensils under the bed or elsewhere; a lid is useful, but nothing unpleasant should be left for any time in the sick room, and all articles used should be very carefully rinsed afterwards.

11. *Cookery.*—We might naturally now turn to the subject of cookery, but so large a subject cannot be treated of here; suffice it to say, that food for a sick person should be of a finer kind than for a person in health; a defect in cookery will speak for itself, while judicious good cooking will save the digestion half its work. Thus we trust our young friends will lose no opportunity of studying this branch of cooking. Proper diet is of greater consequence than medicine.

12. *Quiet and Watchfulness.*—I will now add a few hints which I have myself found useful to bear in mind in a sick room. One of the first lessons is to be quiet, calm, and cheerful. Avoid giving unnecessary trouble by talking or fidgeting. Sit by the invalid and watch with all your might. You will by observation soon learn his wishes, and this very watchfulness it is which gives experience. It will often be more valuable than rules, though these should by no means be disregarded. Observation will, for instance, better than any rule, teach us how to regulate the patient's food. It is a very common error to think that a person may die because he takes little or no food. Now in this matter, nature is often speaking and doing the restorative work in the best way by bidding the stomach rest; but on the other hand there are cases when it is needful to give food in small quantities often, even every hour or half hour. A nurse must learn when to turn to the doctor to help her judgment in these important points, but she must strive to improve her own judgment by ceaseless watchfulness. Save your patient anxiety, waiting, fear or surprise, emotion; lead him gently but firmly, without driving. Again, manage thoughtfully about leaving him. Tell him when you will return; keep to your time; uncertainty is trying to all patients.

13. *Sleep.*—A nurse must also learn the great blessing of sleep in illness, that beautiful provision of nature, often to be encouraged even to the neglect of the stated hour for food or medicine. Sleep is all-important in bringing respite from pain or weakness, and in refreshing the exhausted powers.

14. *State of the Skin and the Circulation.*—Much good often may be done by attention to the state of the patient's skin. A warm bath, or a hot drink at bed-time, encourages perspiration, which often removes chills and carries off the cold which has come from checking the action of the skin. Examine feet and hands, to judge of the circulation, and to guard against effects of vital heat diminishing; hot bottles or hot flannels help to restore heat to the body. In the early morning exhaustion is more likely to come on, as the vital power is lower.

15. Upon all the last-enumerated matters, however, which manifestly demand the more mature powers, the little nurse at home should learn to be guided entirely by the doctor's directions.

16. Pages might be written, but I have not attempted to do more than suggest small measures and very humble beginnings in the loving work of tending the sick. Only let us not go on in ignorance and apathy, content to see the poor, and those we love, suffering from illness, and lacking the help that their own children might learn to afford. In this very elementary paper, I urge a step being taken to teach the young, so as to put people upon the right road. Let no one be discouraged; it is true the work in itself is of a very delicate nature, needing much patience, but then, it should be a labour of love. "God's precious gift of life is often literally placed in our hands." This has been strikingly said. Shall we not persevere, then? Simple lessons of thoughtfulness and care, and constant watching, will sow seeds that will bring forth much fruit; and how great will be the blessing if from these small beginnings villages should come to possess nurses of the spirit of Florence Nightingale!

17. Even in the infant school the children might be asked simple questions upon the health of their parents and themselves, and gradually be led to think on the subject. In the classes for older children, both boys and girls, the questions might be continued; and I hope to see prepared a small manual on health, which shall be the means of suggesting, rather than presenting, actual questions to teachers. I am not in favour of teaching by questions and answers, which generates too much rote knowledge, and saves the mental labour of the teacher at the cost of the child.

18. Let us conclude with the most important thought of all, which should underlie all our efforts—the thought of the wonder and beauty of our Creator's work in these frail bodies of ours, and how much love and care we should bestow upon the frames He has so loved and cared for.

PROVIDENT DISPENSARIES: A MEANS OF PROVIDING FOR SICKNESS.

By Lawson Tait, F.R.C.S.,
Town Councillor of Birmingham.

A Congress met to discuss questions of domestic economy could hardly be complete unless it included within its programme a consideration of

some method by which the distress occasioned by the sickness inevitable in all households may be provided against. It requires no prolonged or special acquaintance with the lower middle and the industrial classes to know that a very large amount of domestic distress, sometimes of an almost permanent character, is due to the want of provision for the time of illness. For the purely artisan population there is everywhere an amount of accommodation for the treatment of their illnesses by gratuitous medical relief, which is (in appearance at least) quite adequate for all demands upon it, if indeed it be not really superabundant. But to those who are acquainted with the details of hospital work there are defects here which need not be at present alluded to; and it is, moreover, becoming apparent to all who are interested in questions of domestic economy, that the growing tendency of our working-class population to trust to the help of others in their hours of need, is becoming more and more disastrous to that spirit of self-help, without which no populace can maintain a healthy social life. It has, indeed, been said, and with a large amount of truth, that the multiplication of the sources of gratuitous medical relief is the cause, and not the result of the demand for it.

Bearing upon this evil, then, are a number of issues which might be raised here if time permitted, but it is more pertinent to the purpose of this Congress that I should confine myself to the benefits to be derived from the establishment and extension of the system of provident dispensaries, as a means of obviating the hardships incident to sickness, and resulting from the expenses which are inseparable from it.

Let us suppose the wife of a clerk, the mother of three or four children, to be suffering from one of the many accidents incident to motherhood. Her husband is in receipt of thirty shillings a week, and upon this they can contrive to maintain a comfortable and respectable position, meeting their daily wants as they arise, and keeping out of debt. The expected addition to their family has necessitated a little pinching, to provide for extra expenses, and if the mother's recovery had been uninterrupted all would have gone well. But she does not recover as she has done before. The attendance of the doctor has to be prolonged for three, six, ten, or fifteen weeks. Assistance has to be got for the household work, or the poor mother has to work before she is fit to do it. A nurse may be required for her, neighbours have to take pity on the husband and children, and it may end in the necessity of special advice, or admission into hospital for charitable treatment. And even then the husband finds himself involved in debt to the extent of fifteen, twenty, or even thirty pounds, and it may be years before he is able to free himself from the incubus. That this is no fancy picture every practitioner of medicine will freely admit, and I could give innumerable instances of it from real life. I hold that the possibility of such distressing results is a blot on our social system, and it is the duty of such a gathering as this to assist in the consideration of the remedy.

We do not know much about the statistics of illness, but we know that it is written down that disease is the lot of all domestic life. To those whose incomes allow of a margin for contingencies,

provision against sickness is not important; but to that enormous class whose life is, to use the forcible colloquialism, from hand to mouth, it is an incumbent duty to make that provision.

To a large extent this has been already done, and in many instances the methods have been perfectly satisfactory. But it is evident that, to be efficient, a provident system must be on a very large scale, must include as much of as possible, if not the whole of that population for whose wants it is devised; and, more especially, its executive must be managed with the utmost regard to rigid economy, and to the full requirements of those for whom it is instituted.

We have, therefore, initiated a movement in this large centre of industry which I personally hope to see conducted on a plan such as I proceed roughly to sketch out, and which I trust will speedily be initiated throughout the country. We can hardly claim for it originality in any important particular, and we must yield to Manchester the credit of being the first important community to carry out in a spirited fashion the system of provident dispensaries. Indeed, I almost fear that we must be ashamed of our negligence in Birmingham, for it was in this county that the system had its birth, in the village of Southam; and in a neighbouring city, Coventry, it has had a flourishing existence for nearly a quarter of a century.

The chief object of the dispensaries must be to include as large a number of members as possible, and for this purpose it is to be hoped that the co-operation of the medical charities, and of those friendly societies already dealing with provident medical relief, may be obtained. No hard and fast wage-line can be adopted, as this has always been found unequal and oppressive, and every encouragement must be given to the habitual hospital patients to cease their application for charity. Here a system of careful inquiry must be instituted, as in Manchester; and no person should have gratuitous medical relief until it has been ascertained that the applicant is a fit and proper person to receive it.

At the other end of the scale some latitude must be allowed, and it is sincerely to be hoped that the medical profession will see that their interests are here quite co-incidental with those of the public; for while it must be admitted that occasionally a "good private patient" may be admitted to the benefit of provident membership, it must be borne in mind that if the scheme is made successful by the loyalty of the doctors, it will not only entirely prevent the distribution of gratuitous medical relief to improper recipients, but that it will practically put an end to the entry of those bad debts into the medical ledger which so many of my brethren have to deplore.

The number of practitioners engaged upon the staff will be so large that practically the patients will have quite as good an opportunity of selection as the most affluent private patient could exercise; and the amount to be paid for all emergencies, even of the most serious kind to which a household can be subjected, would not exceed on an average three shillings a year from each member. This would include not only medical attendance and drugs, but could be made to pay for specially skilled advice, and for trained nursing by such a plan as has been recently proposed by the Institute for Trained Nurses in this town. It

would also include admission into hospitals for the treatment of those cases which require such attention or such special appliances as cannot conveniently be employed in the houses of the members.

The details of this scheme cannot be given more fully here, but if carried out as they have been, and may be in almost any community, it may be commended on the following grounds:—

1. It encourages habits of prudence and forethought.
2. It prevents the incurrance of debt.
3. It diminishes the amount of gratuitous medical relief, and limits it to proper recipients.
4. It will relieve our hospitals from the incubus of the hosts of applicants whose wants could be better attended to elsewhere, and who, at present, prevent the proper amount of care being given to the more necessitous class of cases.
5. It enables the sick poor to be treated and nursed in their own homes.
6. And finally, by introducing into the houses of our industrial population skilled attendants, whose chief interest it will be to diminish and prevent disease, it will do a great deal to advance sanitary improvement.

It is from the advantages to be gained on this last-mentioned ground that our chief argument for the system should be founded. Preventive medicine is now the great field of labour, and no more efficient weapon could be placed in our hands than is proposed by this movement, for correcting those numberless errors in hygiene which exist in the houses of the poor, and which arise solely from ignorance. With these no mere sanitary authority can cope. In this town we have lately taken enormous strides in the direction of preventive medicine, but I see daily, in my double capacity of a member of the Health Committee and a practitioner of medicine, matters with which we are wholly unable to cope.

Perhaps the most important of these is the matter of the death-rate of our infant population. Looking week after week at the mortality returns, we are inclined to flatter ourselves that our community is a healthy one, because the number of deaths for every thousand of the population is a comparatively small one, and one which is, I am proud to say, constantly diminishing. But no mere statement like that will reveal to us the terrible items of mortality with which we have to contend; that is, those which are removable. Now, the factors of infantile mortality which are within the present power of remedy are such as produce more than one-half of the deaths of children under five years of age. The terrible effect which they produce in our town is shown by the fact that the last return of the Medical Officer of Health for the Borough tells us that the average age of all who died within the preceding fortnight was only 21 years and 5 months. During the winter, when infantile mortality is not so high, it was about 26 years; so that we may conclude that the average death age of our whole population is not much over 25 years. This is a most terrible revelation. Death is the unavoidable fate of all, and if that can only be put off for 25 years, we surely must regard all our costly efforts as having, so far, had but unsatisfactory results. It is, of course, in the numerous deaths of young children

that we find the factor of this low average, and it is in that direction also that the remedy must be applied.

It is, therefore, with the utmost pleasure that we must look upon the splendid efforts which are being made by the authorities of our children's hospitals to grapple with this great difficulty, and I regard the new movement in which we are now engaged as another great engine for good, dealing as it does with a means for educating the people in those matters of domestic economy upon which they one and all depend for their health and the prolongation of their average life period.

THE WORK OF THE LADIES' SANITARY ASSOCIATION.

By Miss Rose Adams.

Of the Ladies' Sanitary Association.

It has been suggested that the history of the efforts of the Ladies' Sanitary Association to popularise sanitary knowledge, and to develop and encourage the study of domestic economy during the last twenty years, would prove of some interest to the present Congress. To condense, however, the experience of the last twenty years in any branch of work is no light task, and can, in the limited space allowed, be at best but a cursory glance. The leading features of work, the most successful means used, and the most salient results can alone be touched upon.

1. In 1857, a few earnest women, impressed with the sense of the wide-spread ignorance concerning the laws of health, and believing by far the greater part of the debility, disease, and premature mortality in this country resulted from preventable causes, determined to make an effort to mitigate these evils. Twenty years ago, associations and societies did not crop up so readily as they spring into existence now. A conference on domestic economy had not been thought of, nor would it have been possible to enlist the sympathy of men and women in a subject about which so few knew anything, practically or theoretically. The sphere of domestic economy existed then in "Maggall's Questions," "Pinnock's Catechism," the "Guide to Knowledge," and among a limited number of practical housewives.

2. Health was a subject not recognised in schools; the study of the laws relating to this science is even now conspicuous by its absence in many, and was very little regarded by the general public. Since 1832, we may be sure that the nation has thought more of washing and setting its house in order than it had ever done before. The first extension of public interest on the subject of health must of course be attributed to the labours and writings of scientific men, medical and non-medical. The great discoveries of the last century as to the constitution of air and water afforded a standard of purity for those two prime elements in human health and disease hitherto unattainable. Little by little, as the writings of the scientific class filtered into public and private libraries, the attention of thoughtful men and women became more and more drawn towards inevitable deductions. There were many men who were in the advanced rank of sanitarians who realised the help that women might be able to render in popularising and extending sanitary knowledge, and these

stretched out a friendly hand when the scheme of the Ladies' Sanitary Association was proposed. But it was very uphill work before the little books now exhibited at this Congress became the household words with many that they are at present. One smiles now, but only a few years ago it was the prevailing belief that it was flying in the face of Providence to assert that suffering might, could, and should be prevented. The little tracts appeared. "The Worth of Fresh Air," "The Use of Pure Water," "The Value of Good Food," "How to Nurse the Sick," "The Health of Mothers," "How to Clothe and Manage a Baby," "The Power of Soap and Water," &c., had to be given away freely at first, in order to obtain a hearing for any of the subjects enlarged upon in these little pamphlets.

3. With an average yearly receipt of £350, the association has, since 1857, published 70 tracts, the titles of which tell their own tale; and these have served the purpose of that much-quoted "thin end of the wedge," so needful to be inserted when any new idea has to be presented, or evil to be attacked. It has been, of course, interesting and cheering to the women who have striven to distribute them widely, to hear what good little pioneers they have proved in neighbourhoods where health regulations were utterly neglected, and where learned works would neither have been welcomed nor comprehended. Edited by scientific men, but written in simple, homely language, so "that those who run may read," the publications of the association have had a circulation of nearly two millions. Many have been translated into several languages. Through their distribution efforts have been made to form sanitary associations in other countries. They are welcomed at hospitals, working men's clubs, lending libraries, mothers' meetings, and schools. Clergy of all denominations, Scripture-readers, City missionaries, Sisters of Mercy, Bible-women, sanitary missionaries, distribute them gladly, especially the Colporteurs' Society.

4. These unpretentious little books, too, have in their time influenced public opinion, and flagrant breaches of health laws have been rectified, and some fashionable vices have retired before them. For example, the paper on "Overwork" served to prepare the way for the beneficial action of the "Early Closing Association." "The Dance of Death" was very successful in calling attention to the use of arsenic in the preparation of ball dresses, flowers, and wall papers. "Dress and its Cost," pleaded somewhat successfully for the overtasked seamstresses, working very long hours in ill-ventilated rooms, and the present effort on behalf of shop-women, who suffer so much by the prolonged hours of standing behind counters, is procuring relief steadily, although so slowly.

5. The delivery of practical lectures on health, sanitary improvements, and domestic economy, formed a principal feature in the crusade against dirt, disease and unthrift undertaken by the association. More than 70 courses of lectures have been delivered, having for subjects, physiology, public health, gymnastics, chemistry, cooking, nursing. The first lectures to ladies on physiology and anatomy applied to health and education were given by Professor Marshall, at the request of the committee. Since then lessons have been arranged in all parts of London and delivered in all kinds of

places. "Lessons on Health" have now become a recognised institution, although at first they excited prejudice and suspicion. In the Home and Colonial and British and Foreign Schools, Ling's system of educational gymnastics was most successfully introduced, and Dr. Roth's efforts to promote physical education are well known. Drawing-room meetings, then as now, formed a convenient and attractive means of spreading a knowledge of those grand laws which claim from every philanthropist intelligent practical consideration.

6. The formation of branch associations in the provinces early engaged the attention of the committee. These have worked well according to their means and opportunities, and have achieved good results in many parts of the country. Day nurseries have been opened, houses cleaned, cleansing materials lent, clothing clubs formed, and out of one branch arose a company for building suitable dwellings for the poor. After the lapse of years, in most cases, these branch associations have subsided into humbler organisations, owing to their work having been recognised as important, and having been taken up by Town Councils, Boards of Health, parochial authorities, &c., as the area of sanitary operations grew larger. A refining influence by the culture and care of flowers has been widely spread, through the efforts made by the association in promoting window-gardening, flower shows, &c.

7. The establishment of the Destitute Children's Dinner Society arose from the endeavour of the committee to provide dinners for the little street children in Chelsea.

8. The sufferings of the poor children living in the close, crowded alleys and courts of London were a cause of distress to the association. Hence, park parties were arranged, that is, guides were paid to take out, in parties of fifties, some of the poorest children in London from the ragged schools, mews, &c. Music, toys, teas, dinners, even clothes where the need was great, were provided, and in this way 298,629 little ones have been sent out into the public parks for fresh air and recreation during the last 17 summers. The association, from careful observation, is enabled to state that these "park parties" have been productive of beneficial results. There is scope for the influence of those ladies who have time and inclination to spread a knowledge of Kindergarten games, in the supervision and direction of children in their playtime.

9. With the view of assisting in the formation of habits of personal and household cleanliness, from the branches of the Association have been lent baths, washing-tubs, pails, brooms and brushes, disinfectants, cooking utensils, and nursing appliances, while at the office of the Association were kept, for many years, patterns of garments of all descriptions, made and unmade. These were given or lent, and the various text-books on domestic economy, as they appeared, were adopted, lent through the library, and kept for sale and distribution. Also, when models and diagrams were not so commonly to be seen as they are now, the Association kept, for purposes of illustration and instruction, models of filters, drain-traps, ventilators, invalid cooking and nursing appliances, &c. All these things were needed to make

sanitary necessities and improvements known, for it is only within the last six years that sanitary exhibitions have been arranged.

10. It has been part of the work of the Association to appeal to public bodies for the amelioration of the suffering, the redress of grievances, the removal of abuses, and for the promotion of general education in relation to public and private hygiene. Continuous efforts have been made to obtain the recognition of the necessity for instruction in domestic economy being faithfully and thoroughly imparted to all classes of children. It has been possible to exercise influence through many of the members of the Association, a number of whom have materially assisted in the advancement and enlightenment of public opinion on this point. In many quarters, the Association has been successful in introducing into schools valuable text-books and manuals treating of domestic economy. Messrs. Jarrold, of London and Norwich, who have aided the Association in various ways, have only recently published one of the most readable, attractive, and voluminous volumes on this important branch of a woman's education, entitled "Our Home Work."

11. Feeling convinced that, unless the good seed be sown in childhood it is often never sown at all, the committee have attempted in the last little tract, "Our Schools and Public Health," to draw the attention of all engaged in training the young to the vital importance of teaching physiology and the laws of health, i.e., how to live.

12. By the gift of prizes for window gardening, cooking, needlework, swimming, gymnastics, &c., it has been the privilege of the Association to assist useful movements from time to time, and to form a bond of union between many, working in various ways, in different countries, under widely different circumstances, yet all linked together by the one common hope and intent with which this Congress meets, viz., by God's blessing to make possible, and to secure happier, purer, more intelligently-managed homes for England, and a healthier, more temperate, truer manhood and womanhood for her sons and daughters.

SANITATION IN DOMESTIC TRAINING.

By Edwin Chadwick, C.B.

Occupation in schools with lessons in cookery, and with exercises in household work, commends itself greatly to me as counteracting the evils of excessive sedentary occupation in the long-time common elementary and secondary schools. Six hours' sedentary occupation is for young children, and especially for female children, a violation of the laws of physiology—even if seats and reading-desks were so adjusted as to avert the spinal distortions and near-sightedness which are everywhere common amongst the long-time school children. As against these evils, which are of greater magnitude than is yet publicly known, the household service of a good kitchen affords, in the water-lifting, the pot-filling, the siding, and other bodily work, very salutary gymnastics. Our professors of gymnastics, McLaren and Georgie, could not find better exercises to counteract over-sedentary work for females than some of the exercises of the house-

hold—twirling the mop, for example. The late Mr. Robertson, surgeon, of Manchester, in his practice as a specialist in female diseases, found traces of disease, which there were not with women with no servant, begin with women with one servant, get more pronounced with women who have two servants, become worse with ladies who have three servants, and worse still with those ladies who had four servants. He showed statistically that the deaths from childbirth were four times greater in the latter class than in the former class. He traced their origin in Manchester in this way. Parents of a robust stock from rural districts came there, settled, and became rich. The robust mother then sent her daughter to a boarding-school. There the girl was kept to long hours of sedentary work, with little bodily exercise, and none if she were at home. She thence became enfeebled bodily, and subject to various disorders which her mother never had. In a second generation the conditions became worse. The train of disorders generated under these conditions were specially of the nervous class and the disorders of the digestive organs. A physician who was in perpetual attendance on a patient of this class, whose habits he could not alter, at last gave up the case, and told the lady that she must find some one else. "Will you leave me, then! Can you do nothing for me, Doctor!" she asked, in despair. "No, madam. I can only give you this prescription: Do as your mother did. Live on a shilling a day, and earn it." Evils of this sort are, I am informed, becoming widely prevalent amongst females in the cities of America. The train of disorders from deficient exercise are most engendered in the infantile stages, especially of girls, in the long-time schools. With the few, the evils are mitigated, though not obliterated, by horse exercise, by games, as by archery, by lawn tennis, and now by skating-rinks. I hope that the new vehicle, the tricycle, may be brought in aid. But the many are excluded from such reliefs. Moreover, a time appears to be approaching of a scarcity of domestic service that will necessitate domestic exercise of this sort amongst the young of a class of society who do not at present benefit by it. The evils are prevented at their source by more than one-half in the half-time schools, where, if well organised, as much teaching is given as is compatible with the powers of mental receptivity, and better given and better received; whilst, in the district half-time schools, the training in the work of the kitchen, in cookery, and in washing, ironing, and other non-sedentary occupations, restores the natural and salutary order of life, with a due proportion of exercise. Domestic instruction will meet with resistance as encroaching upon the time demanded by long-time school teaching. It should, however, be pressed, as preventing or reducing the great sanitary evil of over-sedentary work in the common long-time schools. Apprehensions are expressed that in giving domestic training, and instruction in cookery, and other objects to children; we are giving "more than their little heads can hold." The evil is, that in long time—six hours' daily book instruction—more is now given of a sort than those "little heads" can or do hold, and that the change on the half-time principle, and a reduction of the excess of book-teaching in the abstract by the substitution of the

concrete, is a relief, that gives them what it is proved practically they can and do hold and assimilate. As it is with the body, so it is with the mind—it is not what is eaten, but what is digested, that nourishes; and what we give on the half-time principle is received with an appetite and is the best digested.

BUILDINGS FOR WORKING MEN.

By Robert Rawlinson, O.B., C.E.,
Of the Local Government Board.

In attempting to treat the question submitted to me, namely, "Buildings for Working Men," I have not prepared plans either for sites or for buildings, as these would have necessitated details into which I have not had time to enter, and which I think this Congress would not have time to discuss. Each site may require special plans and special details.

Those whose duty it has been to inspect existing structures (I will not call them buildings) inhabited by working men all over the world, will, with few exceptions, find that they have been heaped or piled up out of the rudest materials and in the rudest forms. There has not been plan or thought to secure wholesome sites, and shelter in which health could be enjoyed. The results have been, and are, degraded populations and disease in excess.

Buildings for working men should be placed on appropriate sites, and should be constructed out of sound materials. The site should be dry, and should be within one mile of the place of labour, if this is practicable, or rail or tram communication should be included in the rent.

Plan.—As to plans, the site and surrounding conditions must in some degree dictate the plan. In a town where land is very dear the block plan may be adopted, as in the Waterlow, Peabody, and other similar blocks of model cottages, but where the price of land will allow of a more open arrangement, workmen's houses may be arranged in streets, but never in closed courts. The evils resulting from closed courts are many and great. There is not that privacy which is so necessary for family comfort; sunlight is excluded, and the circulation of air impeded; the children are an annoyance because there is no proper playground; and if there is one drunken, swearing, immoral family, all are liable to be tainted, all are made miserable. The evils resulting from court houses in towns has at length received legislative attention, and we have the Artisans' and Labourers' Dwellings Act, 1868, and the Labourers' Dwellings Improvement Act, 1875. Under the powers of this latter Act (which I do not need to describe to the people of Birmingham in detail), many existing evils will be remedied in towns and country. Structures in which disease is generated and paupers are grown, until the relieving officer pays more than the rent in out-door relief, may now be swept from the face of the earth, and on an improved site new wholesome dwellings may be erected, the old site being cleared, sewered, and made wholesome.

As Inspector under the Public Health Act, I have over and over again shown in my reports that court and cottage properties in towns existed,

the value of which was not more than from three to five years' purchase, and that, area for area, the rent paid for some wretched den of a common lodging-house was more than the cost of a similar superficial area in Buckingham Palace. I have also shown that the money paid by a relieving officer was taken for the rent of the premises which bred the disease and poverty designed to be relieved, and that it would be far cheaper for the parish authorities to purchase such properties, pull them down, and build wholesome residences where there should be a chance of morality and health. The Labourers' Dwellings Improvement Act, 1875, is, I am happy to say, the result.

The question as to whose duty it is to provide wholesome buildings for working men may be discussed from several points of view—political, social, moral, and economical. It may be stated broadly and as a truth that—

Firstly.—There is no value without human life. The fairest portion of this earth's surface can only remain a desert without inhabitants, and these must be working men.

Secondly.—Moral and healthy human life has the greatest value, and imparts the greatest value to all surrounding things, land, and houses.

Thirdly.—The value of healthy human life springs from labour. Hence, that country will be the richest in which active, useful labour most abounds, and is most prized.

A country cannot be great and powerful without working men.

Human life is the prime source of value, and it is human law which creates property. A nation is an aggregate of individuals, and, consequently, as are those individuals, so will the nation be. Socialism, in some of its aspects, is not pleasant to contemplate, and yet socialism is at the root of national safety. The individual must be cared for and provided for by combination; but the less a State has to do with social combinations and arrangements, the better will it be for the entire community. It is, however, the duty of a State to enact just laws, and so to make morality practicable, to maintain order, and to punish crime; and when the use of this word "punish" can be dispensed with, it may be blotted from our dictionaries, as, in some forms, punishing crime begets crime.

Houses as they are.—Man, as he advances in civilisation, must be clothed and housed, each operation involving labour and wealth. As society is constituted, individual men cannot provide independently wholesome houses; these must, therefore, be provided for them (so far, involving landlord and tenant). Free trade in house construction has not worked advantageously for the tenants, as the fearful evils found to exist abundantly prove. Hovel construction in rural districts has pauperised entire agricultural parishes, and the slums of towns are known to be seats of disease, as also haunts of crime and vice. Investigations have ascertained the facts, and reports have set them forth, and the remedy. Good buildings for working men must now be provided. What constitutes a good building for a working man?

The site must be dry, and must be capable of being sewered and drained. There are hundreds of sites in Great Britain which are damp, and

which also are so low as to be subject to flooding, and cannot be drained without pumping.

Good wholesome water should be available. There are thousands of cottages having no available water, but from an impure source.

Buildings for working men should be of sound materials—brick or stone—not mud, and, for several reasons, not of timber, though timber houses may in some districts be the cheapest; but there is the risk of fire, and they are subject to vermin.

Houses for working men should have sitting-room, kitchen, and scullery, and not fewer than three bedrooms. The meaning of the word "privy" should be realised. "Common privy" is a misnomer, and if more than one family is forced to use a privy in common it is likely to be abused, to become filthy, and to be neglected. Each workman's house, whether in town or country, should have a water-closet convenience. A sitting-room and best bedroom each should not be less in area than twelve feet square, and should have door, window, and fireplace.

In a workman's house no room should be less in height than nine feet from floor to ceiling, the window should be capable of being opened from the top, and there should be means for ventilation from the ceiling. As houses are at present constructed, no care is taken to preserve the spaces betwixt (underneath) the ground and the floor or the ceiling and the floor clean, but rubbish and shavings are left in to breed vermin and aid fire if one occurs. Thousands of workmen's houses in town and country are placed on improper sites because the land is cheap. The place may be a swamp; or, worst of all, a mass of (privy) refuse filled in over old brick-yards; or, a mass of chemical waste. A use of all such sites should be forbidden, and their occupation be prevented.

In workmen's houses it will not be practicable to give each house every necessary convenience, such as accommodation for washing, drying, ironing, and mangling.

The establishment of baths and washhouses has shown what may be accomplished in this direction; and, in place of building costly places (baths and washhouses) which are necessarily isolated and at long distances from working men's families, they should be small, compact and multiplied over the entire inhabited area—a bath and washing establishment for, say, each fifty houses, that is one on each acre of town area; if for twenty-five houses all the better. Such an arrangement would be of more practical use than adding an additional room to each workman's house.

In the country, workmen's (labourers) cottages may have garden allotments.

The most comfortable and wholesome arrangements of workmen's houses in towns will be in streets, the houses on plan having front and back room, scullery, water-closet, and yard. The front street should be not less than 30 feet in width, the back street not less than 18 feet in width. There may be about 50 such houses on each town acre, having a population of 250.

Cottages in the country should not exceed 25 to the acre, having a population of 125.

Model houses, in blocks, will of course occupy much less space, and accommodate greater numbers.

Narrow streets, narrow courts, and narrow back passages in towns accommodate more tenements, but at fearful cost to health and morals, as may be witnessed by any person who will visit and inspect them. I have inspected, measured, and tabulated such dwellings in many towns, the remembrance of which is but as the remembrance of a nightmare. To reach some inhabited court houses, I have had to press in edgeways.

Museums, fine-art galleries, reading-rooms, and libraries have been established. Markets, slaughter-houses, and baths and washhouses have been erected, and in some instances to an extent not required, when things of more pressing need have been neglected. Museums, fine-art galleries, and statues may abound, as in Continental towns, in the midst of unsanitary streets, undrained houses, and undrained pestilential suburbs. The unit man has not been considered in his dwelling. The outside of the platter has been cleansed, and the sepulchres are whitened, and the world has been contented to admire and praise the magnificent cities. We shall learn in time that a clean city or village of plain but wholesome houses and cottages is relatively of more value than an unsanitary and overcrowded city of palaces.

Recapitulation.—Human life is the only source of wealth, and is, consequently, the one thing having most value. Healthy human life has the greatest value, and therefore deserves such attention as will secure health to the entire population.

Defective house accommodation and defective sanitary arrangements have tended to produce disease in excess. It has been learned by experience, and found upon inquiry, that in overcrowded (and ruinous) parts of towns, where the sexes are massed together, there disease, vice, misery, and pauperism are found, the rate of mortality ranging up to 150 per thousand.

Working men cannot, under existing circumstances, build their dwelling-houses, but must inhabit such places as are available, the results being, when driven into crowded courts or ruin-tenements, that health is lost, premature death removes the father, and the mother and children go to the workhouse. If, therefore, working men must have houses provided for them, in which health and moral order can be secured, it must be the duty of the municipality to see to this, and of the State to aid the local authority.

The strength of a nation is not exclusively in numbers, in personal accumulations of wealth, or in trade and manufacture, but rather in a free, healthy, self-supporting, religious, truthful, and working population. Wholesome buildings for working men are therefore at the root of a nation's power and endurance.

APPENDIX.

Artisans' and Labourers' Dwellings Act, 1875.—List of places in which the Act has been adopted. The Metropolitan Board have prepared nine schemes of improvement, as under:—

1. Whitechapel and Limehouse scheme for the construction of 1,077 tenements, to accommodate 3,600 persons.
2. Bedfordbury, St. Martin's-in-the-Fields.
3. Drury-lane, Prince's-street and Great Wild-street.
4. Pear Tree-court, Clerkenwell.

5. Whitecross-street, Golden-lane, Blue Anchor-alley, &c.
6. Philharmonic Theatre, High-street, Islington.
7. St. George-the-Martyr, Southwark, and district.
8. Old Pye-street and St. Ann's-street, Westminster.
9. Certain areas in Whitechapel.

The eight schemes (from 2 to 9) embrace an area of about 24 acres, having a population of about 15,000, or 625 persons to the acre. The buildings must of course be in flats.

Provisional orders have been obtained to put in force the powers of the Artisans' and Labourers' Dwellings Improvement Act, 1875, in Birmingham, Swansea, Nottingham, Liverpool, Norwich, Walsall, and Wolverhampton.

In each of these towns old or objectionable buildings are to be taken down, and new buildings for working men are to be erected under regulations as described, namely:—New main streets will be 36 ft. in width, and will be properly sewered. There will be footwalks 6 ft. in width on each side.

Plain, substantial, roomy cottages, ventilated on two sides, are to be built. Each cottage to have two ground-floor rooms, and two bedrooms, with fire-places.

Each house to have a separate and distinct convenience, with a dust-bin to each pair. Each house to have a separate yard, a separate drain and water supply. The backs of the houses to be from 36 ft. to 41 ft. apart.

House-room, cubic space per head, 1,140 ft.; sleeping-room, space per head, 520 ft.

The cost of the new houses will be from £200 to £250 cash. The rent may be from £10 to £12 per annum.

In Liverpool, court houses have been erected, at an expenditure of less than £100 each, as many as 200 being placed on one acre, containing from 1,000 to 1,500 persons, as lodgers are accommodated. Disease in excess has been a consequence, the deaths having been five or six times more than ought to have been allowed. Most of these courts have been erected within the last forty years, and the Corporation found it necessary not only to stop the erection of such houses, but, under the powers of a special Act of Parliament, to provide for the clearing away such courts, by purchasing half the houses and pulling them down; and now at length the obligation to erect proper houses for working men is nationally and municipally recognised. Sanitary acts, inquiries, and reports, have, through the earnest labours of Lord Shaftesbury, Edwin Chadwick, C.B., and others, come to fruition.

HOUSE DRAINS IN RELATION TO HEALTH.

By Dr. Alfred Hill.

Medical Officer of Health for Birmingham.

Any system of domestic economy which omits the question of the purity of air of the dwelling, and more particularly of that species of impurity which is derived from excrementitious matters, must be pronounced seriously imperfect. Indifference, but more particularly the ignorance which begets it, with regard to this matter, brings sickness and sorrow into many homes, and leads to the sacrifice annually of many thousands of lives. It is a deep conviction of the importance of this

subject to the comfort, health, and even existence of the domestic circle that has prompted me to contribute a few remarks upon it to the members of this Congress of Domestic Economy.

Every subject on the programme of this Congress is more or less intimately connected with the promotion and maintenance of health, and to none is it more important to pay attention than that of this paper. It is so difficult to excite attention to intangible objects like the atmosphere or the air of a drain, particularly when it is invisible and often not easily perceived by any of the senses. The present occasion, bringing together as it does so many intelligent thinkers and zealous workers in the field of sanitary science, appears to me a specially favourable opportunity for calling attention to this question, and so making it a starting point, a centre from which the subject may radiate and become one of those embraced by the physiological and sanitary teaching in schools and other educational institutions.

A house drain may be defined as a tubular channel, communicating at its one end, either directly or indirectly, with the waste and soil pipes of the house, and at the other end with the sewer; and, as these three portions really form one commonly unbroken system, it is necessary, in considering the question of house drains in relation to health, to include each portion of this triple arrangement.

The introduction of this subject is justified by the very marked effect drain air can and does exert on health, and the little regard that is paid to this fact by the majority of persons. Medical men, sanitarians, and a few others instructed in hygiene here and there, are all of our great population who ever give a thought to this question, or take a step in regard to it; yet there can be no doubt that that terrible disease typhoid fever, diphtheria, and other zymotics are caused by, and propagated through the medium of, drain air. My own observations of the state of drains in this town prove to demonstration how drain air and certain forms of disease stand to each other in the relation of cause and effect, and in this respect my experience only confirms that of other observers. At the present day, indeed, probably few persons could be found to dispute this statement. The general question may be considered under three heads:—

1. Absence or deficiency of drains.
2. Defective drains.
3. Properly constructed drains.

1. *Absence or Deficiency of Drains.*—A reference to the Report of the Inspections of the Medical Officers of the Local Government Board in 1873 shows that, in a considerable number of the 27 inspections made in towns, and some hospitals and asylums, in different parts of England and Wales, which were the seat of typhoid fever, diphtheria, general zymotic diseases, low type diseases, and a high rate of mortality—in some cases increasing year by year—drains were entirely absent.

The effects of sewer or drain air, or of the gases emanating from surface impurities of excrementitious origin on health, vary according to circumstances. Such air may be so diluted by good ventilation as to be perfectly harmless; often it possesses no disagreeable odour, and is found to cause no inconvenience to persons who

spend a great part of their lives in sewers. At other times, where there is an absence of proper ventilation, the air of the same sewers will be found highly offensive, and will suddenly asphyxiate and kill. But the more usual condition of sewer or drain air is one between these two extremes, and inhalation of such ordinary non-infected sewer air for any length of time produces a variety of symptoms, from *malaise* and debility to disturbance of the digestive organs and low fever. It is believed also to aggravate many diseases which owe their origin to other causes, and to impress upon them a low type. When specifically infected by the poisons of typhoid, &c., it has the property of communicating these diseases.

The absence or deficiency of drains and sewers implies the collection of filth on the surface of the ground, or in cesspools, or in dumb wells, or all three. Persons living in houses so circumstanced have frequently been known to suffer from typhoid fever and similar diseases. It might be suggested that probably polluted well water acted as the true cause in these cases, knowing as we do how readily the disease is propagated through the agency of water, but this objection is disposed of by the fact that the introduction of proper drains and sewers has immediately been followed by a disappearance of the disease. The town of Calstock affords a good illustration of the view here stated. Before it was drained, it was subject to constant visitations of typhoid, but after it had been drained, the visitations ceased. Where excrementitious matters are mixed with the soil, as in agricultural operations or in the earth-closet, they are rendered harmless, but where they are permitted to lie on the surface, more particularly in confined situations, they appear to impart to the surrounding atmosphere a quality resembling that of the dumb well, or a sewer, in which cases the absence of drains has the effect of inducing diseases similar to those caused by the breathing of drain or sewer air.

That sewer or drain air is capable of producing illness has been proved in a thousand instances. I well remember a case in my own practice some years ago, where a man, assisting in the opening of a choked drain, was suddenly attacked with vomiting, diarrhoea, colic, and subsequent low fever; and it is easy to understand that the more gradual introduction of such gases into rooms, even if much diluted, will produce symptoms of a milder type. Hence the danger of—

2. *Defective Drains.*—Defects of drainage in towns are more numerous as would be expected than cases of non-drainage, the result being, however, much the same as regards the effect on health. If any doubt existed on the matter, it would be set at rest by an occurrence in my own house some years ago. On returning home about six o'clock one evening I perceived the house to be full of what I had no doubt, from its odour, was sewer-gas. A sink for washing glasses, &c., in the pantry proved to be the point of entrance, and the current of incoming air was so strong that it extinguished a candle held above the orifice of the drain pipe, which proved not to be trapped. There was no evidence that the sewer air coming in was infected, for it produced no specific disease, but, like common sewer-gas, it produced nausea and vomiting in several members of the household. The defects

may be of various kinds; the drain may be unventilated, or insufficiently or inefficiently ventilated; it may not admit of flushing; or there may be imperfect trapping, or no traps at all, at sink and other openings near to or in the house; or there may be an accidental leakage through the soil pipe in the house. The serious effect of even very dilute sewer-gas and similar emanations on personal health would scarcely be credited except it had been witnessed. In illustration of this I will state to you another case as it occurred in my own house about three years ago.

In order to save the housemaid the trouble of carrying the bedroom slops downstairs, I had set up in the bath-room a sink for their more ready disposal. The pipe from this sink, which was trapped, was only about 3 ft. long, passing through the wall and opening in the outer air freely into a larger descending pipe, which itself terminated above the ground over one end of an open channel which ran about 8 ft. or 9 ft. to a trapped drain. With these breaks of continuity, and other safeguards, no gas from the yard drain could possibly find its way into the bath-room; there was, however, a weak, but unsuspected, link in the chain, and it was this, the overflow pipe of the bath was made to communicate with the 3 ft. pipe from the slop sink, at about 2 ft. before its termination. In about ten days after the arrangement had been in operation, the person who slept in the room adjoining the bath-room was seized with a very mild yet persistent form of diarrhoea; the servants, also, near the bath-room followed next, and in a day or two every person in the house, except one, suffered in the same way. What seemed remarkable, but is very natural, is that the intestinal disturbance was always greatest in the morning, i.e., after every one had been exposed to the action of the gas all night in the shut-up house. The attacks being so general in their incidence, so persistent in their character, and intensifying with time, I felt sure that some common cause was operating, although I had no suspicion of its precise nature. I knew all the drains were carefully trapped, that no drain passed under the foundation, that there was no water-closet in the house, and no nuisance of any kind was perceptible.

It never occurred to my mind to suspect the short waste pipe which conveyed away the bedroom slops, till one morning, sitting thinking about the matter, I determined to go and examine it. There was nothing to be detected in the sink itself, but on placing my nose close to the overflow pipe in the end of the bath, which I have already said communicated with the sink pipe, I detected the faintest possible urinous odour. The whole matter was now intelligible; the very slight quantity of organic matter adhering to the sides of the sink waste pipe, after use for only about a fortnight, was undergoing gradual decomposition, the gaseous products of which were borne imperceptibly into the interior of the house, by a gentle current generated by the warmer temperature existing there. I immediately stopped the bath waste pipe with a cork, and, as if by magic, the diarrhoea ceased the same day.

If a minute quantity of gas, the result of the decomposition of what may be called healthy organic matter, enormously diluted with atmospheric air, can produce such results as I have des-

cribed, it is easy to understand what may be the effect of a larger quantity, less diluted, of a similar gas; and if we further reflect on the nature of the cholera and typhoid poisons, as far as we are acquainted with them, we shall have no difficulty in understanding one of the conditions of propagation of these and similar diseases, and realising the still more serious effects which may be produced by their inhalation.

In the discharge of my official duties, the fact of the connection between gaseous emanations and sickness is daily forcing itself on my attention. In most cases of zymotic disease into which I inquire, I find defects which may account for them. To give a few illustrations, I examine a respectable house where there has been a case of diphtheria; it is new, clean, well ventilated, supplied with good water, and is apparently everything that could be desired; but the kitchen sink is in direct communication with the sewer, and the sink being furnished with a moveable bell-trap, which, when in place, is of little use, but is often not in place, there is a frequent entrance of foul air, not only from the drain belonging to this particular house, but from the common sewer, the receptacle of all the drains in the neighbourhood, and of the specific poison of these drains, if they happen to contain any; and on emergency, one learns that frequently a disagreeable smell is perceived in the kitchen.

The same history, with modifications, attaches to nearly all the cases investigated. At one time there is, or has been, a leakage from the soil pipe of the water-closet which has saturated the ceiling and walls; at another there is an entrapped or imperfectly trapped drain, close to the back door; at another there are traps, but they are of an useless kind, either broken or dry, literally "traps for the unwary;" in another the disease, be it diphtheria or typhoid, is in a house with a wet reeking ashpit only a few feet from the door and window, or with a similar ashpit placed against the side of the house, the liquid contents of it soaking into the walls and cellar, and so making the house damp as well as impure. In other cases the sewers, during times of flood, in low situations, discharge their contents into cellars, and such a property will constitute for a time a constant habitat of typhoid fever. These latter conditions are very common in courts, and it is most remarkable that out of a dozen or more houses in a court, the one where there has been zymotic illness is that particular house which is most exposed to the insanitary conditions named. Either want of drainage, or imperfect drainage, drains entirely external to the house, or connected with its interior, may then exert a serious effect on the health; but it is more particularly the question of drains perfectly constructed and properly connected with houses, upon which I wish now to make some remarks. Premising that the private drains are properly connected with the public sewer, a description of the drawings upon the wall will explain the sort of arrangement necessary to protect the occupants of a house from the ill-effects of sewer or drain air.

The first drawing shows the disposition of overflow and waste pipes, they are quite distinct from the soil pipe, and they are, as far as possible, outside the house. The water-cistern, if one exist,

is not in direct communication with the waste-pipe, and all the pipes discharge either upon or near a grated trap, and so are effectually cut off from the interior of the drain, the gas of which might otherwise enter the house, or contaminate water supplied from the cistern. The bath is further protected by a plug and syphon bend, and the sink by a bell trap, which must be non-removable. It would be an advantage to protect sink-pipes further by a syphon bend, since an in-current of air would occur if the bell trap should by any chance become displaced. Such an in-current is charged with impurities collected on the sides of the pipe itself, which, besides being offensive, are, doubtless, dangerous.

The second sketch represents the mode of arrangement of water-closet soil pipes, by which sewer or drain air is prevented gaining access to the interior of the house through the water-closet. To begin at the distant end of the system, the sewer in the street is to be properly ventilated by a sufficient number of openings at the surface of the ground, by which undue pressure upon drain traps is prevented, and the first danger of the entrance of sewer-gas into the house is obviated. These sewer ventilators are provided by the Corporation.

The next point in the arrangement is situated on the house premises, and consists of a syphon-bend of a peculiar disposition and pitch, and a ventilator with moveable grating, to admit of easy flushing and removal of obstructions should they occur. The entrance of sewer-air into the closet is still further opposed by the syphon trap connected with the soil pan. Danger of absorption of injurious gases, or of pressure of sewer-gas upon the water-valve or the soil pan in the closet, is further obviated by the connection of the wide soil pipe, which, it is to be observed, is outside the house with the ventilator, and the ventilating cowl or mere opening at its upper extremity. In order to prevent the admission of impure air into the house from the closet itself, the closet should constitute a projection from the body of the house, and between them there should be a lobby, admitting of cross ventilation by means of a window on each side. This arrangement is best seen in the plan.

The third sketch shows the arrangement of waste and soil pipes outside the house, and, by the dotted lines, their relation to the bath-room and water-closet.

The question of properly draining houses and premises is one of such extreme importance to health, that where, on inspection, it is found necessary to either construct or reconstruct drains, I am of opinion that it is not sufficient to merely require of the owner that the work should be done, but that it should be done under the direction and supervision of a competent and responsible officer of the sanitary authorities.

The peculiar dip and arrangement of the pipe were, I believe, originally suggested by Dr. Buchanan, in his Report on an Epidemic of Enteric Fever at Croydon, in 1875; they are a great improvement on the common mode of trapping drains. With the abolition of bell traps, avoidance of traps under dwelling-houses, and the adoption of such an arrangement of overflow, waste, and soil pipes as I have described, there is little cause to fear the entrance of injurious gases,

and there can be little doubt that its adoption generally would have the effect of diminishing, to an enormous extent the occurrence and fatality of low type and preventible zymotic diseases.

THE APPOINTMENTS AND APPEARANCE OF THE WORKMAN'S HOME.

By Frank Curzon,

Organising Secretary of the Yorkshire Union of Mechanics' Institution.

If the school is to do its work efficiently, that work must be assisted and carried forward in the home. Our modern schools are now—thanks to the wise economy of more generous financiers—commodious and cheerful. The homes from which our children come to, and return from their school, are generally in the most dreary and dirty contrast. Is it not worth our while to spend a short time in considering how this can be remedied?

Now, in nearly every considerable town in England the workman's home may be sketched in a few painfully truthful lines. In a back street, or a dark, crooked alley or yard, sometimes in a damp cellar, often in a garret without ceiling, and, when better off, occupying a couple of rooms in a second or third floor, a family group of six are lodged. There is no chance of dividing the rooms into distinct uses. Where they eat their meals half the family must sleep. As they rise to their early labour, those who work away from home take their food with them for the day, whilst the mother and the younger children, who remain behind, scramble through the day from meal to meal, often unwashed and half dressed, until the return of the bread-winners, whilst for this accommodation in the heart of a populous and overcrowded city the rent of a cottage is frequently paid. And on the father's return, when worn with his day's work he comes "home," what is the scene which commonly presents itself? The wife, loyal and loving as she generally is, has never received an hour's training on home-duties. The little money she has to spend might have gone twice as far as it does, but ignorance, credit, and the influences of the neighbourhood, have made her the prey of the pedlar, the pawnbroker, and the publican. The husband, who should be anxious to fly to his home, is ready to fly from it. The unsoured floor has no carpet, save when the last rag of it does duty as a hearth-rug; by the rusted fender, which encloses an unswept hearth, stands the inevitable cradle, in which a crying child kicks about the scanty litter of dirty clothes; from the damp walls droop some common prints, the exaggerated horrors of some sensational periodical; whilst on the high mantel-shelf stand the hideous monsters of the cheap market, which decorate so many chimney-pieces in our workmen's homes. The one meal he takes at home during the week—his tea—is spread upon a dirty table, without cloth and without tray. Nothing is done to make it look decent, whilst taste is never thought of, and here the family meets once every day, when everything should be done to make the meeting a pleasant and kindly remembered one.

Do you wonder that, from this scene of waste, and dirt, and disorder, the man rushes into

the street again, passing by the temperance missionary, who, earnest and zealous as he is, has no amusement to offer for the workman's leisure, and often not even a room in which he may spend a couple of hours comfortably? Do you wonder that the public house at the corner, bright in its colour, lively in its company, should offer an irresistible charm to the homeless workman; and do you wonder that the wife, robbed of her husband's society, should, as she enters the grocer's shop—remember, that there, too, with its license—she may buy her glass of oblivion, or dream of the home that, as a girl, she once wished for?

Now let us turn to the practical and easy remedy for all this. First of all, let the education of our youth of both sexes embrace the fullest knowledge of the laws of life and the duties of home. At the earliest period let the child be taught to regard the body as the shrine of the soul, to be kept unsullied and inviolate. Why should they not be taught the minutest details of the wondrous machine, with its delicate tissues, its powers, and its processes, they are to carry about with them all their lives? Why should they not learn their first idea of their Maker from that glorious creation which is to give us so much pleasure if well treated, so much pain if neglected or dishonoured. And will not this lesson be carried to the home? Will the child not soon learn that, even at that age, the little missionary may do somewhat towards Christianising the household, whilst, for itself, its first lesson of self-reliance shall have been learned too? Then, having been taught the meaning of "the life" that is in him, of the future that is before him, of the faculties and powers entrusted to him, his earliest earnings will have a new significance. Money will not be an "end" but a "means" with him.

Close at hand, if the people of the district are alive to the wants of the age, will be found his penny bank. We have in our Yorkshire Penny Bank 430 branches, with an annual deposit of half a million, where, by far the largest number of depositors are children. And when he gets a little older, the home he, by this time, has learned to wish for, dawns upon him. The building society opens his doors to him and realises the vision. Let us suppose that at 18 years of age he lays by five shillings a week. It is done in the North of England in thousands of instances. At 25 he will have accumulated a little capital of £106 to take the average profits of these societies. This will give him about half enough to build a house for himself, and any society will most cheerfully lend him the £100 more. From 25 to 30 years of age he will—to repay this £100 capital and interest, have 10s. a week to pay, which he may call "rent" if he likes, only that he pays it into the building society. But that is the only rent he ever pays. From 30 years of age for the rest of his life his house is his own, and his wife's. His wife, for I suppose that at 25 or thereabouts, he marries, and that he has chosen for his wife a young woman to whom the world has in the way of education given equal chances. And this is supposing a great deal, for it is not yet the case.

Unpractical as much of the education for boys is, for the girl it is worse. Nobody teaches the boy how to write, or even how to address a letter, or to do any part of his future life-work in warehouse, counting-house, work-room, or shop. But

the girl is, as a rule, taught nothing to fit her for the home or the world. She can scarcely make, unaided, a pudding, a shirt, or a bed. She can neither keep her husband's accounts, nor gracefully or neatly conduct her own correspondence.

But I am to suppose that this Conference is to bear fruit, and that the girl shall have some sort of training to fit her not only to be "the servant" of her husband, in which direction we are travelling far enough, but to be his life-companion—understanding somewhat of her husband's work in life—yea, and even sharing in his studies, and preparing for the higher duties of a moral and intellectual motherhood. And the home he is to bring her to, the workman's home, is to cost about £200. The home I sketch may certainly be built for that sum, and, if many are built together, for less. First, for its situation. Not, certainly, in the heart of a crowded town; his early experience has taught the workman what that means; but some half-a-dozen miles from his work, in a clean, bright district, if nothing more, and where the railway gives him a cheap workman's pass. It is to have a little ground about it, a decent plot of grass in front, a small yard behind, where the out-buildings are compactly arranged on the best sanitary principles, at a somewhat higher cost than usual, because what you have to economise here is not money, but health and life. The house should have five rooms, two below, three above. The rooms below should be—a living room behind, a bright kitchen, with covered sink, low mantle-piece, ample cupboarding, a range, which Mr. Buckmaster might approve, an immovable stone fender, a good wood floor, well excavated beneath, a broad window. The front room should be "the Sunday room" (I like the word), where a part of "the Day of Rest" should be spent. A bay-window, very little dearer than the other, should give scope for a window garden, the cottager's conservatory; and who that has looked into these greenhouses of the poor, but must have noticed with what care the pendant bells of the fuchsia, or the bright blossoms of the red geranium, have been nursed by those to whom the window garden is so full of pleasant memories of sunnier hours.

I would not have one bit of paint about the place. The honest grain of the wood should tell its own tale. Polished granite, if you like, from Devon, for that one chimney-piece, but for the side-board, the window mounting, the door, the wall-casing—the beautiful grain of our native woods, which we so often slander by varnished substitutes. Both the rooms on the ground floor should be twelve feet high. And there should be a decently broad entrance passage. Better the parlours a little smaller than the entrance unhealthily contracted. This passage should run from front to back, and form the lungs of the house. Upstairs the workman is to have three rooms, one in front over the best room, for himself and wife, and two over the kitchen or living-room, to separate his children; and all three rooms should be ten feet high.

And now one word of modest suggestion to the architect. If what is called "Gothic" be the style chosen, let it err on the side of simplicity. Let there be no ornament "stuck on" to give relief. The windows—the eyes of the house—should

have eye-brows; the doors, protecting arches for shadow; beyond this there should be nothing that has not a distinct meaning and use.

I do not suppose it necessary here to say anything about what has been so well and wisely enlarged on, in reference to drainage. We kill thousands every year by cheap building, and have at last learned how malaria and typhoid find their victims.

But I have a word or two yet to say about the decorations of the house. I take it for granted that the best room has its piano—the workman's piano. In some of our Yorkshire villages at least every third cottage has one, and I know one village where, in the three hundred and twenty houses, I could count at least one hundred and fifty musical instruments of one kind or other, and all in frequent and skilful requisition; and where, too, the voices are so trained and developed that "The Messiah," or "The Creation" can be rendered with credit and taste.

I should like to say something about curtains, and counterpanes, and carpets. Why should it not be part of the child's education to have his eye taught the harmony of colour? In our Kinder Garten schools this is not only possible but easy. Why should our gaudy carpets, our loud counterpanes, our coarse designs, fall to the lot of the poor? The room they have is so circumscribed, and their means so limited, that the quietest patterns, the chastest designs, and the most harmonious hues should be theirs, for they have them for their lives. No caprice of fashion can be followed by them, and, therefore, would I have the decoration of bed, and window, and hearth, as delicate and dainty as their money could purchase; and a great many very pretty things are cheap enough. A few shillings would replace our white and gold griffins with tasteful statuettes in plaster. Good engravings of our best masters are within reach, and they are far better than florid chromo-lithographs; a half-dozen busts of the workman's friends might be bracketted here and there, and Burns the ploughman, Shakespeares the woolsorter, Stephenson the collier, give him silent counsel.

In one recess his library should stand. I wonder why Smith, or Cassell, or Collins, have not thought of grouping an alternative library for the workman, in which a good History of England, a good summary of our literature, and a full dictionary, should form a part. This would be a permanent decoration for the house, and the reference library for husband, and wife, and children. And these grouped books—if the booksellers could only see their way to it—might range from three to twenty pounds. And the means for all this? It is the very easiest part of the work. With the preliminary culture, with the training of eye, and hand, and head, in our primary schools, would come such a love of what is pure, and sterling, and beautiful, that five and twenty per cent. of the workman's wages would no longer be spent in drink. Fifty "South Kensingtons" would stud the land. In every museum the quarter-hour lecturers would be placed, to give the dry bones life. Our window gardens would lead to our field clubs, and you would, in thus looking to the appointments and appearance of the workman's home, be making of every home a centre of action in which

to look for the steady and continuous advancement of the people.

WARMING AND VENTILATION.

By Capt. Douglas Galton, R.E., C.B., Hon. D.O.L., F.R.S.

There is, perhaps, no subject connected with the economy of the dwelling which has so great a range of importance as that of warming and ventilation. It involves health, comfort, and expense. Ventilation is the science which enables us to regulate the purity of the air within our houses, by renewing our supply from the outside; and the problem of ventilation includes a consideration of the degree of purity possessed by the outside air, as well as of methods by which fresh air can be most advantageously admitted into, and vitiated air removed from the house. In its broad sense, therefore, ventilation should determine the site on which the dwelling is placed, as well as its form. It will also be apparent that, since the temperature at which fresh air is admitted influences the mode of admission, as well as the quantity and quality of the air, and its effect upon the individuals submitted to its influence, a consideration of the degree of warmth to be given to the incoming air is necessarily a part of ventilation; the temperature of the air is of especial consequence. Whilst we incessantly require air for the purpose of nourishing us, we also require it for regulating our temperature, or cooling us down.

The quantity of air inhaled and exhaled by an adult, in 24 hours, amounts on an average to about 360 cubic feet, or 2,000 gallons. What we take in and give out during 24 hours, in the shape of solid and liquid food, occupies, on an average, the space of $5\frac{1}{2}$ pints, which is equal to $\frac{1}{1000}$ of the volume of the air passing through our lungs. But this food, and the oxygen of the air which we take in, is necessary for keeping in activity the chemical processes which are bound up with life; and one of the conditions necessary for the proper performance of these processes is a definite temperature.

This uniform temperature of the organs is an essential condition of man's life. The blood of the negro in the torrid zone, at its hottest period, is not one-fifth of a degree warmer than that of the Esquimaux, in the coldest time of the year, in the highest latitude. It is always $99\frac{1}{2}^{\circ}$ Fahr.

The chemical processes going on in man produce and give off, on an average, in 24 hours, about 12,000 caloric units. A caloric unit is that quantity of heat which will suffice to raise 1 lb. avoirdupois of water, 1° Fahr. Thus the heat produced in one day, on an average, by a human being, would suffice to warm $7\frac{1}{2}$ gallons from freezing to boiling point. Of course this varies with the individual as well as with the food and muscular exertion. It follows that the heat of the body is continually being lost. It is lost, 1st, by radiation; 2nd, by evaporation; 3rd, by conduction.

The loss by radiation and conduction may be exemplified by considering the cold feeling produced on entering an unoccupied house in cold weather, for as radiation is stronger in proportion to the difference of temperature between adjacent bodies, therefore, when the walls of a room are cold, the effect on the occupants is more sensible.

As a further illustration, the rapid conduction of iron makes iron railway carriages so unbearable in winter. When the different parts of the human body are exposed unequally to loss of heat, we often say we feel a draught, and injurious effects, such as catching cold, ensue.

The loss of heat experienced by evaporation will be understood from considering the cooling effect on the human body of wind or air in movement, which increases the evaporation on the surface of the body. It follows that when the air is changed in a confined space, if we are to avoid disturbing the temperature of the space ventilated, it is necessary that the temperature of the inflowing air should be regulated.

The quantity of air required in ventilation is governed by the following considerations:—

In the process of breathing, the air thrown out from the lungs is deteriorated, the oxygen it contained is diminished, the carbonic acid is increased, a quantity of watery vapour is produced, and a considerable amount of suspended matter is set free, consisting of organic matter thrown off from the body, which assumes a more or less active condition of putrefaction.

Nature has provided in the atmosphere unlimited extent and constant means of purification and of movement. The average movement of air out of doors must be understood, in order to have a correct idea of the real difference between being in a room or in the open air. In our temperate climate, the velocity at which air moves amounts on an average at about 10 ft. per second; that is to say, at 7 miles per hour. Imagine a frame of the height and width of a human body, which may be assumed to measure about 6 ft. by $1\frac{1}{2}$ ft., or 9 sq. ft. If this is multiplied by the average velocity of the air, it will be found that in one second 90 cubic ft., in one minute 5,400 cubic ft., in one hour 324,000 cubic ft. of air flow over one person in the open air.

In houses these natural conditions are interfered with; the air is enclosed in confined spaces, which allow it to become saturated with impurities, and render it stagnant. Those dwellings are the most healthy in which the natural conditions of the atmosphere are most perfectly preserved.

Chemistry tells us that at least 200 cubic ft. of air per hour is required by a human being, for the mere purposes of diluting the carbonic acid and water given off from the body to the same standard as they exist in the atmosphere itself.

But this mode of stating the case takes no cognisance of those aerial poisons eliminated from the skin and lungs, and which in stagnant air are perfectly cognisable to the senses, even after the air has been diluted to the extent mentioned. Indeed, the object to be served by ventilation is primarily the dilution and removal of these poisonous exhalations, and if this be secured, the carbonic acid and water will be removed at the same time.

If it were desired to supply in a room a volume of fresh air comparable with that supplied out of doors, it would be necessary to change the air of the room from three to six times in every minute, but this would be a practical impossibility; and even if it were possible, it would entail conditions very disagreeable to the occupants.

It is thus evident that, in considering the condition of air indoors, we have to seek a standard

of admissible impurity in the air, rather than a standard of purity of air, comparable with what we have out of doors.

In judging of the amount of impurity which may be allowed in an inhabited air space, the sense of smell, when carefully educated, affords the best indicator of the relative purity and impurity of different kinds of air.

The volume of air which is required to maintain the air of a room at a uniform standard varies with the character of emanations given out by the occupants of the room. For instance, the emanations given out by sick persons, and especially those from bad surgical cases, require for their dilution a greater volume of air than is requisite in the case of healthy persons.

Calculations have been made which show that, theoretically, about 3,000 cubic feet of fresh air per hour per individual should be afforded to preserve the air in a confined space at the required degree of freshness; but, in our climate, a careful practical examination of the condition of rooms in barracks and hospitals, judged of by the test of smell, shows that arrangements which appear to provide for a much less amount than that obtained by theoretical calculation, will keep the air of rooms in a fair condition. These results have pointed to about 1,200 cubic feet of air per hour per individual.

It is very difficult, however, to obtain any accurate measure of the exact quantity of air which enters or passes out of a room. The conditions under which the air flows in and out of a room are so varied. The walls and ceiling themselves allow of a considerable passage of air through them, which is proportioned to the difference between the temperature outside and inside a house, and varies with the materials of which it is constructed. Thus, ordinary bricks are nearly twice as pervious to air as sandstone, and plaster is much more pervious than brick.

If you look at the ceiling, you will see that an old ceiling is blackened where the plaster has nothing over it to check the passage of air, and that where the joists come, and the air has not passed so freely, it is less black. If you break the plaster, you will find that its blackness has arisen from its having acted like a filter, and retained the floating particles of dirt while the air passed through.

Ill-fitting doors and windows allow of the passage of a considerable quantity of air.

In a temperate climate, where the changes of temperature of the outer air are rapid and considerable, these means of producing the outflow of air from, and the inflow of air into, a confined space are in constant operation.

A sleeping-room is very warm at bed-time; a rapid fall of temperature outside occurs, and at once a considerable movement of air takes place. The majority of occupiers of sleeping-rooms in England close their windows at night; they often block up the chimney by a register or otherwise to prevent the blacks falling. They have no special inlet or outlet for changing the air. In the morning the room would no doubt be very close; but if it were not for the continual insensible change arising from the air passing through the walls, doors, and window chinks, &c., the occupants would be asphyxiated. A well-built house

unprovided with special means for the inflow of fresh and outflow of vitiated air, is a real source of danger.

For these reasons the form, position, and surroundings of a building are important, because the air thus insensibly coming in, as well as all other air admitted, should be taken from pure sources.

Rooms with a large amount of outside wall space have a better chance of obtaining fresh air than rooms whose walls separate them from other occupied rooms; because the air, filtering in from an occupied room, would necessarily contain more impurities than fresh outside air.

The inflow of air to a room takes place not only from all sides, but also from below.

The air does not cease where the ground begins, but air permeates the ground, and occupies every space not filled by solid matter, or by water. Thus, if you build on a dry, gravelly soil, where the interstices between the stones are naturally somewhat large, you practically build over a large stratum of air. This air moves in and out of the soil in proportion to barometric pressure, and with reference to the wind.

The fact of this continual free passage of air in and out of the ground makes it important that the ground we live on should be free from impurities. We might just as well (indeed, probably far better) live over a pig-stye than over a site in which refuse has been buried, or in which sewer water has penetrated, or over a soil filled with decaying organic matter; thus, before building on made ground, its nature should be carefully examined.

In proportion, however, as there is a free movement of air in the soil, so is the process of decay, and, consequently, the removal of decaying matter, more rapid. Dead bodies buried in chalk or rubble will decay rapidly, but in clay, bodies will be surprisingly well kept, and even after a very long time, the features may be identified.

Experiments have demonstrated that there is a considerable quantity of carbonic acid in the ground. The water which comes up from deep springs always contains carbonic acid, with which it is supplied from the ground air. The carbonic acid in ground air is often in sufficient quantity to be highly injurious to life.

These remarks show the immense importance which the soil on which dwellings are placed exercises upon health. In cold or damp weather, when the air in the dwelling is warmer than the air outside, the upward movement of this warmer air will draw in air to supply its place, from the ground on which the dwelling stands. This movement would be prevented if the whole surface under the dwelling were covered with an impervious material; but, as already observed, it is difficult to find a building material impervious to air.

Concrete is the most convenient covering to be placed under a building, but it is not impermeable; the lime in it would absorb the carbonic acid from the ground air for a certain time, until it was all converted into carbonate of lime, and then its beneficial action would be diminished. Asphalt is more impermeable than concrete.

The amount of air from the soil may be checked by raising the floor above the surface of the ground, and affording free circulation of air between the raised floor and the ground. In

Burma the dwellings are raised on poles. In Italy and France it is usual to build a basement on open arches, which are used for wood or other stores, over which the building is constructed. It is only comparatively recently that the occupation of cellars as habitations has been prohibited in this country. These considerations show the importance of forming a deep area round a house, which should be carried below the level of the basement floor, under which there should always be ventilation to the outer air.

In connection with the purity of air, it is necessary to consider the temperature and the degree of humidity most favourable for health. The dry bulb thermometer ought to read from 63° Fahr. to 65° Fahr., and ought not, if possible, to fall much below 60° Fahr. The wet bulb ought to read 58° Fahr. to 61° Fahr. In any case, the difference between the two thermometers ought not to be less than 4° Fahr., or more than 8° Fahr., although in the open air, in healthy weather, the difference is sometimes as much as 8° or 9°.

Vapour ought not to exceed 4.7 grains per cubic foot at a temperature of 63°, or 5.0 grains at a temperature of 65° Fahr. The limit of humidity to be allowed is 75° per cent. or under.

When the outer air is saturated, as in wet weather, the reduction of the humidity in a room will depend on the increase of temperature of the air admitted.

The capacity of the air for moisture increases enormously with the temperature. Thus, at 50° Fahr. a cubic foot of air is saturated by 4.1 grains; but at 60° Fahr. it requires 5.8 grains. Hence that amount of moisture which would saturate air at 50° Fahr. would give only 71 per cent. at 60° Fahr.

If, therefore, the outer air is at a temperature of 50°, and if the temperature inside the room be maintained at a comfortable standard, say 63° to 65°, the incoming moisture would never cause an excess of humidity.

The ventilation of a room is necessarily governed by the size of the room and the number of the occupants.

The size of an occupied and ventilated room affects the purity of the air in the room only by allowing a longer time to elapse before any given standard vitiation of the air is reached, and by making it more easy to supply fresh air without incommoding the occupants. The degree of impurity in the air of an occupied room ultimately in no way depends on the size of a room, but solely on these two things:—

1. The rate at which emanations from the occupants are produced.
2. The rate at which the air of the room is being replaced by fresh air.

The advantage of large space is—

First, the large room is longer in reaching the state of normal impurity than the small room. For instance, the following table shows the time required to bring air to a definite uniform standard of admissible impurity (viz., 0.2 per 1,000 of CO₂), in different sized rooms:—

One man in 10,000 cubic feet,	3 hours	20 minutes.
" 5,000 "	1 hour	40 "
" 1,000 "	"	20 "
" 600 "	"	12 "
" 200 "	"	4 "
" 50 "	"	1 "
" 30 "	"	36 seconds.

Secondly, the inflow and outflow of air necessary to maintain the standard of impurity is less perceptible in a large than in a small room; for the chief difficulty of keeping ventilation in action arises from the draughts it causes. Everyone objects to a current of air which affects him, and desires that if a window is to be opened it shall be situated behind someone else. There is, moreover, in practice, this advantage in the larger rooms, viz., that the larger wall surface and the more numerous windows will allow of a larger insensible ventilation, and thus larger rooms will have an apparently less degree of impurity than small rooms. Although the uniform diffusion of carbonic acid is very rapid in the air of a room, the organic emanations given out do not in practice diffuse themselves either rapidly or uniformly. They hang about in corners where there are obstructions to the flow of air, or near the ceiling. On this account some space between the occupants of a room is desirable. In sleeping rooms and in hospital wards, and in fact in all rooms where the height is not less than 10 or 12 feet, the floor space becomes of more importance than cubic space. For adults in sleeping rooms it is undesirable to have a floor space of less than 50 superficial feet. In hospitals from 90 to 120 superficial feet of floor space is generally afforded; and in fever hospitals, and in surgical wards, much more floor space is frequently desirable.

The ventilation of a room means the removal of a portion of the air in the room, and the supply of a similar quantity of fresh air to take the place of the vitiated air thus removed.

This change of air may be effected in two ways: 1st, by forcing fresh air into the room and allowing this fresh air to displace the air already in the room; or 2nd, by drawing the air out of a room and allowing the fresh air to flow in to fill its place. In some cases a combination of both methods is adopted.

The second plan, viz., the extraction of the air, is that which is simplest and generally adopted. The extraction may be effected by fans or pumping machinery, but the usual system is to depend upon differences of temperature for determining the movement of air. A cubic foot of dry air, at a temperature of 32°, and at the sea level, weighs 566 grains. The pressure of the atmosphere on any surface is about 14.6 lbs. to the square inch.

The molecules of air are but feebly attracted to each other, and small increases of temperature, or slight diminutions of pressure separate the particles from one another, and thus one cubic foot of expanded air weighs less. Similarly, small decreases of temperature bring the particles nearer together and make the cubic foot of cold air heavier than the standard above mentioned. This expansion and contraction is equal for equal increments or decrements of temperature. When the temperature of air and the space it occupies increases, its density, that is its weight per cubic foot, decreases.

It follows that as warmed air contracts it falls. It also follows that as the warmed air ascends the air around rushes in to fill its place. Everywhere this heating and cooling of the air is going on; the sun's rays, the proximity of a warm body, the vicinity of a cool shaded surface, all cause movements in the currents of air.

In a room, as air is warmed by the bodies of the occupants, it ascends, it comes against the glass of the windows, cools, and falls down. Draughts felt near the windows are not necessarily air coming in from the window, it may simply be the cooled air falling.

It is on this law of the dilatation of air that all the movement of air depends, from the winds and hurricanes to the ventilation of our houses, except where we propel air by fans or other mechanical appliances.

The law which regulates this movement of the air in a confined space, when the temperature is higher than that of the outside air, depends upon the following considerations:—

1. Upon the difference of temperature of the air inside the confined space, as compared with that outside.

2. Upon the area of the aperture through which the air passes.

3. Upon the height of the column of ascending air.

Thus velocity of air in a chimney or flue depends on the height of the flue and temperature of the air as it ascends. Therefore a fire lighted at the bottom of a flue produces a current upwards in the flue. The extraction of air by flues is the plan usually adopted.

The extraction of air by a properly constructed fan, worked by a steam-engine, would be more economical than the flue extraction, especially when the warming of the air, which takes the place of that removed, is taken into account; but the strong recommendation to the chimney is its simplicity and its permanence. It requires comparatively little repair, and no skilled labour to look after it. The convenience of this system causes it to be almost universally adopted. The open fire-place is one example of it, the sun-burner is another example; but the system is also applied in every room in which there is an opening at the upper part, out of which the warm air can pass, and an opening below, through which fresh air can flow in.

Thus, an ordinary sash window is an example. If the top sash is lowered and the bottom sash raised, the warmed air passes out of the room at the top, and the cooler outer air flows in below.

The air which is supplied to take the place of the air which is removed should be brought in, in such a manner and at such a temperature as not to cause unpleasant draughts, therefore, in a climate like ours, in winter the air removed must be replaced by warmed air.

There is a marked difference in the comfort of different appliances for warming air. It will be found as a rule that this difference arises from the impurities which they communicate to the air with the heat. Thus, carbonic oxide is formed in a fire when there is not sufficient oxygen supplied to form carbonic acid. Cast iron is pervious to carbonic oxide, it passes through the pores of the iron, and more readily when the iron is hot than when it is cold; carbonic oxide is generated when the supply of air to a fire is insufficient, consequently a cast iron close stove is liable to exercise a pernicious influence on the occupants of a room. Wrought iron is not similarly pervious, and is, therefore a safer material for close stoves than cast iron.

A room without opening to the air, warmed with

hot-water pipes, or by means of a German stove, is often found to be unpleasant; but the unpleasantness arises from the want of change of air. Where there is abundant change of air these effects are not perceived. On this account the open fireplace, which extracts from a room an enormous quantity of air, is always preferred where it can be applied; and it may be stated as an axiom that an apparatus for warming, which does not provide at the same time for an adequate renewal of air, is unhealthy.

In order to appreciate the relative effects of different heating apparatus, it is necessary to compare the heat which we obtain from them with the fuel they consume.

The results depend upon the nature of the heat which is applied for warming, as well as upon the material through which the heat is conveyed. For instance, radiant heat, *e.g.*, the rays of heat from an open fire, warm the air they pass through very slightly. The rays pass through the air, and warm the bodies with which they come in contact, and these give out the heat to the air of the room. Iron and copper, on the other hand, absorb the rays of heat from a fire rapidly, and give them out rapidly; thus, more effect would be produced upon the air of a room if an iron screen be placed in front of the fire to intercept its rays than if the rays pass on to the walls, because the iron screen would communicate the heat which it received more rapidly to the air than the walls would.

With hot-water pipes the conductivity for heat of the material of which they are made is of much importance, as is evidenced by the following table of the units of heat transmitted per square foot per hour, through a plate one inch thick, the two surfaces differing in temperature one degree:—

Copper	515
Iron	233
Lead	113
Glass	6.0
Baked clay	4.83

It is thus more economical to use copper or iron as a medium for the transmission of heat to air, than to use clay. But on the other hand, iron parts with its heat rapidly as soon as the heating power ceases to be applied to it; whilst clay continues to give out heat very slowly for a long time, it thus affords a less variable means of warming the air than iron.

The heat in the warmed air admitted to a building is communicated to the walls and floor and ceiling of the building, until they acquire the temperature of the warmed air. As the walls and roof are in contact with the outer air, there is a continual loss of heat, which has to be made up from the warm air which flows in.

The economy with which buildings can be warmed and kept warm depends, therefore, very much upon the material of which they are composed, and of how the materials are arranged. For instance, the walls should be dry; not only is spontaneous change of air through walls impeded if the walls are damp, but damp walls cause a great absorption of heat, from the evaporation of the moisture from their surface. Therefore, new houses are unhealthy.

The simple forms of ventilation rest on the principle of an outlet for the warmed air, and an inlet for fresh air.

The position of the inlet is of material importance, because the question as to whether draughts are felt or not necessarily depends upon that. The sensation of draught is produced when the current of air impinging on the body is at a lower temperature than the body, because it thus abstracts heat by promoting a more rapid evaporation. Therefore, although a draught is more readily experienced from cold air, it would be felt even with warmed air. For this reason it is desirable to admit fresh air, especially cool air, at the upper part of the room, above the heads of the occupants, and to break up the stream by admitting it at numerous inlets. It thus becomes partially warmed by the air already in the room. The Sherringham ventilator is admirable in this respect, in that it is placed near the ceiling, and the incoming air thrown upwards.

If, in addition to the Sherringham ventilator, a flue is carried up from near the ceiling of a room, the air of a room, if warmer than the outer air, will pass up the flue, and its place be supplied with air through the Sherringham ventilator—one will act as an outlet, and the other as an inlet.

Another simple form of ventilator is Watson's ventilator. The ventilation in this case is obtained by a shaft carried up to the outer air from the ceiling level; the shaft is divided into two parts, by means of a vertical diaphragm, and the shaft on one side is carried rather above that on the other; thus an upward current is produced in the longer limb, and the fresh air flows down the shorter limb.

The velocity of air-flow in the up-cast shaft in this case depends upon the difference of length between the long and short limb, which is very small; and therefore, to produce the same effect as in the case of the first arrangement, a larger area is required. This is a very convenient method of ventilation in large halls and churches, when the doors and windows are closed, and when the warming is effected by hot-water pipes or close stoves, or by some means independent of ventilation.

The action of this ventilator is of course completely altered if air is admitted in the lower part of the room, for then an upward current would be determined in both shafts.

Another mode of admitting fresh air is by inlets, on what has been recently called Mr. Tobin's principle. Vertical inlets on this plan, combined with outlets for vitiated air in the upper part of the room, have long been in use; where, however, the extraction shaft is low down in the room, as for instance with an open fireplace, the draught from the vertical inlet passes direct to the outlet flue near the level of the occupants of the room; and this causes an inconvenient draught.

In this climate, in private houses, where changes of temperature are so frequent, it is of great advantage to keep the warming and ventilation of the several dwelling rooms independent of each other; on this account the open fireplace has always held its own as being the most convenient, as well as the most cheerful, means of warming and ventilating a room. The open fireplace is a most powerful engine of ventilation for drawing out the air.

With an open fireplace, a velocity will frequently prevail in the chimney of 10 feet, and in some instances, of 15 feet per second, thus causing, with a

flue 14 inches by 9 inches, the removal of from 30,000 to 45,000 cubic feet per hour. But, as a rule, there is no provision whatever made for replacing the air thus removed. It is allowed to find its way into the room as best it can, by crevices in doors and windows, and through the walls. We, therefore, perpetually hear complaints of draughts, of colds, &c. Our open fireplaces merely warm us by direct radiation of the fire. The hotter we make the fire the more heated air do we send up the chimney, and the more cold air do we bring in to supply its place; thus we are roasted on one side and frozen on the other, and at least five-sixths of heat generated by the coal passes up the chimney.

To remedy this, various methods are resorted to. In some cases the hall and staircase are warmed by hot-water pipes or close stoves, with the idea that warmed air will find its way into the rooms.

This arrangement is open to various inconveniences, and indeed dangers, unless ample provision is made for the provision of fresh air. For instance, in a house with a central staircase, in the case of the temperature of the house being greater than that of outside air, the staircase becomes a powerful shaft in which the air moves up with considerable velocity. It is often more powerful than the chimney flue because of its larger size, and thus it is often the cause of smoky chimneys.

But it will frequently happen that the open fires in the rooms which require it to be fed with fresh air, and the warm air shaft of the central staircase, will combine to draw in the air from every available opening. They will draw up the air from the basement, they will draw it, if they can, from the water-closet and sink pipes, unless the water-closets and sinks are in projecting buildings, cut off by lobbies ventilated from the outer air.

For these reasons, it is of importance, not only to provide fresh air to the staircase, but when open fires are used, to make each room, in which there is an open fireplace, dependent on itself for its supply of fresh air. If the temperature of the room is to be kept up to a pleasant heat, this must be warmed air.

Careful experiments have shown that with an ordinary open fireplace, five-sixths of the heat passes up the chimney. The obvious method of obtaining warmed air is to utilise some of this wasted heat.

The way in which an ordinary open fireplace acts to create circulation of air in a room with closed doors and windows, is as follows:—The air is drawn along the floor towards the grate, it is then warmed by the radiating heat of the fire, and part is carried up the chimney with the smoke, whilst the remainder flows upwards near the chimney breast to the ceiling. It passes along the ceiling, and, as it cools in its progress towards the opposite wall, descends to the floor, to be again drawn towards the fireplace. It follows from this, that, with an open fireplace in a room, the best position in which to deliver the fresh air required to take the place of that which has passed up the chimney, is at some convenient point in the chimney breast, between the chimney-piece and the top of the room, for the air thus falls into the upward current, and mixes with the air of the room without perceptible disturbance.

The principle of Galton's ventilating fireplace

is derived from these considerations. Fresh air is admitted at the back, where it is warmed by a large heating surface, and then carried by a flue, adjacent to the chimney flue, to the upper part of the room, where it flows into the currents which already exist in the room. The fireplace preserves an equable temperature all over the room, and provides a large amount of fresh warmed air.

The following result of General Morin's experiments on this ventilating fireplace showed that, with the ordinary fireplace, the heat utilised in a room amounted only to 0.125 of the heat given off from fuel, whilst in Galton's ventilating fireplace the heat utilised in room rose to 0.353 of the heat given off from fuel. Therefore, to produce the same degree of warmth in a room, Galton's fireplace requires only one-third of the quantity of coal required by an ordinary fireplace. It may be laid down as an axiom that every fireplace should be furnished with some means of admitting fresh warmed air.

All inlets for fresh air and all outlets for vitiated air should be adapted to being easily cleaned. Dirt soon accumulates, and if the inlet is foul, the air, however pure, will be fouled in its passage into the room. Moreover, the inlet should be at least two feet above the level of the ground, away from any sources of impurity.

In towns, especially in London, the air is rendered so impure by soot and other matters, that any current admitted continuously at one place soon blackens the adjacent walls and ceiling. The only remedy for this is to pass the fresh air to be warmed in the chamber at the back of the fire through a filter of cotton wool, to remove the blacks and other impurities.

In cases where the extraction of air by a chimney flue and an open fire is not considered sufficient, and where one or more other flues have to be adopted, it is advisable that these flues should be placed on the same side of the room as the chimney flue, because if placed opposite to it the currents established by the fire would tend to check the current in the flue.

In Germany, close stoves are generally used. The amount of fuel consumed in the German stove is comparatively very small. The stove is generally filled with fuel at an opening outside the room, and no removal of air takes place by means of the stove. In German rooms, therefore, the purity of the air is frequently left to depend on the spontaneous change of air which can take place through crevices of windows and doors or through the walls.

This absence of ventilation is the cause of the saving of fuel in German stoves. This saving of fuel, however, is at the expense of health. Dr. Böhm has adopted for some years the following system (than whom no one has better studied ventilation) in the Rudolf Hospital at Vienna. He there warms fresh air by means of passages constructed in the fire-clay stoves placed within the ward, and the fresh warmed air passes into the ward from the top of the stove. He provides flues of a large size, and proportioned to the size of the ward, from the level of the ward floor to above the roof; and the difference of temperature between the air in the ward and the outer air, causes a sufficient current in these flues to ventilate adequately the ward.

By this means the fresh warmed air, instead of passing off to the upper part of the ward, and thence away by flues, is made to circulate towards the floor of the ward, thus bringing into action the principle by which the open fireplace is useful in ventilation. But this arrangement destroys one element of economy in the German stove, because the heat generated, instead of being left to pass slowly off into an unventilated room, is removed rapidly by the fresh air passed into the ward, and has, therefore, to be renewed at intervals, instead of, according to the usual custom, the stove being left shut up for twenty-four hours to give off its heat slowly. The larger the supply of warmed air, the larger must be the consumption of fuel; and if the heat is to be supplied economically, it must be through a good conducting medium; but the material of the German stove is a bad conductor of heat.

The inventions for warming and ventilation are extremely numerous; but the space allotted to this subject at the Conference on Domestic Economy does not admit of my entering further into the subject. I have only been able in this paper to touch on the fringe of this very large question, and have endeavoured to show the sanitary aspect of the subject, as well as to explain the general principles upon which all the detailed inventions for warming and ventilation must be based if they are to be successful.

THE OBJECT AND WORK OF THE NATIONAL TRAINING SCHOOL FOR COOKERY.

By Mrs. Charles Clarke,

The Lady Superintendent of the National Training School for Cookery.

The number of inhabitants who may be supported in any country, upon its internal produce, depends about as much upon the art of cookery as upon that of agriculture, but if cookery be of so much importance it certainly deserves to be studied with the greatest care. Cookery and agriculture are acts of civilised nations. Savages understand neither of them.—Count Rumford's Works, vol. 1.

1. The establishment of the National Training School for Cookery is due to her Majesty's Commissioners for the Exhibition of 1851. An international exhibition of the industries and products connected with food took place in 1874, and the Commissioners resolved that lectures illustrating cookery should be given in connexion therewith. These lectures were given by Mr. Buckmaster, with practical demonstrations by a staff of cooks, and attracted so much public attention, that in the following year a general committee was formed, and subscriptions raised for starting a National Training School for Cookery. The Commissioners agreed to grant the use of a building rent free, the Duke of Westminster consented to act as president, and the Hon. F. Leveson Gower, M.P., accepted the duties of Chairman of the Executive Committee of Management.

2. The principal object in founding the school was the training of teachers, who should impart instruction, as far as it was possible in public elementary schools, as a branch of national education. It was hoped that such teachers would be those who are trained in the numerous training colleges for female students, established throughout the United Kingdom. Up to this time, Whitelands Training College is the only one which has sent

teachers to be trained, in view of teaching cookery in elementary schools. The Rev. Newton Price, of Watford, has also sent pupil teachers from his school, to be trained in artisan cookery only, and they may in time become teachers in elementary schools. The School Board of London now employs two teachers holding diplomas of cookery from the National Training School. The Worshipful Company of Cooks have selected 12 girls from the ward schools of the City of London, and sent them to South Kensington to pass through a course of instruction in practical artisan cookery, lasting over eight weeks.

3. Bristol, Dundee, Edinburgh, Glasgow, Liverpool, Milford, Derby, Newcastle-on-Tyne, Sheffield, Stockton, Stonehouse, Wolverhampton, Winchester, Darlington, and other towns have sent ladies to be trained as teachers of cookery, and schools of cookery are established in those towns, the instruction being given by teachers holding diplomas obtained from South Kensington. Classes of cookery have been taught by teachers sent from the National Training School, for periods varying from four weeks to six months, in Oxford, Leamington, Birmingham, Shrewsbury, Cheltenham, Plymouth, Leeds, Newcastle, Leek, Macclesfield, Nottingham, Sevenoaks, and several other places. Many ladies have gone through the school by paying their own fees, or on the votes of the subscribers, and having obtained diplomas, have been in some cases taken on as staff teachers, and are employed in teaching, sometimes in the school itself, and sometimes in towns requiring classes for limited periods, also in teaching cookery in parish schools in London and the suburbs, while others have obtained engagements in some of the provincial towns, or have held classes in various localities on their own responsibility at remunerative fees. The Society of Arts has given ten free scholarships for ladies wishing to be trained as teachers at the National Training School for Cookery; these were competed for in the spring of last year, and also of this year.

4. Cookery is a new subject of public instruction, and as such can only be developed gradually. This school had to be organised from the very beginning; the building arrangements, the description of utensils needful, the preparation of recipes, the modes of demonstration, the system of practice, had to be worked out, and there then remained the special course of instruction for teachers in training to be considered, the art of training, the time necessary for it, the utmost economy of cost in doing it, and the extent to which it should be carried. It has required both care and patience to do what has been done up to this time. The National Training School has cost in money a capital of nearly £1,000, which has been almost wholly subscribed by residents in the metropolis, and much valuable volunteer work has been given by friends of the school. This sum is exclusive of any rental for the building.

5. Since the Training School arrived at a sufficient state of organisation to receive teachers for training, i.e., in October, 1875, there have been 64 who have taken diplomas; 36 have taken a first-class diploma, 26 a second-class diploma, and two only a third-class diploma. By degrees the standard is likely to be raised.

6. The original object of the school has been

kept steadily in view, namely, the training of teachers; it has, however, of necessity deviated from this object to raise the needful funds, by teaching those who do not engage to become teachers, but rather wish to learn what good and economical cookery is for their own home use. No mere training school of any kind can be made wholly self-supporting, and this School of Cookery, like training schools for other subjects, must have some sort of endowment to fall back upon, if it is to devote its full attention to its first function of training teachers only. It is greatly to be hoped that, sooner or later, the Education Department will recognise it, and encourage the training colleges to send their students to go through the classes of the School for Cookery, and earn its diploma for competency.

7. The time may come when there will be such an extensive demand for teachers—when the cost of training them will be sufficiently paid for—as to justify the establishment of more than one Training School for Cookery. A proper training school, even with the experience gained from the National Training School, cannot be quickly formed.

8. An application has been made from an important local school, proposing that the National Training School should give diplomas upon instruction received in local schools, to be tested by paper examinations only, and without affording to the examiners of the National Training School any evidence of the personal ability of the cook, either as a cook or a teacher. The National Training School desires heartily to co-operate with all local efforts, but the form in which this proposal was made did not commend itself to the judgment of the Executive Committee. What it may be possible and advisable to do in the direction suggested would seem to be a good subject for discussion at this Conference, more especially as the course of training for teachers at South Kensington will, in all probability be greatly extended and improved, on the re-opening of the National Training School in October.

9. The Executive Committee of the school have pointed out in their last report the inconsiderate action of a few towns, which have tried to induce some of the staff teachers of the school to leave it, and accept short engagements at high fees, thinking by that means to secure the services of the individual teacher whom they fancy. Fortunately in no case has this attempt succeeded, and eventually this mistake will cure itself, but in the meantime the attempt to introduce a good national system is discredited by it. It is much to be desired that towns requiring teachers, either for short or permanent engagements, should apply to the National Training School direct, for information as to the capabilities of the teachers for the post to be filled; the diploma can only show general ability in cooking and the capacity for imparting knowledge; no insight into individual character and suitability can be obtained from a cookery diploma only. In several instances previous application to the Training School, for information as to the general suitability and terms to be made, would have prevented disappointment and failure to local committees, and unjust fault-finding with the National Training School.

THE ART OF PREPARING FOOD; ITS PLACE IN GENERAL EDUCATION.

By Miss Guthrie Wright,
Hon. Sec. of the Edinburgh School of Cookery.

Few movements have met with such rapid and general approbation, and comparative success, as that initiated some years ago by Sir Henry Cole, of the South Kensington Museum, for the systematic teaching of cookery. Public classes, emanating from several centres, have been conducted in a large number of places. Edinburgh was early in the field, and its school, although only commenced in 1875, has already supplied, with great success, classes to thirty-seven towns and villages, in one of which (Newcastle) the numbers attending the artisan class averaged about 900, and elsewhere 500, 600, and 700.

It may be worth remarking that many of the warmest supporters of the higher education of women are among the most forward to promote these classes, inasmuch as few women are not called on, at some period of their lives, to discharge duties for the proper performance of which such knowledge is essential.

The experience of schools of cookery, so far as the public classes are concerned, is that the attendance diminishes as the novelty wears off. Advantage should, therefore, be taken of the present novelty and popularity of the subject to introduce some scheme by which this branch of education may be made permanent in the ordinary school curriculum. This object can, in my opinion, be best attained by a united endeavour to make the teaching of cookery and domestic management an essential component part of the education of girls of all classes. It should be taught in every girls' school as a part of the ordinary curriculum, and by a specially qualified teacher. If we are to succeed in making this branch of education universal, I consider it essential that it should be taught in the school in which the other ordinary branches are conducted.

The regulations lately made by the Education Department of the Privy Council relative to the teaching of the subject of "Food and its preparation," will ensure its introduction into Board schools, and it is earnestly to be hoped that other elementary schools for the working-classes will be induced to follow so good an example. As a special paper and a discussion are allotted to the subject of the teaching of cookery in these elementary schools—which is at once the most difficult and the most important part of our work, I shall not attempt to discuss it here, but would invite attention to the importance of teaching cookery and domestic management in ladies' schools.

If it is the duty of man, usually the bread-winner, to devote time and energy to the learning of his trade or profession, surely it is equally the duty of woman, the bread-dispenser, to bestow time and energy in learning her part of this natural division of labour. It is much to be regretted that women are not generally taught the principles of political economy, in several departments of which they are actually, though often ignorantly, important agents. It can hardly be estimated what the saving to the nation would be in money, in food, in health, and even in life, if a thorough and systematic knowledge of the utilisation of food

material were disseminated among women of all classes, rich as well as poor.

Something like the following may be suggested as a method of giving the kind of instruction that I advocate.

A thoroughly qualified teacher should be engaged to give a regular course of lessons or lectures on the preparation of food with practical demonstrations. These lessons should include, not only the actual preparation of certain dishes, but instruction in the principles of cookery, the proper methods of cleaning cooking utensils, the uses, qualities, combinations, and seasons of the various kinds of food. The dishes, with diagrams and experiments, should practically be texts and illustrations of the principles of physiology, natural history, and elementary chemistry. The pupils should be required to take notes and to undergo examination in this as in their other studies. The lessons might be given either in the kitchen, with the ordinary range, or in a class-room with a temporary gas-stove introduced for the purpose. The latter plan has been successfully adopted in three large schools in Edinburgh.

In addition to these lessons, the girls should in rotation learn the practical management of a house, under the lady superintendent of the boarding school, or, if they attend day schools, under their mothers at home. By allotting a limited time each morning, they would gradually become acquainted with the average necessities of the household in all its details. It is to be regretted that mothers, well qualified to instruct, show often so little patience in training their daughters, preferring to do rapidly themselves what is required, rather than waste time (as they erroneously term it) by having it more slowly done by those whom it is their duty, and ought to be their pleasure, to instruct. If, in addition, the pupils had a course of practice lessons in which they themselves prepared the dishes, conducted either in the ordinary school or in the public school of cookery, they would begin life with a very fair knowledge of domestic matters.

It is to the force of public opinion that we must look to bring about so valuable an addition to the education of girls of all classes; and, if this Congress stamps the proposal with approval, and the public press follows it up, an important step will be gained.

While thus instruction in the preparation of food should constitute an essential part of the education of every girl, opportunities should be afforded by the schools of cookery for special instruction for men. On two occasions, teachers have already been called upon to give lessons on camp cookery to soldiers; and, in one village in Scotland, the evening class of artisan cookery was chiefly composed of ploughmen from neighbouring bothies. This shows that the demand for such teaching has already begun. It is a question whether it would not be advisable to encourage the attendance of elder boys at cookery classes in elementary schools. But, without doubt, our schools of cookery should be prepared to give lessons in the preparation of food to soldiers, sailors, and intending colonists, with the apparatus and food material likely to be respectively at their disposal. To this I would add that, in university towns, provision should be

made for teaching sick-room cookery to medical students. Further, it is important that teachers of cookery should be able to furnish information regarding the dietary and cooking apparatus suitable for hospitals and other public institutions.

If the foregoing remarks are accepted as indicating the probable future sphere of work of cookery schools, it is evident that only highly-qualified women are suited to undertake the work of teaching cookery. A very small proportion of those who have hitherto presented themselves for training are fitted for the profession they have undertaken; and it is only by offering liberal salaries, and giving a good position to teachers of cookery, that we can expect to induce the right class of women to come forward.

Then, the training of teachers must be made much more thorough than at present. Some of those who have already been trained have, by additional study, additional practice in cookery, and experience in teaching, become excellent teachers, but this is by no means the rule. Much longer practice, both in cookery and in teaching, should be given during training, and special arrangements should be made for training teachers in elocution, physiology, the natural history of foods, and in elementary chemistry. It is difficult to see how training schools, unless well endowed, can provide first-rate instruction in these subjects; but perhaps we might fairly expect from the Science and Art Department practical assistance in this matter, and also in the compilation and selection of the textbooks necessary for our schools. It is satisfactory to find that several schools have already made arrangements to give improved training.

To meet, as far as possible, the difficulty of obtaining properly qualified teachers to conduct Board school classes in country districts, the Edinburgh School of Cookery intends, in autumn, to invite the co-operation of the other central and branch schools in Scotland, in applying to the Education Department for a slight alteration in the next Scotch Code, viz., that, instead of the teaching of cookery in Board schools being limited, as at present, to two hours a week, it should be permissible, where there is no resident teacher of cookery, to give three or four hours, that is, two lessons a week. This would enable central schools to send a teacher to conduct Board classes at a moderate charge in two neighbouring towns or villages during the same period, and her spare time might be occupied either with classes in other schools or with public teaching, according to circumstances. In this way, the central schools would be enabled to provide for the wants of a very large part of the country.

Although much initiatory work has already been accomplished by schools of cookery, I believe that their most permanent work is only now beginning, and that in this, as in all other branches of education, it is to teaching the young that our efforts must chiefly be directed.

ON THE PRACTICAL TEACHING OF DOMESTIC ECONOMY IN ELEMENTARY SCHOOLS.

By Mrs. Fenwick,

Hon. Secretary of the Leeds School of Cookery.

It has of late years come to be generally acknowledged that, in providing for the public

education of girls in our elementary schools, it is very desirable that some scheme should be adopted, whereby a certain amount of training would be secured to them, in those domestic arts and duties upon which the comfort of home life so much depends.

The ignorance of women of the working class in matters relating to household management is constantly being forced upon our attention, and it is not too much to say that a great deal of the vice and wretchedness, of which our police reports furnish daily instances, owes its origin to this cause.

It must, therefore, be a matter of rejoicing to all interested in the social condition of the people, to find that public attention has at length been drawn to this important question; but, while all are agreed as to the wisdom of adding domestic economy to the list of subjects for instruction to girls, the difficulties attending the development of this kind of teaching present a formidable obstacle to its adoption.

Having for a length of time been connected with the organisation of classes in Leeds, where large numbers of children from the Board schools have been under instruction, it has devolved upon me, and the ladies with whom I am associated, to consider how these difficulties may be overcome, and such a training rendered efficient and of practical value to the class for whose benefit it is intended.

I do not wish it to be supposed that the plan we have adopted is by any means faultless. It is, of course, to a great extent experimental, as all work in this direction must be for some time to come. Until a few years ago, such teaching was, as we are all aware, unknown in England, and everywhere new ground had to be broken, difficulties overcome, and experience gained, by the pioneers in the work, of which their successors will reap the benefit.

I think we owe a debt of gratitude to the spirited management at South Kensington, who, while they were themselves fighting with the difficulties of a new position, yet found time and inclination to assist, with their advice and suggestions, schools which, like our own, were then struggling into existence.

I have a lively recollection of the kind way in which I was received some five years ago by Sir Henry Cole, when I went, at the request of my own committee, to get some insight into the system adopted at the National Training School. Lady Barker was then at the head of things gastronomic, surrounded by a halo of noble cooks, and the information she was good enough to afford me proved afterwards of much value. Since that time a great deal of good work has been done, and schools of cookery have sprung up in various parts of the country. Nothing, however, has been carried out on a general plan, and the need for a recognised and uniform system of teaching is strongly felt.

As one of the objects of the promoters of this Congress is to hear the opinions of others on this special subject, and to discuss the merits or demerits of the various schemes which may be proposed, I venture to hope that a brief account of the training classes at present being organised for teachers at the Leeds school, and the plan we adopt in the conduct of lessons to children, may not be without interest.

On the principle that what is worth doing at all

is worth doing well, I venture the proposition that no system of teaching cookery can be entirely satisfactory, unless the lessons are of a thoroughly practical kind, and I am further of opinion that lessons in the other subjects mentioned in the 4th Schedule in the two first stages of domestic economy should be taught, as far as possible, by means of simple experiments and the use of objects or models.

I am aware that such a system would in no way lessen the difficulties already experienced in giving lessons to large numbers of children, and the expense is also rather greater than when demonstration lessons are chiefly relied upon; but if it be conceded that this kind of instruction to our girls has become a necessity, and that the knowledge thus to be obtained is quite as important to the wife of the working man as any other part of her education, I think those who have the welfare of the people at heart will agree in feeling that if this training be undertaken at all, it should be thoroughly done, without reference to either the cost or the difficulties to be overcome in first arrangements.

After carefully noticing the results of different systems of teaching in our own and other schools, I cannot but feel that lessons by demonstration are of very little value as a means of instructing young girls. We all know how difficult it is for even a clever teacher to keep up the attention of children for any length of time, and it is not to be supposed that lessons in domestic economy of one hour and a half's duration can be rendered more attractive to the infant mind than other subjects, or that thirty or forty girls placed together on a platform could sit still during that time without feeling restless and wearied. An intelligent instructress, anxious to do her duty, will doubtless be able to relieve the monotony of the lesson, in a great measure, by the comments she makes, and the questions she may require answered; it is also possible to allow two or more of the girls to assist the teachers as kitchen maids, while their companions on the platform criticise their proceedings, and correct any mistakes that may be made; but the effort required on the part of the instructress to sustain the attention of her pupils is a tax upon her ingenuity and strength which can never be long continued.

Another reason why demonstration lessons can never be entirely satisfactory is, because their success depends entirely upon the ability and physical powers of the teacher. I have myself been present on occasions when the lessons proved utter failures, from the lack of sufficient energy in the instructress to maintain order and attention among her pupils.

In the case of practical lessons (which are frequently preceded by a demonstration), there is a constant change and variety in the work; the children, to the number of 16 or 20, stand round their teacher, and first hear her explanation of what is going to be done, she then apportions to each the quantities of material required for the dish to be made, while she herself makes up another portion in their presence. When this part of the lesson is over, the cleaning begins, followed by instruction in any other domestic matters which may be down for the work of the day. Thus a constant change is kept up, the time passes quickly and pleasantly, and the lesson closes to the

regret of the pupils. Written "reproductions" of the work done are required each week and are sent in to the teacher for correction.

It is doubtless understood by all who have studied the new Code, with the idea of obtaining the Government grant, that the sum of four shillings per head, offered since the 31st of last March, for instruction in cookery to girls, is not to be obtained unless this subject be taught in conjunction with others included under the head of domestic economy; thus, for example, in the first year the instruction is to include "Food and its Preparation, Clothing and Materials."

It is evident that teachers, competent to give practical instruction in these subjects, must be specially trained for the work, and, as the demand for their services is likely, for a length of time, to be far greater than the supply, the committee which I have the honour to represent has decided to open classes for the training of teachers in cookery, and other branches of domestic economy, as soon as the necessary arrangements can be made. By this means, it is hoped that a thoroughly intelligent and efficient class of teachers will be formed, capable of undertaking the whole instruction included under the head of "Domestic Economy," in the fourth schedule of "Specific Subjects," to be found in the new Code of Regulations for 1877.

In the first stage, or year, of this instruction the teaching is limited, as I have already said, to the consideration of "Food and its Preparation, Clothing and Materials."

In order to give our teachers a clear and comprehensive view of the whole subject, it is intended to form a small, but complete and classified, food collection, which will illustrate all the chief types of food, and their components, required for the maintenance and nourishment of the human body in a state of health and vigour. By reference to the printed prospectus of this training, it will be seen that courses of lectures are to be delivered to the students on elementary physiology, the chemistry of food, and domestic economy.

It may perhaps excite some surprise that the first-named of these subjects, "Physiology," should be insisted upon; but when it is remembered how entirely the health and strength of the human frame are dependent upon the foods which sustain it, and how greatly the amount of nourishment to be derived from food depends upon its intelligent preparation, I think it will be understood that a knowledge of the structure of the body, and of the materials required to build up and repair the daily waste which is going on within it, is of essential importance in the intelligent teaching of cookery.

The scientific instruction supplied by these lectures will be supplemented by courses of practical lessons in several grades of cookery, given by the trained instructresses on the staff of the Leeds school.

For the purpose of making the instruction required under the head of "Clothing and Materials" as complete as possible, sets of samples of the different kinds and qualities of linens, cottons, woollens, unions, and other fabrics will be provided; the peculiarities of the various makes described; the adulterations used in their manufacture, and the means by which these may be detected, explained.

Information will also be given on the subject of clothing, relating to the choice of suitable materials for summer and winter wear, the necessity of providing against the changes of temperature experienced in our variable climate, and other things bearing upon the same subjects.

The next stage of domestic economy for which we have to provide, in the training of teachers, refers entirely to "The Dwelling, warming, cleaning, and ventilation, washing materials, and their use."

It will at once be seen that very little practical instruction is possible in this stage, excepting that which will be given in cleaning and respecting washing materials. Cleaning, as every one knows, is one of the first things in which girls are instructed in all schools of cookery which deserve the name.

As regards washing materials and their use, soaps and washing-powders, blues, starches, &c., of various kinds and qualities, will be provided, and their effects upon clothing demonstrated by practical experiments. The chemical action of the salts and other ingredients used in their composition will be explained and commented upon, and advice given as to their judicious use.

The different modes of warming and ventilating a dwelling must, in a measure, be explained theoretically, though, whenever possible, simple experiments will be used to illustrate the meaning of the lecturer, and add force to his remarks.

In the third and last stage of this subject, that relating to health, the management of a sick room, cottage income, expenditure, and savings, the lessons must necessarily be theoretic; and I dare say, if the truth were known, those of us who are occupied in considering how these things may best be explained, are not a little relieved by the thought that years have yet to elapse before we need trouble ourselves much about it. Before that time, no doubt, some ingenious person will have appeared on the stage for our benefit with a nice little book, containing all we want to know.

I have now explained, as briefly as I can, what we believe to be necessary, in the way of training, to form an intelligent class of teachers for this new field of work.

The next point to consider is, where they are to come from.

The class of domestic servants is certainly not the one from which we can hope to recruit our staff of teachers.

In the first place, the amount of study required in order to pass the examinations presents a serious obstacle in the way of an uneducated person; but a far more weighty objection against the employment of such persons, is to be found in the lack of that educational culture and refinement which exercise so salutary an influence in the intercourse between pupils and their teachers, and for the absence of which nothing can compensate. In the case of classes where ladies only are the pupils, and cooking the only thing to be taught, I grant that "cooks," properly so called, do exceedingly well, and, perhaps, even better than a higher class of instructress; but when the children of the working people are to be taught, by all means employ the educated teachers. For the same reason we find ladies chosen for the work of district nursing among the poor, for the refining influence which

they bring to bear in those houses, to the comfort of which they minister. There exists, however, a body of educated women in our midst, working early and late for small salaries, for whom I think this new field of labour ought to possess attractions. I refer to the largely overstocked class of uncertificated governesses, who have now so hard a struggle for existence. The position of these ladies at the present day is one deserving our true sympathy. For the most part they were educated at a time, and that not very distant, when a thin coating of knowledge, obtained generally at some respectable ladies' "seminary," was considered sufficient for any woman of ordinary aspirations. Happily, that relic of the "good old times" has passed away never to return, but with the advent of a higher and more enlightened system of education for women, to which the establishment of Mrs. Grey's public day schools gave the first impetus. The work which provided a modest income for our reduced gentlewoman is well nigh gone, and ladies not possessing a diploma or certificate as teachers find it difficult to obtain work of any kind. It is not, therefore, unreasonable to suppose that the new field of work opening out in the direction of cookery, and other branches of domestic economy, will be taken up by many of these ladies to whom it offers a legitimate and suitable means of livelihood.

THE NORTHERN UNION OF TRAINING SCHOOLS OF COOKERY.

WITH REMARKS ON COMBINING PRACTICE WITH THEORY IN COOKERY LESSONS FOR ELEMENTARY SCHOOLS.

By Mrs. Rowland Williams

(President of the "Northern Union.")

The advantage of uniting practice with theory in cookery lessons for schools is sufficiently great, to make the best method of overcoming the difficulties in the way of doing so, a subject worthy the consideration of those who are interested in the improvement of the homes of the working classes.

Practical experience of teaching cookery to the poor goes to show that reformation, to be radical, must begin with the young, rather than with those whose stereotyped habits make them, as a rule, unwilling to accept new ideas; and though there have been many honourable exceptions to this, and artisan cookery demonstrations for adults have in some places been eminently successful, and most useful in awakening an interest in the matter, we do not think them altogether satisfactory in their results. The attendance is too irregular, and the interest not sufficiently lasting; some excusing themselves by saying they know well enough to cook all that they can afford to buy, and others resenting any suggestions savouring of economy and taking trouble.

It is, therefore, to the schools, whether board, voluntary, industrial, or others, that we look for the carrying out of a more systematic and thorough course of training in the principles and practice of good household cookery, which shall fit the women of Great Britain to become more practical housewives and better domestic servants. And in the recognition by Government of cookery as a branch of education in the public elementary schools, we

see a favourable omen of a better state of things in the future.

The subject requires to be carefully and thoughtfully dealt with. Some of the committees of the schools belonging to the "Northern Union of Training Schools of Cookery" have given much consideration to it, and it is certainly one which falls within the scope of the work proposed by the union.

I will give a brief account of the origin of the "Northern Union of Cookery Schools," before venturing to make a few suggestions as to the combining of practice and theory.

As the demand for teachers of cookery increased, and schools of cookery began to multiply, it was found to be desirable that there should be some uniformity of method in the training adopted in the different schools, with a recognised standard according to which certificates and diplomas might be conferred, for only in this way could efficient teaching in the various schools of cookery be secured.

With a view to this end, as well as to that of helping to supply the great demand which had suddenly arisen for properly qualified teachers, the Union of Schools of Cookery was formed. Liverpool took the initiative, and was joined by the Yorkshire schools and those of Edinburgh and Glasgow.* Delegates from the committees of these schools met in Liverpool last autumn to organise the scheme which came into operation in January, and according to which a systematic course of instruction is adopted alike in all the schools joining the union. Certificates and diplomas are given according to a uniform standard. The business of the union is carried on by a committee formed of delegates from the committees of the different schools. The theoretical examinations are conducted by means of written papers, which are sent to a lady examiner, appointed by the committee, for adjudication; the practice examinations being conducted under the superintendence of the committee of each school. But while uniformity of method is adopted throughout the Northern Union schools with regard to the training, and to the giving of certificates and diplomas, each school is left free to meet as it sees best the special requirements of different localities, which are found to vary greatly.

That teacher trained in the Northern Union schools should be thoroughly efficient, and well grounded both in theory and practice, is the great aim of the united schools. Their teachers are expected to acquire a knowledge of such of the leading facts of physiology and chemistry as are most obviously connected with the science of cookery, in order that they may be able to impart the same to their pupils, in such a manner as will help to enforce the practice lessons; all learners, whether adults or children learning to do things much more efficiently when the "reason why" is well explained.

How well-fitted to enlarge a child's mind a cookery lesson may become, if the teacher can explain to her class why food is required, the digestive and circulating process by which it becomes assimilated to the body, the necessity that it should be of sufficient variety, so that all

* Manchester, Bolton, Leamington, and Cambridge, have now joined the Union of Training Schools, and Southport and Warrington have been affiliated to the Liverpool Training School.

that is necessary to the support of life may be supplied, one article of food containing the nutriment in which another is deficient; if as she takes up each ingredient she can tell the children all about it, whence it comes if it be a natural product, or how made if an artificial one, and what its especial use in the preparation of which it forms a part; for example, if in using condiments and spices, she not only says, "here we add a pinch of salt," or, "here we put in a little spice," but prefaces this by an explanation of the use of condiments and spices, tells how they act as a tonic to the nervous system, stimulating healthfully the digestive organs, and acting as a preventive to the cravings for alcohol, may not cookery lessons so taught prove as useful for enlarging the minds of the pupils as any that can be given, invaluable, in fact, in their bearing on practical life.

But, strongly as we advocate theoretical lessons, we would still more strongly insist on practical ones, and by this I mean lessons in which the children are taught to do the work themselves; and I lay special stress upon this, from having lately seen a table of lessons to be given in a Board school, which, under the head of "Domestic Economy," included a syllabus of what appeared to be a very complete course of lessons in cookery, to be given by the teachers; but, upon inquiring how the teachers were to be qualified for giving the lessons, I was told, that domestic economy, as to be taught under the new arrangements, would not include any lessons of a practical kind in cookery; but, I venture to ask, is it possible that children could learn adequately how to roast, boil and broil, to stew, fry and make hashes, to cook vegetables, dress fish, make pies, puddings, bread and cake, all of which, and much more, was included in the list, merely by theory? And while the knowledge to be gained from primers is most valuable, I do not think it possible to urge too strongly that the practice lesson should follow, and that, if practical and theoretical teaching cannot both be had, we had far better have the practical.

But why may they not be combined? Let only the necessity be once acknowledged, and the way of accomplishing it will certainly be worked out, and:—

1. Might not Government insist that the lessons in the elementary schools should not only be theoretical and acquired from books, not only be lessons by demonstration merely, but practice-lessons; for unless this is enforced, the Government requirements may appear to be met by teaching the children from books only, a sort of teaching which, besides being unsatisfactory in itself, will be misleading to the public, who will suppose that, under the new regulations in domestic economy, the children are being thoroughly trained, whereas they may only be learning by rote a set of questions and answers, the after application of which by them to practical life may be very doubtful. It appears to me that theoretical lessons in cookery, if given by themselves, are quite inefficient; that lessons by demonstration (though exceedingly useful, and we hear from many quarters of most satisfactory results) are also inadequate, and chiefly to be used in breaking up new ground, and as introductory to the practice lessons; and that the latter, in which the pupils

themselves do the work in the presence of the teacher, who explains as much of the theory as possible, are alone really satisfactory.

2. Practical and theoretical teaching being combined, a system of examination should be set on foot to test the results. Examiners with due knowledge of the subject should be appointed. It is work which seems especially suited to women who have themselves taken a certificate in one of the training schools of cookery, and who will know what the work in the practice class ought to be, with the head-knowledge which should accompany it.

The question then arises:—How is practical teaching to be provided for the schools? One of two plans might be adopted, either (a) the children might be taught by certificated teachers of artisan cookery from the training schools of cookery, at some centre appointed by the managers of the schools, as has already been done with regard to demonstration lessons, in London and other places; or else (b) the mistresses of the elementary schools might be required to hold a school of cookery diploma, showing competency for teaching artisan cookery in their own schools. But it seems a doubtful question whether school teachers have time to add practical cookery to the lessons on their time-table; and we should think it could only be possible if the pupil-teachers were also required to hold certificates of qualification to assist in the work.

What we especially deprecate in reference to the teaching of cookery in the schools is, that any one should be accepted as a teacher unless holding a teacher's certificate or diploma, and it should clearly be understood that the ordinary certificate does not qualify for teaching. A teacher requires a longer course of training than an ordinary pupil, and we earnestly desire the co-operation of School Boards and other managers of schools in this matter, and trust that, in the interests of the community, they will not employ half-trained teachers, which would be the means of bringing the matter into great disrepute. In Glasgow, a considerable number of Board school teachers have received training in the School of Cookery, and have been teaching through the winter, but without taking certificates, and the hon. sec. of the Glasgow school writes that the result of the Committee's experience is that the day teachers thus trained can never prove efficient teachers of cookery; they have neither time, money, nor, in many instances, inclination to thoroughly qualify themselves, and the instruction given in the Board schools, instead of being the best, is in every respect inferior to that given by the teachers of the School of Cookery.

And this testimony corroborates our own feeling that the work would be best accomplished by employing the trained teachers from the schools of cookery. Might not each large school have a class-room, fitted up with necessary appliances, which might serve as a centre for the schools in the immediate neighbourhood? Or might not the different schools in a neighbourhood be used as a centre alternately?

That a large number of children may receive practical instruction at a small charge, has already been proved in some of the schools of the Northern Union. At Leeds, 180 per week have for some time received practical cooking lessons at the rate of

6d. per head, and the honorary secretary, who has had much experience in the matter, states that the attention of children cannot be kept up during demonstration lessons, and that the difficulties in the way of lessons in practice are by no means insuperable.

In Liverpool, also, a class of 50 children, in one of the Board schools, has for the last six months been taught by the teachers from the Liverpool Training School. The lessons have combined practice with demonstration, six children being taken in turns to cook, in the presence of the rest of the class, the dishes they have previously seen the teacher prepare.

In the artisan kitchen in the Liverpool school, a practice class is held of girls from an industrial school, 18 attending at a time, and showing great interest in the lessons. They are divided into three sets, with a teacher to each set. One child in each division is told off to do the necessary cleaning, while the others cook, in rotation, meat, vegetables, and puddings. After each set has had three different lessons on each of these subjects, the lessons are changed to fish, bread, and pastry, and sick room cookery. A reward, under the title of a scholarship, is offered to the girl who does best of a course of lessons in household cookery in the higher school.

The chief difficulty, after all, in introducing lessons in cookery practice into the elementary schools appears to be the question of money; but the Government grant for domestic economy would help a little, and we should like to urge that this be divided, and 2s. be given as a distinct grant for passing in cookery, instead of, as at present, being joined to the grant for clothing. And, if a knowledge of cookery is henceforth to be considered as much a part of a girl's education as sewing has hitherto been, it would seem that the fees for properly trained teachers ought to be considered a part of the necessary expenses of the school, and arranged for accordingly; and we should recommend that the Boards should leave the teaching of cookery in the hands of the training schools of cookery, but if they object to this, another suggestion would be that they might have trained teachers (holding diplomas as teachers of artisan of cookery) for themselves, who should go from one school to another, teaching cookery only.

But, in conclusion, we would urge that the machinery having been set on foot with considerable care, trouble, and expense in the training schools of cookery, we think the Council on Education, and the managers of schools generally, may very well avail themselves of the teachers trained, or of the training provided for teachers at South Kensington, and in the schools in connection with the Northern Union of Training Schools of Cookery.

Mrs. Clarke having referred to an application, made indeed more than a year ago to South Kensington, on the subject of their giving diplomas to schools throughout the country, I will explain a little more fully the nature of the application and its results.

A cookery school in one of our large towns could not but be much straitened in its work and influence if it had not the power of giving diplomas to its pupils if they wished to become teachers. No

sooner had we established our school in Liverpool, than we became practically aware of this. But we thought combination desirable, and did not care for independent action. We saw the work had to be done, and we wished it done in the best way we could devise. We thought it would be better for the community at large if some scheme could be formed whereby all schools of cookery, as they arose, might have a common centre, from whence plans for the general working of all the schools might emanate, examinations be organised, and certificates and diplomas conferred. South Kensington appeared a ready-formed centre; and we, together with the Yorkshire schools, applied formally to the authorities, asking if they would adopt a plan something like that adopted by Oxford and Cambridge (in the higher branches of knowledge), of holding local examinations in the different towns, and giving certificates throughout the country; but they replied that the organisation of the National Training School of Cookery was not sufficiently organised to enable the committee to give effect to the suggestion.

We were therefore compelled to form our own scheme; and accordingly we invited delegates from the Yorkshire, Edinburgh, and Glasgow schools to meet in Liverpool and consider the matter.

SEVERAL YEARS' EXPERIENCE IN SCHOOLS OF COOKERY.

By R. C. Browne Clayton, M.A., Oxford.

Having for many years devoted my attention to the social improvement of the lower classes—especially in habits of temperance—I gladly welcomed the movement now so general, which proposes to add the subject of cooking to the industry training of young women and girls; thus giving a useful and practical direction to their future lives. Whether in a higher or lower degree, this training will remain imprinted on their minds, when most of the literary branches of science will have escaped—I may say evaporated from their memories.

I had the advantage of attending Mr. Buckmaster's interesting lectures on cookery, which so exactly met the views I had entertained, that I opened on my estate in Ireland, I believe, the first school of the kind. It has been in operation, at intervals, for three years, and is, I may say, perfectly successful. A large kitchen, dining-hall, and dormitory for three girls (coming from a distance), have been erected, and about twelve pupils have been taken from neighbouring parishes, recommended by the clergy. These having been instructed in cooking, baking, and washing, have either taken places or giving the benefit of their instruction to their own homes. This work has been followed up during the winter by giving some provisions to them in turn, that they may cook at home what they have learnt at school.

In England the work is now developing rapidly. South Kensington being established as a Training School for Cookery, numerous schools are now in communication with it, employing as teachers those recommended as having taken a first-class diploma. I would strongly urge that in those schools where demonstrations and the higher

branches of practical cookery are taught, those only from South Kensington should be employed. The advantage is, that if one teacher did not suit the committee, another would be supplied forthwith. Another class of schools, such as those in small towns or villages, would not require a teacher of the same attainments; and here I would suggest to the Committee of South Kensington that there should be two classes of teachers—one for the higher branches of cooking, and another with a second-class diploma, to be recommended for invalid and artisan cooking, adapted to elementary schools. The class of schools that I am most interested in are those in which the first principles of cooking are taught—the A B C of the art. In the teaching of girls from the age of 10 or 11, more will be done than by lectures to the artisans, who in few instances follow up the precepts they have had explained to them. I have found that giving small prizes to girls for cooking at home, has had a wonderful effect in inducing parents to second the teaching in the school.

There are two points on which I would lay much stress: first, a close calculation of the expenditure; and, second, a properly-arranged programme of each day's proceedings. In the former lies the true economy, and in the latter the proper working of the kitchen. The plan adopted in the Torquay school suited admirably, and is as follows:—The programme of work was fixed the previous day, by taking the South Kensington recipes to be worked on the next day, and making a list of the quantities laid down. That settled, an order was given to the tradesmen to send in the necessary provisions by nine o'clock next morning. These were placed in a part of the kitchen called the shop, to which each girl went for the materials she wanted—according to the recipe she had to work upon—giving a ticket, placed on a file, as payment, weighing and measuring all taken. At the close these tickets were always found to correspond with the delivery from the tradesmen. This simple plan has been of great use in many ways. I have not heard of its being adopted in any other school. I give in a sheet of the day's account, which more clearly explains my meaning.

On my estate at Adlington, in Lancashire, there is a school of 700 boys and girls, in which I have adopted a plan which has proved of great benefit: a kitchen being fitted in one of the class rooms, with a full supply of utensils, dinner is served daily to 80 children coming from a distance, who bring their own provisions with them; these are cooked or warmed up by two of the girls. This simple plan gives instruction in many ways, especially good behaviour at meals, and is highly appreciated by the parents. I should be glad if such a plan were adopted in all large schools, where children come from a distance, in winter time.

The school at Leamington has been in all respects thoroughly successful, and I would draw attention to it in having one feature peculiar to itself—a home for those girls who come from a distance. This, being carefully superintended by the ladies of the committee, is made most comfortable for them, and thus being resident on the premises they enter thoroughly into the work as in a family. They pay a small sum per week for their board and lodging, accommodation being found for eight. This is a most

desirable branch of the school to establish where it is possible to do so. The practice lessons for ladies and cooks have been conducted with great success. Demonstration lessons have been well attended, and a registry office is established in connection with it. Great progress has been made in the instruction of school children, 67 scholars coming from the different schools, each paying one penny a lesson for learning practically to cook. A lady of the committee writes:—

"We thought the best way of testing their powers was to have a little exhibition of a cold lunch and tea in Whit-week. That the children might come and cook it all themselves, not a single thing was cooked by anyone else. As our room was a small one, we chose 26 girls—some from each school—their ages ranging from 9 to 14. A happier or more industrious set of little cooks I never before met together. The children laid the cloth, garnished the dishes, spread the luncheon of beef-steak pies, rolled veal braised, salmon, salad, mackerel in vinegar, custard pudding, corn flour blanchmange, two rhubarb tarts, buns, gingerbread, neatly-cut sandwiches, bread and butter with cheese inside. We begged our visitors to taste as many things as they liked; all was pronounced excellent, especially the pastry. No butter or eggs were allowed, dripping only being used, as we wanted it to be a specimen of cottage cookery. The children afterwards sat down to tea; in number 67. Buns, gingerbread, scones, and bread being all made by the children the previous day; they were excellent, and did great credit to the instructress—Miss Elles—and was most gratifying to all, especially when but a few months ago I saw these same children totally ignorant of any kind of cookery. One of our little cooks, nine years old, had to stand on a footstool to reach the table to cook, but we generally wish to have older girls. We have had some nice girls in our kitchen from a private family in Wales."

This school is, I consider, a model of management in all respects.

The school at Leek has also been very successful in its management. Without any donation or guarantee fund, at the close of the first course, £10 was placed to its credit at the bank. All the rules and arrangements seem admirably adapted to the end in view, making the school self-supporting and efficient in every way.

In closing my remarks, I would add that the true road to improvement lies in teaching the rising generation of girls, who, when grown up, may impart the knowledge they have learnt in schools to their own homes. Artisans of riper years, though much interested in the demonstration lectures, have little time to follow up what they have had explained to them. Something, however, may be done by offering prizes, as in the Torquay school, based upon the South Kensington recipes. This work, however, mainly depends on the ladies of families giving their earnest attention to promoting schools of cookery, and by attending the practice classes themselves. They will thus be better able to manage their own households, secure home comforts and home happiness, and escape the troubles of a young married lady, humorously described by Tom Hood, on giving her first dinner party:—

"How shall I get through it,
I never can do it,
I am quite looking to it,
To sink by and bye;
I would I were dead now,
Or up in my bed now,
To cover my head now,
And have a good cry."

ELLACOMBE COOKING SCHOOL, 3RD MARCH, 1877.

Names.—Louisa Essery, Mary Jane Shepherd, Emily Huson, Ellen Westlake, Mary Mortimer, Maria Higgins, Elizabeth Bullied, Amelia Davy, Mary Lane, Elizabeth Barclay.

Provisions (cost).—Meat, 2½ lbs., 1s. 8d.; potatoes, 9½d.; carrots, 1d.; onions, 2 lbs., 1d.; herbs, 1d.; dripping, 15 oz., 7½d.; sugar, 1 lb., 2d.; raisins, 1 lb., 5d.; eggs, 3, 3½d.; treacle, ½lb., 1½d.; suet, ½lb., 2d.; split peas, 1 qt., 3½d.; milk, 1 qt., 4d.; flour, 5 lbs., 11d.; bones, 4d.; bacon, ½ lb., 4d.; baking powder, 3d.; cocoa, ½ oz., ½d.; caraway seeds; rice, 1d.; cooked meat, 2 lbs., 1s. 5d. Total, 6s. 6d.

Meals (served).—Pea soup, mutton pies, hash, potato cake, toad in the hole, stew drop cakes, buns, cocoa mould, rissoles, treacle pudding, rice pudding, bread pudding. Fourteen dinners.

Given away or sold.—Some of hash, liver and bacon, soup, two extra dishes of toad-in-the-hole, given away; five mutton pies sent into the cook shop, price 2d. each.

COOKERY IN PUBLIC ELEMENTARY SCHOOLS: THE DIFFICULTIES STATED AND DISCUSSED.

By Rev. Newton Price,
Of Watford, Herts.

In a recent Blue-book of the Education Department, an inspector of schools writes as follows:—"The introduction of cookery and domestic economy into school work for girls is excellent in theory, but will be found very difficult in practice. I have long tried to solve the problem of teaching children cooking, but have always been unable to get over these difficulties—Who is to teach it? Where are you to teach it? Who is to pay for it? Are you to teach all the bigger girls, or only a limited number?" (Report of Education Department, 1875-6, Mr. Colt Williams' report, p. 445.)

Here is another statement of difficulties. "Though your plan is quite feasible in a town such as this or Watford, or even a large country village, I do not see how it could be carried out in ordinary country schools, where as much as managers can do is to make both ends meet. To teach girls to cook you must have a proper grate—I do not mean a close range—that is, such a grate as is to be found in cottages; this is not generally the kind of grate found in schools. Secondly, you cannot teach cooking in the school itself, for the lesson in cookery would, of course, be given in the two hours of secular instruction. In many places there is not a house attached to the school, and where there is, I much question whether the teacher would give up the privacy of her house. Thirdly, the instructress is a great difficulty; most teachers' wives, or mistresses themselves, can cook after a fashion, but I much doubt their ability to teach cookery on system to children, even supposing place and material to be found them."

I make these quotations because I think they state very fairly, between them, the difficulties which lie in the way of teaching cookery in our public elementary schools.

In discussing these difficulties, I shall take it for granted that they reach their highest pitch in country schools. For, whatever the difficulties of town schools may be, those of country schools are greater. Country managers look enviously at the good luck of town managers, who are supposed to have an inexhaustible exchequer, and to be able to have what they want for the mere willing it. The

rate is the thing which helps them over all difficulties. But the country schools maintain an unequal struggle for existence. The liberality of subscribers does not grow with the ever-growing expenses. Hence it will generally be found that the financial difficulty is the chief hindrance to the introduction of cookery. To the question, Why is not cookery taught? the usual answer is, We cannot afford it. As the system with which I am connected was framed, though not from necessity, to meet the financial difficulty and to conduct a useful experiment, I propose to enter into the details, keeping in view the requirements of this paper. It will appear, I hope, that I am dealing with the difficulties in a practical manner—in other words, that I am not showing how they may be overcome, but how they have been overcome.

The managers of the Watford-heath School, impressed with the importance of introducing cookery into the school course, communicated with the proprietor, who at once offered to build a kitchen in the playground. At their request it was built in a plain style, and furnished with an ordinary cottage range. The cost was probably about £100, furniture included*. As there may be rich men inclined to confer this boon upon their district, and as I have been frequently asked for particulars, I annex a description drawn up by Mr. W. H. Syme, A.R.I.B.A., of Watford:—

"The kitchen, a plain brick-built and slated structure, measures 16 ft. square inside, and has an open roof, affording an average height of 12 feet. On the side by which we enter is a table or dresser 11 feet in length, with a large window immediately over it. On the right hand of the room is a stone sink 5 feet long by 2 feet wide, amply lighted by a second large window, and provided with a lead pump for the supply of rain-water. Against the wall, on the opposite side, stands a roomy cupboard, the lower portion of which, with a door 4 feet 8 inches high, is fitted with shelves for the disposal of wood, knives, forks, spoons, and crockery. The upper compartment, used as a store closet, has a perforated zinc panel at each side, and a door 1 foot 9 inches high similarly ventilated. The remaining side of the apartment is occupied by a 42-inch open range, with boiler and 14 inch oven. A clock surmounts the stone chimney-piece, and in the recess on either side of the fireplace is fitted up a tier of shelves for plates and dishes, the lower shelf being sufficiently wide to be otherwise useful. The floor is laid with 6-inch tiles; but as, in winter, this has been found to draw the heat from the children's feet, narrow strips of wood, nailed to ledges, have been placed in front of the sink, and around the clean deal table which occupies the centre of the kitchen."

The teaching is given by a pupil-teacher who has been trained at South Kensington. To assist the movement by providing teachers and to reward the most diligent, one person is sent up each year to Kensington to be instructed in artisan cookery.

The instruction in cookery, which is altogether distinct from the lessons in domestic economy, is divided into three grades corresponding with the upper standards of the school, thus:—

Standard IV. (average age, 11). Cleaning.

" V. (" 12), Cooking.

" VI. (" 13), Marketing and cooking.

About 80 lessons in cookery are given in the course of a year, at the rate of two in each week,

* This is less than I stated in a former account,

omitting the weeks immediately before and after the holidays, inspection time, &c. The days are Thursday and Friday, and the time, morning. Consecutive days are taken, that the work may be done more economically, and the morning is chosen that the food may be prepared for an ordinary dinner. The time for dinner is half-past 12, when about eight persons sit down to the meal—the teacher, the cooks, the cleaners, and as many more as are required to furnish the table with guests. Each child who dines pays 2d. The teacher, in addition to her salary as one of the school staff, receives at the rate of 1s. for each cookery lesson, with the proviso that whatever the dinners cost above 3d. a head will be deducted from this payment.

The average number of girls in Standard V. is taken to be ten, and one-half take kitchen duty alternately, so that each girl in this standard receives one lesson a week, and about 40 lessons in the year.

Not more than five girls are allowed to receive instruction from the same person at the same time, and each of them has something to do. As the school is small (average number, 92), the Fifth Standard is not likely to contain more than ten girls, so that no embarrassment results from this rule; but, in a larger school, one or two of the best girls in Standard VI. might be employed in instructing the juniors, under the teacher's direction. Two purposes would be served by this plan; for, when you know a little of a subject, there is no way like teaching to enable you to learn more. Another plan would be to make a selection of girls for the kitchen by merit. Whatever is done, I think a larger number than five cannot be taught together practically. The lecture system does not suit children, and I have concluded, as the result of some experience, that it is not very effective or popular with grown-up people, except a chosen few, who seem to be born with a faculty for receiving information in this way.

It may be noticed, in passing, that the Education Department allows only 20 of these lessons to be counted as attendance at school—a hardship, surely, though a small one.

The cleaning after dinner, still under superintendence, but out of school hours, is done by girls of Standard IV. told off by turns for this work. Each of them is supposed to receive 20 lessons in cleaning in the course of the year.

The arrangements for Standard VI. are not so easily detailed. Much depends on circumstances, as the number in this standard is found to vary much; but the endeavour is to give each girl 20 extra lessons in cooking and some experience in marketing. By the time a girl reaches the Sixth Standard she has most likely gained a certificate for cleaning and another for cooking. She is then in a position, with the consent of the teacher, to undertake a "trial dinner;" that is, a dinner of soup, meat, and sweets, selected from the school course of dishes by the ladies who are to be the judges. The materials are given to the candidate, and she is left to prepare the dinner without aid or hints. If the judges are satisfied, they sign a certificate to that effect, and henceforth the girl is considered to be on the staff of the kitchen. She assists in preparing dinners and suppers for the Workmen's Club, the Youths' Guild, &c., work for

which she is paid, and which gives practice without cost to the kitchen.

In order to stimulate method and regularity, and to assist the managers in supervising, a strict account of the dinners is entered in the kitchen journal, of which a page (filled in) is given at the end of this paper.

I come now to the cost. The following is an exact account of the expenses for 1876:—

	£	s.	d.
1. Loss on food (784 rations).....	2	16	3½
2. Coals.....	1	0	0
3. Fee to Kensington Training School	3	3	0
4. Teacher's fees	3	6	0
5. Receipts and printing.....	0	17	9
6. Aprons, &c.	0	10	5
	11	18	5½
7. Extra furniture.....	3	10	11
	15	9	4½

Item 7 is for furniture which was not required only desired. As to items 3 and 4, it is not, of course, necessary to train a teacher every year, nor is it necessary to pay for the lessons, as the work is done in school hours. The loss on food (item 1) is trifling, but even this might be made to disappear, as we could find plenty of customers for our dinners at 3d. a head instead of 2d. With this tariff, we should actually make a profit which would go to meet the other expenses. By a turn of the screw, the kitchen could be made self-supporting when once started. But as it is, the loss on food is less than £3 a year, and the ordinary expenses less than £12.

While on this subject, I am anxious to quote a valuable suggestion in the *Times* as to the utilisation of doles. It comes to me second-hand through the *Woman's Gazette*, from which I make the extract:—

"The bread doles would furnish the necessary capital to start the village centres, and the full value of the food cooked might be given as a charity to the present recipients of the dry bread. For example, the returns already noted show that upwards of £100 16s. 9d. is given away in Kenilworth, chiefly, if not wholly, in bread. This amount would go largely to support a school, which would be further aided by the fees paid by the learners of all ages. The adult poor might be taught as well as the children, and many a young lady in Kenilworth might be able to get a practical knowledge of cookery that would be useful all her life. Again, at the adjacent picturesque old town of Coventry, where there is an admirable germ of a domestic economy school in the Blue-coat School for Girls, and doles amounting to £415 12s. 6d., a school of cookery with branches might be established to the great comfort of its 40,000 inhabitants. It might fairly be predicted that the old crone who now hobbles to church to get a sixpenny or ninepenny loaf would be much more cheered by a gilet pie or a shepherd's pie, or some fried rissoles of meat, or sausage rolls of Australian mince-meat, or a quart of Irish stew, or some curried tripe, or a Cornish pasty, or a pig's fry, which is called 'poor man's goose,' or a quart of 'pot-au-feu,' or 'a mackerel or herring baked with bread-crumbs and herbs,' or a plum-pudding at Christmas. Any one of these could be provided for the cost of a ninepenny loaf, and some for a sixpenny one, as we learn from the recipes of the National Training School for Cookery.

"If Lord Sandon would look into this subject, he would find that there is a fund exceeding £110,000 per

annum throughout England and Wales now devoted to doles, which might help to promote good cookery among the poor and help to compete with habits of drunkenness."

I submit that I have shown, by an example, how, in connection with a small village school, a kitchen may be maintained, if not on the basis of self-support, at all events for a trifling sum which surely would not be hard to get in any parish in England.

Not long ago a lady's lamentation reached me. It was over her experimental school kitchen, which had failed from its great cost. I found the aim had been to train servants to minister to the rich man's fanciful appetite, and not simply to teach the future managers of our poor homes the importance of method, cleanliness, ingenuity, and economy. It is not expensive to carry out the latter modest course, but I am afraid the other, when tried in schools, will be found both expensive and fruitless.

Now for the question, Where is the teaching to be carried on? Even though there may be no chance of getting a kitchen built, it is not yet time to give up. Everything belongs to those who are in earnest. In some cases, the teacher's house could be secured; in others, the village reading or club-room, which is not, as a rule used in the day-time. These failing, I should be disposed to try negotiations for the cottage of a solitary impecunious widow, who, for a small consideration would gladly adjourn into the cottage of a neighbouring gossip, or abdicate in favour of the teacher for two or three hours a week.

The next question is, who is to teach it? I am afraid you cannot assign this work to your head-teacher without injuring the general work of the school. The best plan in my opinion is to employ an assistant mistress or a pupil-teacher. With this latter arrangement, however, you will have frequent changes. I may be wrong, but I have an opinion that, as a rule, a visiting teacher seldom has the influence of a regular school teacher. In all cases, the head-teacher should have the superintendence and be held responsible that the work may be treated as a part of the school routine and not as something outside of it.

Whatever arrangement is made, the teacher, I suppose, will have to be trained. The cost of going through the artisan kitchen at Kensington is 3 guineas or 4 guineas, if the extra lessons in teaching are taken. I am assuming that there is no hardship in expecting the teacher's friends to bear the expense of maintenance, as her value is increased and additional payments are immediately earned in the case I have given, at any rate. The girls sent up from Watford-heath have been able to stay with friends.*

But now we come to a serious difficulty. Watford-heath is near London, but what about schools in distant parts? To make this movement general there must be a network of schools of cookery over the land. I cannot stay to treat of this subject fully. It is a pity it has not been made the burden of a distinct paper. The large towns are, perhaps,

* In the debate in the House of Commons on 10th July, Lord Sandon stated that he was informed that the cost of training a teacher would be about £35. Surely this information comes from an unfriendly source. Even if maintenance has to be found, the expense would not be more than from six to nine guineas, with or without travelling expenses.

supplied, but towns below, say 20,000, are unable to maintain separate schools. Could not those in the same district combine, say in threes, and have temporary, flying schools set up for a year in each town with the same teacher and *batterie de cuisine*? By a system of day and night classes, as in the schools of art, and with payment from the Education Department for every teacher and pupil-teacher passing satisfactorily, such schools would, I believe, support themselves. It would, however, be important to stipulate that they should not be closed in the ordinary school holiday-time, as the manner of the school at Kensington is.

I come now to speak of the principal hindrance which the managers of the Watford-heath School kitchen have had to face. It sprang, not from want of funds, or from want of a room, or from want of a teacher, or from the suspiciousness of the parents, or the unwillingness of the children, but from the strenuous opposition offered by her Majesty's inspector. Nothing that could be done by him was left undone. Our time-table was rejected. We were told our grant was in danger. We were dealt with separately, with the view of dividing us, and thus conquering. Had the proposal been to teach Syriac, the opposition would, possibly, have been less violent. It could not have been more so. However—

"Persecution drove us into fame."

We were obliged to appeal to the Department, which ratified the sanction they had previously given to our experiment, a sanction which was ignored by the inspector. The press took our case up, and we were safe. At the next visit of the inspector, our cooking operations were simply passed by without observation or inquiry. Under other circumstances we might, perhaps, have hoped for friendly interest; but, as it was, we were deeply thankful to escape notice, and to be allowed to do good by stealth, as it were.

I may safely add that there is nothing in the state of the general education of our school to justify this tone. None of our cooks have ever failed in any subject of examination. Both managers and teachers agree in thinking that their general intelligence has been much improved by the lessons in cooking. I am happy here to quote another inspector:—"Children who have little beyond the dull routine of reading, writing, and arithmetic, must grow unutterably weary of them. The stimulus given to their faculties by having a new object of interest produces a more healthy and vigorous condition, and enables them to accomplish more in the standard subjects with less waste of power." (Report of Education Department, 1875-6. Mr. Howard's Report, p. 320.)

My object in making this statement is not to parade a grievance, but to show that if practical education is to be carried on well, we need friendly, sympathetic, intelligent inspection. We do not want inspectors, who have persuaded themselves that Oxford lore, or as much of it as can be got in, is the thing for our elementary schools. I am far from saying that all our inspectors are bent on thus perverting the elementary education of the country, but here is one case, at all events. Managers when urged to introduce cooking into their schools allege as a difficulty, fear of the inspector, and fear of loss in the grant. It is the same with needlework. The

schools are afraid to take it up as an extra subject, for the same reason. I seek in vain to reconcile this opposition to practical education with the declarations of Lord Sandon, which have won for him the confidence of the country.

We evidently want special inspectors, interested in practical education and able to see that it is carried out. I am glad to see that this subject is to be handled in Section C. by Mr. MacCarthy.

I am not one fond of calling for Government interference; but, reverting to the difficulty in getting teachers—which, after all, is the main difficulty—it strikes me there are several subjects under the fostering care of the Science and Art Department which are of less importance to the country than this. Why cannot we have examinations in cookery on the same principle? Without a large supply of teachers, it is mere play. But give us this, and the moral aspect of the country would shortly be changed.

Let it be understood that this is not an endeavour to afford gratification to the lovers of good living. It is based on a desire to spread contentment and domestic comfort, to cheer the lives and purify the tastes of those who spend day after day in a dreary round of monotonous labour. It is an economical and temperance movement. "The adjustment (says C. Kingsley) of the elements of food in the right proportions is almost the most important element in insuring temperance." Had as large an army of teachers of cookery been in the field as of teetotal lecturers, and for as long a time; had schools of cookery been in operation as long as teetotal societies, we should perhaps by this time have seen the publicans parading our streets in the same destitute condition as will be the lot of the doctors, if Mr. Punch is right, in Dr. Richardson's City of Health; or, better still, driven to take up their legal but forgotten trade of licensed victuallers.

And, not only is this appeal for support made to the friends of temperance, but we claim the sympathy of the advocates of women's rights. We hope that a better acquaintance with domestic duties will make woman in humble life more valued and more valuable. We hope she will be helped to acquire and maintain that true though unseen ascendancy in the household without which no home is well-regulated, moral, or happy, and to conform to the ancient type of perfect womanhood set forth in the writings of the wise man: "The heart of her husband doth safely trust in her, so that he shall have no need of spoil. She will do him good and not evil all the days of her life. She seeketh wool and flax, and worketh willingly with her hands. She looketh well to the ways of her household, and eateth not the bread of idleness. Her children rise up and call her blessed; her husband also, and he praiseth her. Many daughters have done virtuously, but thou excellest them all."

WATFORD-HEATH KITCHEN, 1877.

Description of Dinner, names of persons dining, and work done.

Thursday, June 28th.—Sheep's head, haricots, gooseberry pie. M. Phillips (in charge). S. Bates (pie), G.

Freeman (head), M. Battams (beef tea, haricots), E. Morgan (cleaning), P. Gates (cleaning), L. Field (cleaning), Miss Williams.

Friday, June 29th.—Cornish pasties, haricots, rhubarb pie. M. Phillips (in charge). G. Freeman (pasties), E. Cooper (pie), A. Hill (haricots), A. Ashby (cleaning), E. Morgan (cleaning), A. Pepper (cleaning), Miss E. Savill. Total No., 16; payments, 2s. 4d.

Cost of Food.—Brought forward (stock in hand), 3s. 2½d.; meat (sheep's head), 9d.; milk, 3d.; bread, 2d.; flour, 4d.; haricots, 2d.; potatoes, 2d.; onions, ½d.; gooseberries, 6d.; rhubarb, 3d.; sugar, 3d.; barley, ½d.; total, 6s. 1½d.; deduct amount carried forward, 3s. 2½d.; total, 2s. 11d.; cost per head under 2½d.

Memoranda for Treasurer.—Gifts valued at 3d. included above; beef tea for Mrs. Paul—cost 9½d.—not included above. To be charged to Sick Poor Fund.

Examined, J. E. W.; M. Phillips, teacher.

WATFORD-HEATH ELEMENTARY SCHOOL KITCHEN.—
CERTIFICATE OF MERIT.

Fourth Standard.—, of the fourth standard, attended* lessons in cleaning in the year 18 .

Fifth Standard.—The above-named received† lessons in the year 18 , also prepared and served, without aid, a plain dinner, to the satisfaction of the undersigned, this day of , 18 .

Sixth Standard.—The above-named received‡ additional lessons in cooking, and assisted in the purchase of food for the kitchen in the year 18 .

A full certificate, with prize, is awarded to the above-named.

The above form and certificate can be had at the Labour News office, 15, Russell-street, Covent-garden.

THE PRACTICAL USE OF THE FOOD COLLECTION OF THE SCIENCE AND ART DEPARTMENT.

By Mr. W. Stephen Mitchell, M.A.

My name is down in the list for a paper on the practical use of the Food Collection of the Science and Art Department, and, as I have no special qualification to entitle me to speak about it, I think a word or two of explanation as to how this has happened may be useful to indicate the light in which the subject is submitted for your consideration.

At the beginning of this year I was asked if I would read a paper before the Society of Arts on a subject that admitted of practical application. My reply was that, if it were considered suitable, I should like to hear a discussion on a subject I had been interested in for several years, and which I brought under the notice of the Social Science Congress at the Brighton meeting, namely, some of the ways in which the Food Collection of the Science and Art Department may be made of use for instruction in the management of home dietaries. I explained that the homes I principally had in view were those of the wage classes and poor. The subject was considered suitable, and the discussion accordingly took place at the Society of

Arts, on May the 16th, and is, with the paper, printed in the *Journal*, No. 1,278.*

The attendance at the meeting was very small, and I could not help expressing my regret that the real point I wanted discussed had been barely touched on. The secretary then suggested that the paper should be sent here for discussion as falling within the scope of the Congress. I must admit that I do not yet know exactly what the scope is, but as far as I gather it is to discuss how the teachings of science and other experiences may be applied to bettering the home management of our people. Social questions, those affecting people as communities, and often affecting legislation, are left to the Social Science Congress. We here have to deal with the home alone. If I have rightly understood the scope of this Congress then my paper fits in exactly, for I have nothing to say about public dietaries such as those regulated under authority for workhouses, prisons, army, &c., but I raise for discussion only this question, How can the teaching of the Food Collection of the Science and Art Department be made of use for the houses of the wage classes and very poor? and my suggestions are limited to the way in which the use may be made available by means of schools, particularly in girls' schools where cooking is taught.

My attention was drawn to the collection sixteen years ago by Dr. Lankester, who was then the scientific referee. Some of my fellow students tried experimental diets, but the principal aspect we discussed was the change that would be likely to ensue in the badly-managed diet of the classes to which I now refer. Although I could never hear of any of the expected changes being effected, it did not occur to me to say anything until the movement for schools of cookery under distinguished patronage was commenced. I then wrote a letter to the *Morning Post*, which appeared on September 15, 1874, in which I ventured to suggest that such teaching as the collection of the Science and Art Department could furnish was not receiving due attention. [The letter is copied in the number of the *Society of Arts Journal*, as referred to above.] It was that letter which was the basis of the resolution passed at the meeting of the Social Science Congress at Brighton. So far as I know, nothing ever resulted from that resolution. Since then I have had occasion to write one or two articles on the collection, and for this purpose I have endeavoured to get myself fully informed on the uses to which it has been put. My only reason for thus alluding to the personal interest I have taken in the collection for so many years, is that I may assure you that I am not speaking hastily when I tell you that I have not been able to hear of any case in which the collection has been used for practical instruction, nor have I been able to hear of any family among the wage class or poor, in which the instruction of the collection has been of any use.†

In the suggestions I lay before you, while there

* As I believe that copies of the paper have been circulated at this Congress, I wish to say that, in arranging the paper, part of the explanation of the Table, and the use I suggested of Macmillan's Science Primers, has been accidentally omitted; I suppose, through a fault of my own in reading the proofs.

† When a somewhat similar collection was exhibited at the Polytechnic, lectures were given, but I understand from Professor E. V. Gardner that these were demonstrations on the collection itself, rather than lectures on how to practically apply the information given.

* Not less than 20.
† Not less than 40.
‡ Not less than 20.

is no experience to refer to, there is on the other hand no precedent to be set aside, there are no old grooves out of which it is requisite to get before starting. There are several ways in which the collection might be made of use. My suggestion, as I have said, refer to the uses of it in girls' schools, where cooking is taught.

I need hardly remind this Conference of the method of the arrangement of the collection. Those who have not seen it in London, will find sample cases in the temporary exhibition close at hand, and I have briefly sketched the history of the changes in the paper already alluded to. The special point to which I wish to draw attention, is that, in the last edition of the hand-book by Professor Church, and in the recently mounted labels of the collection, the daily amounts of carbon and nitrogen needed by a healthy man in active employment are given as:—Carbon, 4,900 grains; nitrogen, 300 grains. This may be taken as an average of the amount arrived at by all the experiments made. The late Dr. Edward Smith, in his official* reports to the Privy Council, stated that amongst poorly-fed operatives subsistence has been known to be maintained on 3,000 grains of carbon and 170 grains of nitrogen, but this was attended with enfeebled health. The amount required by the same labourer varies according to condition of climate, moisture, and temperature, and the amount of work to be done. The carbon may vary from 4,000 to 6,000 grains, and the nitrogen from 250 to 350 grains. The information thus obtained by special experiment, and by properly organised observation, has been tested by making it the basis of the dietaries of the army and navy, prisons, workhouses, hospitals, &c. There is now abundant testimony that since dieting has been arranged on these chemical principles, the health of the people so dieted has been excellent. We may, therefore, rest fairly well assured, that after all the fluctuations in results that may be expected to exist in a young science, we have at last arrived at a result that may be relied on as, at least, approximately true. These numbers refer to men in activity, in full health, and they refer to the amount of carbon and nitrogen taken into the body in food which can be actually assimilated and pass into the blood. However the amounts for women and children may vary (amounts which, so far as I know, have not been worked out), for the purpose I have in view, it is enough to consider this—that a labourer is told that the results of the work of men of science is, that he must daily take into his system 4,900 grains of carbon and 300 grains of nitrogen.

This collection gives information as to how these quantities of carbon and nitrogen may be obtained from different foods, and the information is given in this form:—

WHITE TURNIPS contain:—

	In 100 parts.	ozs.	grs.
Water	92.8	14	371
Albumen	0.5	0	35
Pectose	4.0	0	210
Fat	0.1	0	7
Cellulose and lignose	1.8	0	126
Mineral matter	0.8	0	55

For one part of flesh-formers in turnips there are eight parts of heat-givers, reckoned as starch.

* 5th and 6th reports of medical officer, 1862-3.

DRY RIPE PEAS contain:—

	In 100 parts.	ozs.	grs.
Water	14.3	2	126
Casein	22.4	3	255
Starch	51.3	8	91
Fat	2.5	0	175
Cellulose and lignose	6.5	1	17
Mineral matter	3.0	0	210

For one part of flesh-formers in peas there are only 2½ parts of heat-givers, reckoned as starch. 1 lb. of peas contains flesh-formers equal to 3½ ounces of the dry nitrogenous matter of muscle or flesh.

POTATOES contain much starch, which is made into sugar, spirits, gum, &c. Numerous varieties exist, but the average composition is as follows:—

	In 100 parts.	ozs.	grs.
Water	75.0	12	0
Fibrin and albumen	2.3	0	161
Starch	15.4	2	210
Dextrin and pectose	2.0	0	140
Fat	0.3	0	21
Cellulose	1.0	0	70
Mineral matter	1.0	0	70

For one part of flesh-formers potatoes contain 10 parts of heat-givers, reckoned as starch.

MUTTON CHOP contains:—

	In 100 parts.	ozs.	grs.
Water	44.1	7	21
Albumen	1.7	0	119
Fibrin (true muscle)	5.9	0	413
Ossein-like substances	1.2	0	84
Fat	42.0	6	315
Organic extractions	1.8	0	126
Mineral matters	1.0	0	70
Other substances	2.3	0	161

In addition to these labels there is the following information given in a separate label:—

A day's Ration; its Nature and Amount.—Daily Food.

"If we look only to the chief constituents of human food, and set them down without regard to the particular vegetable or animal products which may be actually taken to supply them, we shall be able to construct a kind of ideal daily ration. Now, to make up for the daily waste of a man weighing 154 pounds, his food should have something like the following proportions and quantities of its main ingredients:—

	In 100 parts of food.	In 1 lb. ozs. grs.	In 24 hours. lbs. ozs. grs.
Water	81.5	13	18
Albuminoids, or flesh-formers	3.9	0	273
Starch, sugar, &c.	10.6	1	304
Fat or oil	3.0	0	210
Common salt	0.7	0	49
Phosphates, potash salts, &c.	0.3	0	21

"On adding the figures of the third column together, it will be seen that the total daily ration ('meat' and 'drink' included) will weigh 6 lbs. 13 ounces, 128 grains. Of this amount 1 lb. 4 ounces, 245 grains, is actually dry-food substance, more than 5½ lbs. being water. But, in reality, a daily ration will amount to rather more than this, chiefly by reason of those minor constituents of animal and vegetable food which are not included in the above Table."

To some extent, Professor Church, in his hand-book, has indicated the way in which the food collection may be used. At page 51, for example, he writes:—

"Such a mixed diet as we have been referring to

might be furnished by the following foods, if consumed in the quantities here given:—

	Ounces.
Bread	18
Butter	1
Milk	4
Bacon	2
Potatoes	8
Cabbage	6
Cheese	3½
Sugar	1
Salt	¾
Water alone, and in tea, coffee, and beer	60½

Altogether, these will contain about 1 lb. 5½ oz. of dry substances, though they weigh in all 6 lbs. 1½ oz. This is the only one of the kind. The menu might do very well for a few days, but variety is needed. The Tables at pages 210 and 211 give the amount of food to be oxidised in the body to raise 140 lbs. to the height of 10,000 feet.

I think it is hardly necessary for me to occupy your time in proving to you that this is not intelligible to those who most need the information; that there is in fact a gap between the teaching of men of science as thus put forward, and those for whom it is intended. I do not wish for one moment by this to mean that it appears to me the Department has not done what it should do.* The gap is to be filled in by educating the people up to the level of the teaching.

I now pass on to my suggestions, how this may be done in girls' schools where cooking is taught.

The first subject to which I wish to refer is the way in which children may be familiarised with the elements and compounds that enter into and form the human body. I know that it is generally supposed that this is too difficult to be attempted. I submit for your consideration that it is not too difficult. In the first place they are not numerous. The elements and compounds, as recognised in the last edition of the handbook, are all named on the accompanying Table (see page 78).

[In the Table of the elements, a hollow letter means the element, when free, is a gas; a heavy letter means a solid "non-metal;" the Roman letters mean "metal." The length of the line is drawn to a scale of a quarter of an inch to a pound, to represent the amount of each in the body.]

Now if the actual objects themselves were shown to the children in the lessons; if simple experiments, such as those given in Roscoe's Science Primer, were made with the gases, they would soon be familiarised with them. No more information, too, about chemical combinations, than is given in Roscoe, would be needed. The children could easily be taught to prepare fibrin, albumen, ossein, &c., for themselves under proper direction.† As to recollecting the exact quantities of each, if a teacher should hold it important as a memory exercise, learning the lengths of the lines would be very similar to learning the lengths of rivers from similarly constructed plans. I believe that if children are brought into

* As far as I am able to judge, the teaching seems put as clearly as it can be, except that perhaps tubes of the same calibre throughout, as used in the Russian Paldogio Museum, are clearer than the little trays. The size of heaps in trays is not so easily estimated as quantities in tubes. I think, too, it would be better to use grammes, rather than ounces and grains.

† See Tegetmeyer's "Household Management and Cookery" (MacMillan), pp. 15 and 16, and Foster's "Physiology," MacMillan's Science Primers, pp. 46 and 48, &c.

contact with the objects themselves, all the supposed special difficulties of the case vanish.

And here I would quote from the letter I have already mentioned:—

Morning Post, Sept. 15, 1874.

"In the new Code of the Committee of Education of the Privy Council, provision is made for instruction in elementary schools in cooking, house management, clothing, and health questions. This new feature in the Code of the Privy Council must soon have an influence beyond the schools and training colleges it directly effects. But I can see no reason why some portions, at least, of the subject should not at once be introduced into all schools which are in connection with the Science and Art Department as well. Let me take the first of the subjects enumerated—'Food and its Preparation.' Already a powerful machinery exists, which, with slight modification, might be used for instruction and for examination in it. Already animal physiology is one of the subjects for which classes are held, examination papers are set, and for which capitation grants are made. It is a somewhat popular subject, for according to the 'Science Directory' for 1874, it stood second in the number of students returned as attending the classes. [Physical geography heads the list with 20,055.] Animal physiology is second with 10,325; 'acoustics, light and heat' follow with 7,112; while 6,431 are recorded for inorganic and 414 for organic chemistry. There is thus already given, though scattered over four subjects, much of the instruction which would belong properly to the special subject of 'Food and its Preparation.' To make the subject an efficient one, all that is needed is to select certain portions from subjects already taught, 'physiology,' 'acoustics, light, heat,' 'inorganic chemistry,' 'organic chemistry;' to group these portions as one subject, and to add to it some additional instruction that is not at all more difficult than than much that is already given. Were such a new subject arranged, there would of course be many opinions as to exactly how much it should include, but probably all would agree in this; The selection from 'animal physiology' of the present so-called 'anatomical preliminaries,' and the description of the tissues of the body, their daily waste by action, and their need of daily restoration, and while the alimentary system would have to be dealt with somewhat fully, the osseous, nervous, and muscular systems would not have, for the purpose in view, to be taken so fully as these are in the subject 'animal physiology' as it is at present arranged. In like way, in chemistry, only those sections that refer to the composition of the tissue of the body, and to the foods that supply the elements for those tissues, need be selected; with such sections as refer to the chemistry of combustion. As an illustration of the need of knowing what foods contain, I quote two cheap breakfasts suggested by the late Dr. Smith in his 'Practical Dietary':—

"(No. 10.) Breakfast of tea, bread, and butter:—Tea, ½ oz.; sugar, ½ oz.; skimmed milk, ½ pint; water, ½ pint; bread, 6 oz.; butter, ½ oz. The cost, 1½d. Amount of carbon, 1,081 grains; nitrogen, 46 grains."

"(No. 8.) Breakfast of oatmeal brose, treacle, bread and bacon:—Oatmeal, 5 oz.; skimmed milk, ½ pint; water, ½ pint; treacle, 1 oz.; bread, 3 oz.; bacon, 1 oz. The cost, 1½d. Amount of carbon, 1,990 grains; nitrogen, 88 grains."

"Here are two breakfasts, each costing the same amount, and each, therefore, at first sight equally economic; yet see what a difference there is in the working power supplied. The one gives 909 grains of carbon and 42 grains of nitrogen more than the other. The chemistry of foods cannot be neglected in arranging the dieting of the poor."

"In a similar way with physics, only such sections of

ELEMENTS.										COMPOUNDS.										
NON-METALS.										METALS.										
CARBON	C																			
HYDROGEN	H																			
NITROGEN	N																			
SULPHUR	S																			
CHLORINE	Cl																			
FLLOURINE	F																			
PHOSPHORUS	P																			
SILICON	Si																			
METALS.										NON-METALS.										
Potassium	K																			
Sodium	Na																			
Calcium	Ca																			
Copper	Cu																			
Magnesium	Mg																			
Manganese	Mn																			
Iron	Fe																			
METALS.										NON-METALS.										
WATER										FIBRIN										
ALBUMIN										OSSEIN										
KERATIN										CARTILAGIN										
FAT										CHOLESTERIN										
INOSITE										GLYCOCEN										
KREATIN										CEREBRIN										
KEPHALIN										MYELIN										
SILICA										Hæmoglobin										
Phosphate of Lime										Carbonate of Lime										
Fluoride of Calcium										Phosphate of Magnesia										
Chloride of Sodium										Chloride of Potassium										

"People who do not know how for themselves to make use of the tables want the facts put before them in some form, as Dr. E. Smith gave it in the Privy Council reports already mentioned. He divided the needed daily amount of carbon and nitrogen into three meals, and then gave a series of examples for breakfasts, dinners, and teas at different prices. The amounts of the foods he mentions were expressed in pounds and ounces, or pints of each, and then he gives in grains what is the amount of nitrogen and carbon in the meal. For example (table 176), he gives a breakfast, calculated for a family, at 1½d. a head, consisting of skimmed milk, oatmeal, water, bread and fat, which gives to each ration, if equally divided, carbon, 1,478 grains, nitrogen 80 grains. Another breakfast, at the same price (table 177), somewhat different, and including bacon, gives carbon 1,561, nitrogen 69; and another (table 182), also at the same price, carbon 1,190, nitrogen 56. For dinner at 2d. a head (table 187) gives carbon 1,616, nitrogen 71; (table 190) gives for the same price, carbon 1,513, nitrogen 140; (table 199), also at the same price, carbon 2,144. We quote, also, three tables for tea at 1d. a head (table 198), carbon 670, nitrogen 29; (table 201) carbon 1,031, nitrogen 61; (table 202) carbon 1,250, nitrogen 43. There are also other examples at slightly different cost. This is, however, sufficient to show that the cost of a meal has no relation to its value as nutriment."

ERRORS IN DIET.

By Dr. Wilson,
Medical Officer of Health.

It has been estimated by a physician of great eminence that at least 30 per cent. of the patients who consult the doctor owe their ailments to errors in diet, and a tolerably large proportion of them come from the upper and well-to-do classes. But, as a rule, they are very troublesome patients to treat, for the mind of the dyspeptic is notoriously fickle and uncertain. He will catch at any nostrum which professes to give relief, and drink any amount of nauseous waters, rather than change his mode of living, although he is assured, and may himself have a very shrewd suspicion, that this is the real cause of all his troubles. If he is put under a regimen which he considers too strict, he will have few scruples in changing his medical adviser, and thus he frequently becomes the ready dupe of the arrant quack, who will buoy him up for a time with false hopes, and afterwards trade upon his fears. Although it is true that disorders of digestion are not all attributable to errors in diet, it is no less true that the great majority of them are, either directly or indirectly, traceable to this cause—indirectly often when they are inherited, and directly, for example, from over-feeding, over-stimulation, a badly regulated dietary, meals eaten hurriedly and at irregular hours, insufficiency of food, and articles of food of very indifferent quality.

But in addition to what are vaguely called disorders of digestion, there is a crowd of other ailments and diseases which may be all placed in the same category, as regards cause and effect. Look, for instance, at the enormous waste of infant life, and the enfeebled constitutions of those that survive, which are due to ignorance or culpable neglect in the feeding of young children. Or, look again at the wide-spread evils of intemperance and over stimulation in steadily and surely undermining the healthy action of almost every organ of the body, and the

long train of diseases which follow that smaller habitual excess in eating and drinking so common amongst the upper and middle ranks of society. Livers are constantly going out of order amongst the men, and bilious headaches, to say nothing of worse ailments, spoil the temper and the good looks of the women. After a protracted period of immunity, the sedentary man who is fond of a good dinner and a glass of old port, and who boasts of his moderation, is astonished with an attack of gout, and forthwith blames his ancestry. Very possibly his ancestors may have had a good deal to do with it, but he is slow to admit that a little more care on his own part might have prevented all the excruciating pangs to which he has now become a victim. Indeed, it generally requires more than one attack to convince him that, as errors in eating and drinking have been the exciting cause of the mischief, so a careful and more abstemious dietary affords the only chance of a real and permanent cure. Full of good resolves when he is in the clutches of his enemy, he cannot help gratifying some of his old appetites and habits when the attack is over, at first, it may be with no small amount of misgiving, but after a time with less stint and fewer scruples, bearing out the truth of that well-known rhyme—

"When the devil was sick, the devil a saint would be;
When the devil got well, the devil a saint was he."

But I need not multiply instances; let me, rather, in passing, venture to make a suggestion. In these days of Conferences and Social Science Congresses, I can conceive of few gatherings which would attract a larger share of interest, and be productive of greater good as regards what we should eat and drink, than a conference of persons who have suffered from gout, and who, by careful living, have prevented subsequent attacks. There might be another section, composed of those who have been victims to dyspepsia, disordered livers, or bilious attacks; but in both sections the discussions should be characterised by frank and open confession of the modes of living before the disorder set in, and what changes were made in the diet, to effect a cure or ward off a relapse. No doubt there would be a good many conflicting views expressed, especially as regards the efficacy of drugs, but I feel confident that there would be a general concurrence of opinion that errors in diet have a much larger share in the production of disease than people are inclined to believe, and carefulness a much wider influence in its prevention and cure.

This, however, by the way. Let me now endeavour to point out very briefly some of the leading facts and principles which should guide us in matters of diet, and in doing so I shall avoid as far as possible entering upon any discussion of the numerous and important chemical and physiological researches which have been made in this direction, though I shall freely avail myself of whatever practical deductions can be usefully drawn from them. In the first place, then, I need hardly say, that whether food be animal or vegetable, it is essential that the diet should contain certain classes of ingredients, namely, those which are required to build up the fabric of the body and repair waste, and those which are necessary for the support of animal heat and the evolution of force, as exemplified in various bodily movements, and in our capacity for work. Now,

these ingredients or constituents of food, as they have been called, have been divided into the following classes:—the nitrogenous, or flesh-formers; the fatty and saccharine, or body-warmers and force-producers; and the watery and saline, or inorganic substances. The nitrogenous substances nourish the muscles, brain, nerves, and bone; the fatty and saccharine constituents make up the fatty or adipose tissue, which is interspersed throughout all parts of the body, and are directly subservient to the maintenance of animal heat and the production of animal force; while the watery and saline constituents are essential to the solution and conveyance of the food to different parts of the system, and to the consolidation of the tissues. As examples of the nitrogenous class, we have albumen, which makes up a large part of the lean or fleshy portions of animal food, and which is also contained, though in much smaller quantities, in vegetables; casein, which is found in milk and cheese; and gluten, which is contained in varying quantities in wheaten flour, oatmeal, barley-meal, and the like. As examples of the fatty constituents, we have the fat, which is interspersed more or less freely throughout all animal food, butter, and animal and vegetable oils; while the saccharine constituents are derived from the starch contained in potatoes, the various cereals, tapioca, arrow-root, and other vegetable products.

That a well-arranged diet should contain all these several classes of constituents is alike taught by experience and proved by experiment, and science has also decided with tolerable accuracy, not only what proportion each should bear to the other, but what should be the actual quantities allowed under the various influences of age, sex, and work. The articles of food themselves may be varied almost indefinitely; indeed, variety is a great desideratum in diet, but the proportions and amounts of the several constituents, under certain uniform conditions, cannot be widely departed from without incurring injurious results. As to quantity, an adult may be considered to be taking sufficient for the ordinary requirements of healthy activity if he eats in 24 hours the equivalents of 1 lb. of meat and 2 lbs. of bread. The English soldier on home service receives ½ lb. of meat and 1 lb. bread daily, and he buys about ½ lb. additional bread and 1 lb. of other vegetable food. Such a diet is amply sufficient for any adult under ordinary circumstances of light employment; but should extra demands be made upon mind or body, the diet must be increased, or the health will suffer. Active labourers, such as artisans or agricultural labourers, consume about a fifth more nitrogenous food, and twice as much fat, as those engaged in light employment, while the saccharine constituents are not augmented. Navvies, on the other hand, and those who are employed at hard work, while they require more food, generally err in taking too much animal food and neglecting vegetable food, for it is now well-known that the raising of the muscular powers to the full extent of their usefulness may be effected by vegetable food, quite as well as by increasing the more stimulating and more expensive animal nutriment. With a fair allowance of milk, plenty of oatmeal porridge and oatmeal cakes, potatoes, and other vegetables, a Scotch labourer will do as hard a day's work as any English navvy, and yet take very little butcher-meat

from one week's end to the other. Such a diet is as nutritious, more healthy, and much cheaper in country districts, than a diet in which animal food is partaken of twice and often thrice daily, and to a working man cheapness is a great desideratum.

But, then, on the other hand, there are vast numbers amongst the working-classes who do not obtain a sufficiency of nitrogenous food. They subsist almost exclusively on bread, potatoes, and other starchy foods, and they are easily recognisable by their pale looks, attenuated forms, and weak and flabby muscles. More especially is this species of chronic starvation common amongst the wives of the poorer classes, and women employed as seamstresses, and there can be little doubt it is to their insufficient diet that the craving for tea at all hours of the day is in great measure due. Much more nutriment would be obtained, and much mischief avoided, if cocoa were more freely used, for I need hardly say that over-indulgence in tea-drinking induces a long train of dyspeptic symptoms, accompanied by great excitability of the nervous system, which are as painful as they are unfortunately common.

Having thus far endeavoured to indicate roughly the importance of a right distribution of the different classes of food-constituents, let me now submit a few hints of a practical kind, in respect to diet as influenced by age. And first, I would direct attention to the feeding of infants. Few people have any adequate conception of the enormous waste of infant life which results from diseases induced by the insufficient, improper, and careless feeding of infants. The statistics of the Registrar-General inform us that, out of every 1,000 children born, 150 die before they reach the age of one year, and I do not think it is making too high an estimate, if I say that one-third of these deaths are attributable to what may be called starvation-induced ailments. Assuming, further, that the number of children born annually in the United Kingdom amounts to one million—and that is very near the mark—there is thus an annual sacrifice of at least 50,000 infant lives.

Leaving these figures to speak for themselves, I think there are few who would be ready to dispute that the proper food for a new-born infant is the mother's milk; and, in order that this may be sufficiently nutritious, it is necessary that the mother herself should be in fairly good health, and be very careful as regards her diet. Cow's milk, fresh and unskimmed, should, if possible, be partaken of freely every day; and, in respect to solid food, there should be a liberal allowance of animal food, cooked in various ways, so as not to cloy the appetite, and plenty of farinaceous food and vegetables. With the exception of a little light wine, beer, or stout—and even these might be advantageously dispensed with in most cases—the less a nursing mother takes of stimulants the better, and she should especially avoid over-indulgence in the use of tea. As regards the infant, after the first few days, it should be suckled from six to nine times daily, and, as far as possible, at regular intervals, after which a gradual reduction may be begun, until, before weaning, the number of meals should not exceed four. The time for weaning—generally, about the age of nine months—should be determined partly by the growth of the teeth, presuming, of course, that the mother's health is not suffering in the meanwhile.

Whenever the first group of teeth appear, which usually happens about the sixth or seventh month, the mother may begin to diminish the number of suckling times; and when the second group appear in the upper front gums, the supply may be cut off altogether. If the state of the mother's health prevents her from nursing her child, it may be reared on fresh cow's milk, or goat's milk, or condensed milk. The advantage of using goat's milk, when it can be procured, is that, even in towns, the animal may be brought to the house, and the freshness and genuineness of the milk are thus put beyond question. When cow's milk is used, it should at first be mixed with half its bulk of pure, soft, tepid water, and sweetened with a little sugar or sugar of milk, and a grain or two of phosphate of lime should also be supplied with it daily. Condensed milk will not require sweetening, but it should be sufficiently diluted to resemble milk and water. Although it is not liable to undergo the rapid changes to which cow's milk is exposed in warm weather, it is not so suitable as fresh unskimmed milk for constant use, but it may very often be advantageously used during the summer and autumn months. I say nothing regarding wet-nursing, because I am strongly of opinion that, should the mother be unfit to nurse her child herself, a trial ought first to be made, under the supervision of the medical attendant, of artificial feeding, and the numbers of healthy infants who are reared in this way shows that, with proper care, a wet-nurse need only be employed in very exceptional instances. But great care must be exercised, especially as regards the quality of the milk, its quantity, the times of feeding, its proper preparation, and the observance of the most rigorous cleanliness. Indeed, one of the chief objections to the use of the feeding-bottle depends upon the fact that the bottle and flexible tube are not kept sufficiently clean, so that fermentive changes are set up in the milk, and the infant sickens, and very often succumbs to diarrhoea. It frequently happens, too, that the water which is used to dilute the milk is not sufficiently pure, and it is a wise precaution always to boil the water if it be derived from a surface well.

Up to six months old, then, the food of the infant should consist of milk, and, if possible, it should not be supplemented by or mixed with farinaceous foods, such as arrow-root, sago-flour, and the like. The quantity required, whether it be from the breast or consist of cow's milk, has been ascertained to be a quarter of a pint on the second day, two-thirds of a pint on the third day, about a whole pint on the fourth day, and this quantity is gradually increased, until when the child is six months old, not less than two pints are wanted. Unfortunately, however, when the mother herself is underfed, or when amongst the poorer classes the child is artificially reared, nothing like this quantity is obtained, and the feeding-bottle is charged with all sorts of messes which do not in themselves contain sufficient nutriment, and which the child cannot digest. The consequence is that the child begins to waste away, and whether diarrhoea or other form of disease sets in, the actual cause of death is gradual starvation. The reason why farinaceous foods are unsuited to a young infant is simply this, that an abundant secretion from the salivary glands is essential to

the proper digestion of foods of this description, and these glands do not begin to secrete freely until the child is about six months old. After this period the diet may be supplemented, but at first only in a tentative way, by various articles, such as a little broth or beef tea, tapioca, arrowroot, corn-flour, baked flour, and the like. All these and others should have their turn, but, meanwhile, the child should be carefully watched, so that any article which is found to disagree should be discontinued. And here it is necessary to allude to the dangers of weaning the child too early, not the least among which is the liability to suffer from rickets. The child may look thriving enough, but the bones are not sufficiently nourished, and the mischief is not suspected until the limbs become distorted when it begins to move about. It is in order to prevent this mischief that physicians recommend the addition of a little sugar of milk, and a grain or two of phosphate of lime, daily, to be mixed with the milk when the child is artificially fed; so long as it is well nursed at the breast, the mother's milk supplies a sufficiency of the saline as well as the other constituents of food.

After the child is weaned, and up to the eighteenth or twentieth month, when the eye-teeth are cut, milk should still continue to form a considerable portion of the diet, and indeed, during childhood, it may be laid down as a rule that it cannot wholly be dispensed with without detriment to health. Dr. Ferguson, a factory surgeon, who has devoted a large share of attention to this subject, has ascertained from careful measurements of numerous factory children, that, between 13 and 14 years, they grow nearly four times as fast on milk for breakfast and supper as on tea and coffee, a fact which proves incontestably that milk is essential to the healthy nutrition of the young. If tea or coffee is given, they should be given sparingly and largely diluted with milk, and stimulants, except for medicinal purposes, should be prohibited altogether. For breakfast and supper, no more wholesome and nutritious dish can be given than well-cooked oatmeal porridge or gruel, with milk, and bread and butter. Animal food should only be given at the mid-day meal, but at first only in small quantities, and served in soups, broths, or stews, together with mashed potatoes and other vegetables, and followed by a liberal allowance of some farinaceous pudding. Good cooking will make up largely for variety in diet; at the same time, it should be remembered that variety can always be secured without increase of cost, at the most homely nursery tables. Above all, there should be no stinting, because, with very rare exceptions indeed, the natural instinct of a healthy child is a safeguard against gluttony. It is only when the period of puberty is approached, or between that and the period of full growth, that over-eating is likely to be indulged in; and, as any tendencies in this direction can be readily detected, they should be as rigidly checked.

But, it may be asked, what about the crowds of very young children who have to be left behind in the impoverished home when the mothers go to work? Many, no doubt, will languish and die, but many might be saved by philanthropic effort, in the establishment of *crèches*, or nurseries, where they could be fed and tended during the day at a trifling cost. This, however, is a phase of the

subject into which I cannot enter, for, when sufficiency of food cannot be provided, it is mockery to talk of dietetic rules or errors. Let me rather allude to instances, common enough, in which, though sufficiency is guaranteed and expected, it is scandalously denied, and in doing so I need only refer to numbers of private boarding-schools, mostly of a cheap kind, where the dietary may be characterised as a bare subsistence dietary. Although one can appreciate the desire of parents of limited means to obtain a good education for their children at a moderate cost, they should make it a rule, before sending a child to any boarding school, to visit the school and see the pupils, and then they could readily judge by their appearance as to whether they were well fed or not. There is no doubt whatever that numbers of pupils have to suffer in after life from weakened constitutions, not to speak of more immediate ailments, from the scantiness of food supplied at the schools to which they have been sent; while on the other hand, there are many pupils who, though well-fed at school, ruin their digestion and become the victims of over-indulgence in after-life, by gorging themselves with sweet-stuffs so long as they have pocket-money to spend. It need hardly be said that excesses in this direction should invariably be discountenanced, and treated as habits which have a low and vitiating tendency, and that undue greediness should be met with censure and reproach.

During the period of youth the diet should be as liberal as for adult age and active employment, inasmuch as bodily growth and the activity of in youth have both to be provided for. It is at this stage that lads sent out into the world are apt to suffer from the neglect of a mid-day meal. Owing to the exigencies of business, they take little or nothing during the day, and gorge themselves when the day's work is over, so that, by-and-bye, the digestion becomes spoiled for the breakfast next morning. Indeed, this is a dietetic error which prevails largely in the commercial community. Breakfast and dinner are rightly regarded as the principal meals, the one before and the other after the business of the day is over, but between the two luncheon should never be neglected or partaken of in a hap-hazard sort of way, but the lighter it is the better. If animal food is partaken of at breakfast and dinner, it may be dispensed with at luncheon, and farinaceous foods, vegetables, and fruits should form the staple of the mid-day meal.

But, in all walks of life, one great essential in healthy diet is regularity of meals. For the active out-door labourer and artisan, an early breakfast before work, a mid-day dinner with an interval of rest, and supper after the day's work is over, has long been proved by experience, to be the most conducive to health. For the business man, a later breakfast, a mid-day luncheon, and a late dinner after the day's work is over, is the best arrangement. For literary men, who write more in the evening than during the day, an early dinner and a light supper will be found to be the most advantageous for steady work. Idlers, to enjoy life, if they possibly can, should dine early if they intend to spend the evening at theatres and the like; but, if they accept dinner invitations freely, they should be very careful not to eat too much at the mid-day

meal. The breakfast hour should be determined, in great measure, by the hour of rising, but, in any case, food should be partaken of before the material business of the day is commenced. Those who like to take a constitutional before breakfast, would find their appetite whetted, and their walk made all the more enjoyable, if they took a little milk, or *café-au-lait*, with bread or biscuit, before starting. Work done before breakfast is always irksome and fatiguing, and, on that account, is very likely to be badly done; and hence, teachers or parents should never exact lessons before the first meal of the day. The last meal, whether dinner or supper, should be sufficiently late for the whole not to be absorbed before retiring to rest. If dinner is the last meal, a cup of tea or coffee with a thin slice of bread and butter during the course of the evening will be found to be very refreshing, but for those who dine early, either what is known as a high tea, or a plain but substantial supper, becomes necessary. To a person in health, three meals a day ought to be quite sufficient, and the stomach ought to be educated to take enough at them to supply his bodily wants. The practice of constantly taking "something" is sure to bring on indigestion, and especially the habit, which of late years has become so fashionable, of indulging freely in the afternoon tea. If too long a period intervenes between dinner and luncheon, the latter should be moved onwards; at any rate it is much safer to be satisfied with some fruit, an ice, or a biscuit than that ladies should continue to "imitate their washerwomen" in lavish afternoon tea-drinking.

And now as to general rules. The three daily meals should be taken at regular hours, and these should be determined mainly by the nature of one's business or occupation. While the appetite should be satisfied, the stomach should never be filled so as to induce the feeling of uneasy repletion. The food itself should never be hastily swallowed, and solid food should be carefully masticated. No active bodily or mental exercise should be indulged in immediately after a meal. The diet best suited for the great majority of people in this country is a mixed diet, but persons leading an idle life, or pursuing a sedentary occupation, should be careful not to eat too much animal food.

As regards stimulants, the evidence of scientific opinion appears to be largely in favour of total abstinence for persons who are in sound health, and especially for children and young people. At the same time it cannot be doubted that vast numbers of people pass through life in the apparent enjoyment of sound health who are accustomed to take a certain amount of alcohol daily. As to the actual amount which can be partaken of without any apparent detriment, it would appear, from numerous careful experiments, and more especially those conducted by the late lamented Dr. Parkes, that $1\frac{1}{2}$ fluid ounces pure alcohol is the limit of moderation. This is equivalent to about $2\frac{1}{2}$ pints of weak table beer, or $1\frac{1}{2}$ pints of stronger ales and porters, or three-quarters of a pint of light French clarets or Burgundies, or $\frac{7}{8}$ fluid ounces of port or sherry, or 3 fluid ounces of spirits. That this quantity is exceeded by the great majority of so-called moderate drinkers, I think there can be little doubt, but there is as little doubt that this habitual excess, even though slight, becomes sooner

or later a fruitful source of recurring pains and discomfort, if not of actual disease. In the prime of manhood, the effects may be slight, inappreciable, and transitory; but, by-and-bye, distinct

warnings are not wanting that if health is to be enjoyed to the full stimulants should be used but sparingly, and with the greatest caution.

SECTIONAL MEETINGS.

WEDNESDAY, 18TH JULY.

SECTION A.—NEEDLEWORK, CLOTHING, AND MATERIALS.

President—Miss Kenrick.

The President opened the subject of needlework and clothing by her paper on "Results obtained in some Elementary Schools."*

Miss Mary W. Willis followed with her paper on "Needlework,"† and Mr. Joseph Pope with his paper on "Clothing and its Materials."‡

In the discussion which followed,

Sir Henry Cole, K.C.B., said he thought they were all prepared to say "Amen" to what they had heard. He had but one general observation and one practical suggestion to make. He desired, firstly, to express his regret that her Majesty's Government were not represented at this Congress. He begged leave to suggest, through the medium of the winged messengers that would go forth, that her Majesty's Government could hardly do a wiser thing than instantly attach to the Committee of the Council on Education their practical President on this occasion. If they wanted to understand needlework, the person to teach them was a woman, and not a wrangler, and he was certain all would be satisfied that there was no better woman to propose than Miss Kenrick.

Mr. R. C. Browne Clayton (Oxford), referring to the remarks of Mr. Joseph Pope concerning clothing materials, called attention to a material manufactured at Bâle and the Grisons, but which he had never seen in this country. It was called *crêpe de santé*, and seemed to meet many of the requirements of clothing in a manner which other materials did not.

Mr. E. Chadwick, C.B., wished to point out that black was a colour which absorbed mephitic gases in large quantity, and to avoid that, doctors, clergymen, and others, who visited the sick, ought always to go about in

white. With regard to texture of clothing fabrics, it was worthy of attention that those which were loosely woven were much warmer than those in which the fibre was broken up by hammering, in order to produce a smooth surface.

Mr. Traice (Manchester) said there was one point with which he had often been struck, and to which some time back he called Sir Henry Cole's attention, and that was the advisability of uniting drawing with the preparation of clothing patterns in their schools. They were doing a good deal to introduce drawing into their elementary schools, and there was no practical purpose to which it could be better applied than to the cutting out of patterns for clothing.

Miss Chessar (late member of the London School Board), with regard to the question of needlework, said that very young children could do a great deal better needlework than people thought. It was a subject that required a great deal more attention than had been given to it, and she was glad that the Government had at last taken up the matter in an official way, and had published that much abused schedule on needlework which was said by everyone who had not tried it to be quite impossible, and by everybody who had tried it to be a thing to be accomplished. There was no doubt that schemes of needlework, to be really valuable, must be thoroughly graduated. The scheme which was now before the public was a well graduated scheme, but it also required that the teachers should know the subject themselves before they attempted to teach it. If more help were given to the schools, and if the teachers came better prepared than they now were to do the work, there was not the slightest doubt that needlework scheme could be carried out, and if carried out it would do an immense deal to make the girls in their elementary schools the good needlewomen they ought to be in the present day, but which they were not.

Mr. Danby Seymour (member of the London School

* See page 7.

† See page 8.

‡ See page 10.

Board, and of the Council of the Society of Arts) expressed the belief that the glove-stitching practised in this country, to which Miss Willis alluded, was an injurious occupation. He assured Miss Chessar that great attention was still being paid to needlework by the London School Board. He regarded the suggestion that the Society of Arts should publish patterns as a valuable one, and when the question came before the Society he should give it his attention. With regard to the present Congress, he thought the enthusiastic manner in which it had been taken up in Birmingham proved that the Society of Arts had taken a step in the right direction, and he hoped they would be successful in the object they had in view.

The Rev. J. P. Faunthorpe (Principal of Whitelands Training College) said he considered that the scheme put forth by the Government with regard to needlework was far above the capacities, not only of the children of the present time, but far above what would be practically within the reach of children for some years to come. This would be seen when it was remembered that the scheme expected a child of twelve or thirteen years of age to cut out and make every article required for what was termed "a large family." It had been said by a previous speaker that people who were practically well acquainted with needlework were entirely in favour of the new schedule, but, so far as his experience went, his impression was entirely the reverse; and those acquainted with needlework and its teaching said that the thing was impossible.

The Rev. J. T. Haworth (Birmingham) said they had been shown some wonderful specimens of work done by infants of three years old, and he would like to ask the parents present whether they would like their little ones of the same age to do such work. If not, why should they force it on the children of the working classes?

Miss Sturge (Birmingham) was averse to such teaching for very young children. She thought there was too great a tendency to turn their schools into manufactories, rather than to set the children in the right way for learning their work.

The President having pointed out that children of the middle class were not put to needlework so early, because their education did not cease so early as the children of the working class, the discussion on this subject closed.

CLEANLINESS.—WASHING.

Mr. E. Chadwick described a paper on "Head to Foot Washing, and Public Measures for facilitating it,"* which he had prepared.

The Rev. T. C. D. Morse read a paper by the Rev. Harry Jones, on "Washing."†

Miss Chessar read a paper on "Baths and Swimming for Young Children;"‡ and a paper contributed by Mrs. Watson, on "The Importance of Training Young Servants in Habits of Cleanliness," was read by Mrs. O. J. Bracey.§

The Rev. Brooke Lambert (Tamworth) said, with reference to cleanliness in elementary schools, the weapons for enforcing it were already in the hands of the managers. In the Revised Code there was a paragraph to the effect that managers of schools would be required to satisfy her Majesty's Inspectors that all reasonable care was taken to bring up the children in habits of punctuality, good manners, cleanliness, and neatness. There was one objection which he had to make to the general tone of Mr. Chadwick's paper. The restrictions as to the presence of untidy children must not be obtained by compulsory measures, nor by such legislation as would be required for the establishment of Mr. Chadwick's grand washing apparatus, to wash a lot of School Board children in five minutes. They must trust rather

to the teaching of the children those elementary lessons in physiology so well advocated by Professor Huxley. A lesson on the analogy afforded by the effect of a shower of rain upon plants would do more to inculcate habits of cleanliness than any amount of legislation. There was one thing quite as important as healthiness of the body, and that was independence of mind. This over-legislation and degradation of legislation to minutiae, instead of making the practice arise out of teaching, did much to destroy the independence of the nation.

Mr. J. A. Youl, C.M.G. (Member of the Council of the Society of Arts) enforced the importance of cleanliness by several illustrations, particularly by the case of a young surgeon appointed some years ago to the charge of an emigrant ship bound for Australia. With some difficulty the surgeon succeeded in getting the whole of the passengers who were then on board to wash from head to foot at least once a week during the voyage. There were 63 women among them, for whom he had fitted up a strictly secluded bath. The result of the experiment was that the vessel was the first emigrant ship which arrived at Adelaide without the loss of a single life; while all the women were in good health except those who were suffering from consumptive complaints. That result was simply owing to "washing."

The Rev. Canon Lea (Droitwich) said he was manager of a school, and also Chairman of the local School Board. Some time ago they brought in a great number of children who had been greatly neglected, and had not been to any school before. He was at first most horrified with the condition of the girls' hair. Having failed in his endeavours to enforce cleanliness, he selected a number of them who were in the worst condition, and ordered them to be washed, and appointed a washerwoman to the school. At first there was, of course, a great deal of opposition to it, and one day when he was away two of the parents made a most violent and unprovoked attack upon the washerwoman. The borough magistrates, however, stood most nobly into the cause of cleanliness, for they punished the women severely, and after that they had no further opposition. The parents had now learned that it was necessary for them to keep their children clean. If the good ladies in the Birmingham Board schools would make the same investigation, they would most likely find the same state of things. He thought it was most important that those things should be looked into, and great good would accrue from the carrying out of the system he had described.

The Rev. E. F. M. MacCarthy stated, for the information of Miss Chessar and the Congress generally, that the Birmingham School Board had for the last two years and a-half had a simple machinery, by which they had put facilities in the way of the children of the Board schools to go to the baths periodically with the teachers. 10,000 tickets had been sold at a halfpenny each. He had no doubt that the stimulus given to the question by this Congress would lead to greater efforts to get a larger number of children to attend the baths. They had not in Birmingham such advantages as London enjoyed from the existence of the sheets of water in the public parks; but he hoped that in time they would get artificial pools for bathing made in the public parks. With regard to the remarks made by Canon Lea, Dr. Langford, who had interested himself very considerably in the question of the personal cleanliness of the children, had assured him that there was comparatively little liveliness about the heads of the children externally.

Mr. E. Chadwick defended the use of compulsory measures to secure the cleanliness of children, and laid special stress upon the illustration which Holland afforded, of the beneficial effect of making the sending of a child to school in a dirty condition a reprehensible offence. Those effects were seen, not only as regarded the children, but they gradually spread to the parents and their homes.

* See page 12. † See page 17. ‡ See page 15. § See page 18.

Mr. R. Browne Clayton said that on his estate he had four schools, one of them containing 700 children, and he was so anxious to inculcate habits of cleanliness that he had formed two swimming baths, and swimming was made part of the school education. He should like to see swimming taught in all schools.

Mr. Pope said he knew, from his experience in the army, that compulsion was necessary to ensure cleanliness. He knew that they had in some instances, notwithstanding the existence of the best bathing facilities in the place where the men might be quartered, found it necessary to hold bathing parades, and march the men to the water before they would go in.

Mr. E. C. Tufnell, late Inspector of Pauper Schools, pointed out that open sheets of water could only be used, on account of their temperature, a few months in the year. They ought to have baths attached to the schools, where the temperature of the water could be regulated. This would not only be good in a sanitary point of view, but it would be of great use in teaching the children how to swim.

At this stage the Section adjourned.

SECTION B.—HEALTH.

President.—Dr. T. P. Heslop.

This Section opened for the discussion of the above subject at 12.30 p.m.

Professor Huxley, F.R.S., described his paper on "Elementary Instruction to Children in Physiology."*

Mrs. F. E. Hoggan, M.D., read a paper "On the Substitution of Scientific Subjects for Fancy Work in Girls' Education."†

The Hon. and Rev. W. H. Lyttelton (vicar of Hagley) addressed the Congress. He thought that if in all their elementary schools some lessons were given in popular science in such a way as to stir up in the children a love of those sciences, and in training them in those habits of mind in which they could be afterwards pursued, they would find a greater demand in their mechanics' institutions afterwards for lectures and classes of various kinds. Of course, in any elementary school it was impossible to give anything like a complete knowledge of any one of the scientific subjects taken up. All they could do was to start the children in the love of them, to show them the interest of those great subjects, and cultivate those powers of mind and observation by which they might collect information upon them afterwards. Ever since he had had to do with country parishes, he had endeavoured in his own little way, and he thought successfully, to promote the study of science in the schools under his charge. He had gone upon the system advocated by most of the greatest men of science before the Public Schools Commissioners. They all concurred in this, that all that need really be done for the main object in view in teaching these things, was to teach the children a thoroughly good lesson one hour in the week. They grounded that conclusion upon the idea that the object really was to start the children in these subjects, and to fish for those fish in their pools which were attractable by those baits. It would, perhaps, be objected by many schoolmasters and mistresses that, in the face of the Government requirements, it was impracticable to give this hour. They brought up the three idols, commonly called the "three R's," and said it was impossible to worship them as they ought to be worshipped if they were to introduce those additional subjects. He would answer that by stating that in the schools of his parish, when he asked his schoolmaster whether, on the raising of the Code, the weekly science lessons should be given up, the master replied in the negative, and stated that he found the lesson stimulated the interest and liveliness of the minds

* See page 19.

† See page 21.

of the children, so that they studied the three R's afterwards with greater profit and advantage. These lessons were of great value in teaching the children to read, not merely words, but facts. One thing which was wanted was some further guidance and help from the central authorities in the teaching of these things. He hoped a time would come when in all their country districts there should be a central school of rural economy—an establishment where there should be a museum, a good library, and intelligent teachers, who should be ready to give advice both to schools and to institutions for adult instruction as to the best methods of teaching, &c. He also hoped that the time would come when schoolmasters would be trained with special reference to the particular characteristics of the district in which he was placed, so that a schoolmaster in a rural neighbourhood would have a lively interest in rural matters, and in mining districts an interest in geology, so that they would be able to instruct their pupils in those things. He also hoped the time would come when clergymen would make a necessary part of the curriculum of their education a practical knowledge of science in some of its popular aspects.

Gen. F. O. Cotton, R.E., C.S.I. (Chairman of the Council of the Society of Arts), said that, with reference to education in science in early life, he might furnish an illustration of how much could be done by it, and how much might be lost through the want of it. He referred to the army and the navy, and the fact of how little additional knowledge was brought home by those bodies from their visits to foreign countries. The only important exception to the rule were the medical men in the services. Here, they had an army throughout the world, men sitting with their hands before them, or, what was worse, drinking brandy and water, who, if they had a slight knowledge of science given them at school, would have taken up some branch, and brought back valuable knowledge from foreign parts. He did not hesitate to say that, if the officers of the army had had a slight scientific education before they went to India and other parts of the world, they would have brought back, not dyspepsia and discomfort in their ivers, but specimens for the British Museum which would have been of great value.

Mr. Danby Seymour said it appeared to him that the want of time for scientific subjects, and the three R's in elementary subjects, was the greatest obstacle in the way. There was one means which he thought would help to remove the obstacle by the economy of time, and that was the spelling reform promoted by the London School Board, by which it was calculated that two years might be saved in the teaching of reading and writing. He was informed that the Birmingham School Board had supported the efforts made by the London School Board, and he hoped they would continue to do so, and that the proposal would be carried.

The Rev. J. P. Fauntleroy called attention to the fact that the question under discussion was by no means overlooked in the training colleges for elementary teachers, and that scientific subjects were taught in the greater number of them. It might also not be generally known that in any school where these subjects might be taken up, the Science and Art Department would undertake the examination of them. All that was necessary was that persons in the locality should form themselves into a Board to conduct the examination, and the Science and Art Department would send down papers.

Mr. Frank Curzon (organising secretary of the Yorkshire Union of Mechanics' Institutes) said he had long desired to see some means of infusing a little more scientific life into the institutions with which he was connected. The difficulty was that almost no preliminary instruction was given in science subjects in the primary schools. There was one other matter to which he wished to call attention, and that was the need of science models a little less

costly than those which were now obtainable. A model of the human eye or ear cost from five or seven guineas, which was entirely beyond the reach of most school teachers and working men.

Mr. E. Chadwick directed attention to the practical improvement which was going on in the teaching of physiology in Germany. In consequence of the enormous losses on the field in the Franco-German war, resulting from want of information as to how to treat wounded persons, a new system of instruction had been instituted. Companies were assembled, and certain members were supposed to be wounded in various parts of the body. The men were instructed on the spot how to apply bandages, and take other measures to stay the mischief which had been done. It appeared to him that this was a very important practical application of physiological knowledge.

The President said it appeared to him that one important thing to make people know was, that the teaching of physiology was not a mere luxury for those in search of sweetness and light, but was an absolute necessity in daily knowledge and education. Another point to which he wished to allude, was that they wanted persons competent to teach physiology in their schools in the manner which Professor Huxley had indicated. It must be a pleasant recollection to Professor Huxley that he took part in advising the trustees of the fund which had been established in Birmingham to teach the laws of health to teachers. It was Professor Huxley who advised them as to the appointment of the first professor, and he was sure he would be glad to know that a few days ago one of the teachers examined, and to whom was put a paper which would have puzzled advanced medical students, obtained a fraction over 75 per cent. of professor's marks. There were wide gradations downwards, to one person who only answered part of one question, but there were a considerable number of those examined who had obtained 40 and 50 per cent. of the marks. He was sure Professor Huxley, accustomed to examinations, would admit that that was an excellent result. He (the speaker) could not leave this subject without expressing his sense of the loss that Birmingham had sustained in the death of their fellow-citizen, Mr. Arthur Ryland, whose name would ever be identified with the trust to which he had referred.

Professor Huxley then briefly replied. With regard to the question of supplying cheaper models, he was afraid that nothing could be done unless they could simplify the human frame. A model of the eye, for instance, to be of any use, required a great deal of attention in its production, and that attention capitalised meant a high price. One speaker had referred to the action of the Government with regard to science teaching as having been of a dilettante character. He wished to say that that was certainly not the case with regard to the teaching of physiology. When the present system of science and art examinations was instituted, it was found that the knowledge then existing was of a most unreal character, arising from the want of proper teachers. He did not mean to say that there were not plenty of persons of great intelligence and capacity engaged in the teaching, but they simply applied the methods of book-teaching to the teaching of science, and they made a mess of it. One of the first things which was done to remedy that state of things was to establish classes for the practical teaching of teachers, and there was nothing now to prevent a teacher going up to London for a short time to one of the classes referred to. Although the course might be short, it was marvellous how much a man of trained capacity could gather. He did not think the Government could do anything much more practical than had been done in this direction. With reference to what he had said about the present state of the law as bearing upon the practical teaching of physiology, he hoped he should not be misunderstood. Pray let them discriminate between

the strict interpretation of the law, and the way in which it might be carried out. He did not for a moment suppose that the present Home Secretary, who was a gentleman of great intelligence and good sense, would sanction so frivolous a prosecution as that to which he had referred at the conclusion of his paper. He did not think there was at present the slightest danger of the law being put in force in such a way. It was quite possible, however, that things might change, and at any rate it was not a satisfactory thing that anyone should feel himself breaking even the letter of the law.

SECTION C.—METHOD OF TEACHING DOMESTIC ECONOMY.—TEXT BOOKS.

President.—Mr. G. W. Hastings, J.P.

Sir Henry Cole described his paper on "The Practical Development of Elementary Education through Domestic Economy."*

The Rev. E. F. M. MacCarthy, in opening the discussion, said that in his opinion, from a practical point of view, Sir Henry Cole had hit upon a great blot in the Education Code—a blot which was all the more to be regretted because it first made its appearance only a little more than twelve months ago. One would have thought that such a step as that to which attention had been drawn, would not have been taken without very careful consideration and information derived from a very great variety of sources. A point to which he alluded was the fact that geography, history, and grammar had been taken from their place in the Code among the voluntary subjects, of which there were some ten or twelve, and any one of which could be selected and taught by a special school, according to the attainments or natural bent of the master or the peculiarities of the neighbourhood. What the Government did was this, they took grammar, geography, and history out of the category of optional subjects, where they had been ranked with a large number of others—English literature, botany, &c.—and put them so that schools, depending upon grants, were necessarily led to teach them before they attempted to teach any other subjects, amongst which domestic economy was one which that Congress took so much interest in. That was an error of principle, but there was also an error of detail to which Sir Henry Cole had drawn attention. The error of detail was that children at the commencement of the study of geography were first to learn the motion and forms of the earth and the meaning of a map. That was to say, that children of eight years of age were to learn the elements of astronomy. He need not say that practical educationists were quite aware that that was beginning at the wrong end of the stick. As a matter of fact, the books in use at elementary schools actually condemned the Government Code. Mr. Currie's book on school management, which was taken as a sort of standard by pupil-teachers, strongly condemned as a method the early introduction of those astronomical considerations. On page 131, it was said that maps should not be used at this period, since the position of various countries was not the object of study. This book, which was put into the hands of young pupil-teachers as a guide, set before them the true principle, whereas the Code told them they must do something entirely different. He could only attribute this extraordinary exhibition of ignorance of the principles of education to the fact that some elderly inspector, being called upon to draw up the schedule, opened a geography about 50 years old, and finding that the first chapter treated of definitions, put them down for the first year. He agreed with the position which grammar held in the Code, but thought that both history and geography should be put back to the position which they formerly occupied. Let them put domestic economy on the same footing, or, if they liked, on a better footing, and he was quite sure that, in the long run, they would have each

* See page 22.

school developing its own individuality, according to the discretion and aptitude of the teachers, and the requirements of the various localities.

Miss Smith (of the Oxford School Board) thought that the first lessons in geography in the Code had been much misinterpreted by the preceding speaker. She believed that she could give a lesson to children of seven or eight years of age on the form and motion of the earth that would be understood by them.

The Rev. J. T. Haworth said he thought that geography and history were quite different to domestic economy. In these days when the working classes possessed the franchise, history was essential for every lad in every elementary school. In a commercial and manufacturing country like England, geography was also an essential subject. Domestic economy, in his opinion, was more a matter for girls. With respect to the teaching of grammar, they had great difficulties to contend with from the number of text-books, and the difference of opinion of the inspectors who had to examine the work. From a very lengthy experience, he could endorse the opinion of an old inspector, that the difficulties connected with grammar were such that he would almost propose that every child should be examined at its birth, and if it showed any tendency to write a grammar it should be at once extinguished. He advocated geography and history, not as sweetmeats but as essentials, in boys' schools, just as he would stand up for needlework and domestic economy in girls' schools.

Sir Henry Cole, in reply, said he denied that in the three million of children of the working class there was any real difference up to the age of 13 in the educational requirements of the two sexes. He maintained that a boy who knew needlework would be a better man all his lifetime than one who did not know it. With regard to the examinations, many of them ought to be conducted by women, for some of the inspectors knew nothing of the work, and were not even qualified for it by marriage. The system of appointing a young wrangler straight from the University to examine infants' schools was one that ought to be put down at once. If the Government were to properly carry out the education of the three millions of children, and give them the training, they ought to have, the matter must be looked after, not by senior wranglers and distinguished administrators, but by a few competent people, the majority of whom should be women.

The Rev. J. P. Fauntorpe read a paper on "Text-books on Domestic Economy."*

The Rev. E. T. Stevens also read a paper on "Text-books on Domestic Economy; their Objects, Scope, Preparation, and Circulation."†

The President said that, in dealing with the subject of Domestic Economy in elementary schools, whether through text-books or examinations, it was desirable to understand what an acquaintance with the whole subject meant. He had had put into his hand what he thought was a remarkable answer given to a Government inspector by a little girl in the 4th Standard, who was asked what she had done on the previous Saturday. Although it was a graphic, detailed, and lucid account of the domestic work which the child had done on a given day, yet the words of her Majesty's Inspector on the paper were, in reference to general examination in Domestic Economy, "Can't do it," whether owing to the mistakes in spelling or putting capital letters in the wrong place he could not tell. He (the chairman) thought there was nothing which showed the effects of education more than the power of description of facts in their proper order, which that child eminently showed, and he thought it was a hard judgment upon her; and if that was the way in which domestic economy was to be treated in the schools, he did not think it was likely children would treat it as an optional subject.

* See page 24.

† See page 26.

Sir Henry Cole entirely objected to the assumption that the Code was like the laws of the Medes and Persians, and could never be altered. He trusted that the efforts of this Congress might have some effect next October in causing a complete revision of the Code. It had grown like Topsy, nobody could say exactly how. An old and able administrator of the Education Board was the inventor of the term Code—Mr. Lowe. It was very useful to get the rules brought together even anyhow, but they were certainly packed upon an illogical fashion. If any inspector of schools or gentleman connected with education were to be cross-examined about the Code, he would have to put to his name, "It is an intricate and difficult subject." He (Sir H. Cole) had often tried his best to make it logical and consistent; even if his life depended upon it, he could not fathom its mysteries. It was a curious fact that, 25 years ago, Dean Dawes, in a little village school in Hampshire, produced the most astonishing results, based on domestic economy, and induced the children of agricultural labourers to pay 3d. a-week for their education. That was long before the present notions of free institutions were talked about; and there was no better text-book on domestic economy in the English language than that which Dean Dawes introduced into his school. He protested against the existence of the present Code a bit longer than could be helped, and hoped that the period of its existence was next November, and no longer. He hoped that an alteration of the Code would come out of this Congress, and if not, he felt satisfied that it would out of a following one. In regard to the text-books, Sir J. Kay Shuttleworth helped schools to form an opinion of what books they should use; but that was afterwards thought an interference with the liberty of the subject. It was now assumed that every teacher, inspector, or manager of schools would know best; and thus they got into that chaotic use of text-books, without having any guide. He thought the School Boards of the country would do wisely to try if they could not come to an agreement upon what text-books should be used, and get the schools to use them generally.

The Rev. Canon Lea was not very much in favour of alterations in the Code. It was all very well for gentlemen in London and in large places to have alterations, but schools in the country found them a very great bore. No sooner did they get into one system and one set of books, than they were told that they were wrong and must have another, and all their trouble began again. He wanted to know why all those wise men upon the Council of Education could not, once for all, find out some system that would work satisfactorily?

Mr. Traice, referring to the question of text-books for teaching domestic economy, said it would require at least a dozen books to give the mere rudiments of the subject, and yet it was supposed that, in a single small volume, addressed to the minds of children, it would be possible to give both a series of rules and *rationale* of the science. The production of text-books on domestic economy, to be of any real service, was impossible as far as children were concerned. That a number of rules might be laid down was unquestionable, and that here and there they might begin with facts and go on with an interpretation which should come home to the simplest stage of the understanding was possible; but that the philosophy of the subject could be put into such books was simply absurd. Text-books on domestic economy must be superficial from beginning to end, but a text-book for teachers, who already had a fair knowledge of laws of nature to aid them in giving lessons to children, might be quite another thing.

The discussion then closed.

INSPECTION—WORKING OF THE SOCIETY OF ARTS EXAMINATIONS.

The Rev. E. F. M. MacCarthy read a paper on "The Mode for Inspection and Administration of Govern-

ment Grant for Subjects included under Domestic Economy."*

Miss Joanna Hill said—Miss Synnot has been unable to furnish a paper which I was to have had the honour of reading this afternoon. I was only invited this morning to supply its place, so I must beg you to excuse the very hasty way in which my few remarks have been thrown together. I enjoyed the very great advantage of the personal friendship of the late Mrs. Nassau Senior, her Majesty's Inspector to the Local Government Board, whose death is a great loss to her country. She was as we all know, the only female inspector that has ever been appointed under a Government office, and her work, in the very words of the Minister who appointed her, Mr. Stansfeld, was to give "a woman's view as to the effect on girls of the system of education in pauper (a class of our elementary) schools." In her report she states, she gave her attention almost exclusively to questions affecting the physical, moral, and domestic training at the school. She did not attempt to judge of the scholastic work, as all the time allowed her was required for looking into matters on which the judgment of a woman was especially required. How that work was performed has been the subject of well-deserved eulogium both within and without the walls of Parliament. I need not say anything about it here. Miss Synnot, the lady whose paper it was hoped might have been read to-day, was, in conjunction with Miss Smedley, a chief assistant of Mrs. Senior, and could, therefore, give the results of practical experience on the branches in which female inspection is specially valuable, to co-operate with the ordinary inspectors of our elementary schools. Mrs. Senior's investigations extended over a large field, and were of urgent necessity in boarding schools and for the education of paupers, to whom the Guardians stand *in loco parentis*, but of which no mention is needed here. However, in the course of her duty she also directed her attention to those points in the actual school routine upon which a woman's ordinary life gives her a certain unconscious facility in perception, such as the hygienic conditions—cleanliness of the children and their clothes; the clothing most suitable to health; the atmosphere and temperature of the rooms; their cleanliness and adaptation to the needs of growing girls and of infants; the shape of the forms, and in many details. Also in the industrial department of the pauper schools, the knowledge of a female inspector, to whom these matters were as "household words," was of inestimable service. The value of female inspection with regard to sewing may be shown in the following pithy description by one of Mrs. Senior's helpers, of the quality of the knowledge in that branch of industry acquired by girls educated in the metropolitan pauper schools, which had been inspected for about 30 years by one of most able school inspectors, Mr. Edward Carleton Tufnell (I am quoting from the annual report of the Local Government Board, 1873-4). Speaking of the girls whom she visited in service, she says:—"All, without exception, were well taught in reading and writing. In arithmetic, as far as I could ascertain, they were fairly competent. All were, without exception, well taught in needlework, as regards the mere execution of stitches; and all, with one exception, were unable to arrange or to do any sort of needlework without constant supervision. All, with one exception, were stunted in growth and physical development, even where health was perfectly good." School instruction must only be regarded as a means to an end, i.e., to provide the means and the inclination to the recipient to live a worthy life. Let, then, the best means and the best tests be employed to attain that end by which we can best promote our national welfare.

Mr. Charles Critchett (Educational Officer of the

* See page 28.

Society of Arts) read a paper on "The Examinations of the Society of Arts in Domestic Economy."*

The Rev. Brooke Lambert (Chairman of the Tamworth School Board) hoped some such system for inspection as that described by the Rev. E. F. M. MacCarthy would eventually be brought into force. He was quite convinced that, with the multiplication of subjects under the Code, each attracting to itself some portion of the grant, it would be perfectly impossible to carry on the system of examination by results, and he ventured to think that if the surprise visits of the inspectors were turned to use, schools might earn on the result of the examination, a grant proportionate to the efficiency in which they were found in general matters. Each school should be visited three or four times a year, and should receive marks in accordance with the result of the examinations. If a school was in a low class with regard to its general work, it should receive a low grant in each individual subject, but if it was in a high class it should receive a high grant in each subject. He suggested that, because they had been playing at inspection for a great number of years. In old times they could remember the inspectors coming down, and if they gave them a good lunch they would give them a very good report. The result depended generally on the impression the inspector formed of the school. They found the new system of testing each individual scholar was weary work, and invented the system of assistant-inspectors, who did all the work, while the inspectors walked about and talked. Everyone knew that the amount of work done by the assistant-inspectors covered at least two-thirds of the whole. He thought that if the schools were visited at the end of the year, and grants given according to their condition and teaching power, a very much better result would be arrived at. Referring to the question of female inspectors, he said he was entirely opposed to specialism in education, and if the appointment of inspectors were brought before them on the ground that they understood special subjects, it would not, in his opinion, be a very strong argument in its favour. If they were to appoint women as inspectors simply because they understood a particular part of education, he did not know how far they would not go down dividing. Still he thought a strong case had been made out for the introduction of female inspectors on equal grounds with male inspectors. He thought the appointment of Mrs. Nassau Senior had shown what good a woman might do. Her report caused an opposition which showed that she had hit upon certain things never thought of before. The questions on dormitories and sleeping rooms were such as no one but a woman could enter into; but a woman interested in those subjects could examine the way in which schools were conducted, and report upon them in order that the evils which she saw, and nobody else could, might be remedied.

Miss Smith (member of the Oxford School Board) said the question of appointing female inspectors had been tried already and decided in another country, which was making such great strides in the work of education, bidding fair to fulfil the prophecy that "the last shall be first." She referred to Italy. Within the last few years, since its unification commenced and had been completed, Italy had been carrying out a most advanced system of elementary education. It would be shortly proposed to make the school attendance compulsory. In the towns of Italy it was quite the practice to have female inspectors, who were paid, not higher, but in proportion to the salaries given to the men. They visited the schools much more frequently than the inspectors do in England. They did not conduct yearly examinations, which were done chiefly by papers, and referred to the examiners appointed by the Municipal Council. The lady inspector made suggestions and criticisms on her visits to the schools, and those visits

* See page 32.

were of the greatest utility to them. The ladies did not undertake the care of hygiene, because the Italians went beyond us, and their schools were also visited by a doctor from time to time, who reported on the sanitary conditions of the schools. From the experience of the Italians, she thought the work of the female inspectors was very useful, and one that we might fairly derive advantage from in our schools.

The Rev. R. B. Burges (Birmingham) said he had heard no plan suggested by which they could get better inspectors than they had already; but he hoped a plan would come before that Conference by which the managers of large schools should not be called upon to suffer from the hands of young men fresh from the Universities, who know nothing about the inspection of schools. He thought needlework would gain greatly if ladies were appointed to examine on the subject.

The Rev. J. P. Faunthorpe, after explaining the mode of examining candidates on entering a college, said that schools were at the present time almost examined to death, and if the examinations were to be multiplied, and they were to be paid by results, he would ask where they were to stop. Examinations were always upon them, and they were only accustomed to them on the same principle that a toad was accustomed to live under a harrow; it was not much better than that. He reminded Mr. Lambert, who had alluded to the "surprise" visits of the inspector, that there was no such word as "surprise" now in the Code. The words "friendly consultation and advice" had been substituted instead. Lord Sandon had asked for an education grant of nearly £2,000,000, and if they went on multiplying the examinations the grant would not be two millions, but four. He proceeded to argue that it was possible to produce a text-book on domestic economy within the comprehension of an ordinary well-educated child. He approved of the appointment by the London School Board of inspectors who had been schoolmasters, for they were better qualified for the work by their experience than men fresh from Oxford who had never entered a national school.

Sir Henry Cole said the last speaker had mentioned that two millions had been asked for, for the purpose of education, but he (Sir Henry) was afraid the amount would grow to be something larger when the three millions of children were properly educated. As an old administrator he could say that if the two millions were properly administered it would do a great deal more than it did now, and would be more satisfactory for all receivers. Referring to the practicability of examinations, he said for many years he had the honour of drawing checks for examinations. In the Department of Science and Art they had twenty-four specialities, with the first men of the country, like Huxley and Tyndall at the head, and there was no difficulty at all. He should not be afraid if the subjects numbered forty-eight, for there was no harassing of schools and training colleges with the Science and Art examinations. Last year they added Scottish agriculture. He said emphatically, they might subdivide and have special people to deal with the papers, and have as many subjects as they liked, without being harassed in their examinations.

The President said he must, in the first place, enter his humble protest against any idea being entertained in that room or elsewhere that this country had, at any rate as yet, committed any extravagance in the matter of education, whether in Parliamentary grants or in the rating of towns and parishes. He ventured to say that Englishmen find no more profitable investment for their money than in the education of the people. When he was in the United States, a year or two ago, he looked very carefully into the question of education in that great and growing country. Seeing on one occasion the magnificent schools in nearly every street in New York, the colleges for the elder boys and the elder girls, he asked the then head of the Education-office in New York, whether he found any difficulty in obtaining

grants for that purpose from the Corporation? He replied, "No, sir. I have had during the twenty years of my inspectorship a great many difficulties to contend with, but there is one difficulty I have never had to contend with. I have never yet had any difficulty with regard to money; and if to-morrow I went to the citizens of New York, after all that has been done, and asked them for £20,000 to spend upon the schools, they would give it me, without even asking a question on the subject." Depend upon it it was that spirit—generous or lavish, he preferred to call it liberal—which Americans had shown with regard to education, and their resolve that, as far as possible, every member of their community should grow up an educated man or woman, that the greatness of that country was owing. That was why they were now beating us in the iron market and other spheres of production, because they had an educated people to do their work, and if Englishmen wanted to keep abreast with the other nations of the world they must not grudge money, whether from Parliament or the rating authorities, in the matter of education. With regard to the employment of women as educational inspectors, when his opinion was asked as to the management and inspection of reformatory and industrial schools, he ventured to advise the then Minister of the Education Department that he should employ Miss Carpenter to inspect the reformatories and certified industrial schools for girls. That admirable, and in many respects, wonderful woman had now passed away from them; but, speaking in the town of Birmingham, he could not forget that, next to their late Recorder, Mr. Matthew Davenport Hill, it was owing to Mary Carpenter, in a meeting held in this town, that the great cause of reformatory and industrial school legislation first received its impulse. If she had been made, as he had hoped at one time she would have been made, inspector for girls' reformatories and industrial schools, he was convinced that their present efficiency would have been much greater than it was. After meeting on one occasion an old fellow collegian, who told him with great satisfaction that he had recently been appointed assistant-inspector under the Privy Council, and gave him a pamphlet which he had published on needlework, he (the President) was then particularly struck with the method of confiding to men the inspection of schools in so purely feminine subjects, and since he had been chairman of a School Board, and had taken a share in the management of elementary schools, he had had that opinion strongly confirmed. He was convinced that a necessity existed for the appointment of ladies as inspectors of needlework and other feminine employments, and he was satisfied they would never be what they ought to be until there were female inspectors. He believed it was owing to the devoted attention of a lady, who gave her services gratuitously, to the needlework in the Worcester Board Schools, that it had been so highly praised, and what was good for those particular schools must be good for the whole of the schools throughout the country.

The Rev. E. F. M. MacCarthy, in reply to the remarks of Mr. Faunthorpe, said that he did not advocate any increase in the number of examinations, but only a change in the examining body. On the subject of cost, he said Birmingham had shown in the past that it was not afraid of spending money for the purposes of giving a sound education, and he thought there was no fear but what it would be equally liberal in the future.

THRIFT—SAVINGS BANKS.

Mr. George C. T. Bartley described a paper on "School Penny Banks."

Dr. Langford read a paper on "A Birmingham School Board Bank."

Mr. M. Parker (of Leamington) said the first thought with every person accustomed to receive money was the finding of a place of safety to deposit it. The humbler

classes and the working people had not the advantages of the upper classes in this respect. Nine months ago he tried in Leamington to find a place of safety for the deposits of the children and grown-up people of the working classes. He obtained four rooms in different parts of the town, and four nights a week he attended the committee of management to receive the deposits. At first they had but pennies brought by children, but when the parents saw the books of the rules under which the banks were conducted, they were so struck with the simplicity and safety of the system, that they forthwith commenced to deposit their savings, and afterwards the committee obtained permission to deposit the money with the Post-office authorities, the only restriction being that they could not take more than £5 from any depositor. At the end of nine months they had £300 deposited in the Post-office. The number of depositors was nearly 1,000, and they were increasing rapidly every week. After describing the spirit of independence the system had inspired amongst the depositors, Mr. Parker said that if Birmingham were divided into districts as had been done in Leamington, they would have not only the school children but their parents also for depositors. To do that, however, the bank must be unmistakably sure and firm, and there must be no fear on the part of the depositors that they would lose their little all by the breaking up of the bank.

Mr. F. Curzon said he had great pleasure in endorsing the remarks of the last speaker, for in Yorkshire the penny bank system had been in operation for several years, and during the past year more than half a million of money had been received from depositors, and £650,000 at this moment stood to the credit of the working people of that county. This, he believed, arose from two causes—first, because the bank was perfectly safe, not a penny having been lost in twenty years from defalcation or deficit; and secondly, because they were perfectly free for access or withdrawal. The banks were held independently of schools or organisations of employers. One of the best banks in Yorkshire was unsuccessful in

consequence of its being connected with the railway company, the men being suspicious that their savings would be tested by the wages they received. The safety of the banks was guaranteed by the nobility and gentry of the county. If they stopped at school banks the work would not be done efficiently. He hoped they would try to consolidate these banks by some union. There were other classes as improvident as the working classes, but they had an advantage in their favour of which the latter had hitherto been deprived.

The President said he believed it was very important, in the beginnings of life, to teach children habits of saving, and to provide safe places in which to put their savings. He was afraid a great deal of ignorance prevailed on that subject in many parts of the country. In towns, a knowledge of savings banks had no doubt spread, but there was a great want of knowledge and information on the subject in rural districts at the present time. Only the week before last, he tried a man at the Worcester Quarter Sessions, for stealing £108 from the dwelling-house of a poor woman, who never had more than the ordinary wages of an agricultural labourer, and had saved the amount in sovereigns. It was hardly credible that she had never put the money in a savings bank or other safe place, but had always kept it in a box in the house. The consequence was, it was stolen, and on trying the thief, he ventured to point out the importance and value of putting money in a safe place instead of keeping it in the house. That instance showed the importance of training children not only in habits of thrift, but to put their money in some safe place when they have saved it.

Mr. S. Wall Richards read a paper on "The Influence of Order, Method, and Cleanliness in Factories and Workshops, upon the Home Life of Industrial Populations in Large Towns."*

The Congress then adjourned.

* See page 40.

THURSDAY, 19TH JULY.

SECTION B. (continued).—SICKNESS.

President—Dr. T. P. Helsop.

Mrs. G. J. Bracey read the paper of Mrs. W. E. Gladstone on "Nursing."*

Miss Helen Taylor then addressed the Conference on nursing in connection with education. She said she wished to throw out a few hints, in which she would convey her general idea of the scheme which she thought were needed, leaving it to her hearers, if they approved of the suggestion, to consider the details by which it might be worked out. Of all the domestic occupations of women, it seemed to her that none was so essentially and indisputably an art to be learnt as the occupation of

nursing. In some classes of society, where there was a great fortune, the ladies were often released from all domestic care. They employed either men or women of smaller means to do the details of the work for them, and it was often superintended by the gentleman of the family, who settled the accounts, and engaged the principal domestics, such as the stewards and the housekeepers. She hoped the time would come when, thanks to such meetings as the present, something like co-operative house-keeping might be managed for the poor, when working women would be left free from many of the cares and troubles which now pressed upon them at home, the married ones to devote their time, as they should do, to the education of their children; and the unmarried ones to labour and to lay by a little money for their old age, or to begin domestic life whenever they should marry.

Thus she thought the time might come when even cooking and needlework might be done in a great measure on a large scale, and when many women might be released from those occupations altogether. She believed, however, that in the nature of things women should be nurses. There were physical reasons and moral reasons for it. Physically, the soft voice, the light step, and the delicate hand of a woman made her the best nurse. Morally, the quick perception and the warm sympathies made woman more fitted for the duties of a nurse than any man could be; and she believed they would never come to a state of things when men and women would not wish to be nursed by those who were near and dear to them. The medical profession was beginning now to be aware of the great importance of moral influence in sickness. The very sight of a face which we love was a comfort to us when we were ill, and many who had personal experience of the sick room knew that the nurse often could scarcely leave the invalid a moment without increased fever supervening. The very presence of a dearly beloved daughter, or wife, or mother, was culminating and soothing to the invalid. She was far from undervaluing the importance of trained nursing. She believed it to be essential to efficient nursing. They must not forget what doctors often pointed out to them, how the too great readiness to emotion, the too deep interest felt by the home nurse was of itself a danger; but against that was to be put the intimate knowledge of the personal characteristics of the invalid, which made the family nurse—the near relation—valuable even to the doctor. She had herself known a case where life depended upon a certain effect to be produced within an hour. The best-trained nurse and the doctor would have tried in vain to get at the right means, but the daughter who was there said such and such a thing always had such an effect upon the patient, and the result was that within an hour the patient was out of danger. What she wanted to see was this, that every woman should be a nurse, and that every nurse should be trained. She wished it for home reasons, for the comfort of the family, and she thought that if they looked at national considerations the same thing held true. They all knew how valuable and how expensive a commodity was the British soldier. In this country, with its small population, they had no men to spare for nursing. Every man who had strength to go to the field ought to be a soldier, and they should train their women for military nursing in an effective and systematic manner. There was another reason why their women should be trained nurses, and that was, that it was an admirable profession for them. Women of all ranks in society had a talent for it; but let them not forget that though the near relation was the best nurse, yet there was a great gift of nursing. Some little girls had it at an early age and did it well, while others never could achieve it. She would open that profession to all girls, of all ranks of society, and she would give them the means whereby they would get the training which would enable them, if they had the gift for nursing, to rise in it as in a true profession. What she asked was that her hearers would suggest the means by which the matter might be carried out, for she must say at once that she thought nursing, in common with all domestic training, could not safely be put in the place of elementary education. From what she had seen, she was deeply persuaded that the whole school life of their girls in elementary schools was not too much to give them a fair chance in the battle of life if they were unmarried, and to make them worthy to train their children if they should marry. What she looked to with earnest hope was that some scheme should be adopted to institute two things. In the first place, she should like to see prize scholarships in domestic training for the girls of the higher standards in the elementary schools. She would not place domestic training in the place of that elementary learning which was all that even the highest standards at

present gave, but as a reward for it. After the girls had shown themselves capable of learning, let them reward them, and reward the parents who had kept them at school, by giving them prizes and scholarships in the various domestic arts, which would make them happy at home, and capable of earning a living if they went away. Especially ought they to turn their attention to nursing, and they had in their hospitals a kind of training institution ready to their hands; while ladies who had experience in nurses' training institutions might make an addition to their operations by taking young girls as boarders, and sending them out to hospitals which they judged fitting for them. There was another thing which she thought should be done. There were a number of endowments in this country left for the benefit of rich and poor, and for boys and girls alike; but the benefit of them had to a large extent been monopolised by the rich and by boys. She asked them why they should not claim some of this money to be used for the secondary and domestic training of girls throughout the country. She would urge as of the first importance—firstly, that efforts be made either to obtain subscriptions or secure something from the various educational endowments, to be devoted to scholarships in domestic training, cooking, and nursing for girls who had passed the highest standards in our elementary schools; and, secondly, that technical schools for domestic training be established as the foundation of secondary education for girls. If they really cared for the domestic training of women, and especially for their training in nursing, her lady friends would not be content with working at a few girls here and there, but they would persuade the gentlemen of their families that they would have no peace until large sums of money were devoted to this purpose, either from the endowments or from the public purse.

Mr. Lawson Tait, F.R.C.S., read a paper on "Provident Dispensaries; a Means of Providing for Sickness."*

Miss Rose Adams read a paper on "The Work of the Ladies' Sanitary Association."†

The President said the change which had gone on in nursing during the last 25 years was one of the most remarkable on the face of society. He could give an illustration of that which he thought would be considered conclusive—an incident which he thought had some effect on the issue of the Crimean War. Twenty-three years ago, Lady Canning wrote to Mr. Yorke, of Birmingham, with reference to the character and qualifications of two women then under sailing orders for the Crimea, and he (the President) was consulted with reference to them. He knew them only too well, as they had been for many years nurses in a hospital of the town. Both of them had splendid testimonials, but they were totally unfit, by character, by intelligence, and in every respect, to take charge of sick soldiers. He said to Mr. Yorke that the matter was too important for a telegram, or a few observations, and himself wrote a long letter to Lady Canning, earnestly pressing her not to take those two well-known nurses. He advised her, if she wanted nurses for sick soldiers, not to go to the British hospitals, but to send out into the little country villages, and get young women of 25 or 26 years of age, of good character above all things, of fair intelligence, and they, after three or four weeks' training, would be infinitely more fit for the work required than the average of hospital nurses in this country at that time. They might judge of the sense of responsibility under which he wrote that letter, knowing that countless lives might depend upon it. Lady Canning at that time possessed great authority in these matters, and he felt it was incumbent upon him at that critical moment to give her his idea of the utter worthlessness of British nurses. Had he to write a letter on the subject of the nurses of the present time, how different it would be. They had

* See page 4

† See page 47.

heard from Miss Taylor, and also from the paper of Mrs. Gladstone, how necessary it was that a technical training in the subject of nursing should be given. The mere making of a thermometric observation, the placing of the thermometer in the proper place, and then recording the observation, was a matter not to be learnt in a few seconds, and numerous other illustrations of a similar kind might be given. He had learnt from experience that a true regard for the welfare of the patient, a character for veracity and temperance, and general intelligence based upon sound teaching in elementary schools, were more important than the technical training of nurses. If, however, they could have both, it was of great importance; but if he had to choose between technical training on the one hand, and the qualifications he had named, he should not hesitate for a single moment. In listening to the admirable address of Miss Helen Taylor, he was pleased to find confirmation of what he had hitherto thought was an idea entertained only by himself. He had an ever-increasing confidence in the nursing of the home as compared with the nursing of the hospital, and he sometimes could not help speaking bitterly of certain abuses, when he compared what it was possible to do in the worst houses of the poorest and most ill-conditioned class with what could be done in the most richly endowed hospitals. He hoped that what they had heard from Miss Taylor, and from the paper of Mrs. Gladstone, would induce them to press on this question of nursing, and do all they could to carry out the admirable suggestions which had been made to them. He had long seen that the word "nurse" must not be employed in hospitals. At one of the hospitals at Birmingham the delightful word "sister" had been substituted, as was also done in most of the London hospitals, and the effect of that upon the nurses and upon the doctors was such as he could not describe. All he could say was, that from the moment he heard the word uttered at the bedside of a patient, he felt that he was talking to an equal coadjutor in the interest of the patient, totally different to what tradition had implanted in his breast with regard to nurses. With regard to nursing as a profession, he thought they would never keep women to it for life, unless they were to establish guilds and pensions. It was necessary to make them know that when illness, age, or infirmity, came upon them, they might spend the remainder of their lives in some healthy and well-furnished retreat, or should have pensions if they preferred to live among their friends.

Mr. J. O. Lord said he had been requested to say a few words as to what had already been done in Birmingham in the matter of training nurses. Since 1869, they had had an institution which was composed of a committee of ladies and gentlemen, who, aided by subscriptions, took young women from the ages of 25 to 35 of all classes, and gave them a good training in sick nursing. They trained them in the General, the Women's, the Homoeopathic, the Children's, and the Wolverhampton Hospital. The whole of the nursing in the Children's Hospital was done by their nurses. They had now four head nurses and head probationers, and they had upon their books 53 nurses and probationers, being an increase of 18 during the past year. Those who took part in the affairs of the institution felt very much the need of some system of education, such as that advocated by Miss Helen Taylor, because whenever they wanted probationers they had a difficulty in finding them, except in the class who came simply from their own necessities. He was very strongly of opinion that if they could have a desire for the knowledge of nursing infused into young women of all classes, there would be a much larger number of suitable candidates for such institutions as the one with which he was connected to put into hospitals. In addition, there were training nurses to attend upon the sick who were able to pay for them, and they had now 21 nurses working in private families. The committee had also a fund at their disposal—he was sorry

to say, as yet, a very small one—in order to put free nurses into particular districts to nurse the poor. They had only one such nurse, but she had attended 120 different persons, and had been the means of not only of directly benefiting those who were sick, but of inculcating habits of cleanliness, good management, and providence among those by whom they were surrounded. He hoped that means would be forthcoming to increase the number of such nurses.

The Rev. E. F. M. MacCarthy said he should like to say a word upon endowments for girls. It might interest Miss Helen Taylor to hear that in the great endowment of King Edward's School at Birmingham, a large portion had for the last thirty years been set apart for the education of girls, and that there were in the town four branch schools, in each of which there were some 200. A new scheme, which had now been before the public some time, contemplated not only secondary schools for girls, which would be of the third grade, but also a high school. Among the secular subjects to be taught, domestic economy was in the schedule. It was obvious that there would be ample scope for the development of the teaching of those subjects in the two kinds of schools which he had mentioned. With regard to the subject of endowments generally, he was very glad Miss Helen Taylor had drawn the attention of the ladies to this question. A very large number of the present schemes had an objectionable clause maintaining the doles. Nothing could be stronger than the words of condemnation used by the Schools Inquiry Commission with reference to these doles; and it was supposed on all hands we had seen the last of them, and that the money devoted to them would take the form of scholarships, to pass the children on from the public elementary school to the secondary school of their neighbourhood. The feeling of Parliament on this matter was loyally carried out by the much-abused Endowed Schools Commissioners, but he regretted to say a retrograde step had been taken by the Charity Commissioners in this matter. In the parish of Wolverley, an extensive parish near Kidderminster, there was a very important endowment consisting of land in London, which in a few years would be worth some thousands a-year. The scheme was published in the usual way, and in that scheme they had actually perpetuated a system by which a certain number of poor men and women in six parishes could go and receive a loaf of bread if they presented themselves at the Sunday evening service at their parish churches. He thought it was time that the daylight was let in upon such things as these, and he hoped these schemes would be carefully watched, so that such antediluvian legislation could cease.

Mr. E. Chadwick, C.B., referring to Mr. Lawson Tait's statement as to the mean age of death, said he had to complain very much of the manner in which the mortality statistics were published. They had it stated that London was a healthy city, with a death-rate of only 20 in the thousand. But that was the mean of a large number of districts. He had no doubt that in some of the districts and classes of people they would find a death rate of 60 per thousand. He had taken the trouble to get out the mortality of the different classes, and he found that with respect to the professional class in London the mean age of death was 41 years, while in the wage-earning class it was 22 years. The attacks of epidemic disease by which that mortality of the working class was affected might be shown in this, that whereas amongst the professional persons and their families the proportion of deaths from epidemic or foul air diseases was only 6 per cent., the proportion of deaths from the same causes in the wage-earning class was 22 per cent.

The Rev. Canon Bowlby (Birmingham) said that with regard to provident dispensaries he wished to say as the result of his experience, and after large acquaintance with the class of persons those institutions were intended to

benefit, that he was sure, looking at the matter from their point of view, the movement was one which ought to have the encouragement of every thoughtful person. With regard to the giving of doles in connection with church attendance, he begged as a clergyman to say, and he believed his brethren would agree with that, he did not desire their continuance. They were productive of the greatest mischief, by pauperising persons, and inducing them to come to church from an improper motive.

The Rev. H. W. Crosskey (Birmingham) said that upon the question of provident dispensaries he wished to throw out one or two points for consideration. The first was that there should be no element of charity whatever in connection with them, but that they should be really and truly self-supporting institutions. He was convinced that what was wanted in this country was not more great charitable institutions, but more organisation for self-help. His second suggestion was that there should be no restriction as to who should be allowed to join. The application of a wage test was not at all possible, and he was also averse to the admission of members by an election committee. In the third place, he suggested, as worthy of consideration, whether those who were to enjoy the advantages of the dispensaries ought not to be entrusted with the management of them. They had done too much in managing for people, and now they must have people manage for themselves.

Miss Kenrick closed the discussion by pointing out that in connection with Ladies' Sanitary Associations there were lectures to poor women, and she had found that those who attended such lectures were very ready to follow the advice given. It only required that medical knowledge should be translated into the vernacular, and that those who spoke should be acquainted with the houses of the working classes.

THE DWELLING.—WARMING AND VENTILATION.

Dr. Carter read a paper by Mr. R. Rawlinson, C.B., on "Buildings for Working Men."*

Dr. Alfred Hill, Medical Officer of Health to the Borough of Birmingham, read a paper on "House Drains in their Relation to Health."†

Mr. Frank Curzon read a paper on "The Appointments and Appearance of the Workman's Home."‡

Capt. Galton, C.B., F.R.S., read a paper on "Warming and Ventilation."§

Mr. George Skey (Tamworth), in opening the discussion on the papers, said he was sure that the importance of the subject of buildings for working men could not be overrated. While agreeing with the numerous suggestions which had been made on the matter, he asked what they were to do with reference to the cost. He had done a little in the practical way by building a model lodging house for 24 young men, giving a separate sleeping apartment to each; and also half-a-dozen houses, which some people were pleased to call model dwellings for the labouring class. The model lodging house he had to close and turn into dwellings; and the model cottages remained still. The whole property was in his possession at this moment, but what about the returns for it. It was not three per cent. He reminded them that the cost of building was enormous, and he wanted to know how they were to meet the difficulty. He found that the experiment did not pay. If these buildings had paid an ordinary interest, he might have gone on with the scheme. He was sorry to say that, even in Birmingham, speculative builders were putting up a number of houses which the sanitary authorities would prevent if they had the power. If they could bring forward some economical and complete plan for building such houses as had been suggested, then he thought the thing might be done, but not otherwise.

Mrs. Edmunds (Birmingham) asked whether hammocks

could not be introduced into the dwellings of the poorer classes. Blankets and mattresses cost money, however common they might be, and it was almost impossible for many of the poorer people to keep the mattresses clean. She suggested that hammocks might be used for sleeping purposes.

General Cotton, O.S.I., pointed out that, owing to the increased information which had been diffused in the public mind, the builders in London now paid much greater attention to the sanitary arrangements of the buildings which they put up. They now hardly considered a house was ready to go into the market unless a sanitary engineer had gone over it.

The Rev. Brooke Lambert said that, with regard to the question of cost raised by Mr. Skey, buildings of the kind in question had been put up in London with success, the houses having given a return of 5 per cent. Those houses were paying mainly from the fact that the tenant had an interest in conserving the property, and so the waste and expenditure were enormously reduced. He thought any scheme would be useless without some such provision as that.

After a few words from Col. Phelps and Mr. Poyton, the business of this Section concluded, and an adjournment for luncheon took place.

AFTERNOON SITTING.

SECTION A (continued).—FOOD AND COOKERY.

President—Miss Kenrick.

Sir Henry Cole, K.O.B., described a paper by Mrs. Charles Clarke, on "The National Training School for Cookery."*

Miss Guthrie-Wright (Edinburgh) read a paper on "The Art of Preparing Food; its Place in General Education."†

Mrs. Fenwick (Leeds) read a paper on "The Teaching of Domestic Economy in Conjunction with Cookery in Elementary and Secondary Schools."‡

Mrs. Rowland Williams (Liverpool) read a paper on "The Combination of Practice with Theory in Cooking Lessons for Public Elementary Schools."§

The Rev. J. P. Fauntleroy spoke on the encouragement given to the teaching of cookery at Whitelands Training College. He remarked that a competent teacher of cookery might earn from £100 to £150 a year, which was much more than untrained governesses could earn. He recommended that a knowledge of cookery should be considered essential when a schoolmistress applied for a situation, or, if the managers chose, she might be sent to the school of cookery for a month or six weeks.

The Rev. E. T. Stevens said he represented the country villages, whose schools were very ill supplied with the various materials, and the teaching staff of highly educated and exceedingly willing ladies who were to be found in such a place as Birmingham. The difficulties in teaching domestic economy in country villages were very great indeed. He should be very glad if, as the outcome of the Conference, some association of ladies could be found to take the country villages under their guardianship and give lessons in domestic management, and especially in cookery. It would also be of the greatest advantage if ladies would give the young persons and children whom they had instructed a certificate of being able to cook properly, when they entered the service of richer families. He should like to see domestic economy associations going voluntarily into parish schools or other places in the villages in order to teach the girls and young women practical domestic economy, for he was convinced that the mere giving of demonstration lessons was not sufficient; the children

and young women who were taught must be able to do themselves the thing they saw their teachers perform. He therefore suggested that a body of voluntary teachers should be created, to teach the lessons in domestic economy practically, and when the pupils had learnt to do the things they taught, they should give them certificates to take to their future mistresses on seeking a situation.

The Rev. Brooke Lambert thought there were too many associations in the world, and that one of the best associations would be to teach people how to do without associations at all. With regard to the expense of training children in cookery, he believed that if a cookery class was established in a Board school in Birmingham, and joints cooked and sold, the whole expense of the kitchen would be saved. From his experience in Tamworth and London, he was perfectly convinced that a cooking kitchen in connection with a public elementary school would pay. If cookery was conducted on a large scale at one of the Birmingham Board schools, the artisans would take as much dinner as they could possibly cook. He suggested the establishment of central cookery schools throughout the country, in which the Government might give elementary cooking lessons to the children.

The Rev. Newton Price next read a paper on "Cookery in Elementary Schools."*

Mr. R. Browne Clayton read a paper on "Several Years' Experience of Cookery Taught in Various Schools."†

Mr. W. Stephen Mitchell read a paper on "The Practical Use of the Food Collection of the Science and Art Department."‡

Dr. Wilson read a paper on "Errors in Diet."§

Miss Helen Taylor opened the discussion on these papers, observing that in the few words she wished to say on this subject, she spoke rather as an old housekeeper than as one interested in popular education. The question, which in her opinion was pre-eminently a man's question, was one that affected the middle classes much more than the working classes, for, without undervaluing the importance of good cooking, she was afraid that there was a lasting truth in the old proverb about who it was that sent meat and who it was that sent cooks. Who was it that felt so very deeply upon this subject? It was the gentlemen who were well-to-do. And who was it that told the women such sad tales of indigestion? So much for the too enticing effects of good cooking. As regards the working classes, she thought the exact reverse effect was produced by the very same thing. The well-to-do classes, especially the gentlemen, were tempted to eat a great deal too much by the good cooking at the clubs, and perhaps it might be a Providential arrangement that they did not find such good cooking at home. Looking to the working classes, and speaking as one who had kept house in France, and for 18 years had been deeply interested in the cooking of France, and had studied the cottage and farm-house cooking among her poorer neighbours, who had passed the best years of her life in travelling among the mountains of France, Italy, and Germany, and who knew what the cooking was in the humble dwellings in this country, she could say emphatically that she believed a great deal of the good health of English working men was owing to the fact that their wives cooked so badly that they would not put up with wishy-washy soup. There was a great snare in the good economical cooking of French women. They made almost anything so appetising that women and children were satisfied, and thought they had had enough to eat; but they rose the next morning to their work without having had enough to keep up their bodily strength. Whatever they did, they should be careful that the cooking they attempted to introduce should not be too

elaborate; and another thing—regarded from the point of view of working men, and perhaps also of men of all ranks in life who are not rich enough to afford well trained, high-class servants—it would be infinitely better for their health and good temper, if their wives were precise as to time rather than being tempting in what they presented to eat, for if there was one thing that ruined the health and temper of men—and justly so—it was the way in which the women, and especially the working women, kept them waiting for their meals. She believed that the most ill-cooked mutton chop or piece of bacon given at the minute that the man went in was better than the best cooked dish half an hour afterwards. Therefore she put in a word for primary education—that education which taught girls to be precise and exact; and if ever they did get to a high-class system of cooking, this would be the foundation of it. The reason they had such bad cooking in their lower middle-class establishments was because their servant girls were so ignorant. As regarded teaching girls cookery, she thought they should do something of it, but she was to a great degree an advocate for the theoretical teaching of girls. She was sure the ladies present would bear her out that a young woman, and far less a young girl, could not be taught to cook with one, two, or three experiments; it was constant practice which taught a woman how to cook, so that the mistakes made one time might be remedied another. As a rule, they wanted to teach the young rather than the old; but it seemed to her that it would be better to give the cooking lessons to the mothers, who had the means of putting them in practice and instructing their daughters. She did not think the girls would ever teach the mothers. She thought they would do more to advance cookery by opening classes all over the country, in connection with the training schools, for the mothers, for they might depend upon it that the mothers, if they were good cooks, would teach the girls, whereas the mothers would consider the girls most intolerable prigs if they attempted to teach them. A good deal might be done to attain the end they had in view by preparing the girls, by teaching them the laws of health, physiology, such parts of chemistry as appertained to cookery, what cookery meant, and what were its objects, and, in fact, by giving them a philosophical view of the subject. When that had been done, all the intelligent girls would be anxious to learn more as to the practical work of their lives. They did not put the boys to school to learn their trades, and as cooking and domestic work were, or ought to be, the trade of most women, they should give women their trade or technical teaching directly after they left the primary schools. They ought to have secondary technical schools, where domestic work could be taught by highly-trained teachers, for to attempt to make a certificated teacher of a school into a good cook was to spoil two good things. The French understood cookery better than the English, and a celebrated French cook had gone so far as to say that it was a gift which came, like poetry, from heaven. Let schoolmistress and cook keep their respective places in the world; in short, let them not be too economical in the training of girls; let them not want to squeeze into thirteen years of a girl's life both the school training and what she called the trade learning. Let a girl learn her trade of mistress, mother, and housekeeper after she had been well prepared for it by a thorough course of elementary teaching.

Mrs. Fenwick read a paper, in which she contended that the present regulations militated against the successful teaching of domestic economy as a branch of national education. If a girl took specific subjects domestic economy must be one; but no girl, except in the fourth, fifth, or sixth standards, was allowed to compete for the Government grant. The effect would be that the few dull girls would frequently leave school without any domestic training, never having attended those higher standards. She, therefore, thought that

* See page 50. † See page 52. ‡ See page 55. § See page 57.

* See page 62. † See page 64. ‡ See page 65. § See page 67.

* See page 71. † See page 70. ‡ See page 75. § See page 80.

the standard for commencing the study of cookery should be the age and not the brains of the girls.

Mr. H. W. Hart spoke on the subject of errors of diet. They could not have a greater illustration of the errors of diet than in the widespread dyspepsia throughout the country, and he would suggest that medical men who took an interest in their fellow creatures should combine together with the view to inform the public as to what was proper diet. Proper food should be capable of sustaining and invigorating every organ of the human body, and maintaining uniform health for any length of time, without the assistance of stimulants, tonics, or aperient medicines. Meat did not supply all that was really necessary for the sustentation and growth of the various parts of the human body. Milk, ripe fruit, vegetables, and farinaceous foods would sustain life more or less perfectly; but to obtain this desideratum to perfection recourse must be had to wheat. The value of bread made of the entire grain, and without fermentation, would, if freely and constantly used, and excluding starchy foods, effect a speedy and marked improvement in the physical and mental condition of all who partook of it. The great disadvantage of Scotch oatmeal was that it was unduly heating to the system.

Mrs. Francis Lupton, in reply to what had been advanced by Miss Helen Taylor, said the result of their practical experience in Lancashire and Yorkshire of the teaching of cookery, and the relation of foods to health, showed that reformation, to be practical, must begin with the young rather than the old, and not with those who from their stereotyped habits were unwilling to accept new truths. If they confined their teaching to adults, the result had shown that the next generation would be as ignorant as the present. It was therefore to the schools that they must look for the carrying out of a more systematic training in the principles and practice of household cookery. In the recognition by the Government of cookery as a branch of study in State schools she saw an omen of a better state of things for the future.

The Rev. Newton Price said the lady who had just spoken was evidently under the impression that there was an antagonism between the education they were then advocating and primary education; such, however, was not his experience, and in his experience he had found primary education decidedly improved and the intelligence of the children promoted by the lessons they received in cookery, while he had the authority of Miss Chessar for stating his school was in a very high state of efficiency with regard to general education. He had also found that the mothers did not object to receive lessons from their children. If they were to defer the teaching of cookery to children until after the age of 13, as had been suggested, they would in most cases have no opportunity of teaching them the subject.

The Rev. J. P. Faunthorpe said his experience, which was probably very inferior to that of Miss Taylor, was that the mothers showed the greatest willingness not only to allow their daughters to practise what they had been taught in the schools, but also to learn from them themselves.

The Rev. E. F. M. MacCarthy admitted that they might commit the error of allowing those interesting practical subjects to absorb too much of the time that ought to be given to the training of the mind. While they were exhorted not to squeeze into thirteen years of a girl's life both school training and technical training, yet they were met by the fact that they were not likely to have another opportunity of getting technical training at all, in that particular area, unless they did it within those years. He should like to imagine the day was near, but he believed it was a generation ahead, when the endowments of this country, with all their richness and wealth, would be devoted throughout

the length and breadth of the land, to scholarships for carrying children from public elementary schools to secondary technical and trade schools. There were sufficient funds in the country for the purpose, and it only meant in very many cases their diversion from harmful, and in some cases wicked, uses, to the very best uses to which money could be put. The class which was now being pauperised by these endowments was the same class which, under proper legislation, would profit by them when they were turned to other and more useful purposes. He agreed with Miss Taylor that mothers would be apt to put up their backs against being taught by a chit of a girl, but that would only be the case for one generation, because those daughters would in a few years themselves become mothers, so that all the difficulty and unpleasantness which they were now bound to take into account would only be temporary, and would be one of the results necessarily accompanying any change or improvement of a system. With reference to what Mrs. Kenwick had said, it was quite true that, by the present Code, girls in elementary schools could not be taught domestic economy until they had arrived at the fourth standard, and it was also true that the bulk of the children who ought to share in the teaching would have left school before arriving at that stage. A modification of the Code, by allowing the subject to be taken on the second or third standard, would meet the difficulty. The selection of girls by age and not by intellect to receive lessons in cookery, would, he was afraid, be found absolutely impracticable. The schedule of the Code, however, wanted revising, as it was artificial, and not based upon practical experience, domestic economy not having been taught before. The best plan would be to have elementary stages, advanced stages, and honour stages, and to pay for the results accordingly.

Mr. W. S. Mitchell briefly replied, and the discussion closed.

The Rev. E. F. M. MacCarthy then announced that there were certain resolutions to be passed before the Congress terminated. During the day the Earl of Lichfield had been at the Congress, and if time had permitted he was to have moved the adoption of the first resolution. The noble Earl had been obliged to leave early, but if he had been present he would in his speech have read an extract from a work ("The Annals of Agriculture") published between 1790 and 1800, on the very point they had been discussing during the last two days. His Lordship's object was to show that seventy or eighty years ago the principles upon which they were working had impressed themselves upon the minds of some of the thinkers of those days. He could not do better than read the extract which his Lordship intended to bring before the meeting. It ran,—"this economy in all cases is the more to be urged because the difference in comforts of the same families, at the same expense, well or ill-conducted, is greater often than that of different families at different expenses. There is more difference, comparatively, in the mode of living from economy than from income. The deficiency in income may possibly be made up by increase of work or wages; but the want of economy is irremediable, and the least income in question with it will do more than the greatest without it. No master can in the first place afford wages, next, no overseer can make allowance, lastly, no magistrate can order relief, enough on any calculation but that of their being severally well-managed. If the poor do not prudently serve themselves none can effectually assist them; if they are not their own friends none can sufficiently befriend them. The idle in procuring, or the wasteful in using, the means of subsistence, have neither merit in themselves to deserve, nor have others power to grant them that supply which is alone due, and can be alone afforded, to the honest, industrious, and prudent. It highly, then, interests all conversant with the poor, who ought to be literally all, and it is hoped are most,

to consult and co-operate with them in the practice of economy; it is far more useful to teach them to spend less, or to save a little, than to give them much more."

THE NEXT CONGRESS.

Mr. Traice proposed a resolution, the design of which was to remove the mere fugitive character of these meetings, and to produce some sort of organisation by which the movement now inaugurated would be more or less perpetuated. The resolution was:—"That in view of obtaining practical results for this Congress it is desirable that the local committee and sub-committees remain in action until the next annual Congress, which has been announced by the Society of Arts to be held in Lancashire in 1878." He supposed the fact that the next annual Congress was to be held in Lancashire was the reason why he had been chosen to move the resolution. At any rate, he hoped that the result of the Congress which had been held in Birmingham would be to give to those who had attended the Congress some incentive to enter upon some new work, which would not only be of advantage to themselves, but to all their fellow-creatures.

The Rev. Brooke Lambert, in seconding the resolution, said one object of the Congress was to give information, and that he believed, had been well achieved.

The motion was unanimously adopted.

General Cotton said, that when this Conference was first suggested in the Society of Arts Committee, one lady gave her vote against it very decidedly; but he would not hesitate to say that the Congress held in Birmingham had been a great and decided success. Sir Henry Cole had been their herald in Birmingham, and the President, and Vice-President, and the secretaries had shown a faithfulness and an earnestness in everything which had been done. If there had been any ruffled temper, he was confident that anyone, after they had left the meeting, would at once forget it. So far as he was concerned he had not seen anything of the sort. In their studies during the two days their object was to bring luxury to all classes. They did not use the word in its ordinary acceptance, but they had in domestic economy the means of bringing luxuries to the people; for who would deny that pure air, well-ventilated homes, food well-cooked, and food well-selected, were not intense luxuries? He moved:—"That the thanks of this Congress are due, and are heartily tendered, to the inhabitants of the town of Birmingham and its neighbourhood, who have given so graceful a reception, and extended such generous hospitality to the visitors to this

Congress; also to Colonel and Mrs. Ratcliff for their thoughtfulness in seeking to relieve the heavier duties of the course, by throwing open their grounds for a few hours of agreeable relaxation, and for entertaining the members of the Congress there; to the president, vice-president, and committee of the Royal Birmingham Society of Artists for placing at the disposal of the Congress the suite of rooms in which the *conversations* and sittings of the Congress and exhibition have been held."

Mr. Danby Seymour, in seconding the motion, said that he thought the Congress had been a great success, and he was sure that the Society of Arts did right in initiating it.

The resolution was cordially adopted.

The Mayor of Birmingham (Mr. G. Baker) acknowledged the vote, and expressed his regret that he had unavoidably been absent from most of the discussions which had taken place. He noticed that it was proposed that the next meeting should be held somewhere in Lancashire, and he was sure that the persons attending that meeting would be as warmly received there as they had been in Birmingham. With respect to Colonel Ratcliff, he was sure they all appreciated the very great kindness and the thoughtful consideration he had shown in providing the company with such a pleasant entertainment. The Society of Arts, which had originated a Congress like that, had done a very great work, and they had to thank Sir H. Cole and other persons for the great zeal and energy they had shown in the matter. No one could measure what good such a Conference could do, and he hoped it would be continued in the future.

Mr. E. Chadwick next moved:—"That the members of the Congress desire heartily to congratulate the Executive, Reception, Exhibition, and Finance Committees, the Presidents of Sections, the Treasurer and Honorary Secretaries, and all who have contributed to the efficient conduct of the proceedings, on the great success which has crowned their exertions; and they also desire to express their thorough appreciation of the arduous labours which have contributed in so many ways to that success, and to their personal convenience and comfort."

This was seconded by Miss Helen Taylor, and unanimously adopted.

Sir Henry Cole briefly responded, and the President then announced that the Congress was closed.

APPENDIX.

CARDINGTON TRAINING SCHOOL FOR GIRLS.

This school is the only one of the kind in the county of Bedford, and as an experience of seventeen years has now been gained, it is thought that a statement of the method pursued, the expense incurred, and the results, may be to some persons suggestive and serviceable.

If a girl goes out to service without special training she generally begins at low wages, in an inferior situation, but from this school girls have obtained at once a good start in life, in superior families, at wages of about ten pounds per year.

Girls are admitted to the school between the ages of eight and seventeen. Instruction in the elementary branches of education, reading, writing, and arithmetic, and in the Bible and formularies of the Established Church is given as in the parochial school. Plain needlework is also taught, and the elder girls are instructed in the use of a sewing machine. To this instruction is added the special training in the work of a cook, a housemaid, a laundress, and sometimes of a dairy-maid, the elder girls taking weekly turns to act in these capacities.

Practice in all ordinary kinds of cooking is obtained in the following ways:—1st. Soup and other articles of food are frequently prepared for sick persons; 2nd. A dinner in winter and a meat tea in summer, with a varying bill of fare, is given to the whole school once a-week.

Application is now (July, 1877) being made to the Education Department for the recognition of the school as a "certified efficient school" within the meaning of the Elementary Education Act, 1876.

The buildings consist of an ample school-room, furnished with a Hasell's cooking range, a mistress's house, a dairy, a pantry, and a scullery.

When any girl of the age of 16 or 17 years, after conducting herself well, goes out to service, to a place ap-

proved of by the managers, she receives part of an outfit of clothing. All the girls of this age (14 in number) who have hitherto gone out to service from the school in this way, have obtained good places, and have given satisfaction in them. Those who have gone out to service before the age of 16 years (47 in number) have obtained better places than they could otherwise have expected.

The chief employment of women and girls in this village is lace making, and it is adopted into the work of the school. A teacher is engaged to superintend the girls so employed. This arrangement is found to leave the girls time enough for the other school work, and it leaves the mistress more free to attend to the domestic training.

The entire training in all its branches (except the instruction in lace making) is carried on by one competent, trained, but not certificated mistress, who has also had some experience in domestic service.

The total expenses of the school at present are about seventy pounds a-year. The number of girls is limited to thirty, but this is found to be more than can be supplied by the population of Cardington proper, which by the last census was 515. It may be remarked, however, that in a large parish a school of double the number could probably be maintained at proportionally small extra cost. The cost would also be diminished if the industrial part were an annex to the parochial school, instead of being, as this is, a separate establishment.

To any person proposing to found a similar institution the patrons will gladly give further particulars on application being made personally, or by letter, to the Mistress of the Girls Training School, Cardington, near Bedford.

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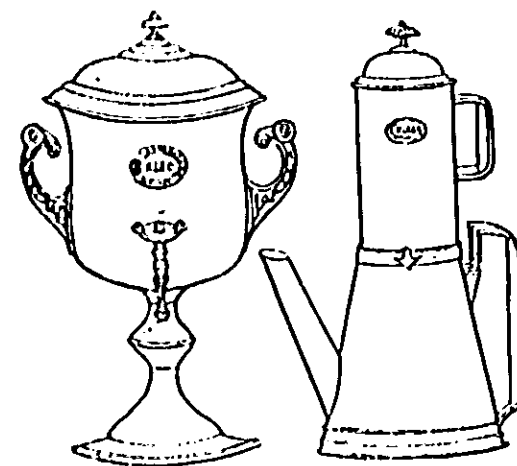
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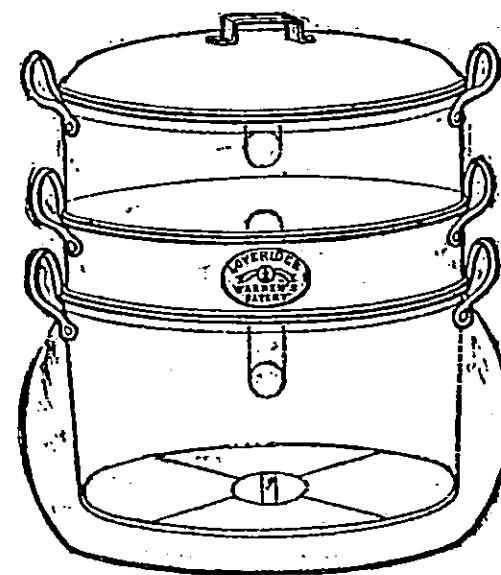
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INDIAN SECTION.—This Section was established in 1869, for the discussion of subjects connected with our Indian Empire. Six or more Meetings are held during the Session.

AFRICAN SECTION.—This Section was formed in 1874, for the discussion of subjects connected with the Continent of Africa. Six or more Meetings are held during the Session.

CHEMICAL SECTION.—This Section was formed in 1874, for the discussion of subjects connected with Practical Chemistry and its application to the Arts and Manufactures. Six or more Meetings are held during the Session.

CANTOR LECTURES.—These Lectures originated, in 1803, with a bequest by the late Dr. Cantor. There are Three Courses every Session, and each course consists generally of from Four to Six Lectures.

SCIENCE LECTURES.—Six Lectures on various subjects are delivered during the Session by eminent men of science.

JUVENILE LECTURES.—A short Course of Lectures, suited for a Juvenile audience, is delivered to the Children of Members during the Christmas Holidays.

ADMISSION TO MEETINGS.—Members have the right of attending the above meetings and Lectures. They require no tickets, but are admitted on signing their names. Every Member can admit *two* friends to the Ordinary and Sectional Meetings, and *one* friend to the Cantor and Science Lectures. Books of tickets for the purpose are supplied to the Members, but admission can be obtained on the personal introduction of a Member. For the Juvenile Lectures special tickets will be issued.

JOURNAL OF THE SOCIETY OF ARTS.—The *Journal*, which is sent free to Members, is published weekly, and contains full Reports of all the Society's Proceedings, as well as a variety of information connected with Arts, Manufactures, and Commerce.

LIBRARY AND READING-ROOM.—The Library and Reading-room are open to Members, who are also entitled to borrow books.

CONVERSAZIONI are held, to which the Members are invited, each Member receiving a card for himself and a Lady.

HEALTH AND SEWAGE OF TOWNS.—A Conference is held annually.

MEMBERSHIP.—The Society numbers at present nearly four thousand members. Gentlemen desirous of becoming Members should communicate with the Secretary. The Annual Subscription is Two Guineas, or a Life Subscription of Twenty Guineas may be paid.

Membership.

Candidates for Membership are proposed by three Members, one of whom, at least, must sign on personal knowledge; or are nominated by the Council. The Annual Subscription is Two Guineas, payable in advance, and dates from the quarter-day immediately preceding election; or a sum of Twenty Guineas in lieu of all further contributions, may be paid.

Every member whose subscription is not in arrear is entitled:—

To be present at all Evening Meetings of the Society, and to introduce two visitors at such meetings, subject to such special arrangements as the Council may deem necessary to be made from time to time.

To be present and vote at all General Meetings of the Society.

To be present at the Cantor Lectures, and to introduce one visitor.

To have personal free admissions to all exhibitions held by the Society at its house in the Adelphi.

To be present at all the Society's *Conversazioni*.

To receive a copy of the Weekly *Journal* published by the Society.

To the use of the Library and Reading-room.

All subscriptions should be paid to the Secretary, and all Cheques or Post-office Orders should be crossed "Coutts and Company," and forwarded to him at the Society's House, John-street, Adelphi, London, W.C.

A List of the Papers to be read, and the Lectures to be given, during the Session, can be obtained, as soon as published, on application to the Secretary.