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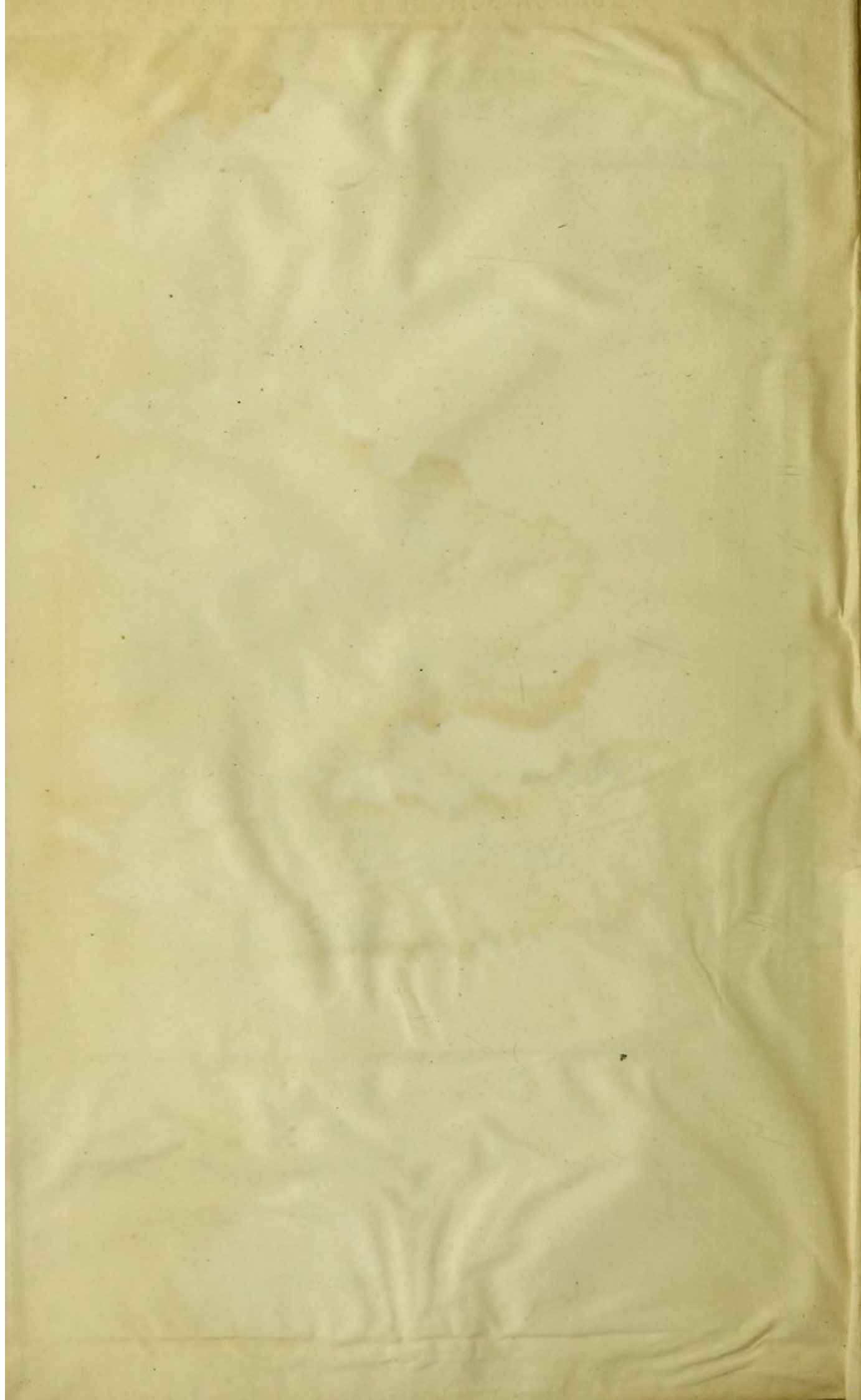
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LONDON SCHOOL OF TROPICAL MEDICINE  
AND  
TROPICAL MEDICINE  
*International Health Exhibition,*  
LONDON, 1884.

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THE  
HEALTH EXHIBITION  
LITERATURE.

*VOLUME XVIII.*

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INTERNATIONAL JURIES.

JURY AWARDS.

OFFICIAL CATALOGUE.

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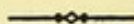
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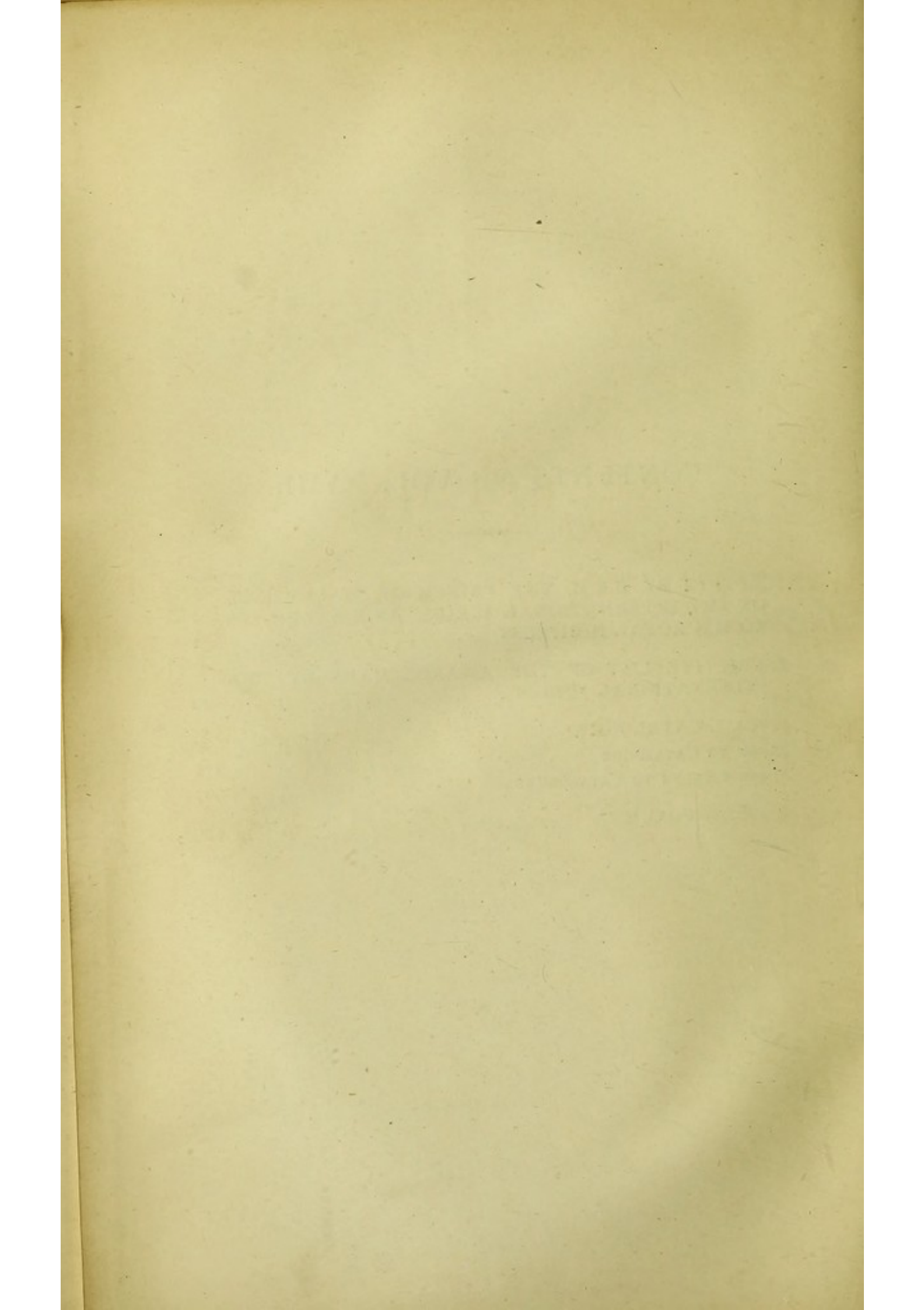
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# RECEPTION

BY

H.R.H. THE PRINCE OF WALES, K.G.

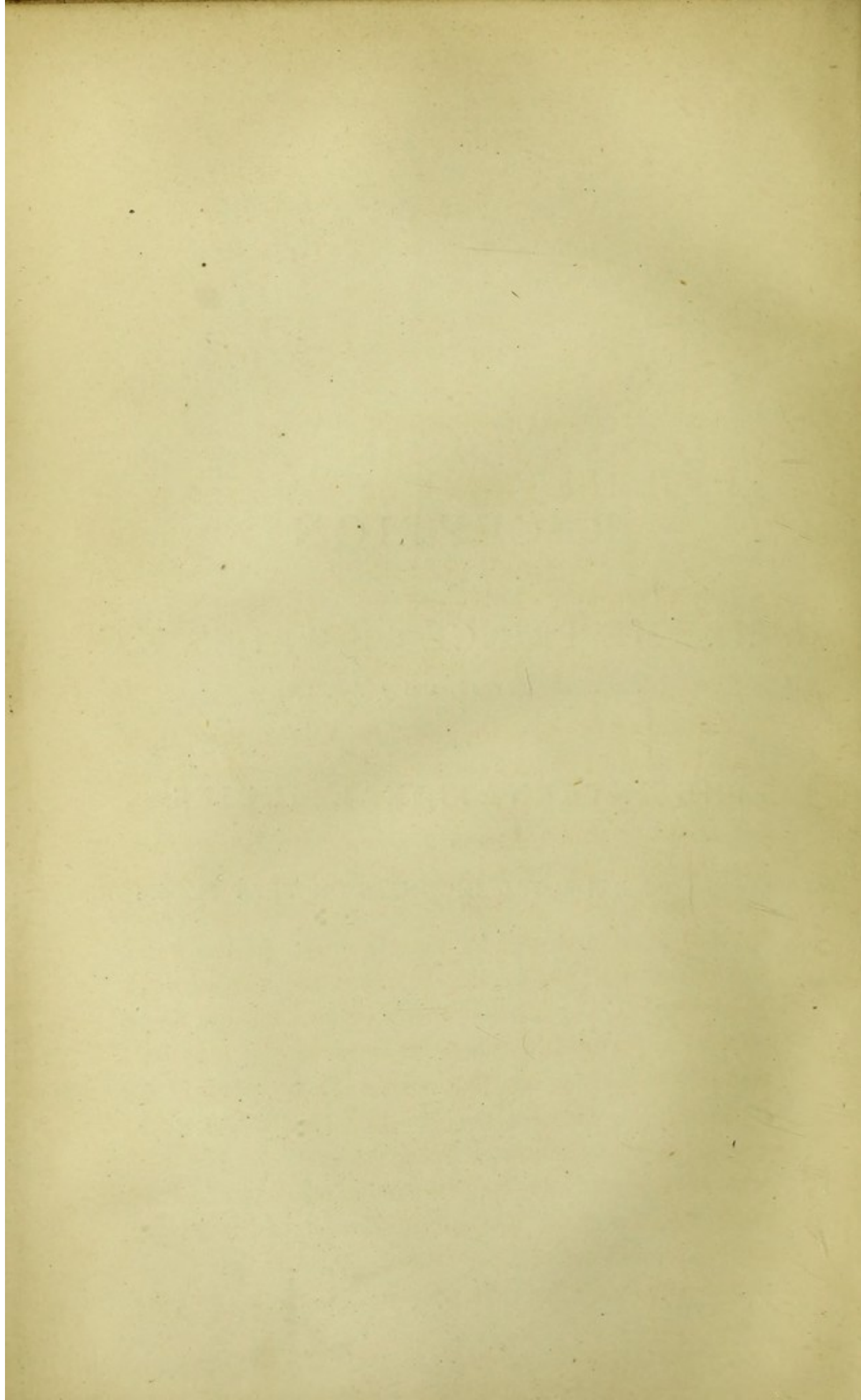
*ON WEDNESDAY, 18th JUNE, 1884,*

OF

THE INTERNATIONAL JURIES,

AND

ADDRESSES TO HIS ROYAL HIGHNESS ON THAT OCCASION.





RECEPTION BY  
H.R.H. THE PRINCE OF WALES, K.G.,  
OF THE  
INTERNATIONAL JURIES.

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The DUKE OF BUCKINGHAM AND CHANDOS, as Chairman of the Executive Council of this Exhibition, expressed, on behalf of the members, the gratification they felt at the appearance among them of His Royal Highness, to whom the inception of the undertaking was due. After speaking of the efforts which had been made, alike by men of science and by those engaged in the trades and industries of the country, to ensure the success of the Exhibition as a great educational institution, his Grace referred to the plan on which the International Juries had been constituted as one that should ensure for them the confidence of exhibitors, who had to a certain extent had a voice in the selection of the gentlemen who had consented to serve. In conclusion, he acknowledged the ready response made by Foreign Powers to the application of the Executive Council with regard to the formation of juries, and the value of their co-operation in other ways.



Sir JAMES PAGET said :—

MAY IT PLEASE YOUR ROYAL HIGHNESSES, YOUR EXCELLENCIES, MY LORDS, LADIES, AND GENTLEMEN, —It was very difficult to select, from the vast number of subjects relating to Health and to Education, one on which I could fitly speak to-day. On general education I could not venture to speak ; and, believing that I should have to address a large and various audience, I thought it would be best to choose a subject by which I might urge one of the chief objects of this Exhibition, and one which I know that you, Sir, have always had in view, namely, that the public themselves should consider, much more than they do, the utility and the means of maintaining their own health. I have, therefore, chosen the relation between National Health and Work ; especially as it may be shown in a few of the many examples of the quantity of work which is lost to the nation, either through sickness or through deaths occurring before the close of what may fairly be reckoned as the working time of life. I think it may be made clear that this loss is so great that the consideration of it should add largely to the motives by which all people may be urged to the remedy of whatever unwholesome conditions they may live in. It is a subject which is often in the minds of the real students of the public health, but the public itself is far too little occupied with it.

I shall speak only of National Health ; of health in its relation to national welfare. In consideration of his own self a man may be deemed healthy who lives idly, comfortably and long ; who enjoys every day of his life, and satisfies every natural appetite without consequent distress. And when such an one dies of old age, with a timely, uniform and painless decay of every part, he may be deemed to have been completely healthy. And yet it is possible that he may have enjoyed his own health in the



midst of a poor, unhealthy and unhappy nation, to which he has done no good whatever.

If we could find a nation composed of people such as this man, we might be bound to speak of them as healthy ; but we should be right in calling the whole nation utterly unsound, and might safely prophesy its complete stagnation or its quick decline and fall.

It is not health such as this—idle, selfish, unproductive—that we want to promote either in the individual or in the multitude. Comfortable idleness, such as that of some vagrants and some fine gentlemen, is a despicable result of good health : it is what no thorough man would ever wish for. In view of the national health and welfare, the pattern healthy man is one who lives long and vigorously ; who in every part of his life, wherever and whatever it may be, does the largest amount of the best work that he can, and, when he dies, leaves healthy offspring. And we may regard that as the healthiest nation which produces, for the longest time and, in proportion to its population, the largest number of such men as this, and which, in proportion to its natural and accumulated resources, can show the largest amount and greatest variety of good work.

Here let me insert, as an interpretation clause, that in all this and what is to follow the word “man” means also “woman,” and “he” means also “she ;” and that when I speak of work, I mean not only manual or other muscular work, but work of whatever kind that can be regarded as a healthy part of the whole economy of the national life. And I shall take it for granted that a large portion of all national welfare is dependent on the work which the population can constantly be doing ; or, if I may so express it, that the greater part of the national wealth is the income from the work which is the outcome from the national health.



It is a common expression that we do not know the value of a thing till we have lost it ; and this may be applied to the losses of work which are due to losses of national health. There are very few cases in which these can be estimated with any appearance of accuracy ; but I am helped to the best within our present reach by Mr. Sutton, the Actuary to the Registry of Friendly Societies. In his office are the returns, for many years past, of the sickness and mortality among the members of a very large number of these societies ; and, among other things, there is recorded the number of days on which each member, when "off work" on account of sickness, receives money from his society. Hence Mr. Sutton can estimate, and this he has been so good as to do for me, the average number of days' sickness and consequent loss of work among several hundred thousands of the workmen and others who are members of these societies. From the entire mass of these returns, he deduces that the average number of days' sickness, per member, per annum, is very nearly  $1\frac{1}{2}$  weeks ; and this agrees, generally, with the estimates made in other societies by Mr. Neison and others. But the averages thus obtained include the cases of members of all ages, and among them many cases of chronic sickness and inability to work during old age. In order, therefore, to get a better idea of the actual annual loss of work through sickness, he has taken the published experience of the members of the large group of friendly societies known as the Manchester Unity of Odd Fellows ; and then, on the fair assumption that the rates of sickness of the whole population during the working years of life would not be far different from this experience, he has calculated the following tables, showing the average annual rates of sickness of each person, enumer-



ated in the Census of 1881 as living between the ages of 15 and 65.\*

Ages.	Number of Males : Census of 1881 (England and Wales).	Weeks' Sickness per annum, accord- ing to the ex- perience of the Manchester Unity.	Average Sickness per individual per annum (in weeks).
15—20	1,268,269	844,428	·666
20—25	1,112,354	820,183	·737
25—45	3,239,432	3,224,134	·995
45—65	1,755,819	4,803,760	2·736
All ages from 15—65	7,375,874	9,692,505	1·314

Ages.	Number of Females : Census of 1881.	Weeks' Sickness per annum, accord- ing to the ex- perience of the Manchester Unity.	Average Sickness per individual per annum (in weeks).
15—20	1,278,963	851,701	·666
20—25	1,215,872	896,685	·737
25—45	3,494,782	3,476,146	·995
45—65	1,951,713	5,368,229	2·751
All ages from 15—65	7,941,330	10,592,761	1·334

Briefly, it appears from these tables that the average time of sickness among the male population during the

\* See Tables in the Appendix, pp. 27, 28.



working years is 1'314 weeks—that is, a small fraction more than 9 days each in each year—and that among the female population it is yet a small fraction more; the excess arising from the larger proportion of females at the older ages. The result is that among males there is a loss of 9,692,505 weeks' work in every year, and among females a loss of 10,592,761 weeks. Thus we may believe that our whole population between 15 and 65 years old do, in each year, 20,000,000 weeks' work less than they might do if it were not for sickness.

The estimate is so large that it must, on first thoughts, seem improbable; but on fair consideration I believe it will not seem so. For the members of the Manchester Unity who are in the working time of life, the reckoning is certainly true, and it is founded on the experience of between 300,000 and 400,000 members. In respect of health they may represent the whole population, at least as well as any group that could be taken. They are not very strictly selected, they are not picked lives, yet they are such as are able, when they are in health, to earn good wages or good salaries, and, as their prudence in joining this association shows, they are comparatively thrifty and careful persons. They do not, at all events, include many habitual drunkards, cripples or utterly invalids, or of those who, through natural feebleness or early disease, or mere profligacy, cannot earn enough to become members or maintain themselves in membership. Neither do they include many of the insane or imbecile and idiotic, of whom there are, in our population, nearly 70,000, doing no work, and losing not less than  $3\frac{1}{2}$  millions of weeks' work in the year.

It would be tedious to tell the grounds on which the estimate may be deemed too high, for just as many and



as good could be told on which it might be deemed too low. And it is rather more than confirmed by some estimates of the annual sickness in other and very different groups of persons.

In the Army, at home, the average number of days' sickness in each year is, for each soldier, about 17; and, as the number of the troops in the United Kingdom is more than 80,000, we have here a loss of about 200,000 weeks' service in each year.

In the Navy, on the home stations, the average number of days' sickness in each year has been in the last five years for each man nearly 16; so that for the total of about 20,000 men there is a loss of 45,000 weeks' service in each year.

The amount of sickness in the services thus appears much higher than in the Friendly Societies. This is due, in great part, to the fact that a soldier or a sailor is often put off duty for a day or two for much less illness than that for which a civilian would "go on his club." Still, the one estimate may confirm the other; for the sickness in the Army and Navy is that of picked men, who were selected for the services as being of sound constitution, and who are in what should be the best working years of life: and if it includes many cases of sickness for only a day or two, it excludes nearly all cases of more than a few months, such as make up a heavy proportion of the average sickness in the Friendly Societies and in the general population.

And I may add that the estimate from these Societies, that 9 days in the year may justly be thought a fair estimate of the working time lost by sickness, is confirmed by the records of sickness among the 10,000 members of the Metropolitan Police Force; for among these, including



cases of long illness such as are also in the Societies, the average is more than 9 days in the year.

I think, then, that we cannot escape from the reasons to believe that we lose in England and Wales, every year, in consequence of sickness, 20,000,000 of weeks' work ; or, say, as much work as 20,000,000 of healthy people would do in a week.

The number is not easily grasped by the mind. It is equal to about one-fortieth part of the work done in the year by the whole population between 15 and 65 years old. Or, try to think of it in money. Rather more than half of it is lost by those whom the Registrar-General names the domestic, the agricultural and the industrial classes. These are rather more than seven millions and a half in number, and they lose about 11,000,000 of weeks ; say, for easy reckoning, at a pound a week ; and here is a loss of £11,000,000 sterling from what should be the annual wealth of the country. For the other classes, who are estimated as losing the other 9,000,000 weeks' work, it would be hard and unfair to make a guess in any known coin ; for these include our great merchants, our judges and lawyers, our clergy and medical men, our statesmen and chief legislators ; they include our poets, and writers of all kinds, musicians, painters and philosophers ; and our Princes, who certainly do more for the wealth and welfare of the country than can be told in money.

Before I speak of any other losses of work or of wealth due to sickness, permit me, as in parenthesis, to point out to you how very imperfectly these losses are told or even suggested by our bills of mortality. These, on which almost alone we have to rely for knowing the national health,—these tell the losses of life ; and more than misery enough they tell of ; but to estimate rightly the misery of



sickness and the losses of all but life that are due to it, we need a far more complete record than these can give.

Take, for example, such a disease as typhoid fever—that which Mr. Huxley has rightly called the scourge and the disgrace of our country. It has of late destroyed, in England and Wales, among persons in the working time of life, nearly 4000 in the year. Its mortality is about 15 per cent., so that if, in any year, 4000 die of it, about 23,000 recover from it. Of these, the average length of illness is, on the authority of Dr. Broadbent, about ten weeks. Here, therefore, from one disease alone, and that preventible, we have an annual loss of 230,000 weeks' work, without reckoning what is lost with those who die. And the same may be said of nearly all the diseases that are most prominent in the bills of mortality. The record of deaths, sad as it is, tells but a small part of the losses of happiness and welfare that are due to sickness. It is as if, in a great war, we should have a regular return of the numbers killed, but none of the numbers sick or wounded, though these, more than the killed, may determine the issue of the war.

Let me now tell of another loss of work and of money through sickness and early death. In all the estimates I have yet referred to, no account is taken of those who are ill or die before they are 15 years old. They are not reckoned as in the working-time of life, though in some classes many thousands of them are. [In the domestic, agricultural and industrial classes of the Registrar-General nearly half-a-million of them are included.] And yet the losses of work due to sickness among children must be very large. Consider the time which might be spent in good productive work, if it were not spent in taking care of them while they are ill. Consider, too, the number of



those who, through disease in childhood, are made more susceptible of disease in later life, or are crippled, or in some way permanently damaged; such as those who become deaf in scarlet fever, or deformed in scrofula or rickets, or feeble and constantly invalid, so that they are never fit for more than half work, or work which is only half well done. These losses cannot be counted, but they must be large. There are others more nearly within reckoning; the losses, namely, which are due to the deaths of those who die young. It may justly be said that all that they have cost during their lives is so much money sunk; so much capital invested and lost. If they had lived to work, their earnings would have been more than sufficient to repay it; but they have died and their cost is gone without return. The mortality of children under 15 in 1882 was nearly a quarter of a million: what have they cost? if you say only £8 a piece, there are more than £2,000,000 sterling thus lost every year. But they have cost much more than this, and much more still is lost by the loss of the work they might have lived to do.

It is, indeed, held, I believe, by some that these things should not be counted as losses: that we have a surplus of population, and that really the deaths of children, though they may be the subjects of a sentimental sorrow, cannot reasonably be regretted. I cannot bring myself to admit that such a thing should even be argued. I have lived long in the work of a profession which holds that wherever there is human life it must be preserved; made happy, if that can be; but, in any case, if possible, preserved; and no argument of expediency shall ever make me believe that this is wrong. Indeed, I am rather ashamed—even for the purpose that I have in view—to use so low an argument as that of expediency in



favour of the saving of health and of life. I am ashamed of making money appear as a motive for doing things for which sufficient motives might be found in charity and sympathy and the happiness of using useful knowledge; but it seems certain that these are not yet enough for all that should be done for the promotion of the national health; therefore, it seems well to add to them any motives that are not dishonourable; and so I add this, that we lose largely not only in happiness but in wealth by the deaths of these poor children.

I will add only one more illustration of these losses, which is always suggested by looking at tables of mortality. The deaths of persons between 25 and 45 years old, that is during what may be deemed the 20 best working years of life, are annually between 60,000 and 70,000; in 1882 they were 66,000. Think, now, of the work lost by these deaths; and of how much of it might have been saved by better sanitary provisions. If one looks at the causes of their deaths, it is certain that many might have been prevented, or, at least, deferred. Say that the 66,000 might have lived an average of 2 years more; and we should have had from them alone in this year and last an increase of work equivalent to that of at least 6,000,000 weeks; as much, in other words, as 6,000,000 people could do in one week.

More instances of losses of work by sickness and premature death might easily be given, but not easily listened to in this huge hall. Let these suffice to show something of our enormous annual loss, not only of personal and domestic happiness—that is past imagining—but of national power and wealth. Surely we ought to strive more against it.



But, some may ask, can these things be prevented? are they not inevitable consequences of the manner of life in which we choose or are compelled to live? No; certainly they are not. No one who lives among the sick can doubt that a very large proportion of the sickness and the loss of work which he sees might have been prevented; or can doubt that, in every succeeding generation, a larger proportion still may be averted, if only all men will strive that it may be so.

Let me enumerate some of the chief sources of the waste as they appear to oneself in practice.

Of the infectious fevers, small-pox might be rendered nearly harmless by complete and careful vaccination. Typhus and typhoid, scarlet fever and measles might, with proper guards against infection, be confined within very narrow limits. So, probably, might whooping cough and diphtheria.

Of the special diseases of artisans there are very few of which the causes might not be almost wholly set aside. Of the accidents to which they are especially liable the greater part, by far, are due to carelessness.

Of the diseases due to bad food and mere filth; to intemperance; to immorality; in so far as these are self-induced, they might, by self-control and virtue, be excluded. Scrofula, rickets, scurvy, and all the wide-spread defects related to them, might be greatly diminished.

It can only be a guess, but I am sure it is not a reckless one, if I say, that of all the losses of work of which I have spoken, of all the millions of weeks sadly spent and sadly wasted, a fourth part might have been saved, and that, henceforth, if people will have it so, a still larger proportion may be saved.

We may become the more sure of what may be done by



looking at what has been done already. Let me show some of it; it will be a relief to see something of the brighter side of this picture.

In a remarkable paper lately read before the Statistical Society, Dr. Longstaff says: "One of the most striking facts of the day, from the statistician's point of view, is the remarkably low death-rate that has prevailed in this country during the last eight years." In these years the annual death-rate has been less than in the previous eight years, in the proportion of two deaths to every 1000 persons living. The average annual number of deaths has been 50,000 less in the last than in the previous eight years. Doubtless many things have contributed to this grand result, and it is not possible to say how much is due to each of them; but it would be unreasonable to doubt that the chief good influence has been in all the improved means for the care of health which recent years have produced. This is made nearly certain by the fact that the largest gains of life have been in the diminution of the deaths from fever, and of the deaths in children under 15 years old; for these are the very classes on which good sanitary measures would have most influence.

The annual number of deaths from typhus, typhoid, and the unnamed fevers, has been about 11,000 less than it was about 20 years ago. The annual number of deaths of children under 5 years old has been about 22,000 less than it was; and that of children between 5 and 15 has been upwards of 8000 less.

These are large results, and though they tell of only deaths, yet they bear on the chief subject I have brought before you,—the working power of the nation; for, however much of the diminished mortality of fever we might assign to improved methods of treatment, yet the diminished



number of deaths means a very large diminution in the total number of cases. The deaths during the working years of life were 6500 less ; and, this being so, we may hold that, if the average mortality was, say, 25 per cent., the diminution in the total number of cases must have been at least 25,000 ; and if we may believe, as before, that each of these involved ten weeks of sickness, we have, in these fevers alone, a clear saving of 185,000 weeks' work in every year.

And so with the diminution of the mortality among children, there must have been a greater diminution in the number of costly and work-wasting illnesses, and a large saving of money that would otherwise have been sunk. And not only so : but many of the children saved in the last eight years will become bread-winners or care-takers ; and who can tell what some of them will become ? or what the world would have lost if it had lost them ?

Let me add only one more reckoning. In a paper last year, at the Statistical Society, Mr. Noel Humphreys said "that if the English death-rate should continue at the low average of the five years 1876-80, the mean duration of male life in this country would be increased by two years, and that of female life by no less than  $3\frac{1}{4}$  years as compared with the English Life-table." And he showed further that "among males 70 per cent. and among females 65 per cent. of this increased life would be lived between the ages of 20 and 60 years, or during the most useful period."

I should like to be able to tell the value in working power of such an addition to our lives. It is equal to an addition of more than 4 per cent. to the annual value of all the industry, mental and material, of the country.

But some will say,—admitting that it is desirable, though



seeing how keen the struggle for maintenance already is, can more than this be done? and the answer may be and must be, much more. In this, as in every case of the kind, every fruit of knowledge brings us within reach of something more. While men are exercising the knowledge they possess, they may be always gaining better. This Exhibition has scores of things which are better helps to national health than those of the same kind which we had 20 years ago, and with which the gains already made were won. If I were not in near official relation with the Jurors, I would name some of them: there are truly splendid works among them.

But do not let me seem to disparage the past in praising the present. It is difficult to speak with gratitude enough of what has been done, even though we may now see ways yet better.

Any one who has studied the sources of disease during the last 30 years can tell how and where it has been diminished. There is less from intemperance, less from immorality; we have better, cheaper, and more various food; far more and cheaper clothing; far more and healthier recreations. We have, on the whole, better houses and better drains; better water and air, and better ways of using them. The care and skill with which the sick are treated in hospitals, infirmaries, and, even, in private houses, are far greater than they were; the improvement and extension of nursing are more than can be described; the care which the rich bestow on the poor, whom they visit in their own homes, is every day saving health and life; and, even more effectual than any of these, is the work done by the medical officers of health and all the sanitary authorities now active and influential in every part of the Kingdom.



But good as all this work has been, we may be sure it may become better. And the forces which have impelled it may still be relied on. We need not fear that charity will become cool, or philanthropy inactive, or that the hatred of evil will become indifference. Science will not cease to search for knowledge, or to make it useful when she can ; we shall not see less than we do now, and here, of the good results of enterprise and rivalry, or of the sense of duty or of the sorrow for shame that there should be these evils in the land.

What more, then, it may be asked, is wanted? I answer, that which I have tried to stir ; a larger and more practical recognition of the value and happiness of good national health ; a wider study and practice of all the methods of promoting it ; or, at least, a more ready and liberal help to those who are striving to promote it. In one sentence, we want the complete fulfilment of the design of this Exhibition, with all the means towards health and knowledge that are shown in it, and with its Handbooks, Lectures, Conferences, and the guidance which will be given by the verdicts of its Juries.

We want more ambition for renown in health. I should like to see a personal ambition for renown in health as keen as is that for bravery, or for beauty, or for success in our athletic games and field-sports. I wish there were such an ambition for the most perfect national health as there is for national renown in war, or in art or commerce. And let me end soon by briefly saying what I think such health should be.

I spoke of the pattern healthy man as one who can do his work vigorously wherever and whatever it may be. The union of strength with a comparative indifference to the external conditions of life, and a ready self-adjust-



ment to their changes, is a distinctive characteristic of the best health. He should not be deemed thoroughly healthy who is made better or worse, more or less fit for work, by every change of weather or of food ; nor he who, in order that he may do his work, is bound to exact rules of living. It is good to observe rules, and to many they are absolutely necessary ; but it is better to need very few besides those of moderation and cleanliness, and, observing these, to be able and willing to live and work hard in the widest variations of food, air, clothing, and all the other sustenances of life.

And this, which is a sign of the best personal health, is essential to the best national health. For in a great nation, distributed among its people, there should be powers suited to the greatest possible variety of work. No form or depth of knowledge should be beyond the attainment of some among them ; no art should be beyond its reach ; it should be excellent in every form of work, mental or muscular. And, that its various powers may have free exercise and influence in the world, it must have, besides, distributed among its people, abilities to live healthily wherever work must be or can be done.

Herein is the essential bond between health and education ; herein is one of the motives for the combination of the two within the purpose of this one Exhibition. I do not know whether health or knowledge contributes most to the prosperity of a nation ; but no nation can prosper which does not equally promote both : they should be deemed twin forces, for either of them without the other has only half the power for good that it should have.

It is said, whether as fact or fable, that the pursuit of science and of all the higher learning followed on the first exercise of the humanity which spared the lives of sick



and weakly children ; for that these children being allowed to live, though unfit for war or self-maintenance, became thinkers and inventors. We may well observe the lesson, though science and art are not now dependent upon invalids ; minds are not the more free or the better now for having to work in feeble bodies ; each nation needs for its full international influence both health and knowledge, and such various and variable health, that there should be few places on earth or water in which some of its people cannot live, and multiply, and be prosperous.

If, therefore, we or any other people are to continue ambitious for the extension of that higher mental power of which we boast, or for the success of the bold spirit of enterprise with which we seek to replenish the earth and subdue it ; if we desire that the lessons of Christianity and of true civilization should be spread over the world, we must strive for an abundance of this national health, tough, pliant and elastic, ready and fit for any good work anywhere.

The Right Hon. Sir LYON PLAYFAIR, K.C.B., F.R.S., said—

SIR, in obedience to the command of your Royal Highness, I venture to make a few remarks on the address which we have just heard. It is a remarkable and interesting address, for it opens up to us objects of great national interest. Sir James Paget has clearly shown to us how much national production, and therefore national prosperity, is influenced by preventable mortality, and still more by preventable sickness. It is indeed startling to hear that in England and Wales alone, the actual workers



of the population lose every year 20,000,000 weeks owing to sickness.

I have long urged that our public health is not sufficiently guarded by mere mortality tables. If we had a register of diseases as well as of deaths, at least in regard to infectious diseases, the guardians of public health would be in a much better position to effect further improvements in it. We are all embarked on the sea of life, which rarely, for long periods, remains calm and peaceful. When a storm arises, there is peril to the many and certain disasters to some. The record of deaths only registers, as it were, the wrecks which strew the shore ; but it gives no account of the vessels which were tossed on the billows of sickness ; strained and maimed, as they often are, by the effects of the recurrent storms, and less and less fitted for the succeeding ones which they must encounter : for, on the sea of life, there are no havens into which we can run to escape these frequent dangers. Let me complete this analogy by comparing the absence of such knowledge, in regard to sickness, with the aid which we give to real mariners on the ocean. We have a wreck register, which tells us of the vessels that are lost, but, in addition to this guide, our meteorological observations indicate the coming storms, both as to direction and intensity, so that the ships, going on their voyages, are forewarned, and are thus enabled to shape their course and take the precautions necessary to meet the coming gale. We could do the same thing for the health of the people, if we had a registration of sickness as well as of death. When a storm of small-pox strikes us, such as that which now prevails in London, our hospitals are filled, and not till then do families become alarmed, and insist on those



members of their household being re-vaccinated, who have worn out the protection by age. But this is a crude method. Had we seen this storm arising by noticing the increase of cases of sickness on the weekly registers, the disease might have been attacked at the outset, so that the hospitals need not have been filled. Until we have a system of disease-registration, public health cannot be administered with full intelligence. Thirty-eight towns have already obtained local Acts in which provisions are made for obtaining notification of preventable diseases, such as typhoid fever, scarlet fever and the like; and some of them, notably Glasgow, have in a few years reduced their mortality by this intelligent action of administration. We must always bear in mind that the main purpose of public health is the prevention and not the cure of disease. We have to root out the causes of diseases so as to prevent their growth. Judging from the numbers of unnecessary deaths, there must be about  $4\frac{1}{2}$  millions of cases of preventable sickness annually in the country. In such cases disease arises from disobedience to sanitary laws. The old poets, Beaumont and Fletcher, place the responsibilities on ourselves, when they say :—

“ Our acts our angels are, or good or ill,  
Our fatal shadows that walk by us still.”

Sir James Paget has pointed out, in his own striking way, the effects of our ignorance in regard to public health, and I trust that this Exhibition, which you, Sir, conceived and directed, may have the effect of continuing that improvement in the health of the community which has been so marked in the last eight or ten years. The well-being of a people depends upon an intelligent application of their physical surroundings to the conditions of



their existence. To understand these, is science; and to apply them, is the practice of public health. Sir James Paget, as the man of science, has to-day addressed us in words of wisdom, and I am sure that the numerous exhibitors who show different methods of improving our dwellings, and of preserving in purity the air and water which are the necessities of life, will be encouraged by the address to continue their efforts for the amelioration of the conditions under which we live.

LORD REAY said:—

MAY IT PLEASE YOUR ROYAL HIGHNESS,—The jurors who are here to give a hearty welcome to your Royal Highness are fully aware of the difficulties of the task which has been imposed upon them. The address of Sir James Paget has done full justice to the intricacy of the problems which this Exhibition brings to the surface with reference to prevention of disease. Though the section with which I am connected has not yet been opened to the public, I may say that it will be equally fertile in controversial matter.

The inflammable material stored in the City Guilds Institute is sufficient to kindle enthusiasm in the withered soul of the most ascetic scholar. The association of a healthy body and a healthy mind is so natural that no surprise ought to be excited by their juxtaposition here. For both the question of the menu is all important. For both a varied and light diet and occasional abstinence will enhance their vigour. The task of the jury will be to disentangle in this Exhibition what is of permanent value from what is of momentary attractiveness. The latter attracts the casual visitor, the former the hygienist and the



educationist. The real object of this Exhibition was to give materials worthy of the investigations of a jury such as we have been fortunate enough to secure. To the Governments of France and of Belgium we are indebted for support, though we have to admit that in our tardy invitation they might have found a sufficient excuse to abstain. The countrymen of Pasteur and de Laveleye will in matters of hygiene and education add to our thoroughness, and only make us regret the more the absence of representative men from other countries.

After the formal presentation to his Royal Highness of the Foreign and English Commissioners and Chairmen of Juries,

The PRINCE OF WALES said,—Your Excellencies, Ladies, and Gentlemen,—Owing to a very sad cause I was unable to open the Health Exhibition. But I am particularly glad to have had this opportunity of being present to preside here to-day on the occasion of the assembling of the International Juries. It has given me great pleasure to have made the personal acquaintance of all those distinguished gentlemen who have come from the Continent, and who, no doubt at considerable inconvenience to themselves, have so kindly consented to come over here to decide on matters appertaining to the Health Exhibition. It is particularly gratifying to me to have been here to receive them, and I sincerely hope that their labours will be crowned with success. (Cheers.) That the Exhibition has up to the present time been successful so far as numbers are concerned we have evidence to show, but I hope at the same time that for scientific and educational purposes the public at large may derive even greater benefit



from it than they can get by merely coming here to enjoy the Exhibition as a place of recreation. (Hear, hear.) After the address from the Duke of Buckingham, and the long, able, and most interesting one from Sir James Paget, which was commented upon by Sir Lyon Playfair, it would be perfectly superfluous for me to detain you but for a few moments on any subject relating to health. These addresses, which you have all listened to with such great interest, will, I trust, have proved to you what an important consideration the matter of health is. This Exhibition, under the able chairmanship of the Duke of Buckingham and those gentlemen of the Executive Council who have worked under him, has, I think, been brought to a remarkable degree of perfection. They have done everything they can to make it pleasing to the eye ; but still I hope that those who visit the Exhibition will remember that there are greater and more important objects at stake—that they will go home impressed by the study of those objects as well as by the pleasure they may have derived from the wonderful inventions and methods of showing them. I wish to tender my thanks to the Lord Mayor and the great City Companies for their kind co-operation in this Exhibition, and I am sure we are all much gratified at the success of what is called Old London. (Cheers.) Before concluding, I would beg to ask the chairmen and jurors at the close of the proceedings to constitute their juries and select their secretaries.

The FRENCH AMBASSADOR, in moving a vote of thanks to the Prince of Wales for presiding, referred to his Royal Highness's readiness on all occasions to give his time and to devote his energies to any cause which might advance the welfare of the people of this country. He called on



them to thank his Royal Highness, not only in the name of those present and of the foreigners who had contributed to the Exhibition, and more particularly those of France, but in the name of thousands upon thousands of the poor and disinherited of the earth, of children and the helpless, whose benefit would ultimately be promoted by this Exhibition. (Cheers.)

The LORD MAYOR seconded the motion, which was agreed to with acclamation.

The PRINCE OF WALES, in closing the proceedings, tendered his warmest thanks to the French Ambassador and his colleagues for their presence on that occasion, and for their continued co-operation in the Exhibition with which he had been connected. His Royal Highness, in concluding, thanked the Lord Mayor as representative of the City of London, for all the City and the Guilds of London had done to promote the success of the Exhibition.



# APPENDIX.

TABLES arranged by Mr. Sutton for Sir James Paget's Address.

## MALE POPULATION ENUMERATED IN CENSUS OF 1881. DISTRIBUTION ACCORDING TO AGES AND OCCUPATIONS.

Between the ages.	Class I. Professional.	Class II. Domestic.	Class III. Commercial.	Class IV. Agricultural.	Class V. Industrial.	Class VI. Returned by Property, Rank, &c.: not by special occupation.	All classes.
0—5	..	..	..	..	..	1,757,657	1,757,677
5—15	6,361	8,822	59,463	72,345	174,223	2,649,595	2,970,809
15—20	56,265	42,145	146,662	208,113	691,078	124,006	1,268,269
20—25	75,498	41,301	147,230	150,695	665,540	32,090	1,112,354
25—45	201,619	106,989	420,133	419,173	2,028,958	62,560	3,239,432
45—65	88,062	48,142	162,025	345,260	1,024,698	87,632	1,755,819
65—upwards	23,150	11,109	25,148	122,758	210,681	142,716	535,562
PROBABLE ANNUAL AMOUNT OF SICKNESS EXPRESSED IN WEEKS BASED UPON THE EXPERIENCE OF THE MANCHESTER UNITY ORDER OF ODD FELLOWS.							
0—5	..	..	..	..	..	..	..
5—15	..	..	..	..	..	..	..
15—20	37,462	28,061	97,647	138,560	460,130	82,568	844,428
20—25	55,669	30,453	108,560	111,110	490,730	23,661	820,183
25—45	200,660	106,480	418,140	417,190	2,019,400	62,264	3,224,134
45—65	240,930	131,710	443,270	944,600	2,803,500	239,750	4,803,760
65—upwards	279,890	134,310	304,050	1,484,200	2,547,400	1,725,500	6,475,350
PROBABLE ANNUAL NUMBER OF DEATHS ACCORDING TO ENGLISH LIFE TABLE No. 3.							
0—5	..	..	..	..	..	113,399	113,399
5—15	47	66	443	538	1,296	19,716	22,106
15—20	349	261	910	1,291	4,285	769	7,865
20—25	653	357	1,273	1,303	5,751	277	9,614
25—45	2,271	1,205	4,732	4,721	22,846	705	36,480
45—65	2,115	1,156	3,891	8,295	24,618	2,105	42,180
65—upwards	1,953	937	2,122	10,360	17,779	12,039	45,190



FEMALE POPULATION ENUMERATED IN CENSUS OF 1881.  
DISTRIBUTION ACCORDING TO AGES AND OCCUPATIONS.

Between the ages.	Class I.	Class II.	Class III.	Class IV.	Class V.	Class VI.	All classes.
0—5	..	..	..	..	..	1,763,207	1,763,207
5—15	5,672	100,423	1,250	2,150	101,031	2,766,392	2,976,918
15—20	37,028	453,548	4,235	9,466	366,251	408,435	1,278,963
20—25	37,561	332,968	4,606	6,905	298,555	535,277	1,215,872
25—45	65,956	411,051	6,352	14,803	515,583	2,481,037	3,494,782
45—65	38,622	203,463	2,451	20,864	243,719	1,442,594	1,951,713
65—upwards	11,281	43,849	573	10,652	53,050	533,677	653,082

PROBABLE ANNUAL AMOUNT OF SICKNESS EXPRESSED IN WEEKS, BASED UPON THE EXPERIENCE OF THE  
MANCHESTER UNITY OF ODD FELLOWS.

0—5	..	..	..	..	..	..	..
5—15	..	..	..	..	..	..	..
15—20	24,658	302,030	2,820	6,303	243,900	271,990	851,701
20—25	27,701	245,555	3,397	5,092	220,180	394,760	896,685
25—45	65,604	408,860	6,318	14,724	512,840	2,467,800	3,476,146
45—65	106,230	559,620	6,741	57,388	670,350	3,967,900	5,368,229
65—upwards	140,360	545,580	7,129	132,530	660,050	6,640,200	8,125,849

PROBABLE ANNUAL NUMBER OF DEATHS ACCORDING TO ENGLISH LIFE TABLE, No. 3.

0—5	..	..	..	..	..	100,970	100,970
5—15	42	758	9	16	763	20,900	22,488
15—20	243	2,974	28	62	2,401	2,677	8,385
20—25	338	2,998	41	62	2,689	4,822	10,950
25—45	752	4,685	72	169	5,876	28,276	39,830
45—65	809	4,263	51	437	5,105	30,225	40,890
65—upwards	893	3,473	45	843	4,201	42,265	51,720

DESCRIPTIVE LIST  
OF THE  
AWARDS MADE BY THE INTERNATIONAL JURIES.

*CONFIRMED AND ISSUED BY THE JURY COMMISSIONERS.*



# CLASSIFICATION.

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## DIVISION I.—HEALTH.

### Group 1.—FOOD.

- CLASS 1. SELECTED DISPLAYS OF UNPREPARED ANIMAL AND VEGETABLE SUBSTANCES used as Food in various countries. Stuffed Specimens of Animals, Birds, etc. Models, Drawings, and Illustrations of the same.
- „ 2. PREPARED VEGETABLE SUBSTANCES used as Food, including Tinned, Compressed and Preserved Fruits and Vegetables. Bread, Cakes, and Biscuits of all kinds. Tobacco.
- „ 3. PREPARED ANIMAL SUBSTANCES used as Food in a preserved form—Tinned, Smoked, Salted, Compressed and Prepared Animal Foods of all kinds; Food produced by Insects, such as Honey, etc.
- „ 4. BEVERAGES of all kinds—(a) Alcoholic; (b) Non-alcoholic; (c) Infusions (tea, coffee, cocoa, chocolate, etc.)
- „ 5. NEW VARIETIES of Food. Food for Infants, Food for Invalids, New Concentrated Foods of all kinds.
- „ 6. COOKERY PRACTICALLY DEMONSTRATED. Economical Cooking, Workmen's and other Kitchens, Cheap Restaurants, Bakeries, Cafés, Foreign Cookery, etc.\*
- „ 7. THE CHEMISTRY and PHYSIOLOGY of Food and Drink. The Detection of Adulteration, Materials used as Adulterants, Analyses, Food Constituents and Equivalents, Tables, Diagrams, etc.
- „ 8. DISEASES due to unwholesome and improper Food. Drawings and Models of Animal and Vegetable Parasites, etc.
- „ 9. PRACTICAL DIETETICS. Army and Navy Rations, Prison and Workhouse Diet, Foreign Dietaries, etc.
- „ 10. PUBLICATIONS AND LITERATURE, MODELS AND DIAGRAMS relating to Group 1.
- „ 11. APPARATUS AND PROCESSES for Conserving, Storing, Conveying and Distributing Fresh Food of all kinds.
- „ 12. MACHINERY AND APPLIANCES for the preparation of Articles under Group 1.

### Group 2.—DRESS.

- CLASS 13. COLLECTIONS illustrative of the History of Dress, National Costume, etc.

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\* *Special Notice.*—As Refreshments come within the scope of this Exhibition, all methods of preparing the same, whether by cookery or otherwise, and the display and sale thereof, will be matters of separate arrangement with those wishing to be represented in this section of the Exhibition.



- CLASS 14. WATERPROOF CLOTHING. India Rubber, Gutta Percha, etc.  
 „ 15. FURS, SKINS, AND FEATHERS. Dresses for Extreme Climates, etc.  
 „ 16. DRESS FOR SPORT, HUNTING SUITS, etc.  
 „ 17. LIFE SAVING DRESS. Divers' Dress. Fireproof Dress.  
 „ 17A. THE COMPARATIVE VALUE of different Dress Materials for Articles of Clothing.  
 „ 18. PUBLICATIONS AND LITERATURE. Patterns, Statistics, Diagrams, Models relating to Group 2.  
 „ 19. MACHINERY AND APPLIANCES for the Preparation of Articles under Group 2.

### Group 3.—THE DWELLING-HOUSE.

- CLASS 20. DWELLINGS, MODELS, AND DESIGNS for the same, and Specimens of Buildings erected in the Grounds. Fittings and Accessories for Dwelling-houses. Completely-fitted Apartments.  
 „ 21. WATER SUPPLY and PURIFICATION.—Meters, Filters, Water-Fittings, Cisterns, etc.  
 „ 22. HOUSE DRAINS, their CONSTRUCTION and VENTILATION.—Sewer disconnection; Sinks, Traps, Gullies; the Disposal and Utilization of House Refuse.  
 „ 23. WATER and EARTH CLOSETS, Ash Closets, Commodes, Urinals, Disinfecting Powders and Fluids, Insect Destroyers.  
 „ 24. GRATES, STOVES, KITCHENERS, RANGES, BOILERS, etc., for Domestic Use. Apparatus for Heating and Warming, Smoke Abatement, etc.  
 „ 25. VENTILATORS, Air Inlets and Outlets, Cubic Space of Rooms, Cowls, Air Straining and Cleansing.  
 „ 26. LIGHTING APPARATUS; (a) Electrical Apparatus for Illumination and Domestic Use, Secondary Batteries, Electroliers, Accumulators, etc.; (b) Apparatus for Lighting by Gas, Gas Producers, Gas Meters, Gas Fittings, Chandeliers, etc.; (c) Oil and other Lamps, Mineral Oil, Wax and other Candles, Vegetable and Animal Oils.  
 „ 27. FIRE PREVENTION APPARATUS—Extincteurs, Portable Engines, Domestic Fire Escapes, etc.  
 „ 28. MATERIALS for Sanitary House Construction—Roofs, Walls, Damp Courses, Solid Floors, Damp Proof Wall Coverings, Cements, etc.  
 „ 29. MATERIALS for Sanitary House Decoration, Non-poisonous Paints and Wall Papers, Floor Coverings, Washable Decoration, etc.  
 „ 30. OBJECTS FOR INTERNAL DECORATION and use in the Dwelling. Fittings and Furniture.  
 „ 31. BATHS, Bathing Requisites, Public and Private Wash-houses, Washing Apparatus, Detergents, Appliances for Personal Cleanliness, etc.  
 „ 32. PUBLICATIONS AND LITERATURE, MODELS, PICTURES, DIAGRAMS, etc., relating to Group 3.  
 „ 33. MACHINERY AND APPLIANCES relating to Group 3.

### Group 3a.—AMBULANCE.

- CLASS 31A. AID TO SICK AND WOUNDED IN WAR. TRANSPORT. (a) *By Human Agency*; Stretchers, Litters, Dhoolies, Palanquins,



Handcarts, Stretchers on Wheels. (b) *By Animal Traction*; Mule Litters and Chairs, Camel and Elephant Litters, Wheel Carriages. (c) *By Mechanical Means*; Railway Ambulances, Ship or Water Carriage. TREATMENT (with portable appliances and portable drugs). (a) On the Field. (b) In Hut Hospitals. (c) In Tent Hospitals. NAVAL AND MILITARY HYGIENE.

CLASS 31B. AID TO SICK AND INJURED IN PEACE. TRANSPORT. (a) *By Human Agency*; Stretchers, Litters, Dhoolies, Palanquins, Handcarts. (b) *By Animal Traction*; for Accidents and Injuries for Infectious Diseases, for Ordinary Sickness. (c) *By Mechanical Means*; Railway Carriages for Sick and Invalids, Water Carriage.

#### Group 4.—THE SCHOOL.

- CLASS 34. DESIGNS and MODELS of Improved Buildings for Elementary Schools, Infant Schools and Crèches.
- „ 35. APPARATUS and FITTINGS for Warming, Ventilating, and Lighting Schools, School Latrines, Closets, etc.
- „ 36. SPECIAL SCHOOL FITTINGS for Storing and Drying Clothing.
- „ 37. SCHOOL KITCHENS and arrangements for School Canteens. Methods of warming Children's Meals, etc.
- „ 38. PRECAUTION in schools for preventing the spread of Infectious Diseases, School Sanatoria, Infirmarys, etc.
- „ 39. SPECIAL APPARATUS for Physical Training in Schools, Gymnasias, Apparatus for Exercise, Drill, etc.
- „ 40. LITERATURE, STATISTICS, DIAGRAMS, etc., relating to Group 4.

#### Group 5.—THE WORKSHOP.

- CLASS 41. DESIGNS and MODELS for Improvements in the Arrangements and Construction of Workshops, especially those in which dangerous or unwholesome processes are conducted.
- „ 42. APPARATUS and FITTINGS for preventing or minimising the danger to health or life from carrying on certain trades. Guards, Screens, Fans, Air-Jets, Preservative Solutions, Washes, etc.
- „ 43. OBJECTS FOR PERSONAL USE. Mouth-pieces, Spectacles, Dresses, Hoods, etc., for use in certain unhealthy and poisonous trades.
- „ 44. ILLUSTRATIONS OF DISEASES AND DEFORMITIES caused by Unwholesome Trades and Professions. Methods of combating these diseases. Preservative measures, etc.
- „ 45. SANITARY CONSTRUCTION AND INSPECTION OF WORKSHOPS, FACTORIES AND MINES. (a) New inventions or improvements for ameliorating the condition of life of those engaged in unhealthy occupations. (b) Means of Economising Human Labour in various Industrial operations.
- „ 46. LITERATURE, Statistics, Diagrams, etc., relating to Group 5.

#### Group 5a.—METEOROLOGY IN ITS RELATION TO THE STUDY OF PUBLIC HEALTH.

CLASS 46A. METEOROLOGICAL INSTRUMENTS, such as are used in climatological investigations; barometers, aneroids, thermometers,



thermometer stands, hygrometers, anemometers, airmeters, rain gauges, automatic meteorological apparatus, sunshine recorders, evaporation gauges, ozone papers, ozonometers, etc.

CLASS 46B. DIAGRAMS, MODELS, AND APPARATUS illustrative of (a) the climatal conditions prevailing in various parts of the world; (b) the relations between health and disease; (c) rainfall, percolation, evaporation, and flow from ground, and (d) other subjects embraced by the Exhibition.

## DIVISION II.—EDUCATION.

### Group 6.—EDUCATIONAL WORKS AND APPLIANCES.

CLASS 47. CRÈCHES and INFANT SCHOOLS.—(a) Apparatus and Fittings for Crèches and Infant Schools; (b) Games, Toys and Kindergarten Amusements; (c) Models and Appliances for teaching; (d) Examples of School Work.

„ 48. PRIMARY SCHOOLS.—(a) Apparatus and Fittings; (b) Models and Appliances for Teaching; Text-books, Diagrams, and Examples; (c) Specimens of work in Elementary Schools.

„ 49. DOMESTIC ECONOMY AND OTHER FORMS OF TECHNICAL AND INDUSTRIAL EDUCATION FOR GIRLS.—(a) Models and Apparatus for the teaching of Cookery, Housework, Washing and Ironing, Needlework and Embroidery, Dressmaking, Artificial Flower-making, Painting on Silk, Pottery, etc.; (b) Specimens of School Work.

„ 50. HANDICRAFT TEACHING IN SCHOOLS FOR BOYS.—(a) Apparatus and Fittings for Elementary Trade Teaching in Schools; (b) Specimens of School Work.

„ 51. SCIENCE TEACHING.—(a) Apparatus and Models for Elementary Science Instruction in Schools; Apparatus for Chemistry, Physics, Mechanics, etc.; (b) Diagrams, Copies, Text-books, etc.; (c) Specimens of the School Work in these subjects.

„ 52. ART TEACHING.—(a) Apparatus, Models, and Fittings for Elementary Art Instruction in Schools; (b) Diagrams, Copies, Text-books, etc.; (c) Specimens of Art Work, Modelling, etc., in Schools.

„ 53. TECHNICAL AND APPRENTICESHIP SCHOOLS.—(a) Apparatus and Examples used in Primary and Secondary Schools for teaching handicrafts; (b) Models, Plans, and Designs for the fitting up of Workshop and Industrial Schools; (c) Results of Industrial work done in such Schools.

„ 54. SCHOOLS FOR THE BLIND AND FOR THE DEAF AND DUMB.—(a) Apparatus and Examples for Teaching; (b) Specimens of School Work.

„ 55. LITERATURE, Statistics and Diagrams relating to Group 6 and to the Effects of “Cramming” and Overwork on the Young, etc.

„ 56. COLLECTIVE DISPLAYS of School Work and Appliances. SCHOOL MUSEUMS.

„ 57. MACHINERY AND APPLIANCES relating to Group 6.



# LIST OF JURORS.

## JURY No. 1.

### FOOD (UNPREPARED).

CLASS 1.—*Unprepared Animal and Vegetable Substances used as Food.*

LORD THURLOW, *Chairman.*  
W. CARRUTHERS, F.R.S., *Vice-Chairman.*  
H. M. Jenkins, *Reporter.*  
Prof. F. de Chaumont, F.R.S.  
W. Thiselton Dyer, F.R.S.  
Prof. E. Ray Lankester, F.R.S.  
J. Chalmers Morton.  
Dr. B. H. Paul, F.I.C.  
M. Alexis de Perlaký (Austria-Hungary).  
M. Leblanc (France).  
Signor Cav. Roberto Montgomery Stuart (Italy).

## JURY No. 2.

### PREPARED FOOD AND COOKERY.

CLASS 2.—*Prepared Vegetable Substances used as Food.*

CLASS 3.—*Prepared Animal Substances used as Food.*

CLASS 5.—*New Varieties of Food.*

CLASS 6.—*Cookery practically Demonstrated.*

Hon. F. LEVESON-GOWER, M.P., *Chairman.*  
Prof. A. H. CHURCH, F.R.S., *Vice-Chairman.*  
Prof. Attfield, } *Joint*  
Ph.D., F.R.S., } *Reporters.*  
G. W. Wigner, }  
F.I.C.  
Dr. James Bell, F.R.S.  
Monsieur Cassegrain.  
James Chambers.  
W. B. Cheadle, M.D.  
John McCall.  
Col. Shadwell Clerke.  
W. G. Jennings.  
Geo. Augustus Sala.  
Surgeon-Major Theodore Duka, M.D., F.R.C.S. (Austria-Hungary).  
M. E. N. Becs. }  
M. Th. Hauben. } (Belgium.)  
M. F. Semal. }  
M. Ch. van Gael. }  
M. V. Vleminckx }  
M. Rebours-Guizelin (France).  
Signor Cav. Roberto Montgomery Stuart (Italy).  
Prof. C. F. Chandler, M.A., Ph.D. (United States of America).

## JURY No. 3.

### BEVERAGES.—CLASS 4.

LORD ALCESTER, *Chairman.*  
Prof. ODLING, F.R.S., *Vice-Chairman.*  
Richard Bannister, *Reporter.*  
Sir Geo. Birdwood.  
Dr. A. Dupré, F.R.S.  
Prof. C. Graham, F.I.C.  
Charles Haig.  
Edolph A. Hankey.  
Dr. Owen Rees.  
H. Selby.  
W. J. Thompson.  
Robert W. Chaplin (Austria-Hungary).  
M. Th. Hauben } (Belgium).  
M. Ch. van Gael }  
M. Guy } (France).  
M. Jarlaud }  
Signor Cav. Roberto Montgomery Stuart (Italy).

## JURY No. 5.

### CHEMISTRY, ETC., OF FOOD.

CLASS 7.—*Chemistry and Physiology of Food and Drink.*

CLASS 8.—*Diseases due to unwholesome and improper Food.*

CLASS 9.—*Practical Dietetics.*

Dr. W. B. CARPENTER, C.B., F.R.S., *Chairman.*  
A. Wynter Blyth, F.C.S., *Reporter.*  
Dr. Lauder Brunton, F.R.S.  
Prof. Fleming.  
Prof. Moseley, F.R.S.  
Dr. Pavey, F.R.S.  
Dr. Voelcker, F.R.S.  
M. Bérard (France).  
Prof. C. H. Chandler, M.A., Ph.D. (United States of America).

## JURY No. 6.

### FOOD PRESERVATION AND DISTRIBUTION.

CLASS 11.—*Apparatus and Processes for Conserving, Storing, Conveying and Distributing Fresh Food of all kinds.*

LORD EGERTON OF TATTON, *Chairman.*  
LORD WALSINGHAM, *Vice-Chairman.*  
Prof. J. P. Sheldon, *Reporter.*  
Sir Daniel Cooper, Bart., K.C.M.G.  
Walter Hayward.  
Dr. J. Hopkinson, F.R.S.

Gilbert Murray.

A. Smee.

M. Th. Hauben } (Belgium).  
M. Ch. van Gael }

M. Leblanc (France).

## JURY No. 7.

### DRESS.

#### CLASSES 13-17a.

Sir SPENCER WELLS, Bart., *Chairman.*  
GEORGE RAMSAY, C.B., *Vice-Chairman.*  
W. T. Rowlett, *Reporter.*  
General Erskine.  
W. Hickson.  
Prof. Marshall.  
Thomas Rowley.  
George Scharf, F.S.A.  
Frederick Treves.  
Hon. L. Wingfield.  
M. J. R. Politzer (Austria-Hungary).  
M. Lavalette } (Belgium).  
M. Mullier }  
W. Weinknecht }  
M. Striber (France).  
Signor G. Festa  
Signor Cav. C. Ambrogio } (Italy).  
Sperati.  
M. Paul Grfinwaldt (Russia).  
Captain Francis B. Blake (United States of America).

## JURY No. 8.

### CONSTRUCTION AND FITTINGS.

CLASS 20.—*Dwellings, Models and Designs.*

CLASS 28.—*Materials for Sanitary House Construction.*

CLASS 29.—*Materials for Sanitary House Decoration.*

Rt. Hon. G. SCLATER-BOOTH, M.P., *Chairman.*  
E. C. ROBINS, F.S.A., *Vice-Chairman and Reporter.*  
Sir Henry Acland, K.C.B., F.R.S.  
G. Aitchison, A.R.A.  
Dr. Bristowe.  
Dr. T. Orme Dudfield.  
W. Eassie.  
J. Clarke Hawshaw, F.G.S.  
A. B. Mitford, C.B.  
Rev. Randolph Pigot.  
Edward Seaton.  
Prof. Roger Smith.  
Saxon Snell.



Alfred Waterhouse, A.R.A.  
Dr. C. West.  
M. Ferdinand Ráth (Austria-Hungary).  
M. L. Partoes } (Belgium).  
M. J. Tasson }  
M. Lesoufaché (France).  
Signor Cav. L. Serena (Italy).

**JURY No. 9.****WATER SUPPLY AND DRAINAGE.**

CLASS 21.—*Water Supply and Purification.*  
CLASS 22.—*House Drains, their Construction and Ventilation.*  
CLASS 23.—*Water and Lath Closets.*

THOMAS HAWKSLEY, C.E., F.R.S.,  
*Chairman.*  
Sir ROBERT RAWLINSON, C.B.,  
*Vice-Chairman.*  
Baldwin Latham, C.E., *Reporter.*  
Prof. H. Robinson, C.E.  
Dr. Alfred Carpenter.  
Gilbert W. Child.  
Lieut.-Col. William Haywood.  
Henry Law, C.E.  
Shirley F. Murphy.  
Thomas Suffield.  
G. J. Symons, F.R.S.  
Dr. R. Thorne Thorne.  
M. E. Janssens } (Belgium).  
M. Partoes }  
Dr. E. Vallin (France).  
Signor Cav. L. Serena (Italy).

**JURY No. 10.****HEATING, VENTILATION, AND SMOKE ABATEMENT.**

CLASS 24.—*Grates, Stoves, Kitcheners, Ranges, Boilers.*  
CLASS 25.—*Ventilators.*

Dr. RUSSELL, F.R.S., *Chairman.*  
Prof. CHANDLER ROBERTS, F.R.S.,  
*Vice-Chairman.*  
A. T. Atchison.  
W. R. E. Coles.  
R. Harris.  
Prof. Hayter Lewis.  
Hon. Rollo Russell.  
J. P. Seddon, F.R.I.B.A.  
Joseph Tomlinson (Austria-Hungary), *Reporter.*  
M. Aerts } (Belgium).  
M. E. Janssens }  
M. Emile Müller (France).  
Signor Cav. L. Serena (Italy).

**JURY No. 11.****SOLID, LIQUID, AND GASEOUS ILLUMINANTS.**

CLASS 26.—*Lighting Apparatus.*

Prof. DEWAR, F.R.S., *Chairman.*  
Sir JAMES DOUGLASS, *Vice-Chairman.*  
Dr. C. Meymott Tidy }  
Boverton Redwood, } *Joint*  
F.C.S., F.I.C. } *Reporters.*  
Dundas Irving.

F. Livesey.  
M. Aerts } (Belgium).  
M. F. Semal }  
M. Jordan (France).  
Signor Cav. L. Serena (Italy).

**JURY No. 12.****ELECTRIC LIGHTING.**

CLASS 26.—*Lighting Apparatus.*

Lord RAYLEIGH, F.R.S., *Chairman.*  
Viscount BURY, *Vice-Chairman.*  
Prof. Fleeming Jenkin, } *Joint*  
F.R.S. } *Reporters.*  
Charles E. Spagnoletti, }  
Prof. Adams, F.R.S. }  
Latimer Clark.  
Dr. Hopkinson, F.R.S.  
W. H. Preece, F.R.S.  
Col. C. E. Webber, R.E., C.B.  
M. Aerts } (Belgium).  
M. F. Semal }  
M. Jordan (France).  
Signor Cav. L. Serena (Italy).

**JURY No. 13.****FIRE PREVENTION.**

CLASS 27.—*Fire Prevention Apparatus.*

Capt. SHAW, C.B., *Chairman.*  
V. BARRINGTON-KENNETT, *Vice-Chairman.*  
Lieut.-Col. Festing, R.E., *Reporter.*  
I. F. Bateman, F.R.S.  
Edward Bazalgette.  
Chas. Rouse Browne.  
Geo. Chatterton.  
Hon. Alan de Tatton-Egerton,  
M.P.  
A. C. Howard.  
J. W. Restler.  
John Taylor.  
John Whichcord, F.S.A.  
M. Aerts } (Belgium).  
M. L. Partoes }  
M. Gariel (France).  
Signor Cav. L. Serena (Italy).

**JURY No. 14.****DECORATION AND FURNITURE.**

CLASS 30.—*Objects for Internal Decoration and Furniture.*

CYRIL FLOWER, M.P., *Chairman.*  
J. G. CRACE, *Vice-Chairman.*  
R. W. Edis, *Reporter.*  
Charles Barry.  
Sir George Birdwood.  
A. W. Blomfield.  
Robert Carter.  
J. G. Colcutt.  
Thomas W. Cutler.  
Lewis Day.  
Charles L. Eastlake.  
Lord de L'Isle and Dudley.  
Forster Graham.  
Prof. J. Hayter Lewis.  
Prof. E. Symes Thompson.  
Herr Friedrich Pollak (Austria-Hungary).  
M. J. Tasson (Belgium).  
M. Lavezzari (France).  
Signor Cav. L. Serena (Italy).

**JURY No. 15.****BATHS, ETC.**

CLASS 31.—*Baths, Bathing Requisites.*

J. E. ERICHSEN, F.R.S., *Chairman.*  
WM. CROOKES, F.R.S., *Vice-Chairman.*  
Malcolm Morris, *Reporter.*  
A. H. Allen, F.I.C.  
E. J. Levan.  
Sydney Ringer.  
J. C. Steele.  
Charles Alder Wright.  
Keith Downes Young.  
Charles Harter, M.D. (Austria-Hungary).  
M. F. Semal } (Belgium).  
M. V. Vleminckx }  
M. Arnould (France).  
Signor Cav. L. Serena (Italy).

**JURY No. 16.****AMBULANCE.**

CLASSES 31a and 31b.

Sir WILLIAM MACCORMAC, F.R.C.S.,  
*Chairman.*  
Surgeon-General MACKINNON, C.B.,  
*Vice-Chairman.*  
Brigade-Surgeon W. G. Don, M.D.,  
*Reporter.*  
Captain Barrington.  
Director - Gen. Crawford, M.D.,  
LL.D.  
Surgeon-Major G. J. H. Evatt,  
M.D., A.M.D.  
Berkeley Hill.  
George A. Hutton.  
Surgeon General Longmore, C.B.  
Dr. Sieveking.  
Henry R. Silvester, M.D., B.A.  
Lond.  
M. Mullier } (Belgium).  
M. L. Partoes }  
M. Proust (France).  
Signor Cav. Giovanni Orтели (Italy).

**JURY No. 17.****SCHOOL.**

CLASSES 34-40.

Viscount EBRINGTON, M.P., *Chairman.*  
M. E. JANSSENS, *Vice-Chairman*  
(Belgium).  
P. Gordon Smith, *Reporter.*  
Rev. J. Faunthorpe.  
Dr. Warner.  
M. Gyula Pintér, M.D. (Austria-Hungary).  
M. Bertrand } (Belgium).  
M. A. Devaux }  
M. Berger } (France).  
M. Dethomas }  
Signor Prof. Coscia (Italy).

**JURY No. 18.****WORKSHOP.**

CLASSES 41-45.

Prof. WARINGTON SMYTH, F.R.S.  
*Chairman.*  
Prof. ROBERT HUNT, F.R.S., *Vice-Chairman.*  
C. Le Neve Foster, *Reporter.*  
J. T. Arlidge.



W. Galloway.  
John Hick.  
Alexander Redgrave, C.B.  
Dr. Seaton.  
M. Aerts } (Belgium).  
M. L. Partoes }  
M. Napias (France).  
Signor Prof. Coscia (Italy).

### JURY No. 19.

#### METEOROLOGY.

CLASSES 46a and 46b.

J. NORMAN LOCKYER, F.R.S.  
*Chairman.*  
Lieut.-General STRACHEY, C.S.I.,  
F.R.S., *Vice-Chairman.*  
G. J. Symons, F.R.S., *Reporter.*  
T. Hawksley, F.R.S.  
John W. Tripe.  
M. F. Semal (Belgium).  
M. Gariel (France).

### JURY No. 20.

#### PRIMARY AND GENERAL EDUCATION AND DOMESTIC ECONOMY.

CLASS 47.—*Crèches and Infant  
Schools.*  
CLASS 48.—*Primary Schools.*  
CLASS 49.—*Domestic Economy in  
Schools for Girls.*  
CLASS 56.—*Collective Displays of  
School Work and Appliances.*

J. G. FITCH, *Chairman.*  
R. LIEBREICH, *Vice-Chairman.*  
A. C. King, F.S.A., *Reporter.*  
W. Lant Carpenter, F.I.C.  
Venble. Archdeacon Emery.  
T. E. Heller.  
Claude Montefiore.  
Rev. M. F. O'Reilly, D.Sc.  
Rev. T. W. Sharpe.  
F. Storr.  
Dr. Francis Warner.  
Major George S. Sewell - Gana  
(Austria-Hungary).  
M. Braun }  
M. Couvreur } (Belgium).  
M. A. Germain }  
M. Sluys }  
M. Verdeyen }  
M. Buisson }  
M. Gaston Trélat } (France).  
M. Nourrit }  
Signor Prof. Coscia (Italy).

### JURY No. 22.

#### TECHNICAL AND SCIENCE TEACHING.

CLASS 50.—*Handicraft Teaching  
in Schools for Boys.*  
CLASS 51.—*Science Teaching.*  
CLASS 53.—*Technical and Appren-  
ticeship Schools.*

Sir BERNHARD SAMUELSON, Bart.,  
M.P., *Chairman.*  
M. JACQUEMART (France), *Vice-  
Chairman.*  
Prof. W. E. Ayrton, F.R.S., *Re-  
porter.*  
Professor Armstrong, F.R.S.  
Herr von Diefenbach.  
Dr. J. H. Gladstone, F.R.S.  
Philip Magnus.  
Sir Henry E. Roscoe, F.R.S.  
John Slagg, M.P.  
Prof. Silvanus Thompson.  
Nicholas Vigy.  
Sir S. Waterlow, Bart., M.P.  
Wm. Woodall, M.P.  
Francis Joseph Leuthner, Ph.D.  
(Austria-Hungary).  
M. Bertrand } (Belgium).  
M. Sluys }  
M. de Montmahou (France).  
Signor Prof. Coscia (Italy).

### JURY No. 23.

#### ART TEACHING.

CLASS 52.

M. AUG. COUVREUR (Belgium),  
*Chairman.*  
J. H. POLLEN, *Vice-Chairman.*  
J. Sparkes, *Reporter.*  
G. Aitchison, A.R.A.  
Professor W. B. Richmond, R.A.  
R. Phené Splers, F.S.A.  
W. H. J. Weale.  
M. de Tave (Belgium).  
M. Bigot }  
M. Paul Colin } (France).  
M. Guillaume }  
Signor Prof. Coscia (Italy).

### JURY No. 25.

#### SCHOOLS FOR THE BLIND AND FOR THE DEAF AND DUMB.

CLASS 54.

Major - General COTTON, C.S.I.,  
*Chairman.*  
EDMUND JOHNSON, *Vice-Chairman.*  
Arthur Kinsay, *Reporter.*  
B. St. John Ackers.  
A. Buckle.  
Colonel Richardson Gardner, M.P.  
William Harris.  
Rev. B. G. Johns.

Rev. H. D. Pearson.  
M. Braun }  
M. Devaux } (Belgium).  
M. Hauben }  
M. Lavalette }  
M. Sluys }  
M. Henry Liouville (France).  
Signor Prof. Coscia (Italy).

### JURY No. 26.

#### LITERATURE RELATING TO DIVISION I.

CLASSES 10, 18, 32, 40, 46.

Prof. W. H. FLOWER, LL.D.,  
F.R.S., *Chairman.*  
C. M. KENNEDY, C.B., *Vice-Chair-  
man.*  
R. J. Mann, M.D., F.R.C.S., *Re-  
porter.*  
R. Brudenell Carter.  
Prof. Carey Foster, F.R.S.  
H. A. Perry.  
J. L. Clifford Smith.  
Dawson Williams.  
M. Braun } (Belgium).  
M. Janssens }  
M. Hément (France).

### JURY No. 27.

#### LITERATURE RELATING TO DIVISION II.

CLASS 55.

HENRY MORLEY, *Chairman.*  
Rev. T. W. SHARPE, *Vice-Chair-  
man.*  
A. C. King, F.S.A., *Reporter.*  
Ernest Clarke.  
Sir E. H. Currie.  
Rev. Thomas Graham, D.D.  
C. W. Isitt.  
Owen Roberts, M.A.  
F. Storr.  
Dr. Francis Warner.  
M. Braun }  
M. Sluys } (Belgium).  
M. Verdeyen }  
M. Hément (France).

### JURY No. 28.

#### MACHINERY IN GENERAL.

CLASSES 12, 19, 33, 57.

Sir FREDERICK BRAMWELL, F.R.S.,  
*Chairman.*  
Dr. Wm. POLE, F.R.S., *Vice-  
Chairman.*  
James Forrest, *Reporter.*  
W. Anderson.  
W. H. Barlow, F.R.S.  
E. A. Cowper.  
D. Pidgeon.  
Prof. W. Cawthorne Unwin.



# DESCRIPTIVE LIST

OF THE AWARDS MADE BY THE INTERNATIONAL JURIES,

CONFIRMED AND ISSUED BY

THE JURY COMMISSIONERS.

*Where more than one Award is made the Exhibitor will, in accordance with the Regulations, receive only one Medal of each kind. The number and value of the Awards will be stated on the Certificates accompanying the Medals.*

*It has been decided to defer the adjudication of Awards to Exhibitors of Electric Incandescence Lamps in Class 26 until the Exhibits included under this head in the Exhibition of Inventions, 1885, are dealt with, in order that the comparative tests, which must extend over a long period, may be thoroughly carried out.*

*In the following lists the Non-competitive Awards, consisting of Diplomas of Honour and Special Certificates of Thanks, are arranged together, and are followed by the lists of Medals of each grade; the whole being placed in alphabetical order, together with the description of the Awards extracted from the Jury Reports.*

## DIPLOMAS OF HONOUR.

* CLASS.	NAME.	EXHIBIT.
(34-39)	Antwerp, City of (Belgium).	Collection of School Fittings.
47	" " " "	Kindergarten Work.
49	" " " "	Results of Teaching Needlework and other Manual Employment to Girls in Communal Schools.
(50, 51, & 53)	" " " "	Educational Exhibit.
56	" " " "	Educational Exhibit, especially School Furniture and Drawings by Girls.
47	Antwerp, Crèche Marie Henriette (Belgium).	Furniture and Fittings.

\* Exhibits that may have been wrongly entered in the application forms have here been transferred to their proper classification.



DIPLOMAS OF HONOUR--*continued.*

CLASS.	NAME.	EXHIBIT.
52	Antwerp, École Professionnelle des Filles (Belgium).	Educational Exhibit.
Literature	Austrian Government	Collection of Works relating to Education.
2	Baroda, Government of	General Exhibit.
20	Bath, Mayor and Corporation of	Baths, Ancient and Modern.
31	" " "	Plan of the Baths of Bath (by Major C. E. Davis).
(34-40)	Belgium, Ministry of Public Instruction.	Plans, Statistics, &c., relating to Scholastic Hygiene.
47	" " " "	Educational Exhibit, especially Kindergarten Teaching Apparatus.
48	" " " "	General Educational Exhibit, especially that of the Direction Générale.
49	" " " "	Needlework and Domestic Economy Exhibit.
(50, 51)	" " " "	Educational Exhibit.
52	" " " "	Art Instruction.
55	" " " "	Statistics of Literature and Teachers' Library.
31 A & B	" Ministry of the Interior.	Regulations and Specimens of Appliances at the Central State Vaccination Establishment.
40	" " " "	Plans of Schools, Various Publications, &c.
53	" " " "	Collective Display of Industrial and Professional Schools; Hygiene Library, and Regulations for Professional Schools.
52	" Ministry of the Interior (Academy of Fine Arts and Drawing).	Fine Art Work and Designs.
52	" Ministry of the Interior (Industrial Schools)	Industrial Art Teaching.
32	" Société Royale de Médecine Publique de Belgique.	Exhibits connected with Sanitary Science.
46 A & B	" " " "	Tables and Diagrams illustrative of the relation between Climate and Disease.
14	" War Department	Ambulance Carriages, Waterproof Clothing, &c.
20	" " "	Improvements in Military Buildings.
31 A & B.	" " "	Ambulance Exhibit.
47	Berlin, Verein für Völkerziehung und Volkskindergärten (Germany).	Specimens of Work and Intelligent Method of Teaching the Connection of Nature and Art.



DIPLOMAS OF HONOUR—*continued.*

CLASS.	NAME.	EXHIBIT.
49	Bethnal Green Branch Museum. <i>See</i> Science and Art Department. Birmingham School Board	System and Results of Teaching Needlework and other Manual Work to Girls.
(50 & 53)	" " "	Handicraft Work.
51	" " "	System of Science Teaching
56	" " "	Educational Exhibit, especially the System of Science Teaching and its Results (associated with the name of Mr. W. J. Harrison).
49	Bischoffsheim Foundation ( <i>France</i> )	Needlework and Artificial Flowers by Pupils.
34	Bordeaux, City of ( <i>France</i> )	Plans of Schools.
32	Bordeaux, Société d'Hygiène Publique ( <i>France</i> )	Special Publications.
55	Brazil, General Inspector of Primary and Secondary Education.	School Books and School Work.
56	" Imperial Government of	Illustrations of Educational Methods and Results, particularly appliances used in the Instruction of the Blind.
1	British Bee-Keepers' Association.	Combined Exhibit, System of Bee Culture.
3	" " "	Promotion of Bee Culture.
47	British and Foreign School Society.	Educational Exhibit.
48	Brothers of the Christian Schools, Institute of the	Educational Exhibit.
(52 & 53)	" " " "	Results of Art and Handicraft Teaching.
48	Brothers of the Christian Schools, Institute of the ( <i>Belgium</i> ).	Educational Exhibit.
52	" " "	Results of Art Teaching.
52	" " ( <i>Canada</i> )	Results of Art Teaching.
52	" " ( <i>France</i> )	Methods of Teaching Drawing, and Pupils' Work.
53	" " "	Educational Exhibit.
52	" " ( <i>United States of America</i> )	Results of Art Teaching.
Literature	Brussels, City of, Bureau of Hygiene ( <i>Belgium</i> )	Collective Exhibit.
31 A & B	" " "	Ambulance Exhibit.
45	" " Gas Factory ( <i>Belgium</i> )	Elevator for unloading Coal Vessels.



DIPLOMAS OF HONOUR—*continued.*

CLASS.	NAME.	EXHIBIT.
52	Brussels, École Professionnelle de Jeunes Filles ( <i>Belgium</i> )	Educational Exhibit.
53	" " "	Designs for Lace and Embroideries, Artificial Flowers, &c.
13	" École Professionnelle des Tailleurs de Bruxelles ( <i>Belgium</i> )	Instruction in Cutting Out Clothes.
13	" Œuvre des Vieux Vêtements ( <i>Belgium</i> )	Utilisation of Old Clothing.
2	" Société Co-opérative Alimentaire ( <i>Belgium</i> )	General Exhibit.
(34-39)	Calvados, Département du ( <i>France</i> ).	Plans of the Training College at Caen.
1	Canadian Pacific Railway Company	Agricultural Products from Manitoba and the North-West of Canada.
	Cercle de la Librairie, de l'Imprimerie, et de la Papeterie, Paris ( <i>France</i> ) <i>See Paris.</i>	
	Cercle Parisien de la Ligue de l'Enseignement, Paris ( <i>France</i> ) <i>See Paris.</i>	
	China, Imperial Maritime Customs	General Exhibit in the Chinese Court.
Literature	" Peking College .	Publications, &c.
	" Protestant Missions	Ningpo Collection.
	" Shanghai Arsenal .	Publications, &c.
	Christian Brothers. <i>See</i> Brothers of the Christian Schools.	
1	Committee of Importers of Australasian Frozen Mutton.	Australian Frozen Mutton.
48	Creuse, Département de la ( <i>France</i> ).	Work by School Children.
13	Denmark, Ministry of Marine.	Navy Clothing.
13	" War Office .	Army Clothing.
13	Donegal Industrial Committee.	Needlework, Embroidery, &c.
	Du Cane, Col. Sir E. F., K.C.B., R.E. <i>See</i> London, Home Office, Prison Department.	



DIPLOMAS OF HONOUR—*continued.*

CLASS.	NAME.	EXHIBIT.
56	Edinburgh School Board.	Models of Schools and Results of School Work, especially Drawing.
(50, 51, & 53)	France: Ministry of Commerce	Specimens of Work from the École des Arts et Métiers at Aix.
57	" " "	Machinery from the same.
54	" Ministry of Interior, National Institution for the Deaf and Dumb.	Industrial and Scholastic Exhibits.
"	" Institute for the Blind.	" " "
(34-39)	" Ministry of Public Instruction.	School Plans prepared by the Comité des Bâtiments Scolaires—Plans of the National Schools at Roubaix and Limoges — Plans of Lycées and Colleges.
(48 & 56)	" " " "	Grants of Geographical Apparatus to Primary Schools and Training Colleges —Specimens of Work from the Elementary Schools of Côte d'Or, Pas-de-Calais, Bordeaux, Amiens, Tunis, &c., and from the Training Colleges of Auteuil, Limoges, Bordeaux, Versailles, Rouen, etc.
49	" " "	Regulations about the Teaching of Domestic Economy, and Collective Display of Needlework by Girls.
(50, 51, & 53)	" " "	Grants of Scientific Materials to Primary, Higher Primary, and Normal Schools —Specimens of Manual Work by Pupils of the Schools at Rouen, Évreux, Voiron, etc., and by Students of the École Normale Spéciale de Travail Manuel.
52	" " "	Types of Art Museums, and Reward Cards for Elementary Schools; Collection of Casts for Teaching Drawing—Drawings by Candidates for the Certificate of Art Teacher; Collection of Drawings by Students in the Training Colleges of Auteuil and Rouen.
55	" " " "	Statistics and Documents on Public Instruction in France.—Specimens of Books granted to Training Colleges, Cantonal Libraries, and Reading Libraries of Elementary Schools.
(50, to 53)	Furtwangen, Grand Ducal Wood-carving School, Baden ( <i>Germany</i> ).	Wood Carving and Modelling.



DIPLOMAS OF HONOUR—*continued.*

CLASS.	NAME.	EXHIBIT.
1	Gembloux, School of ( <i>Belgium</i> ).	Samples of Cereals, &c.
52	Geneva, School of Industrial Art ( <i>Switzerland</i> ).	Ceramic Panel, Furniture, and Bronzes.
48	Genoa, City of: Municipal Pedagogic and Scholastic Museum ( <i>Italy</i> ).	Anthropometric Chair.
(34-39)	Gironde, Département de la ( <i>France</i> )	Plans of Elementary Schools and Training College.
47	Gironde, Inspection Académique de la ( <i>France</i> )	Specimens of Work done in Infant Schools.
Designs	Glasgow, Corporation of the City of.	Glasgow Lodging Houses.
56	Glasgow School Board .	Models, etc., of Schools, and Results of School Work, especially Drawing.
(34-39) Literature.	Havre, City of ( <i>France</i> ) Hungarian Government .	School Plans. Collection of Works relating to Education.
Literature	Italy, Ministry of Agriculture, Industry and Commerce.	Collection of Educational Works.
13	Italy, Ministry of the Interior	Clothing.
Literature	" " "	Official Publications.
55	" Ministry of Public Instruction.	Documents and Statistics on Education.
13	" Ministry of Marine.	Navy Clothing.
31 A & B	" " "	Ambulance Exhibit.
	Japan, Department of Education	Collection of Teaching Apparatus and School Results.
49	" " "	Needlework in Elementary Schools.
13	" Department for Imperial Household.	Collection of Dress.
39	" Institute of Gymnastics.	Gymnastic Apparatus and Models.
	" Institute of Music	Collection of Musical Instruments.
13	" Navy Department	Naval Uniforms.
30	" Printing Bureau, Finance Department	Specimens of Paper.
(2 & 3)	" Sanitary Bureau, Home Department.	Collection of Food Products.
13	" Senji Government Woollen Factory	Woollen Fabrics.
13	" War Department	Army Uniforms.
	See also Tokio.	



DIPLOMAS OF HONOUR—*continued.*

CLASS.	NAME.	EXHIBIT.
52	Karlsruhe, Administration for Applied Art Schools in the Grand Duchy of Baden ( <i>Germany</i> )	Results of Applied Art Teaching.
56	Lancaster, Royal Albert Asylum for Idiots and Imbeciles of the Northern Counties	Appliances for Sense Culture.
20	Liverpool, Corporation of.	Artisans' Dwellings.
22	" "	Scavenging and Road Watering Appliances.
(50, 51, & 53)	Livet Institute, Nantes ( <i>France</i> ).	Specimens of Work by Pupils of Professional School.
31 A & B	London, Army Medical Department.	Ambulance Exhibit.
2	" Bread Reform League	Directing attention to the Value of Whole Meal Bread.
(50, 51, & 53)	" City and Guilds of London Institute Technical College, Finsbury.	Illustrations of Technical Education.
(50, 51, & 53)	" Coachmakers' Company of the City of.	Drawings.
9	" Home Office Prison Department (Col. Sir E. F. Du Cane, K.C.B., R.E.)	Prisoners' Diet.
(21, 22, 23)	" " "	Model of Prison Cell.
18	" Ladies' Sanitary Association.	Popular Treatises on Subjects Bearing upon Health.
21	" Metropolitan Water Companies.	Illustrations of London Water Supply.
52	" National Art Training School, South Kensington.	Results of Teaching and Influence on Art Industry.
32	" National Association for the Promotion of Social Science.	Transactions and Papers relating to Public Health.
18	" National Health Society.	Popular Treatises on Sanitary Science.
48	" National Society .	Educational Appliances.
55	" " "	School Books, &c.
56	" Religious Tract Society.	Books, &c.
49	" School Board .	Method and Results of Teaching Needlework, &c.
(50 & 53)	" " " .	Educational Exhibit.



DIPLOMAS OF HONOUR—*continued.*

CLASS.	NAME.	EXHIBIT.
51	London School Board ( <i>continued</i> )	System of Science Teaching for Pupil Teachers, and of Object Lesson Teaching in Infant Schools.
56	" " "	Educational Exhibit, especially Lending Libraries, Kindergarten Apparatus, Maps of School Districts, and Apparatus for Teaching Science to Pupil Teachers.
7	" Society of Public Analysts.	Exhibit illustrative of Adulterations.
56	" Society for Promoting Christian Knowledge.	Educational Publications.
	" Society of Arts .	Journal, and Papers relating to Public Health.
34	Lot-et-Garonne, Département du ( <i>France</i> ) .	Plans of Elementary Schools.
13	Magnusson, Mrs. (for Icelandic Exhibitors) ( <i>Iceland.</i> )	Handmade Woollen Goods and Embroideries.
23	Manchester, Corporation of	Collection and Treatment of Fecal and other Matters, and their Manufacture into Manure.
18	Manchester and Salford Association	Publications.
31 A & B	Metropolitan Asylums Board.	Ambulance for Infectious Cases.
46 A & B	Miquel, Dr., Service Micrographique de la Ville de Paris à l'Observatoire de Montsouris ( <i>France</i> ).	Instruments and Publications bearing on the relation of Atmospheric Conditions to Public Health.
Literature	Milan, Reale Società Italiana D'Igiene ( <i>Italy</i> ).	Hygienic Publications.
Literature	Netherlands, Government of the	Collection of Sanitary and Educational Works.
Designs	New York City Board of Health ( <i>United States of America</i> ).	Designs for Sanitary Works
48	Nord, Département du ( <i>France</i> )	Specimens of Pupils' Work from Primary and Higher Primary Schools.
52	Normal Training Schools, Collective Exhibit ( <i>Belgium</i> ).	Educational Exhibit.
48	Paris, Cercle de la Librairie, de la Papeterie, et de l'Imprimerie ( <i>France</i> )	Collective Exhibit of Educational and Scholastic Books.



DIPLOMAS OF HONOUR—*continued.*

CLASS.	NAME.	EXHIBIT.
52	Paris, Cercle de la Librairie, de la Papeterie, et de l'Imprimerie ( <i>France</i> ) ( <i>continued.</i> )	Collective Exhibit of Works for Teaching Drawing.
55	" "	Collective Exhibit of Documents on Schools and Education.
39	" Cercle Parisien de la Ligue de l'Enseignement ( <i>France</i> )	Specimens of Gymnastic Apparatus granted to Schools by the Cercle.
55	" "	Specimens of books granted to Elementary Schools by the Cercle. Documents on its Organisation.
55	" Musée Pédagogique, ( <i>France</i> ).	Documents and Papers relating to the Musée.
40	" Société de Charité Maternelle ( <i>France</i> )	Publications relating to the Society.
32	" Société de Médecine Publique et d'Hygiène Professionnelle ( <i>France</i> )	Publications and Works of Members of the Society
34	" Société des Crèches ( <i>France</i> ).	Reduced Model of a Crèche, Plans, Documents, &c.
34	" Société des Écoles Infantines ( <i>France</i> )	Plans and Model of Infant Schools.
47	" " "	Specimens of Work done in Infant Schools.
Literature	" Société Française d'Hygiène ( <i>France</i> )	Hygienic Publications.
55	" Société pour l'Instruction Élémentaire ( <i>France</i> ).	Synoptic Table of the Works of the Society.
40	" Société Protectrice de l'Enfance ( <i>France</i> ).	Documents.
7	" Ville de ( <i>France</i> ) .	Municipal Laboratory.
21	" " " .	Water Supply, Sewerage and Scavenging of Paris.
(24 & 25)	" " " .	Heating and Ventilating Apparatus.
27	" " " .	Fire Engines and Appliances.
31 A & B	" " " .	Ambulance Exhibit.
(34-39)	" " " .	Plans of Schools and of the Gymnase Voltaire.
48	" " " .	Materials for Primary Schools; Scholars' Work.
49	" " " .	Work done in the Girls' Professional Schools in the Rue Violet, Rue Bossuet, Rue Bouret, Rue Ganneron.
(50, 51, & 53)	" " " .	Scientific Materials for Primary Schools; Specimens of Manual Work.
52	" " " .	Drawing and Modelling in Elementary, Higher Primary, and Night Schools; Cards for Teaching Drawing.



DIPLOMAS OF HONOUR—*continued.*

CLASS.	NAME.	EXHIBIT.
56	Paris, Ville de ( <i>France</i> ) .	Scholars' Work ; School Museums.
33	" " Préfecture of the Seine ( <i>France</i> ).	Exhibit Illustrative of the Water Supply, Sewerage, Paving, and Sanitation of Paris.
18	Parkes Museum of Hy- giene, London.	Literary Exhibits.
(7, 8, 9)	Pasteur ( <i>France</i> ) . .	Scientific Discoveries. ( <i>Special Diploma of Honour.</i> )
(50, 51, & 53)	Rio de Janeiro, School of Arts & Handicrafts ( <i>Brazil</i> ).	Educational Exhibit.
21	Rome, City of ( <i>Italy</i> ) .	Water Supply and Sanitary Arrange- ments, and Ancient Pipes.
24	" " .	Model and Specimens of the Ancient Method of Warming Buildings.
31 A & B	" " .	Ambulance Exhibit.
Literature	" " .	Collection of Sanitary Publications.
34	Rouen, City of ( <i>France</i> ) .	Plans of Schools.
49	" " École Pro- fessionnelle et Ménagère ( <i>France</i> )	Scholars' Work.
(50 & 53)	" " École Pro- fessionnelle Supérieure ( <i>France</i> ).	Scholars' Work.
Literature	Russia, Government of .	Collection of Educational Works.
13	" Ministry of Marine	Clothing.
13	" Ministry of War .	Army Clothing.
31 A & B	St. John Ambulance As- sociation.	Ambulance Exhibit.
23	St. Helens, Mayor and Cor- poration of. School. <i>See</i> under respec- tive Towns.	Pail and Tub System for the Disposal of Town Refuse.
6	School of Cookery, South Kensington.	Demonstrations, Lectures, and Cheap Dinners.
7	Science and Art Depart- ment, South Kensington. Branch Museum, Bethnal Green.	Illustrations of the Chemistry and Physiology of Food.
50	Sheffield School Board Central Schools.	Specimens of School Work, &c.
52	Siam, Government of . Stuttgart, Frauenarbeits- schule, Wurtemberg ( <i>Germany</i> )	General Collection. Good Teaching in Design and Colour.



DIPLOMAS OF HONOUR—*continued.*

CLASS.	NAME.	EXHIBIT.
(50, 51, & 53)	Stuttgart, Royal Building School, Wurtemberg ( <i>Germany</i> )	Collection of School Work.
52	" " "	System of Teaching Architecture and Construction.
Literature.	Sweden, Government of .	Collective Exhibit.
55	" Ministry of Public Instruction	Statistical and other Works, showing the General Advance in Education.
	Tokio, Educational Museum ( <i>Japan</i> ).	Collection of Apparatus for Teaching.
	Tokio, National Museum ( <i>Japan</i> ).	Collection of Art Workmanship.
	Tokio, University of ( <i>Japan</i> ).	Students' Work.
49	Tunis, Regency of, Schools Inspectorate.	Work of Scholars in Arab and other Schools.
55	Turin, City of ( <i>Italy</i> ) .	School Album.
Literature	United States of America, Department of the Interior.	Collection of Publications.
9	" Navy Department.	Navy Rations as Supplied to the Greely Relief Expedition.
13	" " "	Navy Clothing, and Clothing as Supplied to the Greely Expedition.
13	" War Department .	Army Clothing.
2	Vegetarian Society. .	Exhibition of Vegetarian Dietaries.
2	Venezuela, Government of	Food Products.
4	" " "	Cocoa.
(50, 51, & 53)	Vienna Technological Museum ( <i>Austria-Hungary</i> )	Technological Exhibit.
53	Vilvorde, École Pratique d'Horticulture de l'État ( <i>Belgium</i> )	Plan of the School and Documents.
53	Weinlaube Oenological College at Klosterneuburg ( <i>Austria-Hungary</i> )	Oenological Exhibit.
56	Wesleyan Education Committee, Westminster Training College.	Appliances for Teaching Science and Geography, and Results of Pupils' Work.



## SPECIAL CERTIFICATES OF THANKS.

CLASS.	NAME.	EXHIBIT.
13	Bain, Mrs. George . . .	Dress Collection.
20	Baldwin, W. J. ( <i>United States of America</i> ).	Boiler Setting in the Tribune Buildings, New York.
Literature	Batsford, B. T. . . .	Publications.
55	Blackie & Son . . . .	Elementary School Books.
Literature	Blakiston, Son, & Co. . .	Publications.
Literature	Bogue, David . . . .	Publications.
48	Braun, T. ( <i>Belgium</i> ) (Member of Jury).	Classical Books, &c.
20	Briggs, Warren R. ( <i>United States of America</i> ).	Plans for Heating and Ventilation of Schools.
51	Brussels, La Fraternelle Belge, ( <i>Belgium</i> )	Publications on Hygiene, &c.
32	„ Société de Se- cours Médicaux gra- tuits ( <i>Belgium</i> )	Comprehensive Books on Health Mat- ters.
55	Cambridge University Press.	Educational Publications.
32	Cassell & Co., Limited . .	Publications on Hygiene.
48	„ „ „ . . . .	Educational Works.
55	„ „ „ . . . .	„ „
55	Chambers, W. & R. . . .	Elementary School Books.
55	Chapman & Hall, Limited	Publications.
32	Churchill, J. & A. . . .	Publications on Sanitary Science.
48	Collins, William, Sons, & Co., Limited.	Educational Publications.
55	„ „ „ . . . .	„ „
52	Comte, M., Editor of "Bib- liothèque de l'Enseigne- ment des Beaux Arts" ( <i>France</i> )	Publications.
55	De Beauchamp, A., Chef de Bureau, Ministry of Public Instruction ( <i>France</i> ).	Collection of Laws and Regulations Relating to Advanced Education.
Literature	Delvaille, Dr. C. ( <i>France</i> )	Documents on School Hygiene at Bayonne.
55	De Malarce ( <i>France</i> ) . .	Documents relating to Scholastic Saving Banks.
55	De Sabatier, Plantier ( <i>France</i> ).	Publications Relating to Children's Entertainments.



SPECIAL CERTIFICATES OF THANKS—*continued.*

CLASS.	NAME.	EXHIBIT.
52	De Taeye, E. ( <i>Belgium</i> ) (Member of Jury.)	System of Teaching Elementary Drawing.
55	De Toekomst ( <i>Belgium</i> ) .	Treatise on Popular Libraries.
51	Devillez, A. F. ( <i>Belgium</i> )	Books on the Ventilation of Mines.
55	Doex, G. ( <i>Belgium</i> ) .	Treatises on Scholastic Gymnastics.
55	Douliot, M. ( <i>France</i> ) .	Documents relating to Scholastic Excursions.
Literature	Dublin, Local Government Board.	Official Publications.
40	Du Moulin, N. ( <i>Belgium</i> )	Publications on Epidemics.
32	Durand-Claye ( <i>France</i> ) .	Documents relating to the Spread of Typhoid Fever.
Literature	Eastbourne, Corporation of	General Exhibit.
18	Edinburgh Health Society	Publications.
55	Evrard, L. ( <i>Belgium</i> ) .	"La Santé du Peuple."
56	Farningham & Swanley, Homes for Little Boys.	Specimens of School Work, especially Printing.
40	Ferstraerts, A. ( <i>Belgium</i> )	Publications.
34	Flers, City of ( <i>France</i> ) .	Plans of Elementary Schools.
32	Frith & Co. . . . .	Photographs of Health Resorts.
Literature	Gill, L. Upcott . . . .	Publications.
20	Gillow & Co. . . . .	Collective Exhibit.
48	Griffith & Farran . . . .	School Books and Appliances.
55	Groult, Edmond ( <i>France</i> )	Documents relating to Cantonal Museums.
15	Grünwaldt, Paul ( <i>Russia</i> ) (Member of Jury).	Collection of Furs, &c.
(50, 51, & 53)	Hammer, George M. & Co.	Laboratory Fittings.
(50, 51, & 53)	Haut Bourdin, École ( <i>France</i> ).	Specimens of Children's Manual Work.
Literature	Havre, City of, Bureau d'Hygiène ( <i>France</i> ).	Documents.
22	Hawksley, Charles . . . .	Apparatus for Testing of House Drains.
48	Hément, F. ( <i>France</i> ) Member of Jury.)	Geographical and Scientific Works for Schools.
48	Hughes, Joseph . . . .	Educational Publications.
(50, 51, & 53)	Illiers, École Primaire Supérieure ( <i>France</i> )	Specimen of Boys' Manual Work.
4	Indian Tea Districts Association.	Collection of Teas.



SPECIAL CERTIFICATES OF THANKS—*continued.*

CLASS.	NAME.	EXHIBIT.
Literature 20	Johnston, W. & A. K. . Joubert et Fils ( <i>France</i> ) .	Publications. Furniture.
(50, 51, & 53)	Karol, F. & Co. (Schools of Zakopane, Rymanow, & Kenczuga ( <i>Austria- Hungary</i> )).	Technological Exhibit
32	King, P. S., & Son .	Parliamentary Papers relating to Public Health.
32 Literature	Knight, & Co. . . Kraus, Dr. B. ( <i>Austria- (Hungary)</i> ).	Publications on Health Administration. Publications on Health.
40	Laisné, N. ( <i>France</i> ) .	Works on the Teaching of Gymnastics.
48	Lambert, Marcel ( <i>France</i> )	Plans of a Collège d'Enseignement Spécial.
32	Latham, Baldwin (Member of Jury)	Literature.
15	Lavalette - Weinknecht ( <i>Belgium</i> ) (Member of Jury)	Collection of Stuffed Animals, Furs, &c.
Literature	Layet, Dr. ( <i>France</i> ) .	Medical Inspection of Schools at Bor- deaux.
55	Lebon, Léon ( <i>Belgium</i> )	Historical and Statistical Summary of Primary Instruction.
Literature 32	Lewis, H. K. . . . Liège, Conseil de Salubrité Publique de la Province de Liège ( <i>Belgium</i> ).	Publications. Publications.
Literature Literature	Lockwood, Crosby, & Co.. London, Admiralty Medical Department.	Publications. Official Reports.
Literature 48	„ Colonial Office . „ Company of Ma- kers of Playing Cards.	Official Reports. History of the Use Made of Playing Cards in Past Times for Teaching History, Biography, Geography, &c.
Literature „	„ Foreign Office . „ General Register Office.	Official Publications. Official Publications.
„	„ Local Govern- ment Board.	Official Publications.
„	„ Lord Mayor & Corporation of.	Official Publications.
„	„ Metropolitan Board of Works .	Official Publications.
„	„ Patent Office .	Official Publications.
„ 32	„ Sanitary Insti- tute.	Publications on Sanitary Science.
Literature	Low, Sampson, & Co. .	Publications.



SPECIAL CERTIFICATES OF THANKS—*continued.*

CLASS.	NAME.	EXHIBIT.
3	McCall (Member of Jury) & Co.	Tinned Meats.
55	MacLeod ( <i>Belgium</i> )	Review on Natural Science.
54	Magnat, M. ( <i>France</i> )	Works for the Instruction of the Deaf and Dumb.
55	Manceaux, H. ( <i>Belgium</i> )	Educational Publications.
	Mayeda, Earl ( <i>Japan</i> )	Collection of Swords.
13	Mayeda, Marquis ( <i>Japan</i> )	Loan Collection of Dress.
27	Merryweather & Sons	Fire Extinguishing Apparatus.
56	Mettray, School of ( <i>France</i> )	Documents relating to the School.
Literature and Designs	Meyer, H. C. ( <i>United States of America</i> )	Collection of Documents and Diagrams relating to the Sanitary Administration of New York.
47	Myers, A. N., & Co.	Kindergarten Apparatus.
	National Fish Culture As- sociation	Work connected with Fish Culture.
(50, 51, & 53)	Noah, Brother (Brothers of the Christian Schools) ( <i>United States of Ame- rica</i> ).	Collection of School Work.
(50, 51, & 53)	O'Reilly, Rev. M. F., D.Sc.	Collection of School Work.
39	Paris, École Alsacienne ( <i>France</i> ).	Illustrations of School Fittings.
"	" École Monge ( <i>France</i> )	" " "
"	" École Ste. Barbe ( <i>France</i> )	" " "
"	" Union Française de la Jeunesse ( <i>France</i> ).	Photographs relating to the Teaching of Gymnastics in Schools.
55	" " "	Documents, Scholars' Work, &c.
10	Petit, Dr., Royat ( <i>France</i> )	Literature.
20	Pfeiffer, Carl ( <i>United States of America</i> )	Ventilation Plans.
52	Ravaissou, F. ( <i>France</i> )	Reproductions of Masterpieces of Art.
55	Reeve, Lovell, & Co.	Publications on Natural History.
32	"Revue d'Hygiène et de Police Sanitaire," Pro- prietors of ( <i>France</i> ).	Publications containing Contributions to Sanitary Science.
Designs	'Sanitary Engineer,' New York ( <i>United States of America</i> ).	Journal.
Literature	'Sanitary Record,' Pro- prietors of.	Publications.
Literature	Santini, Dr. Cav. Felice ( <i>Italy</i> )	Publications.
Literature	Scarborough, Corporation of. School. See under respec- tive towns.	General Exhibit.
47	Schrader, Frau Henriette ( <i>Germany</i> )	Efforts in Promoting Kindergarten In- struction.



SPECIAL CERTIFICATES OF THANKS—*continued.*

CLASS.	NAME.	EXHIBIT.
46 A & B	Semal, Dr. F. ( <i>Belgium</i> ) (Member of Jury).	Statistics of Mortality and Disease.
27	Shand, Mason & Co. . . .	Fire Extinguishing Apparatus.
Literature.	Shaw & Sons . . . .	Publications.
55	Sonnenschein & Co. . . .	Kindergarten Educational Works.
48	Soyer, Colonel ( <i>Belgium</i> ).	Books on the Organisation of Army Schools.
Literature	Spon, E. & F. N. . . .	Publications on Sanitary Science.
44	Steele, J. C., M.D. . . .	Models Illustrative of Skin Diseases.
(50 to 53)	Stuttgart, Workmen's Communal Night School, Wurtemberg ( <i>Germany</i> )	Collection of Educational Works.
51	Swift, James . . . .	Apparatus supplied to Biological Labora- tory.
55	Thimm, Franz . . . .	Publications for Self - Instruction in Modern Languages.
30	Tokugawa, Marquis ( <i>Japan</i> ).	Loan Collection of Art Workmanship.
32	Valerius, H. ( <i>Belgium</i> ) . .	Treatise on Heating and Ventilation.
20	Vaux and Radford ( <i>United States of America</i> ).	Plan of Buildings of the Improved Dwellings Association, New York.
52	Vierzon, Primary School of ( <i>France</i> ).	China Painted by Pupils.
Literature	Ward Lock & Tyler . . . .	Publications.
20	Waring, Colonel George E. ( <i>United States of Ame- rica</i> )	Sewerage of Keen, New Hampshire.
52	Williams, Thomas . . . .	Construction of "Old London."
Literature	Wood & Co., New York ( <i>United States of America</i> )	Publications.



## GOLD MEDALS.

CLASS.	NAME.	EXHIBIT.
20	Adams, Robert . . .	Reversible and Sliding Sashes and Rack Fanlight Openers.
(50, 51, 53)	Allen Glen's Institution, Glasgow.	Handicraft Work.
12	Allen, F., & Sons . . .	Processes showing the Manufacture of Cocoa, Chocolate, and Confectionery.
54	Amsterdam Blind Institution ( <i>Holland</i> ).	Apparatus for Teaching the Blind.
29	Andreae, Theo. H. ( <i>India</i> )	Indigo
26	Anglo-American Brush Electric Light Co.	General Electric Lighting Plant, including Steam Motors, Arc, and Incandescence Systems of Lighting.
45	Appert Frères ( <i>France</i> ) .	Appliances for Glass Blowing with Compressed Air.
51	Auzoux, Madame Veuve, et Montaudon ( <i>France</i> ).	Anatomical Models.
39	Bacon, George W., F.R.G.S.	Gymnasium.
12	Baker, Joseph, & Sons . .	Baking Machinery and Ovens.
4	Balmer, Laurie & Co. (Indian Tea Districts Association).	Teas.
22	Banner Brothers & Co. . .	Ventilation of Drains.
12	Barnett & Foster . . .	Apparatus for the Manufacture and Bottling of Aerated Drinks, especially for Aerating and Bottling Beer, and Improved Screw Bottle Stopper.
21	" " . . .	Purity of Water in the Manufacture of Aerated Waters.
41	" " . . .	Apparatus for Bottling Gaseous Water and dealing with Corrosive Acid without Accident; also for Economy of Labour.
4	Barry & Co. ( <i>India</i> ) . .	Teas.
2	Beach, T. W., & Sons . .	Jams.
21	Beck & Co. . . .	Sluice Valves and Rotary Blower.
4	Begg, Dunlop & Co. (Indian Tea Districts Association).	Teas.
20	Benham & Sons . . .	Hotel and Club Cooking Apparatus.
45	Bickford, Smith & Co. . .	Safety Fuses and Igniter
20	Birch, George H. . . .	"Old London."
52	" " . . .	Design of "Old London."
22	Birmingham Sanitary Association.	Pott's Patent Trap.



GOLD MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
21	Blundell, G. T., & Co. .	Waterwitch Pump.
13	Bossi, Edwardo ( <i>Italy</i> ) .	Ladies' Kid Gloves.
34	Bouvard, J. ( <i>France</i> ) .	Plans of the Higher Primary Schools at Voiron.
22	Bowes, Scott & Read .	Field's Automatic Flushing Tank.
24	Boyd, David O. .	Grates, &c.
31	Bradford, T., & Co. .	Complete Working Laundry.
33	" " .	Collection of Laundry Machinery.
24	Brown & Green .	Stoves.
26	Broxburn Oil Company .	Mineral Oils, &c.
30	Brussels, Société Anonyme: La Construction Industrielle ( <i>Belgium</i> )	Wainscoting and Carved Woodwork.
4	Burgoyne, P. B., & Co. .	Australian Wines.
30	Burke & Co. .	Marble Mosaic Work.
2	Cabos, Charles ( <i>Austria-Hungary</i> ).	Biscuits and Diabetic Bread.
20	Cacheux ( <i>France</i> ) .	Workmen's Dwellings.
23	Calvert, F. C., & Co. .	Disinfectants.
28	Candy & Co. .	Brick, Terra Cotta, and Vitreous Ware.
22	Capper, Son & Co. .	Bower Trap.
5	Carrick, Dr. ( <i>Russia</i> ) .	Koumiss.
31 A & B	Carter, John .	Ambulance Exhibit.
1	Carter, James & Co. .	Collection of Seeds, Cereals, and other Plants.
46 A & B	Casella, L. P. .	Electrical Sixes and other Thermometers and General Exhibit.
52	Cernesson, L. Camille ( <i>France</i> ).	Method of Teaching Drawing.
38	Chaix, M. ( <i>France</i> ) .	Apprentices' School Attached to Printing Establishment.
21	Chamberland, Dr. ( <i>France</i> )	Filters.
13	China, Imperial Maritime Customs.	Silks.
13	" " "	Costumes.
16	" " "	Collection of Bows and Arrows.
30	" " "	Collection of Furniture.
30	" " "	Wedding Chair, Catafalque, &c.
52	" " "	Musical Instruments.
31 A & B	Christoph & Unmack ( <i>Denmark</i> ).	Captain Doecker's Huts, &c.
3	Christy, Thomas, & Co. .	Rare and Interesting Food Products.
27	Chubb & Sons' Lock and Safe Company, Limited	Fire Resisting Wrought Iron Doors.
31	Cleaver, F. S., & Sons .	Toilet Soaps.
31	Clements, Jeakes & Co. .	Baths and Washing Troughs for Ophthalmic Purposes.
20	Cliff, Joseph, & Son .	Model Bath Room, and Porcelain Bath.
21	Coalbrookdale Company, Limited.	Drinking Fountains and other Castings.



GOLD MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
30	Collinson & Lock . .	Workmanship and Designs in Inlaid Furniture and Fibrous Plaster Work.
2	Colman, J. & J. . .	Pure and Mixed Mustard.
12	" " . .	Processes and Machinery employed in making Mustard.
45	Compressed Lime Cartridge Company, Limited	Lime Cartridges for Blasting Purposes.
23	Condy & Mitchell, Limited	Disinfectants.
13	Cooper, Corah & Sons .	Ladies' and Children's Jerseys and Hosiery.
24	Crabtree Brothers . .	Cooking Range.
22	Craig, J. & M. . .	Buchan's Interceptor Trap.
26	Crompton, R. E., & Co. .	System of Arc Lighting.
12	Crossley Brothers . .	Improved Otto Gas Engine.
48	Curwen, J., & Sons .	Charts, Books and Appliances for Music Teaching.
33	Davey, Paxman, & Co. .	Engine and Boiler Power for Driving Electric Light Machinery.
24	Deane & Co. . .	Fletcher's Gas Heating Apparatus.
35	De Beaudot ( <i>France</i> ) . .	Plans of Lycées.
20	Decauville ( <i>France</i> ) . .	Narrow Gauge Railway.
34	De La Censerie ( <i>Belgium</i> )	Plans of the Normal School at Bruges.
13	Dent, Allcroft & Co. .	Gloves.
22	Dent & Hellyer . .	Plumbers' Traps.
48	De Pauw, Charles (Brothers of the Christian Schools) ( <i>Belgium</i> ).	Results of Art Teaching.
48	Deyrolle, Émile ( <i>France</i> )	Diagrams for Object Lessons.
20	Doulton & Co. . .	Impermeable Building Materials.
21	" " . .	High Pressure Ball Valve.
22	" " . .	Mansergh Trap.
"	" " . .	Stoneware Pipes.
"	" " . .	Automatic Flush Tank.
23	" " . .	Public Urinals.
"	" " . .	Combination Closet with Outlet in Front.
24	" " . .	Pottery Stoves.
52	" " . .	Art Exhibit, developed in connection with the Local School of Art.
(24 & 26)	Dowson Economic Gas Company, Limited.	Apparatus for the Manufacture of Water Gas.
42	Dubois et François ( <i>Belgium</i> ).	"Bosseyeuse" Boring Machine.
54	Düren, Asylum for the Blind ( <i>Germany</i> ).	Appliances for Teaching the Blind and Industrial Work.
Designs	Dunscombe, Clement, M.A., M. Inst. C.E.	Artisans' Dwellings.
23	Durand-Claye ( <i>France</i> ) .	Sanitary System.
24	Eagle Range & Foundry Company.	Cooking Range.



GOLD MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
54	Ealing, Society for Training Teachers of the Deaf, and for the Diffusion of the German System in the United Kingdom.	General Work of the Training College and School.
30	Ebner, Joseph F. ( <i>Austria-Hungary</i> ).	Parquet Floors and Wall Linings.
26	Edison Swan Electric Light Company, Limited.	General Electric Lighting Exhibit on the Parallel System of Arc and Incandescence Lamps.
2	Edmunds, Joseph . . .	Curry Powders, Chutneys and Sauces.
15	Ellwood, J., & Sons . . .	Ventilating Hats.
3	Express Dairy Company, Limited.	Dairy Produce.
11	" " "	General Dairy Exhibit.
12	" " "	Collection of Dairy Machinery.
25	Farcot, E. & D. ( <i>France</i> ).	Ventilators and Turbines.
21	Farmiloe, Thomas & William.	Lead encased Tin Pipe.
26	Field, J. C., & J. . . .	Assortment of Candles.
31	" " " " . . .	Household Soaps.
31 A & B	Furley, John. . . .	Omnibus, convertible into an Invalid Carriage.
"	" " " " . . .	One-horse Ambulance Carriage, Village Ambulance Carriage, and Invalid Chair for use with either of the above Carriages.
33	Galloway & Sons . . .	Steam Engine and Boilers.
24	General Gas Heating and Lighting Apparatus Co., Limited.	Gas Cooking Stove.
23	Geneste et - Herrscher ( <i>France</i> ).	Heated Air and Low Pressure Steam Disinfecting Apparatus.
25	" " " " . . .	Method of Warming and Ventilation.
35	" " " " . . .	Plans of Apparatus for Warming and Ventilating Schools.
41	" " " " . . .	Ventilating Apparatus for Shops, Mines, &c.
24	Gilson & Booser . . .	Application of Coal Gas to the Heating of Bakers' Ovens.
21	Glenfield Co. . . .	Kennedy's Water Meter.
"	" " " " . . .	Water Valves, Hydrants, and Pressure Recorder.
26	Glover, George, & Co. . .	Gas Meters.
48	Gochet, J. B. (Brothers of the Christian Schools) ( <i>Belgium</i> )	Maps, Models, &c.



GOLD MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
(50, 51, & 53)	Götz, Hermann ( <i>Germany</i> )	Applied Art Teaching.
52	Gribble, H. A. . . .	Exterior View of the New Church of the Oratory, S. Kensington.
30	Haibara, N. ( <i>Japan</i> ) . .	Fans, Wall Papers, &c.
11	Hall, J. & E. . . .	Cold Air Meat Freezing Machine
12	" " . . . .	Cold Air Refrigerating Machine.
26	Hammond Electric Light Company.	General Electric Lighting; Ferranti Dynamo for Incandescence Lighting.
12	Hayward, Tyler & Co. . .	Machinery for the Manufacture and Bottling of Aërated Drinks, especially an Automatic Bottling Machine, and a Wiring Machine.
19	Heath, Henry . . . .	Manufacture of Felt Hats.
47	Heerwart, Fraülein . .	Educational Inventions.
35	Herring & Son . . . .	Model of Heating and Ventilating Apparatus at the City of London Schools.
2	Hignett Brothers & Co. . .	Tobacco and Snuffs.
28	Hitchins' Fireproof Plastering Company.	Fire-proof Plastering.
29	Horne, W. C. . . . .	Luminous Paint, and Lewis's Patent Sublimed Sulphate of Lead Paint.
34	Hubert, J. ( <i>Belgium</i> ) . .	Plans for a Normal Training School for Teachers.
2	Huntley & Palmer. . . .	Biscuits and Cakes.
Designs	Improved Industrial Dwellings Company.	Buildings.
29	Indestructible Paint Company, Limited.	Browning's Permanent Preservative Solution and Paint.
30	Jackson & Graham . . .	Internal Decoration and Fitting-up of Rooms with special attention to Sanitation.
13	Jaeger's Sanitary Woollen System Company, Limited	Woollen Clothing and Bedding.
24	Jameson's Patent Coking Company.	Coke Oven for the Recovery of By-products in the Manufacture of Coke.
29	Jeffrey & Co. . . . .	Wall Papers.
30	" " . . . .	Artistic Designs for Wall Papers.
21	Jennings, George . . . .	Double Cistern with After Flow.
23	" " . . . .	Urinals.
"	" " . . . .	Combined Water Closet.
31	" " . . . .	Baths and Basins.
28	Jones, Frederick, & Co. . .	Slag Wool.
24	Keith, James . . . .	Hot Water Apparatus.
21	Kent, George . . . .	Meinecke's Rotary Vane Water Meter.



GOLD MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
25	Kite, C., & Co. . . .	Ventilating Cowl.
31	Knight, John, & Sons . .	Household, Sanitary, and Toilet Soaps.
39	Knofe, Oscar . . . .	Gymnastic Apparatus for Schools.
54	Kiyoto, Deaf, Dumb, and Blind School ( <i>Japan</i> ). .	Results of School Teaching.
30	Kutsutani, T. ( <i>Japan</i> ) . .	Leather Work.
42	Lakeman, James B. . . .	Guard for Preventing Accidents with Circular Saws.
52	Lambeth School of Art . .	Work in Developing Local Industries.
21	Lawrence & Co., Limited. .	Condensing Apparatus.
29	Lefevre, J. ( <i>Belgium</i> ) . .	Imitation Goblin Tapestry.
21	Le Grand & Sutcliff . . .	Tube Wells.
1	Legrand, J. Simon ( <i>France</i> )	Samples of Agricultural Products Il- lustrating the Results of Industrial Farming.
3	Libby McNeill & Libby ( <i>United States of Ame- rica</i> ). . . . .	Tinned Meats.
2	Lombart, Jules ( <i>France</i> ) . .	Chocolate Bonbons.
54	London, Association for the Oral Instruction of the Deaf and Dumb. . . .	Educational Exhibit.
3	London and Provincial Dairy Company. . . . .	Dairy Produce.
12	London Guelph Patent Cask Company, Limited. . .	Machine for Making Cylindrical Casks.
4	Lovibond, H., & Son . . . .	Ales.
23	Lyon, Washington . . . .	Patent High Pressure Steam Disinfect- ing Apparatus.
23	McDougall Brothers . . . .	Disinfectants.
23	Mackey, Mackey & Co. . . .	Chemicals used as Disinfectants.
21	Maignen, P. A. . . . .	Domestic and other Filters.
31 A & B (3 & 5)	" " . . . . .	Field Service Filter.
14	Maltine Company, Limited . .	Beef Peptonoids and Malt Extract.
22	Mandleberg, J., & Co. . . .	Ventilating Waterproof Garments.
22	Manufacturers' and Mill- owners' Mutual Aid Association. . . . .	Treatment of Refuse from Manufactories and Mines.
4	Marchand Frères ( <i>France</i> ) . .	Liqueurs.
4	Meeus, J. ( <i>Belgium</i> ) . . . .	Liqueurs.
9	Moir, John, & Son, Limited . .	Preserved Provisions, and Substitu- tion of Glass for Metal Cases in the Preservation of Food.
5	Mottershead & Co.. . . .	Peptonizing Fluids and Peptonized Foods.
23	Moule's Patent Earth Closet Company. . . . .	Dry Earth-Closet System.
24	Musgrave & Co. . . . .	Stoves.



GOLD MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
54	Naples, Institution for the Blind ( <i>Italy</i> ) . . .	Instruction and Novelty in Industrial Occupations.
13	Nathan, L. & H. . . .	Historical Military Costumes.
22	Native Guano Company, Limited.	Treatment of Sewage by the A B C Process.
46 A & B	Negretti & Zambra . . .	Hourly Recording and other Registering Thermometers, and General Exhibit.
29	Neujean, A., & Delaite ( <i>Belgium</i> ). . . .	Non-poisonous Colours, and Non-absorbent Papers.
26	Nobel Brothers . . . .	Russian Petroleum, and Products obtained therefrom.
39	Nordenfelt, T. . . .	School Gymnasium on the Swedish (Ling's) System.
12	Normandy's Patent Marine Aerated Fresh Water Company, Limited.	Pure Water Distilling Machinery.
21	" " " " " "	Distillation of Water.
52	Nottingham School of Art	Work in connection with Local Industries.
(50, 51, & 53)	Oldham School of Science and Art.	Machine Construction Sketches, &c.
30	Ota, M. ( <i>Japan</i> ) . . . .	Furniture, &c.
23	Owen, Henry & Co. . . .	Oblique Valve Closet.
4	Palugyay, J., & Sons ( <i>Austria-Hungary</i> )	Wines.
(50, 52, & 53)	Paris, Ecole Elisa Lemonnier des Filles ( <i>France</i> ). . . .	Needlework, China Painting, &c.
26	Parkinson, W., & Co. . . .	Gas Meters.
(7, 8, 9)	Pasteur ( <i>France</i> ) . . . .	Scientific Discoveries.
56	Paysant, Préfet de l'Aude ( <i>France</i> ). . . .	School Museum.
2	Peck, Frean & Co. . . .	Biscuits and Cakes.
12	Perkins, A. M., & Son . . .	Steam Ovens for Naval and Military Purposes.
1	Pesth Millers and Bakers ( <i>Austria-Hungary</i> )	Flour.
6	Pillivuyt et Cie. ( <i>France</i> ). . . .	Culinary Porcelain.
19	Pocock Brothers . . . .	Boot & Shoe Making Machinery.
21	Porter, John H. . . .	Process for Softening Water.
2	Potin, Vve. Félix ( <i>France</i> )	Fruits in Syrups, Fruit Jellies, and Chocolate.
52	Poynter, E. J., R.A. . . .	Applied Art Work.
2	Prevot, C., & Co. . . .	Dried and Compressed Vegetables.



GOLD MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
26	Price's Patent Candle Company, Limited.	Candles.
33	" " "	Processes and Machinery Employed in Making Candles.
21	Quirk, Barton and Co. .	Tin-Lined Pipes, and Tinned Sheet Lead.
35	Reck, A. B. ( <i>Denmark</i> ) .	Drawings of Schools.
46 A & B	Richard Frères ( <i>France</i> ) .	Self-Recording Meteorological Instruments.
17 A	Richardson, John, & Co. .	Fireproof Dress Fabrics.
(50, 51, & 53)	Rigg, James . . . .	Technical Education Apparatus.
31	Rimmel, E. . . . .	Sanitary Perfumery and Toilet Soaps.
(50, 51, & 53)	Ripper, W. . . . .	Specimens of School Work, &c.
31 A & B	Robinson, Thomas, & Sons	Ambulance Exhibit.
4	Rome, Circolo Enofilo Italiano di Roma ( <i>Italy</i> )	Wines, &c.
39	Roth, Dr. . . . .	Apparatus for Physical Training in Schools.
29	Rottmann, Strome & Co.	Non-poisonous Japanese Wall Decorations, with Fixed Colours.
31	Rowe & Co. . . . .	Household Soaps.
31	Salmond, David . . .	Household and Toilet Soaps.
4	Salt, Thomas, & Co. .	Ale.
23	Sanitary Appliance Company.	Dry Closets.
5	Savory & Moore . . .	Peptonizing Materials and Infants' Food.
(24 & 35)	Schaeffer, F. ( <i>Belgium</i> ) .	Plans of Apparatus for Heating by means of Hot Water.
	School. <i>See under respective towns.</i>	
21	Shanks & Co. . . . .	Water Waste-Preventing Cistern.
31	" " . . . . .	Baths.
21	Sharp & Co. . . . .	Hydraulic Rams.
(2, 3, 5)	Siam, Government of .	Collection of Food Products.
12	Siebe, Gorman, & Co. .	Lightfoot's Cold-Air-Refrigerating Machine; Ether Ice-making Machine.
17	" " . . . . .	"Fleuss" Diving Dress.
33	Simmons & Tullidge .	Steam Carpet-beating Machine.
21	Simpson & Co. . . . .	Centrifugal Pump and Steam Engine.
52	{ Singer, J., sen. } Singer & Sons. }	General Art Exhibit.
	{ Singer, C. R. }	
	{ Singer, W. H. }	
19	Singer Manufacturing Company.	Sewing Machines.
52	Slocombe, C. P. . . . .	Etchings.



GOLD MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
26	Smith, T. Tayler . .	Fittings specially designed for the adaptation of Electric Lighting to Domestic Purposes.
21	Spencer, Thomas . .	Filtering Material.
48	Stanford, Edward . .	Physical, Relief, and Continuous Maps.
30	Starkie, Gardner & Co. .	Artistic Wrought Iron Work.
24	Steel & Garland . .	Country Parson's Grate.
13	Steele, Mrs. Thomas . .	Corsets.
22	Stidder, J. G., & Co. .	Sink Trap with Locked Grating.
20	Stones, John . .	Revolving Shutters and Movable Sound-proof Partitions.
26	Sugg, W., & Co., Limited	Improved Gas Burners and Apparatus.
26	Sun Electric Light Company.	General Electric Lighting Plant.
29	Thompson, H., & Co. .	Non-poisonous Damp-Proof Paint.
24	Thompson, Henry . .	Kitchen Range.
(51 & 53)	Tokio, Female Normal School ( <i>Japan</i> ).	Collection of Cheap Chemical Apparatus.
(51 & 53)	„ Normal School ( <i>Japan</i> ).	Collection of Cheap Physical Apparatus.
31 A & B	Tollet, Système, Société Nouvelle de Construction ( <i>France</i> ).	Ambulance Exhibit.
34	Trélat, Émile ( <i>France</i> ) .	School Lighting Plans.
25	Treutler & Schwartz ( <i>Germany</i> ).	Ventilating Turbine.
30	Tubouchi, A. B. Ya ( <i>Japan</i> ).	Carvings in Ivory, Bronzes in Lacquer-work, Cloisonné Enamels, &c.
21	Tylor, J., & Sons . .	Self-closing Bib and Stop Cocks.
„	„ „ . .	Rotary Water Meter.
31	„ „ . .	Bath Fittings and Basins.
35	Vaudremer ( <i>France</i> ) .	Plans of Lycées.
2	Vencatachellum, P. ( <i>India</i> )	Condiments.
22	Wadsworth, Henry, & Son	Waggons, Water Carts, and Vans with Special Tipping Arrangement.
22	Waller, Geo., & Co. .	Sanitary Appliances for Sewers.
30	Walton, F., & Co. .	Lincrusta-Walton.
19	Wanzer Sewing Machine Company, Limited.	Improved Lock-Stitch Sewing Machines.
1	Ward, Rowland & Co. .	Specimens of Edible Birds, Animals, &c., arranged naturally.
30	Wardle & Co. . .	Silk and Cotton Hangings.
21	Warner, John, & Sons .	Latham & Way's Patent Water Tempering Tubes.
30	Warner & Ramm . .	Furniture Silks, Velvets, &c.
3	Webb, Jubal. . .	Collection of Cheeses.
52	Webb, Thomas, & Sons .	Artistic Glass Manufacture.



GOLD MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
35	Weeks, J., & Co. . . .	Tubular Waterbar Open Fire Grate for Warming Schools.
3	Welford & Sons, Limited.	Dairy Produce.
11	" " " .	Complete Working Dairy.
22	West Central Sanitary Engineering Company.	Plumbers' Traps and Lead Traps.
19	Wheeler & Wilson Manufacturing Company, Limited	Sewing Machines.
28	White, William (Aber-gavenny)	Hygieian Rock Building Composition.
20	Wilcock & Co. . . .	Impermeable Building Materials.
30	" " " . . .	Faience for Constructional Decoration.
28	Wilkes Metallic Flooring & Eureka Concrete Company.	Paving.
20	Willesden Waterproof Paper and Canvas Works, Limited.	Wall and Roof Rot-proof Paper.
29	" " " .	Waterproof Paper Coverings.
4	Williamson, Magor & Co. (Indian Tea Districts' Association.)	Teas
26	Woodhouse & Rawson .	Electrical Fittings, Apparatus, &c., for Incandescence Lamps.
29	Woollams, William, & Co.	Wall Papers.
30	Yamamoto, S. ( <i>Japan</i> ) .	Imitation Leather.
29	Yates & Co. . . .	Non-poisonous Carpet Dyes.



## SILVER MEDALS.

CLASS.	NAME.	EXHIBIT.
1	Abbott Brothers . . .	System of Bee Culture.
52	Ablett, T. R. . . .	System of Teaching Elementary Drawing.
31	Adamek, A. ( <i>Austria-Hungary.</i> )	Fancy Toilet Soaps.
30	Ahrends, F., & Co. ( <i>Denmark.</i> )	Terra Cotta, &c.
26	Albion Lamp Company .	Oil Cooking Stoves and Lamps.
31 A & B	Alderman, J. . . .	Ambulance Exhibit.
31	Allen, James, & Son .	Vapour and Hot Air Baths.
13	Allinson & Co. . . .	"Hercules" Boots and Shoes.
14	Anderson, Anderson, & Anderson.	Waterproof Clothing.
33	Anderson & Hunting .	Patent Variety Dovetailing and Moulding Machine.
22	Angell, A. T. . . .	Interceptor Trap.
4	Apollinaris Company, Limited.	Mineral Waters.
48	Arens, Ant. (Brothers of the Christian Schools) ( <i>Belgium.</i> )	Arithmometer.
48	Armengaud, Aîné ( <i>France</i> )	Panels for Decoration of Class-Rooms.
4	Australian Wine Company, Limited.	Wines.
4	Austro - Bavarian Lager Beer Brewery and Crystal Ice Factory, Limited.	Ales.
3	Aylesbury Dairy Company	Koumiss.
48	Bacon, George W., F.R.G.S.	Maps, Charts, and Picture Lessons in Geography.
25	Bacon, J. L., & Co. .	Method of Warming and Ventilating by Hot Water.
33	" " . . .	High Pressure and other Arrangements for Heating and Ventilating.
22	Banner Brothers & Co.	Air-tight Covers.
"	" "	Traps.
25	" "	Ventilating Cowsls.
2	Barnes & Co. . . .	Jams and Jellies.
4	Barnett & Foster . .	New Method of Bottling Ale.
11	" " . . .	English Lager Beer Fountains and Patent Bottles.
31	Barrett, A., & Sons .	Toilet, Hair, and Bath Brushes.
49	Barry, Miss Louise .	Scientific Dress Cutting and Instruments.



SILVER MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
21	Baskerville, R. . . . .	Fountain Jets.
57	Batchelor, H. & T. C. . . . .	Working Diagram - Models of Steam Engines.
28	Bateman, William H. . . . .	Sir William Burnett's Preservative Process.
52	Bates, H. . . . .	Work in Relief.
26	Bayle ( <i>France</i> ) . . . . .	Gas Lamp and Chimneys.
12	Beare, Gosnell, & Co. . . . .	Large and Small Apparatus for Roasting Coffee by Gas-Flame.
21	Beck & Co. . . . .	Keystone's Water Meter.
"	" " . . . . .	Double Valve.
23	" " . . . . .	Hopper Closet.
(50, 51, & 53)	Becker, F. E., & Co. . . . .	Chemicals, Chemical Apparatus, &c.
26	Beggs, T., & Son . . . . .	The Siemens Gas Burner.
17	Bell, John . . . . .	Asbestos Fireproof Dress.
23	Benham & Sons . . . . .	Disinfecting Apparatus.
14	Benjamin, B., & Sons . . . . .	Waterproof Clothing.
2	Benoist, V. ( <i>France</i> ) . . . . .	French Confectionery and Eatables.
4	Bensdorp & Co. . . . .	Cocoa.
3	Berk, F. W., & Co. . . . .	Extract of Meat.
28	Birks, J. & T. . . . .	Bricks and Tiles.
52	Birmingham School of Art . . . . .	Work in connection with Local Industries.
52	Black, J. J. . . . .	Brocaded Satin Damask.
33	Blackman Air Propeller Ventilating Company, Limited.	Low Pressure Ventilating Apparatus.
3	Blanchflower & Sons . . . . .	Sauces, Pickles, Jellies, &c.
29	Blane, Lieut.-General Sir Seymour, Bart., C.B.	Non-inflammable Paint.
2	Blaxall & Co. . . . .	Jams.
20	Blyth, A. W. . . . .	Design for Lodging Poor Families in One Room.
23	Boake, A., & Co. . . . .	Disinfectants.
(50, 51, & 53)	Bocquet, M. ( <i>France</i> ) . . . . .	Manual Work done at the École Municipale Diderot, Paris.
21	Bolding, John, & Sons . . . . .	Bib and Stop Cocks.
22	" " " . . . . .	Plumber's Work.
23	" " " . . . . .	Urinals
31	" " " . . . . .	Baths.
29	Botelberge, G., & Co. ( <i>Belgium</i> ).	Non-poisonous Papers.
30	Boucneau, L. ( <i>Belgium</i> ) . . . . .	Marble Chimney-pieces.
22	Bourtreshill Coal Company . . . . .	Water Cistern and Sinks in White Enamelled Ware.
30	Boussard ( <i>France</i> ) . . . . .	Artificial Flowers in Porcelain.
20	Bower Barff Rustless Iron Company.	Bower Barff Process.
23	Bowes, Scott, & Read . . . . .	Trough-Closets.
24	Boyd, A., & son. . . . .	Grates.
22	Boyle, Robert . . . . .	Extracting Cowl Heads and Air Inlets for Drains.
28	Bracknell Pottery Brick and Tile Company.	Plain and Ornamental Brick Work.



SILVER MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
13	Bradford Manufacturing Company.	Cashmeres.
5	Brand & Co.. . .	Concentrated Beef Tea, &c.
28	Bridgman, H. H. . .	Economical Fireproof Flooring.
22	Broad & Co. . . .	Traps.
20	Brown & Green . . .	Model Villa Kitchen.
26	Browne & Co. . . .	Mitrailleuse Lamps, &c.
33	Brunton & Trier . .	Patent Machine for Trueing Grindstones and Emery Wheels.
42	" " . . .	Prevention of Dust and Economy of Labour in the Process of Trueing Grindstones and Emery Wheels.
22	Buchan, Wm. Paton .	Ventilators for Drains.
13	Buckingham and Chandos, Duke of, G.C.S.I.	Buckingham Lace.
1	Butt, George F. . .	Representation of Her Majesty the Queen's Prize Heifer "Cherry Blossom," stuffed entire.
48	Callewaert Brothers ( <i>Belgium</i> ).	School Furniture.
52	Callowhill, James . .	Art Exhibit, especially Olive Green Plate.
31	Calvert, F. C. & Co. .	Carbolic Soap and Sanitary Toilet Preparations.
52	Camm, T. W. . . .	Designs for Stained Glass.
52	Campbell, Charles . .	Design for Staircase and Wall Decoration.
52	Campbell, Smith & Co. .	Decoration of "Old London."
30	Cardinal & Harford . .	Oriental Carpets, Tiles and Pottery.
48	Cardot, M. ( <i>France</i> ) . .	School Desk and Bench.
24	Carron Company . . .	Ranges.
52	Carter, G. A. . . .	Gold Belt ("The Twelve Months").
39	Carue ( <i>France</i> ) . . .	Gymnastics.
(50, 51, & 53)	Célerier, M. ( <i>France</i> ) .	China Painting by Pupils of the Vierzon Higher Primary School.
34	Cernesson, L. Camille, and Gravigny ( <i>France</i> ).	Plan of the Higher Primary School at Montbard.
21	Certes ( <i>France</i> ) . . .	Microscopic Water Examination.
20	Chappuis, P. E. . . .	Daylight Reflectors.
21	Chedgely, & Co. . . .	Glass Tubes.
26	Chesebrough Manufacturing Company.	Petroleum Oil.
1	China, Customs, Imperial Maritime.	Collection of Grains and Pulse.
2	" " "	Collection of Tobacco.
(2, 3, 5, 6)	" " "	Collection of Food Products.
24	" " "	Crematorium.
30	" " "	Conveyances, &c.
31	" " "	Soap Stone Collection.
47	" " "	Toys.
30	" Shop from Canton .	Fancy Goods.
2	" " Hankow . . .	Pipes, &c.
30	" " Kinkiang . . .	China Ware.
30	" " Peking . . .	Curios.



SILVER MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
30	Choisy-le-Roi, Faïencerie de ( <i>France</i> )	Porcelain.
30	Chorlton & Dugdale .	Spring Mattresses, &c.
26	Christie, J. & C. .	Mineral Oil.
20	Christoph & Unmack ( <i>Denmark</i> ).	Wooden Portable Houses.
41	" " "	Portable Huts for Workshops.
52	Christofle, Ecole d'Apprentis des Ateliers ( <i>France</i> )	Apprenticeship School Work.
1	Christy, Thomas, & Co. .	Thermostatic Incubator.
20	Chubb & Sons' Lock and Safe Company, Limited.	Diagonal Locking Safe Lock.
4	Churchman, H. .	Liqueurs.
2	Cirio, Francesco ( <i>Italy</i> ) .	Italian Preserved Vegetables.
4	" " .	Wine.
26	Clark & Bowman .	Arc Lamp.
2	Clarke, Nickolls & Coombs	Jams, Candied Peels, and Confectionery.
26	Clarke, Samuel .	Pyramid Night Lights and Food Warmers.
22	Cliff, Joseph, & Son .	Drain and Sewer Pipes.
"	" " .	Sinks.
31	" " .	Glazed Fire Clay Baths.
Designs	Closson, H. ( <i>Belgium</i> ) .	Plans for Workmen's Dwellings.
52	Cluytens-Suetens ( <i>Belgium</i> )	Imitation Wood and Marbles.
24	Coalbrookdale Company, Limited.	Kitchen Range.
30	" " " "	Ornamental Mantels, Grates, &c.
24	Colbran, J. B., & Co. .	Kitchen Range.
27	Compressed Air Fire Engine Company	Compressed Air Fire Engines.
21	Conolly, Henry .	Hot Water, Bib, and Stop Cocks.
23	" " .	Glass-lined Urinal.
31	" " .	Baths and Lavatories.
26	Consolidated Electric Company .	System of Electric Lighting, and Plant suitable to small Incandescence Installations.
20	Constantine, T. J. .	Artisan's Model Kitchen.
24	" " .	Kitchen Range.
21	Cooper, H. Dudley .	Glass Tubes Encased in Iron.
47	Cooper, J. Ramsay .	Apparatus and System for Teaching the Elements of Reading.
54	Copenhagen Institution for the Blind ( <i>Denmark</i> )	Boot and Shoe Making Tools for the Blind.
3	Corbett, John, M.P. .	Salt.
14	Cording, George .	Waterproof Coat and Leggings with Elastic Junction.
2	Cornélis, L. ( <i>Belgium</i> ) .	Dry Peptone.
30	Corticine Floor Covering Company.	Floor Covering.
28	Craig, J. & M. .	Buchan's Fireclay Patents.
52	Crawley, Miss Minna .	Design for Flower Bowl.



## SILVER MEDALS—continued.

CLASS.	NAME.	EXHIBIT.
31	Cresswell, R., & Co. .	Sponges.
21	Dale, R. F., & Co. .	Water Waste Preventive Cistern.
31 A & B	Dalton, Henry James .	Invalid Bedstead for Patients Suffering from Fractures, &c.
4	Daur, Madame P. ( <i>Belgium</i> )	Liqueurs.
31	Davey & Fabian .	Ironing Machine.
24	Davis, H. & C., & Co. .	Kitchen Range.
45	Davis, John, & Son .	Scientific Instruments used in Mines and Safety Lamps.
52	Davis, Miss Louisa .	Brown Vase.
28	Dawnay, A. D. .	Iron and Concrete Flooring.
2	Day & Mitton ( <i>France</i> ) .	Tinned Asparagus.
41	Deards, Samuel .	Dry Glazing and Warming Apparatus for Workshops.
24	Dean & Son .	Kitchen Range.
52	De Brie ( <i>France</i> ) .	Casts to Serve as Models of Anatomy.
26	Dee Oil Company .	Mineral Oil and Candles.
19	Dent, Allcroft & Co. .	Machines for Sewing and Ornamenting Gloves.
21	Dent & Hellyer .	Double Cistern with Flush and After Flush.
22	" " .	White Enamelled Sink.
"	" " .	Waste for Lavatory Basin.
23	" " .	Artisan's Closet.
"	" " .	Optimus Closet.
46 A & B	Denton, S. G. .	Thermometers with constant Zero Point
4	Dewinter Frères ( <i>Belgium</i> )	Beer.
51	Deyrolle, Emile ( <i>France</i> )	Natural History Diagrams and Models.
19	D'Haenens - Gathier ( <i>Belgium</i> )	Knitting Machine.
2	Di Cola, Giovanni ( <i>Italy</i> )	Italian Pastes.
48	Dierckx, J. ( <i>Belgium</i> ) .	Works on Teaching.
4	Distillerie d'Eau de Cerises de Schwyz ( <i>Switzerland</i> )	Liqueurs.
19	Dohis et Cie. ( <i>France</i> ) .	Spiral Spring for Sewing Machines, Wound up by Foot.
45	" " .	Labour Saving Accumulator.
22	Domestic Engineering and Sanitary Appliances Company	Interceptor Trap.
54	Doncaster Institution for the Deaf and Dumb	School Exhibits.
13	Dor Fils ( <i>Belgium</i> ) .	Gloves.
21	Doulton & Co. .	Manganous Carbon Filter.
"	" " .	Granular Charcoal with Manganous Carbon Block.
"	" " .	Bailey Denton's Aërating Filter.
"	" " .	Locking Apparatus for Baths.
"	" " .	Water Waste Preventive Cistern.
"	" " .	Self-Closing Bib Cocks.
"	" " .	Non-percussive Valve.
"	" " .	Hot Water Valves.



SILVER MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
22	Doulton & Co. ( <i>continued</i> )	Enamelled Curves.
"	" " . .	Trough Closet.
"	" " . .	Urinal Trap.
"	" " . .	Grease Traps.
23	" " . .	Water Closets.
"	" " . .	Flush-out Closet with Circular Flushing Rim.
30	" " . .	Terra-Cotta and Glazed Stoneware, as applied to decorative purposes.
13	Dowie & Marshall . .	Hygienic Boots and Shoes.
28	Drake, Charles, & Co. .	Concrete and Fibrous Slabs.
31	" " . .	Marble Concrete Bath.
20	Dreyfus, A., & Co. . .	Ligny's Patent Drying Process.
26	Edmunds & Goolden . .	System of Arc Lighting and Plant.
52	Edwards, Miss L. E. . .	Stoneware Bowl.
4	Elbogen & Bull ( <i>Austria-Hungary</i> ).	Liqueurs.
22	Ellis, Joseph J. . . .	Earthenware Pipes.
25	Ellison, James Edward .	Ventilators.
26	Elwell & Parker . . .	System of Electric Lighting and Plant suitable to small Incandescence Installations.
21	Emanuel, A., & Sons . .	Hot Water Bib and Stop Cocks.
5	Epprecht, H. ( <i>Switzerland</i> )	Unsweetened Condensed Milk.
Designs	Ernst, Heinrich ( <i>Switzerland</i> ).	Houses on "Isolation System."
57	Evans, John Henry . .	Ornamental Turning Lathes and Appliances, and Examples of Ornamental Turning.
	Faïencerie de Choisy-le-Roi ( <i>France</i> ). See Choisy-le-Roi.	
21	Farmiloe, Thomas & William.	Bib and Stop Cocks.
"	" " . .	Water Waste Preventive Cistern.
1	Farnworth, R. D. . . .	Flour (Queen's Own).
52	Faulkes, Henry . . . .	Wrought Iron Cabinet.
22	Finch, B., & Co. . . .	Lavatory Self-Closing Valve.
52	Finchett, Thomas . . .	Carved Oak Hall Seat.
5	First Swiss Alpine Milk Exporting Company ( <i>Switzerland</i> )	Milk in Tins and Bottles.
24	Flavel, Sidney & Co. . .	Kitchen Range.
21	Filcoteaux ( <i>France</i> ) . .	Water Fittings.
19	Foster, James . . . .	Knitting and Jacquard Machines.
52	Frampton, E. . . . .	Panels, and Frames with Designs.
28	Francis & Co. . . . .	Parian Cement.
2	Freeman & Hildyard . .	Pudding and Custard Powders.
39	Frété et Cie. ( <i>France</i> ) .	Gymnastic Apparatus supplied to French Education Department for Primary Schools and Training Colleges.
52	Frith, W. S. . . . .	Model of a Tomb, and Group (Boadicea).



SILVER MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
4	Fry, J. S., & Sons . . .	Cocoa.
31 A & B	Gainsford & Co. . . .	Ambulance Exhibit.
48	Garcet et Nisius ( <i>France</i> )	School Furniture and Appliances.
42	Gardner, E. V. . . .	Process for Making White-lead without Manual Labour.
2	Gelatine Manufactory, Winterthur ( <i>Switzerland</i> )	Gelatine for Culinary Use.
31	Gellé Frères ( <i>France</i> ) . .	Fancy Soaps and Toilet Requisites.
31 A & B	Geneste et Herrscher ( <i>France</i> ).	Sweating Room.
4	Get Frères ( <i>France</i> ) . .	Liqueurs.
31	Gibbs, D. & W. . . .	Household and Disinfecting Soaps.
12	Gibbs, W. A. . . .	Patent Wheat or Tea Drying Machine.
38	Gibert, Dr. le Havre, ( <i>France</i> )	Model of Dispensary for Sick Children.
48	Gill, George, & Sons . .	School Text-books and Needlework Charts
4	Gisquière-Decoorebyter ( <i>Belgium</i> )	Liqueurs.
22	Glenfield Company, Lmtd.	Hill's Automatic Flushing Apparatus.
39	Goy, H. . . .	Gymnastic Apparatus.
4	Grant, Thomas, & Sons . .	Liqueurs.
19	Grant, W. Henry . . .	Improved Jacquard Loom.
2	Grassi, Carlo ( <i>Italy</i> ) . .	Vinegar and Oil.
4	" " "	Chianti Wines, shipped by A. Alessandri of Leghorn.
2	Great Eastern Hotel Wine and General Preserving Company ( <i>India</i> ) . .	Indian Chutneys, Pickles, &c.
22	Greene, Henry, & Son . .	Utilization of Tide for Raising Sewage.
51	Gregory, James R. . . .	Geological Collection.
3	Gridley & Co. . . .	Isinglass.
35	Guérin ( <i>France</i> ) . . .	Models of Hygienic Parquets and Moveable Floors for Schools.
47	Guillemin ( <i>France</i> ) . .	New Wall Map of France.
26	Gülcher Electric Light Company . . . .	General Electric Lighting Plant for the Arc and Incandescence Systems.
27	Hale, E. H. . . .	Fire Escape.
25	Hale, R. W. & Co.. . .	Ventilating Cowl.
13	Hamilton & Co., Limited.	Improvements in Dress.
48	Hammer, George M., & Co.	Combination Box, and Imperial and other Desks.
(50, 51, & 53)	" " "	Laboratory Fittings.
2	Harris & Co. . . .	Pastry and Confectionery.
23	Hartin's Crimson Salt Company, Limited.	Disinfectants.
11	Haslam Foundry & Engineering Company, Limited.	Meat Freezing Machine.
21	Hayward, Tyler, & Co. .	Bib and Stop Cocks.



SILVER MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
23	Hayward, Tyler, & Co. ( <i>continued</i> ).	Full Flush Valveless Closet.
24	Hazard, H. H. . . .	Improved Gas Cooking Apparatus.
13	Heath, Henry . . . .	Hats and Caps.
4	Heering, Peter F. ( <i>Denmark</i> ).	Liqueurs.
31	Hendrie, Robert, & Co. .	Fancy Soaps, Toilet Requisites and Tooth Brushes.
34	Henman & Harrison . .	Plans of Schools.
24	Hepburn, R. H. . . .	Smoke Preventing Apparatus.
31 A & B	Herbet et Cie. ( <i>France</i> ) .	Elastic Beds with Movable Cushions.
24	Herring & Son . . . .	"Brookwood" Warming and Ventilating Grate.
46 A & B	Hicks, J. J. . . . .	Sensitive Clinical Thermometers.
2	Hill, W., & Son . . . .	Bread and Biscuits.
30	Hindley & Sons . . . .	Carved Mantelpiece.
20	Hobbs, Hart & Co. . . .	Locks.
48	Hodkinson & Clarke . .	Revolving Partitions for Dividing Schoolrooms.
57	Holtzapffel & Co. . . .	Ornamental Turning Lathes and Appliances, and Examples of Ornamental Turning.
30	Horitsu, C. ( <i>Japan</i> ) . .	Tea Ceremonies.
7	Houdart ( <i>France</i> ) . . . .	Method of Preserving Wine.
22	Houghton & Co. . . . .	Interceptor Traps.
22	Hughes & Lancaster . .	Shone's Pneumatic Apparatus for Raising Fluids.
4	Hulsman, J. H. ( <i>Holland</i> )	Liqueurs.
24	Hunt, Harry . . . . .	Stoves.
22	Imperial Stone Company, Limited.	Concrete Sewer and Drain Pipes.
4	Ind, Coope, & Co. . . . .	Ales and Stout.
12	Indian Tea Districts Association.	Tea Drying Stove and Rolling Machine.
22	Ingham, W., & Sons . . .	Glazed Fire Clay Pipes.
"	" " "	Stanford's Jointed Pipes.
28	" " "	Glazed Bricks and Drain Pipes with Level Indicators.
30	Ipsen, Mme. Louise ( <i>Denmark</i> )	Artistic Pottery.
52	Jackson, F. G. . . . .	Design for Silver Vase, Italian Renaissance Style.
28	Jackson, G., & Sons . . .	Fibrous Plaster.
2	Jacquier Frères ( <i>France</i> )	Table Vinegar, Prepared Mustard, &c.
26	Jameson's Patent Coking Company, Limited.	The Jameson Process of Treating Coal.
31 A & B	Jenks & Wood . . . . .	Sick Room Furniture and Appliances.
21	Jennings, George . . . .	Bib and Stop Cocks.
"	" " " . . . . .	Bath Fittings.
22	" " " . . . . .	Sinks.
"	" " " . . . . .	Plumbers' Work.
"	" " " . . . . .	Trap.
23	" " " . . . . .	Side Flush Closet.



SILVER MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
23	Jennings, Thomas . . .	Disinfecting Oven.
54	Jews' Deaf & Dumb Home	General Exhibit.
21	Johnson, S. H., & Co. . .	Filter Press.
48	Johnston, A. . . . .	Science Diagrams.
48	Johnston, T. Ruddiman . .	Historical Pictures and Maps.
2	Joveneau, A. ( <i>Belgium</i> ) . .	Chocolate.
21	Judson, Daniel, & Son . .	Domestic Filters.
30	Kashiwabara, M. ( <i>Japan</i> )	Lacquer Ware.
20	Kaye, Joseph, & Sons . . .	Push Spring Lock.
33	Keenan, Matthew . . . .	Non-conducting Papier-Maché Compound for Coating Boilers and Steam Pipes.
26	Keith, James . . . . .	Apparatus for the Manufacture of Mineral Oil Gas.
20	Kent, George . . . . .	Model Kitchen.
31	Kenworthy, E. N., & Co.	Washing Machines.
2	King, Frederick, & Co. . .	Preserved Potatoes.
22	Kite, C., & Co. . . . .	Ventilators for Drains.
4	Kleinoscheg Brothers ( <i>Austria-Hungary</i> ) . . .	Sparkling and Still Wines.
52	Kiyoto, Art School ( <i>Japan</i> ).	Results of Art Teaching.
49	Kiyoto-Fu, Female School for Embroideries ( <i>Japan</i> ).	Needlework.
20	Kwaikoshia School ( <i>Japan</i> ).	Model of Daimio's Palace.
4	Land Mortgage Bank of India (Indian Tea Districts Association) ( <i>India</i> ).	Teas.
4	Langdale, E. F. (Indian Tea Districts Association).	Kangra Teas.
4	Lange, C., & Co. ( <i>Russia</i> )	Liqueurs.
28	Langstaff, Charles, M.D. . .	Paraffined Flooring.
12	Lawrence & Co., Limited.	Patent Capillary Refrigerator, and Patent Lactoleofract.
35	Leccœur ( <i>France</i> ) . . . .	Plans of various Lycées.
34	Lecoq ( <i>France</i> ) . . . . .	Adaptable School Desk.
51	Lemercier, Madame Vve. ( <i>France</i> .)	Models of Structural Anatomy.
52	Letheren, W. . . . .	Wrought Iron Grille.
31 A & B	Leveson & Sons . . . . .	Ambulance Exhibit.
52	Lewis, Miss Florence . . .	Design for large Vase.
9	Libby McNeill & Libby ( <i>United States of America</i> .)	Tinned Meats for Army Supply.
2	Liebig, Baron . . . . .	Malto-Legumine Farina.
13	Lilley & Skinner . . . .	Improved Method of Fixing Upper Boot Sole in Lasting.
30	Linoleum Manufacturing Company, Limited.	Linoleum Floor Cloth with Artistic Colouring.



SILVER MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
4	Lloyd & Co. (Indian Tea Districts Association.)	Teas.
24	Lloyd, F.	Ventilating Grates.
Designs.	Lombart, Jules ( <i>France</i> ).	Workmen's Dwellings.
41	" " "	Safety Refrigerating Apparatus.
(50 & 53)	London, Institute of British Carriage Manufacturers	Drawings, Models, and Documents relating to the Institute.
Designs.	" Metropolitan Association for Improving the Dwelling of the Industrial Classes	Artisan's Dwellings.
23	" National Chemical Company	Chloride of Lime.
(52 & 53)	" School of Art Wood Carving, Royal Albert Hall	Art and Technical Exhibit.
52	" West London School of Art	Work in connection with Local Industries.
Designs.	" Society for Improving the Condition of the Labouring Classes	Dwellings.
Designs.	" South London Dwellings Company.	Dwellings at Surrey Lodge.
(50, 51, & 53)	" University College, Engineering Department.	Scientific and Technical Teaching.
11	London and Provincial Dairy Company.	Complete Working Dairy.
12	" " " "	Collection of Dairy Machinery.
11	London Guelph Patent Cask Company, Limited.	Air-tight Casks.
7	Long, Joseph	Scientific Instruments.
19	Loog, Hermann	Sewing, Knitting, and Embroidery Machines, especially a Straw-Hat Sewing Machine.
22	Lord, William, & Co.	Ventilators for Drains.
52	Lunn, Richard	Design for a Loving Cup and Cover.
2	Lyon, Société Générale pour la Fabrication et la Vente des Pâtes alimentaires de Lyon ( <i>France</i> ).	Italian Paste, Maccaroni, &c.
33	Lyon, Washington.	High Pressure Steam Disinfecter.
21	McCallum, J. B.	Water Waste Preventive Cistern and Valves.
36	McCarthy, Rev. E. F. M.	Model of a School Cloak Room.
52	Macclesfield School of Art	Work in Connection with Local Industries.







SILVER MEDALS — *continued.*

CLASS.	NAME.	EXHIBIT.
52	Murray, Charles . . .	Etching.
40	Narjoux, Félix ( <i>France</i> ).	Works on School Architecture.
13	Neff, T. ( <i>Switzerland</i> ) .	Embroidery.
1	Neighbour, George, & Sons	Comb Honey. Appliances in connection with Bee Industry and Glazed Hives showing the Bees at Work.
24	Neilson, W., & Co. . .	Ranges.
23	New Carbolic Sanitary Company	Disinfectants.
24	Newton, Chambers & Co., Limited.	Cooking Range.
23	Neuilly, Société de Construction des Ateliers de ( <i>France</i> )	Iron Shed.
47	" " "	School Furniture.
48	North of England School Furnishing Company, Limited.	Single and other Desks.
50	Nottingham, University College	Apparatus for Technical Education.
51	Ormerod, Miss Eleanor A.	Diagrams of Insects issued by Royal Agricultural Society, and "Manual and Guide."
13	Osterode Flannel Company.	Hygienic Flannel.
13	Otsuka, T. ( <i>Japan</i> ) . .	Boots and Shoes.
22	Ough, Henry . . .	Stanford's Patent Joint to Conduits.
12	Ovens, William & Thomas	Sausage Meat Cutting Machines.
23	Overbury, Henry . . .	Disinfectants.
23	Owen, Henry, & Co. . .	Croydon Flush-out Closet
21	Owen, Samuel . . .	Bib and Stop Cocks with Twin Screw.
38	Paget, Charles E. . .	Models showing Details of Construction in Buildings Erected for Infectious Sickness.
(50, 52, & 53)	Paris Ecole Normale de Travail Manual (M. Salicis) ( <i>France</i> ).	Work by the Students.
54	" Société des Ateliers des Aveugles ( <i>France</i> ).	Brushes, Feather-Dusters, &c., made by the Adult Blind.
23	Parker, John. . . .	Earth Closets.
21	Parkinson, W., & Co. .	Water Meter.
19	Patent Automatic Knitting Machine Company, Limited.	Portable Circular Knitting Machine.
28	Patent Victoria Stone Company.	Artificial Stone Paving.
47	Pattison, Miss . . .	Practical Teaching.
52	Patronage des Enfants de l'Ébénisterie ( <i>France</i> ).	Carved Frame.
52	Pearce, A. E. . . .	Drawing from Life and Designs.



SILVER MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
52	Pearse, Alfred . . .	Newspaper and Illustrations.
20	Pearse, Robert, & Co. . .	Wrought Iron Casements and Fastenings.
11	Peek, Frean & Co. . .	Air-tight Biscuit Box.
24	Perkins, A. M., & Son . .	Steam Ovens for Bakeries.
6	Perkins, B., & Son . .	Seamless Steel Saucepans.
31	" " . .	Steel and other Baths.
4	Persson & Cronzell (Sweden)	Liqueurs.
1	Pétroff, A. A. (Russia) . .	Russian Flour.
24	Petter, James . . .	"Nautilus" Grate.
12	Pfleiderer, Paul . . .	Kneading and Mixing Machinery.
39	Piggott Brothers . . .	Gymnastic Apparatus.
26	Pilsen Joel Electric Light Company.	General Electric Lighting Plant for the Arc and Incandescence Systems.
2	Pink, Edward, & Sons . .	Jams, Marmalades, &c.
12	" " " . .	Jam Making Machinery.
30	Piqué et Dessart (France)	Leather Chairs and Fauteuils.
52	Piron, J. J. (Brothers of the Christian Schools) (Belgium).	Wire Models for Teaching Solid Geo- metry.
48	Pitman, Isaac . . .	Illustrations of System of Shorthand.
21	Pocock, Alfred Wilmer . .	Water Meter.
13	Pocock Brothers . . .	Hygienic Boots and Shoes.
53	Podany, F. M. (Austria- Hungary).	Collections of Sections of European Woods.
33	Porter, John H. . . .	Porter-Clark Water Softening Process, and Application of the Filter Press to this Purpose.
4	Potin Vve. Félix (France)	Liqueurs.
2	Pott, R. & N. . . .	Improvements in the Manufacture of Vinegar.
24	Potter, T. G. . . .	Oil or Spirit Kitchener.
24	Potter, Thomas, & Sons . .	Thermo-Hydric Stoves.
3	Poulton & Noel . . .	Preserved English Provisions.
52	Poynton, H. . . .	Design for Wrought-Iron Gates, Bur- lington House.
9	Prevet, C., & Co. . . .	Army and Navy Rations.
48	Prevost Orphanage, Oise (France) . . .	Scholars' Work.
31	Price's Patent Candle Company, Limited.	Household Soaps.
45	Primrose & Co. . . .	Specimens of Dry Glazing for Mills, &c.
21	Pringle, Robert, M.D. . .	Cisterns and Drinking Trough.
30	Procter & Co. (India) . .	Native Handicrafts, Wares, &c.
35	Proust (France) . . .	Photographs and Plans of the Communal College, Fontainebleau.
34	Quétin, E. (Belgium) . .	Plans and Photographs of Schools. School Furniture, &c.
28	Quirk, Barton & Co. . .	Sanitary Lead Piping, affording Abso- lute Security from Danger of Lead- poisoning in Conveying Liquids.



SILVER MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
47	Ract et Falquet ( <i>France</i> )	Materials and Apparatus for Infant Schools.
21	Ramsey, William . . .	Glass Cisterns and other Glass Ware.
52	Randall, W. F. . . .	Designs for Plate.
24	Reck, A. B. ( <i>Denmark</i> ) .	Heating and Ventilating Stove.
52	Reeks, Miss M. E. . . .	Bellows Carved in Italian Walnut Wood.
48	Regrain, A. ( <i>France</i> ) . .	School Museum.
(50 to 53)	Reutlingen, Frauenarbeits- schule, Wurtemberg ( <i>Germany</i> ).	Educational Exhibit.
40	Riant, Dr. A. ( <i>France</i> ) . .	Works on Hygiene in Schools.
23	Rimmel, E. . . . .	Disinfectants
52	Roberts, Charles . . . .	Wood Engraving.
21	Roberts, Charles Gay . . .	Automatic Rain Water Separators.
23	Rogiers & Mothes ( <i>France</i> )	Closets, Sink Traps, &c.
27	Rose, William, & Co. . . .	Fire Extinguishers.
30	Rosel, F. R. ( <i>Belgium</i> ) . .	Hand Carving applied to Cabinet Work.
19	Rothwell, William . . . .	Knitting Machines, especially Steam- power Flat Web-Knitting-Machine and Seaming Machine.
12	Royle, John J. . . . .	Patent Reducing Valve, Patent Syphonia Steam Trap, and Patent Universal Unions.
21	" " . . . . .	Union Joints.
"	" " . . . . .	Swivel Unions.
2	Russ-Suchard & Co. ( <i>Switzerland</i> ).	Chocolate.
15	Russian Fur Company . . .	Furs.
26	Sale, Frank T. . . . .	Mineral Oil Lamps.
34	Salleron ( <i>France</i> ) . . . .	Plan of the Training College at Auteuil.
2	San José Fruit Packing Company ( <i>United States</i> <i>of America</i> ).	Tinned and Bottled Fruits and Honey.
29	Scarborough Mosaic Floor Cloth Company.	Well-fixed Colours.
42	Schaffer & Budenberg . . .	Steam Pressure, Hydraulic and Vacuum Gauges, &c.
4	Schmidt et Cie., Condom ( <i>France</i> ).	Liqueurs.
13	Schmitter, Oscar Rothrist ( <i>Switzerland</i> )	Hygienic Crape Underclothing.
3	Schmoele & Co. ( <i>Belgium</i> ) School. See under re- spective towns.	Liquid Extract of Meat.
13	Schoonjans, Épouse ( <i>Bel- gium</i> ).	Corsets.
	Schwyz, Distillerie d'Eau de Cerises de ( <i>Switzer- land</i> ). See Distillerie.	
29	Scollick, A. J., & Co. . . .	Patent Mastic.



SILVER MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
33	Seagrave, G. . . . .	Stewart's Pressure Blower.
19	Self-acting Sewing Machine Company, Limited	Spiral Spring for Sewing Machines, to be wound up by hand.
4	Senez-Sturbelle ( <i>Belgium</i> )	General Exhibit.
34	Serrure, E. C. ( <i>Belgium</i> ) .	Designs for Schools.
22	Sharp & Co. . . . .	Flanged Joint for Lead Pipe.
22	Sharp, Henry, Jones & Co.	Glazed Socket Pipes and Rock Concrete Tubes.
52	Sheffield School of Art .	Work in connection with Local Industries.
12	Siam, Government of .	Collection of Utensils.
(13-17A)	" " .	Dress Fabrics.
11	Siebe, Gorman & Co. .	Meat Freezing Machine, &c.
29	Silicate Zopissa Composition & Granitic Paint Company.	Silicate Zopissa Composition and Granitic Paint.
21	Silicated Carbon Filter Company.	Silicated Carbon Filter.
14	Silver, S. W., & Co. .	Indiarubber Goods.
48	Simon, H., & Co. ( <i>Germany</i> )	Desks.
33	Simpson, James, & Co. .	Horizontal Spindle Centrifugal Pump.
27	Sinclair, James (104 Leadenhall Street, E.C.)	Dick's Extincteur.
14	Slazenger & Sons .	Tailor-made Waterproof Garments.
52	Slocombe, Fredk. A. .	Etchings.
22	Smeaton, John .	Plumber's Work.
30	Smee, William A. & S. .	Bedroom Fittings.
20	Smith & Turner .	Hexagonal Adjusting-Pin Door Springs.
24	Smiths, James .	Smokeless Grate.
1	Spalding, Robert B. .	Specimens of Stuffed Poultry.
39	Spencer, George .	Gymnastic Apparatus.
21	Spongy Iron Domestic Filter Company.	Domestic Spongy Iron Filters.
5	Squire & Sons .	Infants' Food and Malt Extract.
24	Steel & Garland .	"Wharncliffe" Ventilating Grate.
2	Stembridge, C., & Co. ( <i>India</i> )	Indian Food Products.
39	Stempel, Adolf A. .	Portable Gymnastic Apparatus, &c.
24	Stephenson, W. H., M.D.	Gas Heating Water Coils.
4	Stibbe, Hermann ( <i>Germany</i> )	Liqueurs.
21	Stidder, J. C., & Co. .	Bath Fittings
23	" " " .	Urinal.
22	Stiff, James, & Sons .	Weaver's Trap.
"	" " " .	Drain Pipes.
28	" " " .	Damp-proof Wall Bricks.
52	Stoke-on-Trent School of Art	Work in Connection with Local Industries.
33	Stopes, H., & Co. .	Apparatus for Cooling and Moistening Air.
24	Sugg, W., & Co., Limited	Gas Kitchener, &c.
1	Sutton & Sons .	Models of Vegetables, Seeds, Grasses, &c.
2	Sutton, G. F., & Co. .	Preparation of Herbs for Fruit Essence.



SILVER MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
5 3 4	Swiss Milk Company . Sydney Meat Preserving Company, Limited. Symons, John, & Co. .	Unsweetened Condensed Milk. Preserved Beef and Mutton. Apple Must and Cider.
27 1	Tabouet et Cie. ( <i>France</i> ). Tallerman, D.	Fire Extincteur. Fresh Mutton and Beef from Australia and New Zealand.
45 31 A & B	Thomas, Evan . . Tibshelf Colliery Centre of the St John Ambu- lance Association.	Safety Lamps. Coal Tub for the conveyance to the surface of Men injured underground.
52 49	Tinworth, G. . . Tokio, Female Normal School ( <i>Japan</i> ).	Terra Cotta Group. System of Teaching Fractions.
2	Tokio, Sho-yu Company ( <i>Japan</i> ).	Soy.
20	Tollet, Société Nouvelle de Construction, Système Tollet ( <i>France</i> ).	System of Hospital Construction.
52	Tonks, J. W. . .	Designs of Mayor's Chains of Office of various Corporations.
30 28 51 51	Tooth & Ault . . Towers & Williamson . Townson & Mercer. . Tramond ( <i>France</i> ) . .	Artistic Pottery. Adamantine Clinkers. Chemical Apparatus, &c. Objects for Teaching Natural History in Training Colleges.
25	Trélat, Émile ( <i>France</i> ) .	Method of Warming and Ventilating Schools and large Buildings.
26 4	Trotter, A. P. . . Tulloch, W., & Son . .	Lanterns for Distribution of Arc Lights. Cocoa.
21 23	Tylor, J., & Sons . . " " . .	Full Water Way Valves. Terry's Pedal Action Closet.
21	Ullathorne, Granville Sharp.	Water Waste Preventer.
29	United Asbestos Co., Limited.	Fireproof Paint.
30	" " "	Application of Asbestos in Fire-Protect- ing Paints, Clothes, &c.
52	Van den Broeck, P. L. (Brothers of the Chris- tian Schools) ( <i>Bel- gium</i> ).	Educational Exhibit.
4	Vanderschrick Frères ( <i>Belgium</i> ).	Liqueurs.
24 (50, 51, & 53)	Van Hoecke, T. ( <i>Belgium</i> ) Van Marken, J. C., Delft Yeast Factory ( <i>Holland</i> )	Hot Water Apparatus. Models and Diagrams, and Results of Work done by Pupils of the School of the Factory.



SILVER MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
21	Van Praag, Alexander, & Son.	Carbon Block Syphon Filter.
4	Van Ryn, J. ( <i>Cape Town</i> )	Wines.
26	Varley, F. H. . . .	Special Preparation of Carbon for all Electrical Purposes.
29	Verbeucken, H. ( <i>Belgium</i> )	Imitation Gobelin Tapestry.
4	Vitali, E. ( <i>Italy</i> ) . . .	General Exhibit of Wines and Liqueurs.
11	Von Heyden, Dr. F. ( <i>Germany</i> ).	Salicylic Acid
30	Wahliss, Ernst ( <i>Austria-Hungary</i> ).	Artistic China and Pottery for Domestic Use.
19	Walker, Matthew . . .	Straw Hat Sewing Machine.
52	Ward, James . . . .	Design for Damask Table Cloth.
31 A & B	Ward, John . . . .	Ambulance Exhibit.
21	Warner, John, & Sons . .	Bib and Stop Cocks.
"	" " "	Windmill Pumping Engine.
23	" " "	Invalid's Closet.
14	Warnerising Company, Limited.	Process of rendering Fabrics Water-repellent.
42	Warwick, James . . .	Arrangement for Converting Rotary into Oscillating Motion.
52	Watkins, John . . . .	Design for Art Workmanship.
33	Waygood, R., & Co. . .	Hand and Power Lifts, especially Safety Handles for Hand Power Lifts, and Self-sustaining Brake.
1	Webb, E., & Sons . . .	General Exhibit. Seeds, Cereals, and Grasses.
20	Weber, C. F. ( <i>Germany</i> ).	Economical Waterproof Roofing.
20	Webster's Patent Aluminium Metal Company.	Aluminium Metal.
21	" " " "	Metal for Water and Sanitary Fittings.
24	Weighorst, W. A. F., & Sons ( <i>Germany</i> ).	Steam Baking Oven.
4	Weinlaube ( <i>Austria-Hungary</i> ).	Wine.
12	Welford & Sons, Limited.	Collection of Dairy Machinery.
21	West Central Sanitary Engineering Company.	Water Waste Preventive Cisterns.
"	" " "	Bath Fittings.
"	" " "	Bib and Stop Cocks.
23	" " "	Commodore.
31	" " "	Baths.
	Weston & Westall (Corbett's Worcester Salt). See J. Corbett, M.P.	
1	Wheeler, J. C., & Son . .	Collection of Grasses and Grass Seeds.
38	White, William, F.S.A., 30A, Wimpole Street	Plan of Winchester College Sanatorium.
22	Wilcock & Co. . . .	Trough Closet.
"	" " . . . .	Automatic Syphon Flushing Tank.



SILVER MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
30	Willesden Waterproof Paper and Canvas Works, Limited.	Materials Impervious to Wet.
31	Williamson, W., & Co. .	Washing and Wringing Machines.
2	Wills, W. D. & H. O. .	Tobacco and Cigarettes.
24	Wilson Engineering Company.	Range.
52	Wilson, T. Walter . .	Design for Enamelled and Jewelled Necklace.
48	Windels, D. ( <i>Belgium</i> ) .	School Furniture and Models of Animals.
30	Woerffel, C. F. ( <i>Russia</i> ) .	Ornaments in Bronze, Jasper, Jade, &c.
31	Woolley, James, Sons & Co.	Sanitary Rose Toilet Powder.
30	Yates & Co. . . .	Axminster Carpet.
30	Yates, Haywood & Co. .	Cast Iron Chimney Pieces.
2	Yeatman & Co. . . .	Yeast and Custard Powders.



## BRONZE MEDALS.

CLASS.	NAME.	EXHIBIT.
52	Adam, Peter . . .	Designs for Mecca Rugs.
42	Adams, Robert . . .	Cord and Rope Holder, &c.
52	Adamson, William . . .	Shaded Drawing of Valves.
2	Aikman, A. . . . .	Oatmeals, Barleys, &c.
42	Aland, Henry, & Son . . .	Ventilating Fans.
31	Albert Laundry Blue Manufacturing Company	Laundry Blue.
26	Albo-Carbon Light Com- pany, Limited.	Gas Lighting Apparatus.
20	Allen, E. . . . .	Improved Construction of Cottage.
2	Allen, F., & Sons . . .	Sweetmeats.
31 A & B	Allen, Thomas . . . .	Ambulance Exhibit.
52	Almquist, Carl . . . .	Design for Stained Glass Window.
21	Anderson, R., & Co. . .	Bib and Stop Cocks.
22	Angell, A. T. . . . .	Air-tight Covers.
12	Anglo-American Tin Stamping Company.	Enamelled Goods.
33	Ashworth Bros. . . . .	Wringing Machine.
22	Atmospheric Cowl Com- pany.	Ventilator for Drains.
19	Aublet, Harry, & Co. . .	Endless Cloth Cutting Knife, and Brazing Fire.
23	Austin Antiseptic Company	Disinfecting Vessel.
31 A & B	Bacon, Miss Charlotte C. .	Improved Mattress.
27	Bailey, H. T. . . . .	Fire Escape.
21	Bailey & Co. . . . .	Domestic Water Filter.
22	" . . . . .	Traps.
23	Baker, J. M. B. . . . .	Water Closet Disinfecter.
24	Baker, Joseph, & Sons . .	Dunton Knoll Oven.
"	" . . . . .	Continuous Oven.
1	Baldwin, J. . . . .	Beehives and Frames.
22	Banner Brothers & Co. . .	Inspection Opening with Bayonet Joint.
4	Barabeaux Père et Fils (France.)	Liqueurs.
33	Barford & Perkins . . .	Steam Cooking Apparatus.
52	Barker, Miss Clara S. . .	Design for Salt Glaze Bottle.
5	Barker, Thos. . . . .	Invalid's Food.
30	Barnard, Bishop & Barnard	Carved Wood Mantel Pieces.
21	Barnett & Foster . . . .	Filtering Apparatus.
"	" . . . . .	American Bar Fittings.
2	Bastiani, J. (Singapore) .	Preserved Pine Apples.
51	Batchelor, H. & T. C. . .	Moving Models of Machinery.
23	Bateman, William H. . .	Disinfectants.
45	" . . . . .	Tinning and Soldering Preparation.



## BRONZE MEDALS—continued.

CLASS.	NAME.	EXHIBIT.
52	Bathgate, G. . . .	Drawing from the Antique.
22	Batten, William . . .	Manhole Cover, gully-traps, and Grating.
1	Beales, Alfred . . .	Stuffed Specimens of Domestic Poultry.
52	Beaupré, C. . . .	Specimens of Wall and Dado Decorations in Lincrusta Walton.
13	Beck, Miss Louisa . . .	Hygienic Dress.
21	Beck & Co. . . .	Water Waste Preventer Cistern.
"	" " . . .	Pumps for Domestic Use.
"	" " . . .	Bib and Stop Cocks.
21	Bell, John . . . .	Asbestos for Filters and Packing.
3	Bellis, Thomas K. . .	Turtle Soup.
48	Bemrose & Sons . . .	School Registers and Literary Appliances.
21	Benham & Sons . . .	Bath Fittings.
31	" " . . .	Baths.
12	Bertram, Leopold B. . .	Patent Colander Saucepan.
12	Beynon & Cox . . .	Gas Baking Oven.
24	" " . . .	Domestic Baking Oven.
"	" " . . .	Range.
26	Bickerdike, Geo. . . .	Self-Acting Gas Regulator.
2	Billette ( <i>France</i> ) . . .	Preserved Coffee and Sugar in packets.
9	" " . . .	Cartridge Rations.
23	Billing, J. J., M.D. . .	Disinfectants.
31 A & B	Billington Brothers . .	Ambulance Exhibit.
24	Bingham, E. . . .	Harlesden Non-ventilating Grate.
22	Bird, Frederick, & Co. .	Ventilators for Drains.
17	Birt, J. & A. W. . . .	Life Saving Apparatus.
4	Bisquit, Dubouché, et Cie. ( <i>France</i> ).	Liqueurs.
13	Blinkhorn, Edward . .	Stocking Suspenders.
21	Blundell, G. T., & Co. .	Duplex Pump.
33	" " " . . .	Double-acting Pump with Multiple Pistons.
48	Boghandel, Mallings . .	Diagrams and other Educational Appliances.
2	Bolanachi . . . .	"Ceratonía" Chocolate.
21	Bolding, John, & Sons . .	Water Waste Preventer Cistern.
22	" " " . . .	Fittings for Lavatories.
23	" " " . . .	Alliance Valveless Wash-out Closet.
2	Bolland & Sons . . .	Wedding Cakes.
48	Bonnard, P. ( <i>France</i> ) . .	New method of Teaching Music.
5	Bonthron, J. . . .	Diabetic Bread, Biscuits, and Flour.
21	Boston Filter Company . .	Domestic Water Filters.
20	Bothams, John C., M.I.C.E. .	Improved Louvre Brick Chimney Top.
22	Botting, Francis . . .	Air-tight Cover.
43	Bougard, A. ( <i>Belgium</i> ) . .	Glasses for Safety Lamps.
4	Bouvier Frères ( <i>Switzerland</i> ) (McCracken, J. & R.)	Champagne.
2	Bowden, W. ( <i>India</i> ) . .	Chutneys and Curries.
4	" " " . . .	Messrs. Stanes & Co.'s Teas and Coffees.
26	Bower . . . .	Grimston Gas Burner.
12	Boyes, Ebenezer . . .	Syphon Coffee Urn.



BRONZE MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
52	Bradburn, J.. . .	Designs for a Brussels Carpet and Candlesticks.
22	Bradford, T., & Co. . .	Drainage of Dairy.
23	" " . . .	Disinfecting Apparatus.
52	Bratt, J. . . .	Pair of Vases.
13	Brenier ( <i>France</i> ) . . .	Tortoise Shell Brushes.
31	" " . . .	Brushes.
33	Britannia Company . . .	Screw-cutting and Slide-rest Lathes.
4	British and Foreign Mineral Water Company	Aërated Beverages.
23	British Patent Perforated Paper Company, Limited	Paper for Sanitary Purposes.
11	British Syphon Manufacturing Company.	Syphons & Seltzogenes.
51	Brocas, Frederick Yorke .	Botanical Collection, &c.
21	Brooke, Edward, & Sons .	Fireclay Cisterns.
24	Brown & Green . . .	Luton Grate.
52	Brucciani, D., & Co. . .	Casts for Use in Art Schools.
25	Buchan, Wm. P. . . .	Ventilating Cowl.
13	Burgess, C. O. . . .	Boots and Shoes.
4	Buswell, C., & Co. . . .	"Tom Moore" Irish Whiskey.
52	Butler, F. . . . .	Design for Stone Ware Vase.
52	Butterton, Miss M. . . .	Designs for Painted Wall Tiles.
Designs	Byrne, P. J., & Wilmot .	Artisans' Dwellings.
30	Campbell, Smith & Co. . .	Stained Glass Windows, &c.
2	Candeil, Ch. ( <i>Belgium</i> ). .	Sweetmeats.
22	Candy & Co. . . . .	Earthenware Gully with Silt Trap.
"	" " . . . . .	Sewer and Drain Pipes.
21	Capper, Son, & Co. . . .	Bib and Stop Cock.
52	Capes, Miss Mary . . . .	Design for Green Vase.
13	Carter, J. S. . . . .	Tourists' Dresses.
51	Cetti, E. ( <i>France</i> ) . . . .	Apparatus for Science Instruction.
23	Chabanel et Brabant ( <i>France</i> ).	Appliance for the Emptying of Sewage on the Separating System.
52	Chambers, Micah . . . .	Designs for Carpets.
24	Chambers, Monnery, & Co.	Range.
28	" " " . . . . .	Galvanized Iron Wall-ties.
52	Chandler, Miss E. . . .	Vase in Champlevé Ware.
(50, 51, & 53)	Channon, John . . . .	Brick Finial and Working Drawings of the same.
3	Chapu, A. ( <i>France</i> ) . . . .	"Soupes Économiques."
2	Chase & Co. . . . .	American Tinned Meats, &c.
23	Chesebrough Manufacturing Company.	Disinfectants.
31	" " " " " . . . . .	Vaseline.
	Chevallot ( <i>France</i> ). See Delaunay, E., and Chevallot, B.	
52	Chisholm, D. . . . .	Carved Oak Frame.
31	Chiswick Soap Company .	Soap.
31 A & B.	Chorlton & Dugdale . . .	Hospital Bed and Invalid Bed.



BRONZE MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
3	Christensen, Charles, & Co. ( <i>Denmark</i> )	Cheese Rennet.
52	Christie, Miss . . .	Photographs and Other Objects for a School Museum.
31 B	Christoph & Unmack ( <i>Denmark</i> ).	Stretchers for Transport by Human Agency, as used in the Danish Army.
20	Clark, Bunnett & Co. . .	Lift Brake.
42	Clark, William . . .	Arrangements for withdrawing Dust from Grindstones.
48	Clarke & Shrapnel . . .	Imperishable Tiles for Educational Purposes.
Designs.	Clarke, Edward . . .	Artisans' Dwellings.
42	Clayton & Shuttleworth .	Guard for Revolving Drums.
33	Clements, Jeakes & Co. .	Reversing Washing Machine.
(50, 51, & 53)	Clerkenwell Technical Drawing School.	Drawings and Designs by Students.
22	Cliff, Joseph, & Son . . .	Dodd's Interceptor Trap.
30	" . . .	Decorative Faïence.
21	Clutterbuck, George . . .	Water Waste Preventer Cistern.
24	Coalbrookdale Company, Limited.	"Save all Waste" Grate.
4	Coates & Co.. . .	"Plymouth" Gin.
20	Conolly, Henry . . .	Lavatory Fittings.
21	" . . .	High and Low Pressure Valves.
"	" . . .	Water Waste Preventive Cistern.
22	" . . .	Flange Joint.
12	Constantine, T. J. . .	Self-acting Cooking Pot.
25	Cooper, H. W., & Co. . .	Window Ventilators.
2	Cope Brothers . . .	Cigarettes.
48	Corsan, J. R. . . .	Sand Blast Decorative Tablets for Schools.
52	Cracknell, Miss Ellen . .	Design for Claret Jug.
22	Craig, J. & M. . . .	Enamelled Sinks.
30	Craven, Dunnill & Co., Limited.	Decorative Tiles.
52	Cresty, Madame ( <i>France</i> )	Prize Cards.
13	Criscuolo, Paolo ( <i>Italy</i> ) .	Kid Gloves.
21	Crouch & Jay . . . .	Cisterns and Hot Water Cylinders.
22	Crosthwaite, R. W. . . .	Liverpool Trap.
30	Crystal Porcelain Pottery Company, Limited.	Vitreous Tiles.
51	Cussons, George . . . .	Apparatus to Teach and Illustrate the Science of Descriptive Geometry.
2	Czynski, Ludomir ( <i>Austria-Hungary</i> ).	Honey Cakes.
48	Daguerre, A. B. ( <i>France</i> )	Apparatus and Views for Luminous Projections.
21	Dale, R. F., & Co. . . .	Pumps.
31 A & B	Daniels, W. . . . .	Crutches.
38	Dastot, Dr. A. ( <i>Belgium</i> )	Scientific Works.
48	David, M. (Grosrouvre par Nouvant) ( <i>France</i> ).	Method of Teaching Geography.



BRONZE MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
21	David, M. (Paris) ( <i>France</i> )	Filter.
Designs	Davis & Emmanuel .	Workmen's Dwellings.
24	Davis, Edward, & Son .	Range.
24	Davis, H. & C., & Co. .	Gas Heating Stove.
21	Davis, Joseph, & Co. .	Water Testing Apparatus.
43	" " "	Respirators for Unhealthy Trades, and Spectacles.
52	Davis, Louis .	Portion of Decorative Screen.
1	Davis, R. W. .	Bee Hives.
22	Dean, Henry .	Gullies and Traps.
24	Deards, W. & S. .	Coil Grate.
4	De Beukelaer, F. ( <i>Belgium</i> )	Antwerp Elixir.
11	Delaunay, E., and Chevalot, B. ( <i>France</i> .)	Filtres Chevallot.
	Delft Yeast Factory ( <i>Holland</i> ) See Van Marken, J. C.	
52	Denley, Miss M. .	Design for China Plaque.
21	Dent & Hellyer .	Non-percussive Lift Valve for Lavatory.
"	" " .	Water Waste Preventive Cistern.
21	Deverill, John, Junr. .	Irrigator.
26	Devine & Co. .	Gas Governor.
52	Dewson, Thomas .	Furniture.
52	Dickeson, Miss A. .	Designs for Lace.
31 A & B	Dickinson, William .	Invalid Bedstead and Bed.
52	Dierckx, J. ( <i>Belgium</i> ) .	Method of Teaching Writing.
30	Diespeker & Co. .	Mosaics.
52	Dodd, C. .	Design for Silver Cup.
4	Doucet ( <i>France</i> ) .	Liqueurs.
27	Douglas, William, & Co. .	Hand Pump for Extinguishing Fires.
21	Doulton & Co. .	Double Barrel High Pressure Filter.
"	" " .	Incorrodible Pump.
22	" " .	Telescopic Joint for Drain Pipes.
"	" " .	Stoneware Sinks.
52	Drake, G. E. .	Silk Furniture Coverings.
7	Droitwich Salt Company	Salt.
26	Drury, Robert F. .	Gas Governor (Lyon's).
4	Dublin Whiskey Distillery Company.	Whiskey.
52	Duffield, John R. .	Pair of Vases, Cloisonné Enamel.
Designs.	Dujardin, A. ( <i>Belgium</i> ) .	Continental Hotel.
13	Dunkley, Henry .	Boots and Shoes.
22	Dyer, Frederick .	Air-tight Manhole Cover.
11	Edmunds, James .	"Ne Plus Ultra Feeding Bottle.
20	Edwards, George .	Sash Fittings and Fastenings.
48	Edwards, H. & G. .	Specimens for Object Lessons.
2	Eleshejeff, F. ( <i>Russia</i> ) .	Fancy Sweets and Preserved Fruits.
28	Ellis, Joseph J. .	Leicester Bricks and Fire Clay Ware.
22	Ellison, James Edward .	Ventilator for Drains.
21	Emanuel, A., & Sons .	Water Waste Preventive Cistern.
23	" " "	Colonial Valveless Wash-out Closet.



BRONZE MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
35	Esperon-Morin ( <i>France</i> ) .	Stove for Schools.
12	Etzenberger, R., & Co. .	Tea and Coffee Making Machinery.
31	Ewart & Son . . .	Baths.
4	Express Dairy Company, Limited.	Milk Champagne.
30	Eyre, J. . . . .	Designs for Painted Tile-work.
52	Facer, Jabez . . . .	Cut Glass Bowl, Russian Design.
26	Faraday & Sons . . .	Electric Light Fittings for Incandescence System.
(13-17A)	Farcy & Oppenheim ( <i>France</i> ).	Corsets.
21	Farmiloe, Thomas & William.	Bib and Stop Cocks.
21	Farmiloe, George, & Sons	Bib and Stop Cocks.
"	" " " "	Water Waste Preventive Cistern.
22	Farnley Iron Company .	Gullies.
28	" " " "	Ornamental Brick Work.
21	Farnworth, John K. . .	Apparatus for Boiling Water.
21	Farquhar Oldham Filter Company, Limited.	Filtering Apparatus.
43	Feigelstok, E. ( <i>Austria Hungary</i> ).	Spectacles, Eye Glasses, &c.
52	Fellows, H. . . . .	Claret Jug Mounting.
52	Fidler, J. B. . . . .	Brown Vase.
31	Finch, B., & Co. . . .	Lavatories for Schools and Workhouses.
23	Fischer et Cie. ( <i>France</i> ) .	Disinfectants.
45	Fitton, Edward B. . . .	Movable Shop Seats, &c.
13	Fitz-Gerald, Miss Frances	Knitted Articles.
11	Fleming, G. . . . .	Air-tight and Lock Corks.
52	Folliott, W. . . . .	Design for Damasked Silk Hangings.
2	Fortt, James . . . . .	Bath Oliver Biscuits.
2	Fosna Preserving Company ( <i>Norway</i> ).	General Exhibit.
17A	Foster, James . . . .	Knitted Hosiery.
2	Fourcade ( <i>France</i> ) . . .	Tapioca, &c.
30	Fox, T., & Co. . . . .	Lacewood and Satinwood Furniture.
26	Frost, A. J. . . . .	Electric Clocks.
22	Frost, J. R. . . . .	Model of a House showing Sanitary Arrangements.
Designs	Fumière, Th. ( <i>Belgium</i> ) .	Workmen's Dwellings at Verviers.
23	" " " "	Latrines.
31	Gabriel, Z. ( <i>Belgium</i> ) .	Brushes.
47	Gallet, Mme. Guillaume ( <i>Belgium</i> ) .	Kindergarten Work and Toys.
12	Galloway, James . . . .	Machinery employed in Manufacture of Aërated Waters, especially a Bottling Machine.
47	Garcet et Nisius ( <i>France</i> )	"Froebel's Counter," for Kindergarten.
2	Garofalo ( <i>Italy</i> ) . . . .	Italian Pastes.
30	Garrard, F. . . . .	Frames of Decorative Wall Tiling.
29	Gay, R. & Co. . . . .	Enamel Paint.



BRONZE MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
9	Geneste et Herrscher ( <i>France</i> ).	Ovens for Campaign Use.
13	Genty, Madame Eugénie ( <i>France</i> )	Corsets.
52	Gibbons, Owen . . .	Vase and Decorative Panels.
23	Gibbs, D. & W. . . .	Disinfectants.
(50, 51, & 53)	Gilkes, Gilbert & Co. . .	Models of Machine.
24	Godefroy, Dr. ( <i>France</i> ) . .	Portable Hot Air Stove.
16	Goodman, J. T. W. . . .	Ladies' Cycling Costume.
26	Goodson, J. & W., & Co.	Gas Governor.
31	Gosnell, John & Co. . . .	Hair Brushes.
2	Grant, John . . . . .	Scotch Pearl and Pot Barleys.
31	Greenall, John . . . . .	Steam Washer.
23	Greenbank Alkali Works Company	Disinfectants.
21	Gregory, Thomas . . . .	Water Waste Preventive Cistern.
24	Greven, Hendrik ( <i>Italy</i> ).	Stove and Artificial Fuel.
26	Grey, Samuel . . . . .	Gas-Meter Index.
12	Groom & Co. . . . .	Patent Potato Steamer.
22	Guinier ( <i>France</i> ) . . . .	Automatic Flushing Apparatus.
2	Guli, Cav. Salvatore di Filippo ( <i>Italy</i> )	General Exhibit.
31	Hall, John, & Co. . . . .	Enamelled Porcelain Bath.
29	Hall, Thomas . . . . .	Enamel for Fixing Colours.
13	Hall, William . . . . .	Boots and Shoes.
21	Halliday, J. . . . .	Three-Way-Cock for Filters.
52	Hammond, Edward . . . .	Designs for Stained Glass Windows.
52	Hammond, Miss C. M. D.	Study in Chalk from Life.
12	Hancock, F. & C. . . . .	Cooking Stoves, Kitchen Machines, &c.
30	Hanke, Reinhold ( <i>Ger- many</i> )	Design of Jars.
3	Hansen, Chr. ( <i>Denmark</i> )	Cheese Rennet.
52	Hardy, W. . . . .	Design for Lace Curtain.
45	Hare, Charles . . . . .	Shoemaker's Last.
29	Hare, John & Co. . . . .	Non-poisonous Distemper Colours.
31	Hargreaves Brothers & Co.	Sanitas Blue.
13	Harris, Mrs. M. Penley . .	Infants' Underclothing.
51	Harvey & Peak . . . . .	Apparatus and Instruments for Teach- ing Science and Natural History.
48	Hawes, George E. . . . .	Desks.
22	Hayward Brothers & Eckstein.	Airtight Covers.
25	" "	Ventilators.
26	" "	Improved Pavement and Floor Lights.
21	Hayward, Tyler, & Co. . .	Ball Cocks.
"	" " "	Waste Water Preventive Cistern.
"	" " "	Pumps for Domestic Use.
"	" " "	High Pressure Filtering Apparatus.
30	Heal & Son . . . . .	Furniture.
26	Hedges, Killingsworth . .	Electric Light Fittings.
26	Henley Telegraph Works Company	Electric Light Cables, Mains, Leads, &c.



BRONZE MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
52	Henney, G. . . . .	Design for Iron Work.
42	Henrard ( <i>Belgium</i> ) . . . . .	Apparatus for Condensation of Noxious Fumes.
19	Herber-Bary ( <i>Belgium</i> ) . . . . .	Machinery for the Manufacture of Silk Buttons and Metal Studs.
26	Heron, Thomas . . . . .	Gas Burners, &c.
21	Herring & Son . . . . .	Pumping Engine for Horse Power.
33	" " . . . . .	Combined Cooking and Warming Apparatus.
4	Hewetson, H. & Co. (Ceylon Company, Limited)	Ceylon Company's Teas.
(50, 51, & 53)	Heywood, John . . . . .	Laboratory Bench.
31	Highbury Machine Company.	Steam Washer.
52	Hill, W. . . . .	Cameo Cut Glass Vase.
7	Hilmer, Otto ( <i>Germany</i> ) . . . . .	Egg Tester.
52	Hitchens, Alfred . . . . .	Studies from Life in Oil.
52	Hollis, Benjamin . . . . .	Cameo Cutting.
39	Holm, John F.R.C.S. . . . .	Models of Gymnasiums on Ling's Swedish System, with Diagrams and Literature.
2	Holmes & Coutts ( <i>United States of America</i> ) . . . . .	"Sea Foam" Wafers.
13	Honiton Lace Making Company.	Honiton Lace.
Designs.	Hooker & Hemings . . . . .	Labourers' Cottages.
39	Horn, T. S. . . . .	Patent Improved Regulating Digitorium.
20	Horne, Andrew . . . . .	Safety Window Sashes.
22	Houghton & Co. . . . .	Plumbing Work.
16	Howell, James & Co. . . . .	Ladies' Hunting Dress.
22	Howie, J. & R. . . . .	Enamelled Cisterns, Pipes and Traps.
20	Humphreys, J. C. . . . .	Corrugated Iron and Wood-lined School-room and Residence.
4	Hutchinson & Co. . . . .	Ceylon Tea.
21	Hygienic & Sanitary Engineering Co.	Ferrules and Stop Cocks.
22	Imperial Stone Company.	Concrete Sinks.
22	Ingham, W., & Sons . . . . .	Interceptors.
2	Inman, Alfred ( <i>India</i> ) . . . . .	Indian Condiments and Food.
15	International Fur Store . . . . .	Furs.
26	Irish, Symons & Co. . . . .	Gas Purifying Compounds, &c.
21	Isler, C., & Co. . . . .	Tube Wells.
4	Jacobs, G. ( <i>Belgium</i> ) . . . . .	Liqueurs.
24	Jaffrey's Patent Grate Co.	Grates.
52	Jarrett, Edwin . . . . .	Design for Roman Mosaic Floor.
(50, 51, & 53)	Jebb, Mrs. . . . .	Collective Exhibit of the Cottage Arts Association.
13	Jelstrup, E., & Co. ( <i>Denmark</i> ).	Leather Clothing.
22	Jennings, George . . . . .	Interceptor Trap.
28	Jennings, Thomas . . . . .	Hospital Flooring.
31 A & B	" " . . . . .	Disinfecting Apparatus.



BRONZE MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
26	Jensen, Webb, and Jensen	Electric Apparatus.
26	Johnson, Charles . . .	Mica Gas Burner Chimneys.
33	Johnson, S. H., & Co. . .	Carbon Paper Filter.
2	Jorio, Alfonso ( <i>Italy</i> ) . .	Maccaroni.
21	Jowett, Wm. M., & Co. . .	Domestic Water Filter.
52	Joyce, Miss M. . . . .	Design for Honiton Lace and for Lace Set.
12	Keith, James . . . . .	Hot Water Circulating Apparatus.
12	Kent, George . . . . .	Kitchen Utensils and Contrivances.
21	" " . . . . .	Domestic Water Filter.
26	" " . . . . .	Gas Carburetting Arrangements, &c.
22	Kershaw, A. W. . . . .	Ventilator for Drains.
38	Keyser, A. ( <i>Belgium</i> ) . .	System of Hygiene and Nursing, a Model of Boite de Secours.
22	King, H. . . . .	House Drain Construction.
52	King, Miss L. B. . . . .	Flower-study in Oil from Nature.
4	King, Robert . . . . .	Tea and Coffee.
45	Knowles, Andrew, & Sons, Limited	Owen's Patent Safety Cage for Miners.
22	Lamb, J. M., & Co. . . . .	Ventilator for Drains.
42	" " " . . . . .	Ventilating Fan.
13	Lanagan, Francis . . . . .	Hygienic Boots and Models, &c.
1	Lanceland, Wood & Co. . .	Incubators.
23	Langstaff, Charles, M.D. . .	Model of Disinfecting Oven and Bath-room.
52	Lawson, W. A. . . . .	Noil Silk Reversible Curtains.
46 A & B	Lecky, Robert J. . . . .	Sunshine Recorders.
3	Lees, Hendricks, & Co. ( <i>United States of America.</i> )	Compressed Corned Beef.
20	Leggott, W. & R. . . . .	Fan and Sky-light Openers.
21	Le Grand & Sutcliff . . . .	Pumps.
52	Leloir, M.A. ( <i>France</i> ) . . .	School Reward-Cards.
42	Libotte, N. ( <i>Belgium</i> ) . . .	Colliery Waggon, Mine Cage, &c.
13	Libron & Stiegler ( <i>France</i> ) .	Corsets.
47	Liétout, Madame ( <i>France</i> ) .	Instructive Games for Infant Schools.
42	Lindley, C., & Co. . . . .	Patent Belt Shippers.
29	Linoleum Manufacturing Company, Limited.	Floor Coverings with well Fixed Colours.
52	Lloyd, Miss Julianna . . . .	Design for Wall Decoration.
2	Lo Cicero, Tommaso, e Figli ( <i>Italy</i> ).	Sweetmeats.
(50 & 53)	London, National Home for Crippled Boys.	Specimens of Handicraft Work.
Designs	" National Model Dwellings Company . . . . .	Buildings.
(50 & 53)	" St. Mark's Technical and Drawing Classes for Coach Artisans.	Drawings.



BRONZE MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
22	London Sanitary Protection Association.	Diagram of House Drainage.
19	London and Leicester Hosiery Company Limited.	Griswold's Improved Circular Stocking Knitting and Lock-Stitch and Button-Hole Machines.
13	Lutwyche & Co. . . .	Ventilating Riding Boots.
23	Lyon, F. . . .	Disinfectants.
21	Machinery & Hardware Company, Limited.	Pumps for Domestic Use.
31	McDougall Brothers . . .	Hard and Soft Soaps.
26	McLennan & Owen . . .	Gas Governor.
(50, 51, & 53)	McNaught & Smith . . .	Scale Drawings of Carriages.
4	Maessen, H. J. ( <i>Holland</i> )	Hollands.
31	Maignen, P. A. . . .	Process for Softening Water.
28	Major, H. J., & Co. . . .	Roofing Tiles.
7	Malligand ( <i>France</i> ) . . .	Ebullioscopes.
54	Manchester, Institution for the Deaf and Dumb	School Exhibits.
24	Mappin & Webb . . . .	Abbotsford Grate.
2	Markó & Weyden ( <i>Austria-Hungary</i> ).	Preserved Prunes.
45	Marten, Edward B. . . .	Models and Photographs of Exploded Boilers.
30	Martin & Co. . . . .	Patent Carved Wood Decorations.
21	Martineau & Smith . . .	Bib and Stop Cocks.
2	Martin-Brey ( <i>France</i> ) . . .	Vermicelli, Maccaroni, &c.
48	Martinot, A. ( <i>Belgium</i> ) . .	Arithmometer.
12	Mason, William Frederick	Travelling Baking Plate, &c.
24	" " " " " "	"Two-Decker" Oven.
22	Masters, Henry . . . .	Bowl Heads for Drains.
4	Mattoni, Heinrich ( <i>Austria-Hungary</i> ).	Giesshübler Water.
1	Meek, E. G. . . . .	Stuffed Specimens of Wild Fowl and Game.
23	Meihe, J. R. . . . .	Disinfectants.
50	Melhuish & Sons . . . .	Apparatus for Handicraft Teaching.
13	Méliès ( <i>France</i> ) . . . .	Boots and Shoes.
5	Mellin, G. . . . .	Infants' Food.
2	Mercada, Crispo Carlo ( <i>Italy</i> ).	General Exhibit.
4	Merritt, T., & Co. . . .	"Glen Rosa" Whiskey.
22	Midland Rustless Iron Company.	Enamelled Iron.
45	Mignot, F. ( <i>Belgium</i> ) . .	Pressing, Ironing, and Folding Machine for Tailors.
52	Mitchell, Miss E. . . .	Design for a Plate.
Designs	Moerath, John N. . . .	Fire Proof and Earthquake Proof Houses.
30	Moon, Mrs. Washington .	Protecting-Canopy Cots.



BRONZE MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
52	Moore, George . . .	Chromo-Lithograph of Chinese Vase.
51	Moore, Brothers . . .	Osteological Collection.
25	Moore, Josiah, & Sons . . .	Window Ventilators.
2	Morrison, Wood & Co. . .	Jams, Marmalades, &c.
52	Morrow, A. G. . . .	Water Colour Study from Life.
52	Muckley, W. J. . . .	Christmas Cards.
52	Mulligan, W. A. . . .	Design for Silver Cup.
30	Nairn, M., & Co. . . .	Floorcloth and Linoleum.
30	Namikawa, S. ( <i>Japan</i> ) . . .	Porcelain.
3	Neighbour, George, & Sons . . .	Comb Honey.
20	Neuilly, Société de Construction des Ateliers de ( <i>France</i> ).	Floor Construction.
(50 & 53)	Newcastle Technical School	Drawings of Carriages.
30	Newman, Alfred . . .	Old English Forge.
2	Newson, W., & Co. . . .	Indian Condiments, Chutney, &c.
52	Nicholson, J. O. . . .	Silk Damasks.
30	Norchi & Co. ( <i>Italy</i> ) . . .	Italian Marble Sculpture.
28	Norman, R. & N. . . .	Red Bricks and Tiles.
15	Norman, S.W. . . .	Ventilating Boots.
22	North British Plumbing Company.	Cast Iron Pipes for House Drainage.
31	" . . .	Hip Bath.
52	Northwood, C. . . .	Two Cameo-Cut Vases.
13	Ogden, F., & Co. . . .	Improved Shape of Last.
30	Ogura, M. ( <i>Japan</i> ) . . .	Cotton Carpets.
26	Omega Gas Light Company.	Gas Carburetting Apparatus, &c.
26	Oppermann Brothers . . .	Electric Lighting Apparatus.
51	Osterloh, Paul . . .	Models of Food Parasites.
21	Oswald, W. R. . . .	Corrugated Metallic Jointing.
2	Ovens, William & Thomas . . .	Minced Meat.
22	Owen, Henry, & Co. . . .	Lavatory.
21	Owen, Samuel . . .	Water Waste Preventive Cistern.
31	" . . .	Bath.
52	Oxer, J. J. . . .	Designs for Jewellery.
22	Page, Edmund . . .	Grease Interceptor.
25	Papier ( <i>France</i> ) . . .	Ventilating Appliances.
4	Parker, John. . . .	Wines made from English Out-door Grapes.
30	Parker, Smith & Parker . . .	Furniture, &c.
52	Parker, W. . . .	Vase in Repoussé Stoneware.
28	Patent Durable Roofing Felt Company.	Durable Felt.
31	Patent Steam Washer and Laundry Company, Limited.	Steam Washer.
22	Patent Victoria Stone Company	Sinks of Victoria Stone.
31	Paton & Charles . . .	Soap.



BRONZE MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
(50, 51, & 53)	Patronage des Enfants de l'Ébénisterie ( <i>France</i> ).	Scholars' Work.
19	Pearson & Co. . . .	Machines for Cutting, Punching, Sewing and Ornamenting Leather.
31	" " . . .	Steam Washer.
26	Peigniet-Changeur et Cie. ( <i>France</i> ).	Petroleum Lamp.
20	Penny, William John . .	Double Action and Ventilating Sashes.
31 A & B	Personne, F. ( <i>Belgium</i> ) .	Beds and Chairs for Invalids and the Wounded.
39	Petit et Dumoutier ( <i>France</i> ) . . .	Apparatus for Teaching Swimming.
3	Petit-Pellieux ( <i>France</i> ) .	Pickled Herrings.
52	Petit, Pierre, Paris ( <i>France</i> )	Translucent Window Blinds for Schools.
31	Petitjean, Fils ( <i>France</i> ) .	Bath.
4	Phillips & Co. . . .	Tea and Coffee.
"	" " " " . . .	Cocoa.
22	Phillips, W., & Son . . .	Disconnecting Chambers for Drains.
2	Piccirillo, Caterina ( <i>Italy</i> )	Food Products.
55	Pick, Prof. A. ( <i>Italy</i> ) . .	Works on Infant Education.
11	Piston Freezing Machine & Ice Co.	Ash's Patent Self-feeding Refrigerators.
26	Plunkett, The Honble. John W.	Safety Gas Appliance.
20	Pocock, Alfred Wilmer . .	Patent Mortice Locks.
1 A & B	Pocock Bros. . . .	Patent Universal Tubular Water and Air Bed.
31	Podger, H., & Sons . . .	Ironing Machine.
26	Porter, G. . . .	Electric Apparatus.
2	Potter & Clarke . . .	Prepared Herbs.
(50, 51, & 53)	Prevost Orphanage, Oise ( <i>France</i> ).	Specimens of Manual Work.
26	Price, Sons, and Co. . .	Pottery suitable to Electrical Purposes.
28	Pulham & Son . . .	Damp and Fire-proof Building Materials.
20	Quayle, D. F. . . .	Patent Window Protector.
20	Radclyffe, Dick, & Co. . .	Window Ventilator.
52	Randall, J. . . .	Painted Photographs.
4	Rawlings, H. D. . . .	Aërated Beverages.
28	Reed Lathing Company . .	Reed Lathing.
31 A & B	Reed, W. J. . . .	Ambulance Exhibit.
52	Reiber, Émile ( <i>France</i> ) . .	School Decoration.
45	Rettie Patent Seat Company, Limited.	Seats for Shops, &c.
21	Reynolds, F. W., & Co. . .	Water Elevator.
52	Rhead, G. W. . . .	Imitation Limoges Plate.
52	Rhodes, R. . . .	Design for a Doorway, &c.
48	Richardson, Joseph . . .	Specimens of School Work.
12	Richmond & Chandler . .	Dough Kneader.
5	Robb & Co. . . .	Nursery Biscuits.



BRONZE MEDALS—*continued*

CLASS.	NAME.	EXHIBIT.
27	Robert ( <i>France</i> ) . . .	Life Saving Appliances for Fires.
21	Roberts, Thomas . . .	High Pressure Filter.
20	Robertshaw, James . . .	Patent Window Blind Furniture.
21	" " . . .	Valve Seating.
2	Romary, Alfred . . .	Tunbridge Wells Water Biscuits.
24	Ronvaux, Dr. ( <i>Belgium</i> ) . . .	Ventilating Stove.
4	Rose, L., & Co. . . .	Lime Juice Cordials.
45	Rosewarne, W. . . .	Drawing of Miner's Changing House.
Designs	Ross, John . . . .	Labourers' Rural Dwellings.
13	Roth, Dr. . . . .	Baby's Dress.
30	Rottmann, Strome & Co. . . .	Japanese Wall Papers and Decorative Objects.
31	Rougeot, Dr. ( <i>France</i> ) . . .	Bath Fauteuil.
23	Rousseau ( <i>Belgium</i> ) . . .	Commode.
6	Royle, John J. . . .	Pendulous Food Warmer.
21	" " . . . .	High Pressure Filter.
"	" " . . . .	Garden Engine.
31	Rudolfsthaler Graphite Works ( <i>Austria-Hungary</i> ). . . .	Black Lead.
52	Rumbol, Miss E. . . .	Stoneware Vase.
51	Russell, Thomas D. . . .	Geological Collections.
4	Sabine & Richardson . . .	Oriental Tea Company's Teas.
26	Sage, Frederick . . . .	Outside Gas Lanterns for Shops.
48	St. John's Institute for the Deaf and Dumb, Boston Spa. . . .	Gallery for Infant Schools.
2	Sales, Pollard & Co. . . .	Tobacco.
12	" " " . . . .	Tobacco Cutting Machine.
4	Salutaris "Water" Company . . . .	Aërated Beverages.
26	Sanderson & Co. . . .	Electric Apparatus for the Prevention of Disaster by Lightning.
31 A & B	Sandow, Dr. Ernst ( <i>Germany</i> ). . . .	Preventive Cover for Children and Suffering Persons, with Apparatus for Filtering and Purifying the Air, and a Ventilator.
Designs	Sanitary Appliance Company . . . .	Labourers' Dwellings.
23	Sanitary Paper Company . . . .	Paper for Sanitary Purposes.
22	Sanitary Reform and Engineering Company. . . .	Model of House Drainage.
31	Sanitas Company, Limited . . . .	Sanitas Soap.
4	Saunders, James, & Co. . . .	Whiskey.
26	Sax, Julius . . . .	Electric Apparatus.
49	Schefer, Madame ( <i>France</i> ) . . . .	Treatise on Needlework and Cutting Out.
49	Schild, Miss Marie . . . .	Collective Exhibit.
4	Schmidt, E. ( <i>Belgium</i> ) . . . .	Liqueurs.
4	Schweppe, J., & Co. . . .	Aërated Beverages.
	School. See under respective towns.	



BRONZE MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
3	Sciarra, Vincenzo ( <i>Italy</i> )	Cheeses.
21	Scollick, A. J., & Co. .	Mastic for Jointing.
2	Scott, A. & R. .	Midlothian Meal Biscuits, Oatmeal, &c.
29	Scott, Cuthbertson & Co.	Wall Papers with Fixed Colours.
31 A & B	Scott, Miss Elizabeth Anne.	Ambulance Exhibit.
11	Self-opening Tin Box Company.	Tin Boxes.
23	Sellers, John .	Disinfectants.
26	Sennett, A. R. .	Electric Lighting Apparatus.
17	Sexton, Joseph .	Life-saving Apparatus.
31 A & B	Seydel & Co. .	Ambulance Exhibit.
21	Sharp & Co. .	Ball Valve.
"	" " .	Coupling with Differential Screws.
22	" " .	Ventilator for Drains.
25	" " .	Cowls adapted for Use in Ships.
22	Sharp, Henry, Jones & Co.	Field's Syphon Flushing Apparatus in Earthenware.
52	Shepherd, G. W. .	Design for Cast Iron Gate and Rail- ings.
23	Shilton, A. J. .	Disinfectants.
30	Shimidzu, K. ( <i>Japan</i> ) .	Matting.
30	Shippo-Kwaisho Company ( <i>Japan</i> ).	Enamels.
12	Shuttleworth-Brown, D.H.	"Smokers'" Coffee Pot.
16	Siam, Government of .	Models of Trappings.
20	" " .	Models of Buildings.
3	Sidoroff, Ch. E. ( <i>Russia</i> ).	General Exhibit.
52	Simmance, Miss Eliza .	Design for Vase, Silicon Ware.
45	Simmons & Tullidge .	Improved System of Beating Carpets.
26	Simpson, A. H. .	Colouring of Electric Light Lamps.
23	Sinclair, James (65 South- wark Street, S.E.)	Disinfectants.
52	Skidmore, Miss H. .	Painted Photographs.
52	Small, Miss Elizabeth .	Design for Stoneware Vase.
22	Smeaton, John .	Interceptor Trap.
"	" " .	Sink.
31	" " .	Imperial Combination Bath.
52	Smith, Frederick George	Designs for Stained Glass Windows.
13	Smith, Frederick Henry .	Patent Grip for Boot Laces.
2	Smith, T. & H., & Co. .	Extract of Coffee.
15	Somervell Brothers .	Boots.
48	Sonnenschein, A. .	Arithmometer.
11	Sowerby's Ellison Glass Works, Limited.	Pressed Glass Appliances.
52	Spall, Thomas .	Top of Lady's Handkerchief Box, in Repoussé Silver.
52	Sparkes, Mrs. C. A. .	Designs for Tiles.
27	Spong & Co. .	Pneumatic Fire Extinguisher.
23	Sprati's Patent .	Disinfecting Soap.
43	Squire & Sons .	Respirators for Unhealthy Trades.
31	Star Brush Company, Ltd.	Brushes.
17	Startin, Dr. James .	Hygienic Dyed Hosiery.



BRONZE MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
(50 & 53)	Staynes, H. . . .	Models illustrating Carpentry and Joinery.
30	Steel & Garland . . .	Artistic Design in Grates.
30	Steele & Wood . . .	Decorative Tiles and Slabs.
31	Stephens & Woodman . .	Double Self-Action Washing and Boiling Machine.
31 A & B	Stewart & Co. (124, Newgate Street)	Howe's Patent Folding Spring Beds, &c.
21	Stidder, J. C., & Co. . .	Ball Valve.
"	" " " . . .	Lavatory Fittings.
"	" " " . . .	High Pressure Anti-Percussive Valves.
"	" " " . . .	Water Waste Preventive System.
22	" " " . . .	Lavatory Basin.
23	" " " . . .	Urinal.
"	" " " . . .	Torrent Wash-out Closet.
33	Stirrat, B. B. . . .	Radiators for Steam Heating.
24	Stobbs, W. (Durham Coal Owners' and Coal Consumers' Association)	Movable Back to Grate for Increasing Draught.
26	Stott, James, & Co. . .	Gas Governor.
(50, 51, & 53)	Stroesser, J. P. ( <i>Belgium</i> )	Apparatus for Science Teaching.
52	" " " . . .	Wire Models of Solids.
52	Stuart, Miss L. . . .	Vase in Silicon Ware.
27	Swanton, W. E. . . .	Fire Escape.
21	Syer, Milton . . . .	Pneumatic Water Waste Preventer Cistern.
57	Syer, Thomas J.	Carpenter's Bench for Technical Schools.
2	Takata, J. ( <i>Japan</i> ) . .	Soy.
4	Talbot, T., & Co. . . .	Ginger Champagne.
48	Terry, C., & Co. . . .	Pictorial Wall Decorations.
52	Thomas, M. ( <i>France</i> ) . .	Models for Geometrical Drawing.
25	Thomasson, J. L. . . .	Method of Introducing External Air into Buildings.
25	Thompson, Harcourt . .	Method of Ventilation.
31	Thompson, H. A., & Son.	"Purifier" Laundry Blue (Fluid).
28	Thomson & Co. . . .	Vitrified Iron Roofing.
52	Thorpe, Stuart . . . .	Design for Balustrade.
47	Thyes, E. ( <i>Belgium</i> ) . .	Preliminary Exercises in Practical Linear Drawing.
13	Thys, P. ( <i>Belgium</i> ) . .	Gloves.
41	Thwaite, B. H. . . .	Designs for Ventilating and Fire Resisting Textile Factory.
31	Tidman & Son . . . .	Sea Salt.
52	Tidmarsh, Henry E. . .	Design for the "Republic" Shield.
31	Tilbury, W. R., & Co. . .	Tooth Brushes.
3	Titley, William, & Sons .	Cheeses and Hams.
52	Tomlin, Henry J. . . .	Design for Brussels Carpet.
5	Torrance, W. H. . . .	Rusks.
2	Toyama, I. ( <i>Japan</i> ) . .	Soy.
20	Tōyo Company ( <i>Japan</i> ) .	Bricks, Tiles, &c.



BRONZE MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
29	Treloar & Sons . . .	Non-poisonous Coloured Matting.
20	Tucker, J. D. . . .	Weather-tight Sash and Frame.
2	Turner & Co. . . .	Patent Prepared Maize Corn Meal, &c.
31 A & B	Turner, G., & Co. . . .	Ambulance Exhibit.
21	Tylor, J., & Sons . . .	Water Waste Preventer Cistern.
"	" " . . .	Bath Fittings.
"	" " . . .	Ball Valves.
"	" " . . .	Nipple and Union Joints.
"	" " . . .	Stop-Cock or Ferrule.
"	" " . . .	Locking Apparatus for Baths.
"	" " . . .	Pneumatic Valve.
22	" " . . .	Sinks.
"	" " . . .	Interceptor Trap.
23	" " . . .	Latrine.
"	" " . . .	Valve Closet with Trap above Floor.
5	Uhlich, R., & Muller . .	Unsweetened Condensed Milk.
21	Universal Filter Company	Domestic Filter.
28	Val de Travers Asphalte Company, Limited.	Paving.
27	Vallez, L. ( <i>Belgium</i> ) . .	Telephonic Alarm ( <i>Richez - Vallez's</i> system).
2	Van Abbott, G. . . .	Diabetic Foods.
48	Van Achter, A. (Brothers of the Christian Schools) ( <i>Belgium</i> ).	Educational Treatises.
2	Van de Casserie, L. ( <i>Belgium</i> ).	Spiced Biscuits and Bread.
2	Van Marken, J. C., Delft Yeast Factory ( <i>Holland</i> )	Dried Yeast.
13	Vaughan, Lukey & Co. . .	Children's Stays.
30	Vernon's Patent China & Glass Company, Limited	Vernon's Patent China.
52	Vesly, M., School at Rouen ( <i>France</i> ).	Pupils' Drawings.
28	Vigers Brothers . . .	Swedish Joinery.
31	Von Kaiserstein, Baron ( <i>Austria-Hungary</i> ).	Black Lead.
52	Wahab, Miss H. E. . . .	Bellows Carved in Italian Walnut Wood.
13	Walker, Matthew . . .	Straw Bonnets with Concealed Seam.
20	Walker, William . . .	Patented Automatic Dry Seating for Tramcars.
Designs	Wall, Joseph . . .	Model Dwellings.
22	Waller, Geo., & Co. . . .	Soil Pipe Ventilator.
31	Waller, Thomas . . .	Bath.
52	Wallis, Miss R. . . .	Painting in Manner of Old Limoges Enamel, Water Colour Drawings and Painted Photographs.



BRONZE MEDALS—*continued.*

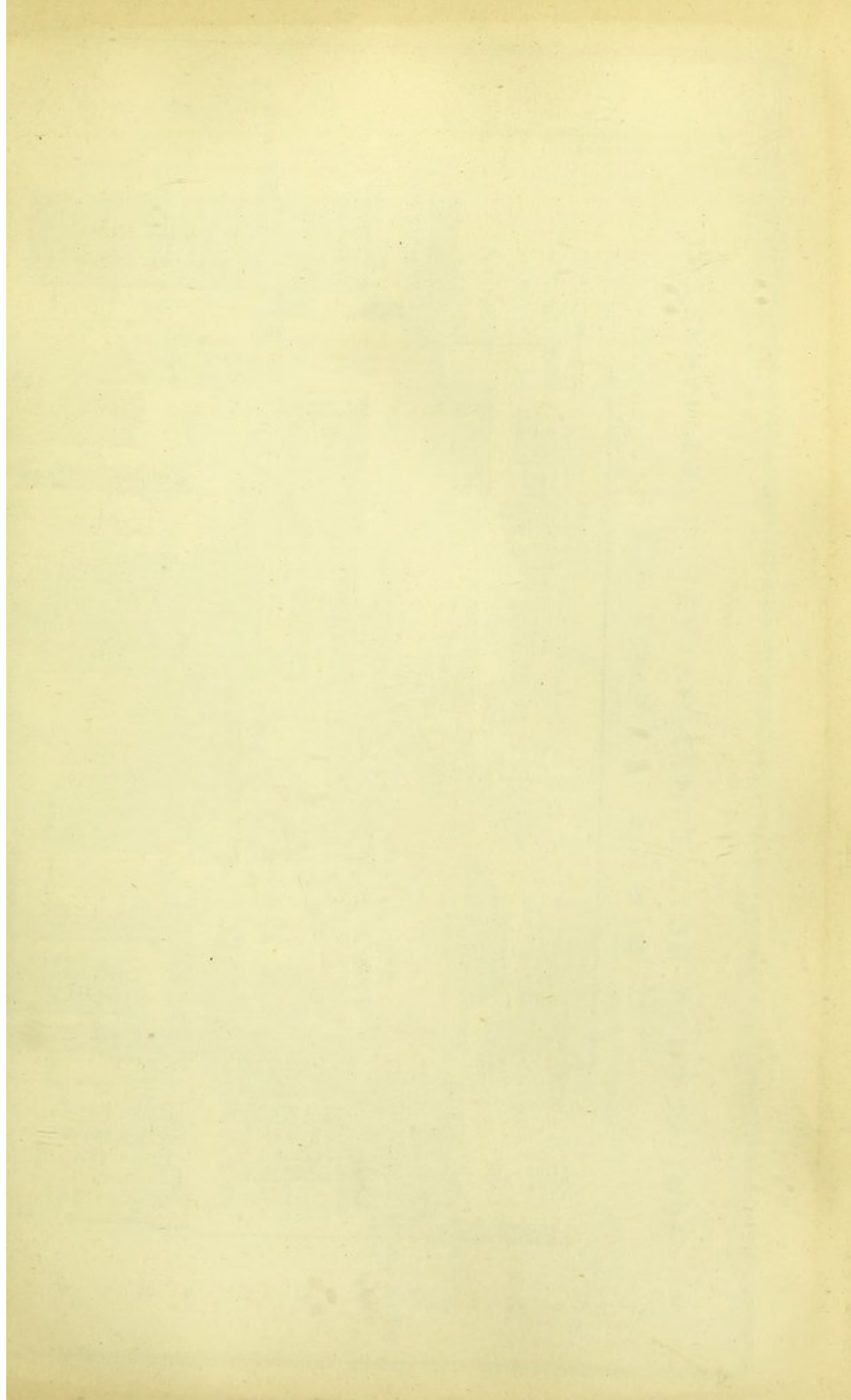
CLASS.	NAME.	EXHIBIT.
21	Warner, John, & Sons .	Equilibrium Ball Valve.
23	" " "	Valve Closet.
"	" " "	Ships' Closet.
52	Waterhouse, Joseph .	Printed Cotton Fabrics.
13	Waterman & Company .	Hygienic Boots and "Cyclists" Shoes.
46 A & B	Watson, W., & Sons .	Balance Thermometers.
52	Watson, W. P. .	Architectural Drawing of the South Porch of St. Paul's Cathedral.
23	Watson, W. W. .	Commode.
31 A & B	" " .	Combined Bedstead Chair and Commode for Invalids.
29	Watts, George .	Non-poisonous Furniture Polish.
Designs	Webster, Jas., A.R.I.B.A.	Artisans' Dwellings.
26	Webster's Patent Alumi- nium Metal Company.	Alloy suitable for Gaseliers, &c.
53	Wehrle, Emilian (Furt- wangen, Baden), ( <i>Ger- many</i> ).	Musical Clock.
23	West Central Sanitary Engineering Company.	Enamelled Urinals.
"	" " "	Avalanche Valveless Wash-out Closet
30	Wetherilt, A. & J. .	Blinds and Window Appliances.
31	Whalley, Smith, & Paget	Washing, Wringing, and Mangling Machines.
19	White Sewing Machine Company.	Lock-Stitch Sewing Machines.
45	White, W. T. (Redruth).	Drawing of Miners' Changing House.
52	Whitehead, A. .	Design for a Doorway, &c.
52	Whiteside, H. J. .	Flower Studies from Nature.
7	Wiesnegg ( <i>France</i> ) .	Apparatus for Maintaining Constant Temperature.
26	Williams & Bach .	Artistic Oil Lamps.
52	Williamson, J. I. .	Painted Photographs.
50	Windels, D. ( <i>Belgium</i> ) .	Bench and Joiner's Tool Chest.
51	" " "	Educational Exhibit.
31 A & B	Windover & Co. .	The Crook Ambulance.
13	Wise, John .	Boots and Shoes.
2	Wix, C., & Sons .	Pickles, Sauces, Condiments, &c.
52	Woodall, G. .	Glass Cameo Plaque.
52	Woodall, T. .	Glass Vases and Bowl.
52	Woodall, W. H. .	Design for Tiles.
1	Woodley, W. .	Honey.
11	Woolf & Co. .	Dry Cold Air Refrigerator and Portable Picnic Tables.
12	" " "	Granite Enamel Ware.
24	Wortley, Col. H. Stuart .	Gas Stove.
28	Wortley Fire Clay Co. .	Salt-glazed Bricks.
4	Wright & Greig .	"Roderick Dhu" Whiskey.
24	Wright, John, & Co. .	Kitchen Range.
2	Yagi, Z. ( <i>Japan</i> ) .	Oils.
3	Yamamoto, I. ( <i>Japan</i> ) .	Tea.



BRONZE MEDALS—*continued.*

CLASS.	NAME.	EXHIBIT.
24 Designs	Yates, Haywood & Co. . Young & Hall .	"Beazley" Grate. Drainage.
26	Zimmermann & Co. .	Lamps and Candlesticks.
1	Zuppinger, P. H. .	Hungarian Flour.
2	" " .	Hungarian Maccaroni and Vermicelli.







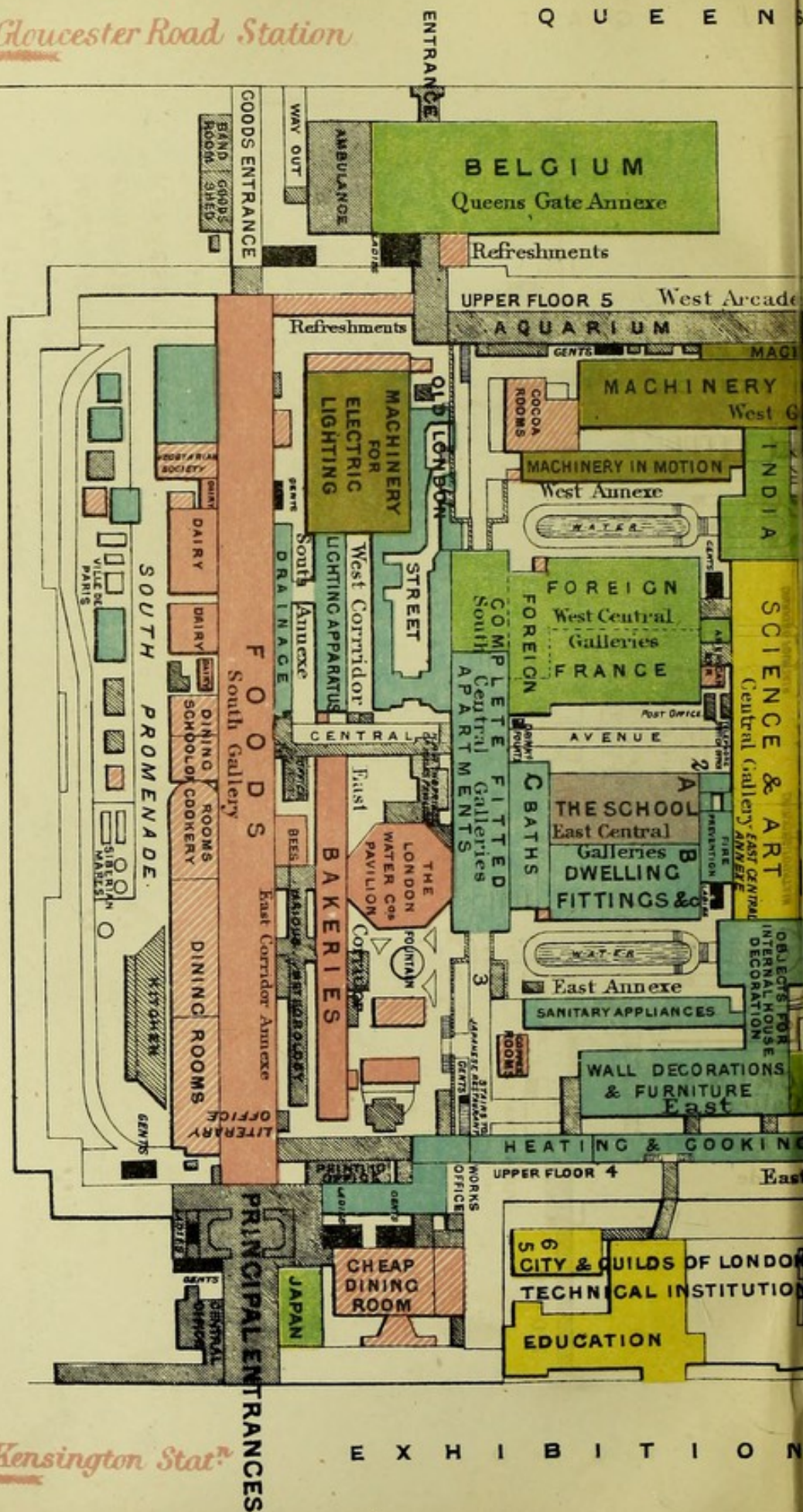
*To Gloucester Road Station*

GENERAL PLAN  
INTERNATIONAL HEALTH EXHIBITION, LONDON, 1884.

*Messrs Thomas & Sons Limited, Litho Duke St Stamford S. E.*

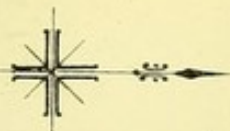
*Wilson Bennisson, Surveyor to the Executive Council.*

E X H I B I T I O N



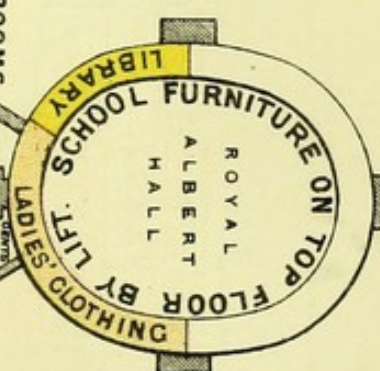


G A T E



*To High St. Kensington Station*

FOOD  
DRESS  
THE DWELLING  
THE SCHOOL  
EDUCATION  
MACHINERY IN MOTION  
FOREIGN SECTIONS  
REFRESHMENTS  
LAVATORIES  
DRINKING FOUNTAINS

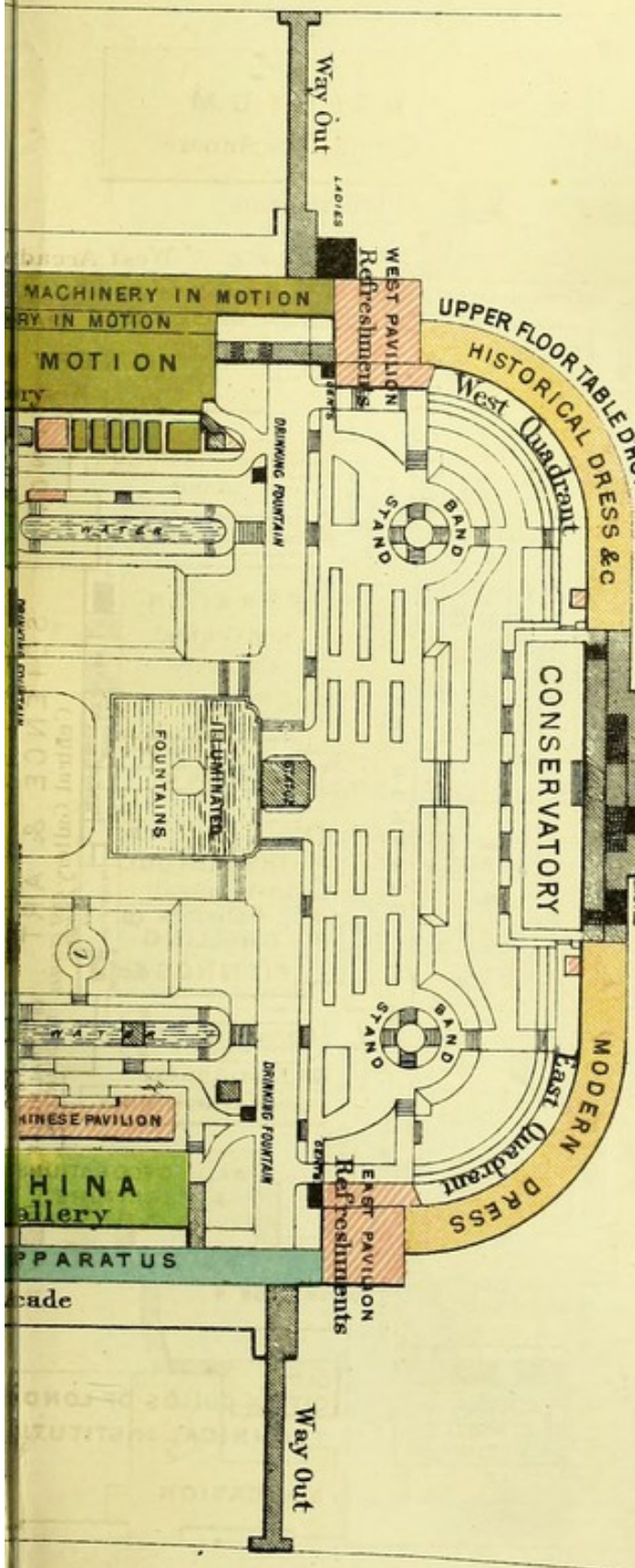


ENTRANCE

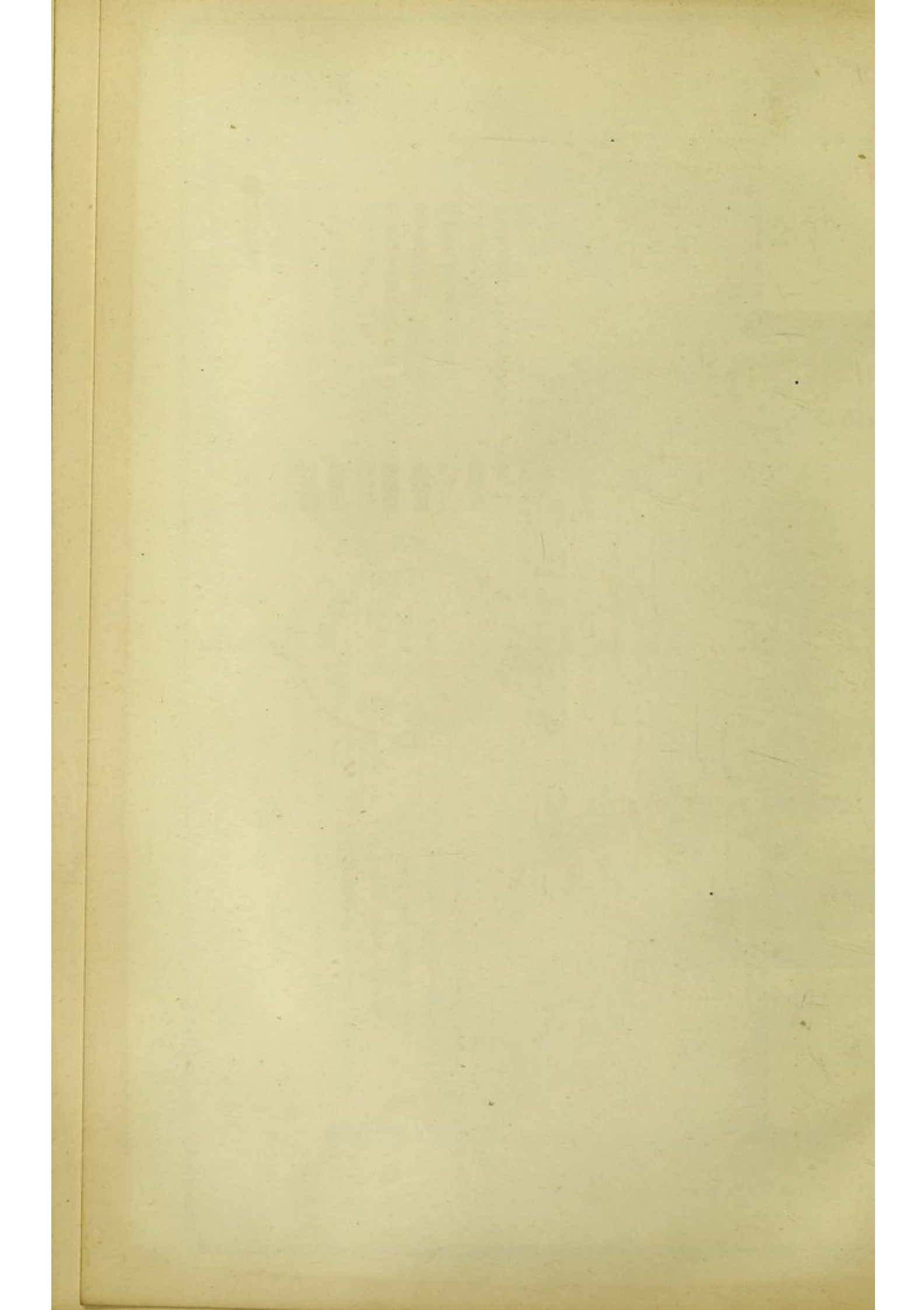
NOTES.

- 1 Meteorological Station
- 2 Sanitary & Insanitary Houses
- 3 Photographic Studio
- 4 Japanese Restaurant.
- 5 Hygienic Laboratory.
- 6 Cookery Centre, School Board for London.

*To Kensington Gore & Hyde Park*







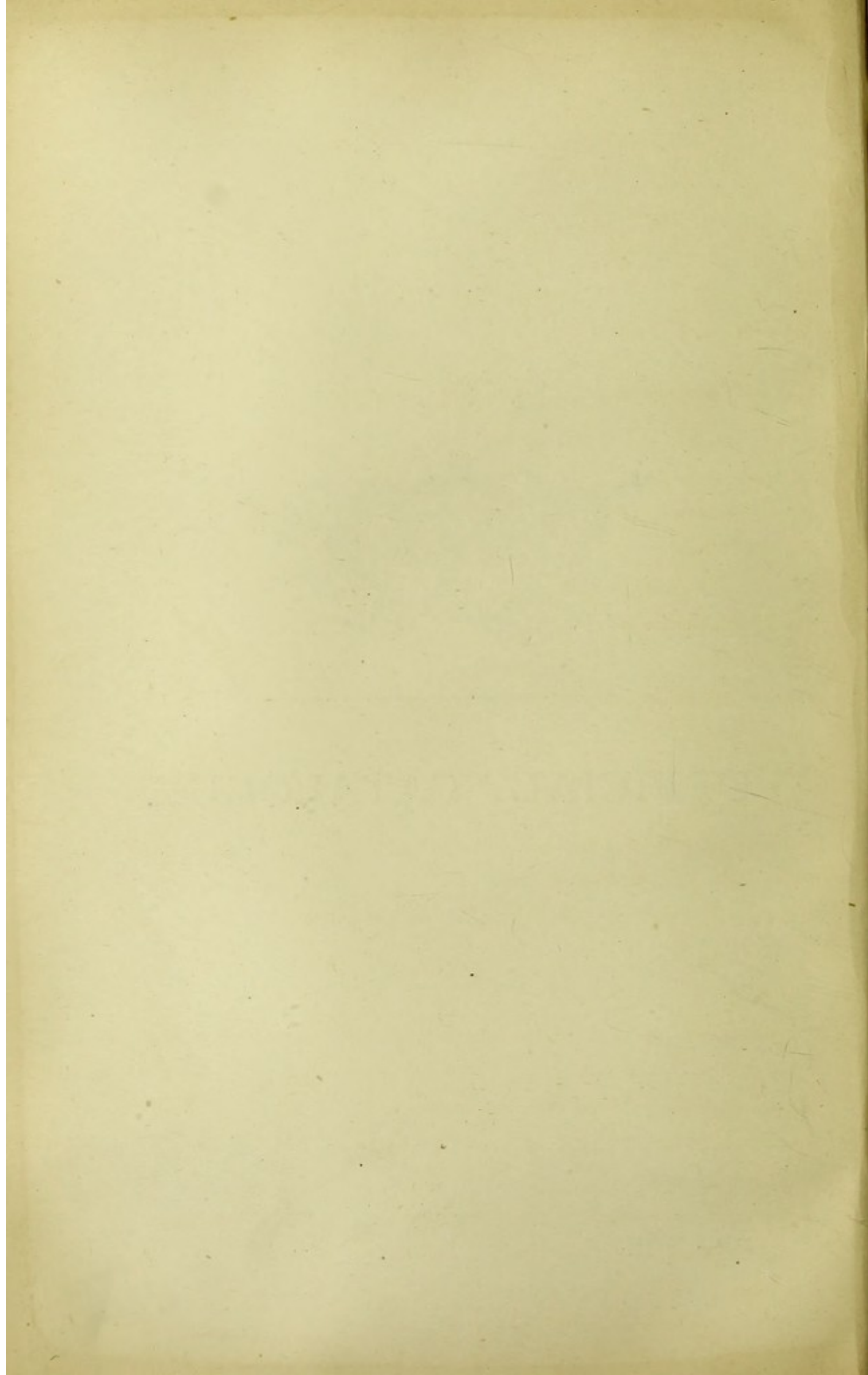




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# OFFICIAL CATALOGUE.







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## REGULATIONS.

1. An International Health Exhibition, under the patronage of Her Majesty the Queen and the presidency of His Royal Highness the Prince of Wales, will be held in London in 1884.

Date. 2. The Exhibition will be opened on the 8th of May, and will continue open for a period of about six months.

Objects. 3. The principal objects to be exhibited are comprised in the accompanying classification, which is intended to illustrate chiefly Food, Dress, the Dwelling, the School and the Workshop, as affecting the conditions of healthful life, and also the most recent appliances for Elementary School Teaching and Instruction in Applied Science, Art and Handicrafts.

Rewards. 4. Medals in Gold, Silver and Bronze, and Diplomas of Honour will be awarded on the recommendation of International Juries.

Expenses to be borne by Exhibitors. 5. No charge will be made for space, but Exhibitors will have to pay every expense of transit, delivery, fixing and removing their Exhibits, and erection of counters when required, and they must, either personally or by their agents, superintend the despatch, transmission, reception, unpacking, and installation and at the close of the Exhibition the removal of their goods; in default thereof the Executive Council reserve to themselves the right of doing whatever may be considered necessary, and at the expense of the Exhibitor. Should any goods be deposited in the Exhibition premises during the absence of the Exhibitor or his Agent, the Executive Council will not be responsible for any loss or damage, from whatsoever cause arising.

Applications. 6. Applications for allotment of space must be made on printed forms, which will be supplied on application to the Secretary, International Health Exhibition, South Kensington, S.W., which must be filled up and returned on or before the 1st February, 1884. After this date no application will be received.

Full description. 7. The nature of the articles which it is proposed to exhibit must be fully specified in the Form of Application for space.

Allotment. 8. The applications will be laid before the Executive Council, and the Secretary will, as soon as practicable, notify to applicants their decision with regard to the amount of space, if any, allotted to them.

Right to refuse exhibits. 9. The Executive Council reserve to themselves the absolute right of refusing to admit any exhibit.

Foreign countries. 10. The Foreign and Colonial Commissioners appointed by their Government are invited to communicate with the Secretary. They will be charged with the consideration of all questions relative to the distribution of the space allotted to their respective countries, and the Executive Council will place at their disposal all information and plans that may be useful to them.

11. The applicants for space from countries in which no Commissioner has been appointed will correspond directly with the Secretary.

Railway rates. 12. The Executive Council will endeavour to obtain from the various English Railway Companies, special terms for the conveyance of exhibits to and from the



Exhibition, and should they succeed in doing so, such arrangements will be communicated to intending Exhibitors.

Marks on  
packages.

13. All packages containing goods intended for exhibition must have painted on them the distinctive mark **I. H. E.**, together with the name and address of the Exhibitor. Labels will also be forwarded to each Exhibitor.

Labels.

Foreign  
packages.

14. Packages from Foreign Countries must likewise have painted on them the letters **I. H. E.** They must all be marked in such a way as to show distinctly from whence they come, the name of the country, and of the Exhibitor.

Dimensions  
of cases, &c.

15. All cases, counters, platforms, &c., must not exceed the following dimensions, without special permission :—

Show cases and partitions 10 feet above the floor.

Counters . . . . . 3 „ „ „

Platforms . . . . . 1 foot „ „

Railings.

16. Exhibitors may place railings around their stands, subject to approval ; but in every instance the railings must be within the area of the “stand,” *i.e.* the space allotted.

Flooring.

17. The flooring must not be altered, removed, or strengthened for the convenience of arrangement, except by sanction of the Executive Council, and at the expense of the Exhibitor.

Obstruc-  
tions.

18. No Exhibitor will be permitted to display exhibits in such a manner as to obstruct the light or impede the view along the open spaces, or to occasion inconvenience, injury, or otherwise disadvantageously affect the display of other Exhibitors.

Decorations.

19. In order to ensure uniformity of decoration and general good effect, no Exhibitor will be allowed to put up any flags, banners, or other kind of decoration without special permission.

Signs.

20. Signs or name-boards must be placed parallel with the main passages, that is, parallel with the frontage of the respective stands. These must be black with gold letters, and must be hung subject to the approval of the Council.

Handbills.

21. All handbills, printed matter, &c., connected with exhibits for gratuitous distribution, must first receive the approval and permission of the Executive Council, which permission may be withdrawn at any time.

Empty cases.

22. Cases must be unpacked as fast as possible, and the empty cases taken away by the Exhibitors or their Agents. The Executive Council decline to accept any responsibility with reference to empty cases, which must be at once removed from the building at the expense of Exhibitors.

Attendance.

23. Exhibitors will be required to provide all necessary attendance and to keep their stands and exhibits properly cleaned and in good order during the whole period of the Exhibition.

Non-  
transfer.

24. No Exhibitor will be allowed to transfer any allotment, or to allow any other than his own duly-admitted exhibits to be placed thereon, except by permission of the Executive Council.

Name.

25. All goods exhibited must be in the name of the person who signed the application form.

Selling  
price.

26. Exhibitors are requested to mark the selling price of the articles exhibited, so as to facilitate the judgment of the Jury, as well as for the information of visitors.



- Removal.** 27. Objects cannot be taken away before the close of the Exhibition without the special permission in writing of the Executive Council. Special arrangements will be made with regard to perishable exhibits.
- Refreshments.** 28. As refreshments come within the scope and classification of this Exhibition, all methods of preparing the same, whether by cookery or otherwise, and the display and sale thereof, will be matters of separate arrangement with those wishing to be represented in this Section of the Exhibition.
- Machinery.** 29. Exhibitors of apparatus requiring the use of water, gas or steam are requested to make application to the Secretary for a special form, which has been prepared for this Section of the Exhibition.
- Stoves, grates, &c.** 30. All stoves, grates, &c., must be arranged with a view to the abatement of smoke.
- Dangerous substances.** 31. All fulminating and explosive substances, and all dangerous substances, are absolutely forbidden to be sent.
- Spirits, &c.** 32. Spirits, alcohol, oils, essences, corrosive substances, and generally all substances which might spoil other articles or inconvenience the public, can only be received in solid and suitable vessels of small size.
- Catalogue.** 33. The Executive Council reserve the sole right of compiling a catalogue of the exhibits under regulations which will be duly notified. Each nation will however, have the right to produce, at its own expense, a catalogue of all the objects in its own Section.
- Testing and analysing.** 34. The Executive Council reserve to themselves the right of causing any of the exhibits to be examined, tested or analysed for such use as they may think fit.
- Photographing, &c.** 35. No article exhibited may be photographed, drawn, copied or reproduced, in any manner whatsoever, without the special sanction of the Exhibitor and of the Executive Council.
- Non-liability.** 36. The Executive Council will not hold themselves responsible for loss or damage occurring to any exhibit from any cause whatsoever; but while declining any responsibility, it is the intention of the Council to take such precautions as they deem necessary.
- Date of reception.** 37. No goods can be sent in previous to the 15th March without special permission; after the 15th April no goods will be received.
- Right to alter rules.** 38. The right to add to, alter, amend or expunge any of these Rules is reserved by the Executive Council.
- Rules binding.** 39. Both Englishmen and Foreigners in becoming Exhibitors declare by so doing their compliance with the whole of these Regulations, together with such other Regulations as the Executive Council may issue from time to time.
- Right of removal.** 40. The Executive Council reserve the right to remove the objects belonging to any Exhibitor who may not conform to the Regulations.
- Non-liability.** 41. If any damage or injury shall be caused or occasioned during the Exhibition by any exhibited machine, implement, or article to any visitor or other person, or to any officer, servant, or others then and there employed by the Executive Council of the International Health Exhibition, 1884, then the Exhibitor to whom such machinery, implement, or article may belong shall indemnify and hold harmless the said Council from and against all actions, suits, expenses and claims on account or in respect of any such damage or injury which may be so caused or occasioned.



## CLASSIFICATION.

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### DIVISION I.—HEALTH.

#### Group 1.—FOOD.

- CLASS 1. SELECTED DISPLAYS OF UNPREPARED ANIMAL AND VEGETABLE SUBSTANCES used as Food in various countries. Stuffed Specimens of Animals, Birds, &c. Models, Drawings, and Illustrations of the same.
- „ 2. PREPARED VEGETABLE SUBSTANCES used as Food, including Tinned, Compressed and Preserved Fruits and Vegetables. Bread, Cakes, and Biscuits of all kinds. Tobacco.
- „ 3. PREPARED ANIMAL SUBSTANCES used as Food in a preserved form—Tinned, Smoked, Salted, Compressed and Prepared Animal Foods of all kinds; Food produced by Insects, such as Honey, &c.
- „ 4. BEVERAGES of all kinds—(a) Alcoholic; (b) Non-alcoholic; (c) Infusions (tea, coffee, cocoa, chocolate, &c.)
- „ 5. NEW VARIETIES of Food. Food for Infants, Food for Invalids, New Concentrated Foods of all kinds.
- „ 6. COOKERY PRACTICALLY DEMONSTRATED. Economical Cooking, Workmen's and other Kitchens, Cheap Restaurants, Bakeries, Cafés, Foreign Cookery, &c.\*
- „ 7. THE CHEMISTRY AND PHYSIOLOGY of Food and Drink. The Detection of Adulteration, Materials used as Adulterants, Analyses, Food Constituents and Equivalents, Tables, Diagrams, &c.
- „ 8. DISEASES due to unwholesome and improper Food. Drawings and Models of Animal and Vegetable Parasites, &c.
- „ 9. PRACTICAL DIETETICS. Army and Navy Rations, Prison and Workhouse Diet, Foreign Dietaries, &c.
- „ 10. PUBLICATIONS AND LITERATURE, MODELS AND DIAGRAMS relating to Group 1.
- „ 11. APPARATUS AND PROCESSES for Conserving, Storing, Conveying and Distributing Fresh Food of all kinds.
- „ 12. MACHINERY AND APPLIANCES for the preparation of Articles under Group 1.

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\* *Special Notice.*—As Refreshments come within the scope of this Exhibition, all methods of preparing the same, whether by cookery or otherwise, and the display and sale thereof, will be matters of separate arrangement with those wishing to be represented in this section of the Exhibition.



## Group 2.—DRESS.

- CLASS 13. COLLECTIONS illustrative of the History of Dress, National Costume, &c.
- „ 14. WATERPROOF CLOTHING, India Rubber, Gutta Percha, &c.
- „ 15. FURS, SKINS AND FEATHERS. Dresses for Extreme Climates, &c.
- „ 16. DRESS FOR SPORT, HUNTING SUITS, &c.
- „ 17. LIFE SAVING DRESS. Divers' Dress. Fireproof Dress.
- „ 17A. THE COMPARATIVE VALUE of different Dress Materials for Articles of Clothing.
- „ 18. PUBLICATIONS AND LITERATURE, Patterns, Statistics, Diagrams, Models relating to Group 2.
- „ 19. MACHINERY AND APPLIANCES for the Preparation of Articles under Group 2.

## Group 3.—THE DWELLING-HOUSE.

- CLASS 20. DWELLINGS, MODELS AND DESIGNS for the same, and Specimens of Buildings erected in the grounds. Fittings and Accessories for Dwelling-houses. Completely-fitted Apartments.
- „ 21. WATER SUPPLY AND PURIFICATION. — Meters, Filters, Water-Fittings, Cisterns, &c.
- „ 22. HOUSE DRAINS, their CONSTRUCTION and VENTILATION.—Sewer disconnection; Sinks, Traps, Gullies; the Disposal and Utilization of House Refuse.
- „ 23. WATER and EARTH CLOSETS, Ash Closets, Commodes, Urinals, Disinfecting Powders and Fluids, Insect Destroyers.
- „ 24. GRATES, STOVES, KITCHENERS, RANGES, BOILERS, &c., for Domestic Use. Apparatus for Heating and Warming, Smoke Abatement, &c.
- „ 25. VENTILATORS, Air Inlets and Outlets, Cubic Space of Rooms, Cows, Air Straining and Cleansing.
- „ 26. LIGHTING APPARATUS.—(a) Electrical Apparatus for Illumination and Domestic Use, Secondary Batteries, Electroliers, Accumulators, &c.; (b) Apparatus for lighting by Gas, Gas Producers, Gas Meters, Gas Fittings, Chandeliers, &c.; (c) Oil and other lamps; Mineral Oil, Wax and other Candles, Vegetable and Animal Oils.
- „ 27. FIRE PREVENTION APPARATUS—Extincteurs, Portable Engines, Domestic Fire Escapes, &c.
- „ 28. MATERIALS for Sanitary House Construction—Roofs, Walls, Damp Courses, Solid Floors, Damp-Proof Wall-Coverings, Cements, &c.
- „ 29. MATERIALS for Sanitary House Decoration, Non-poisonous Paints and Wall Papers, Floor Coverings, Washable Decoration, &c.
- „ 30. OBJECTS FOR INTERNAL DECORATION and use in the Dwelling. Fittings and Furniture.
- „ 31. BATHS, Bathing Requisites, Public and Private Wash-houses, Washing Apparatus, Detergents, Appliances for Personal Cleanliness, &c.
- „ 32. PUBLICATIONS AND LITERATURE, MODELS, PICTURES, DIAGRAMS, &c., relating to Group 3.
- „ 33. MACHINERY AND APPLIANCES relating to Group 3.



**Group 3a.—AMBULANCE.**

CLASS 31A. AID TO SICK AND WOUNDED IN WAR. TRANSPORT. (a) *By Human Agency*; Stretchers, Litters, Dhoolies, Palanquins, Handcarts, Stretchers on Wheels, (b) *By Animal Traction*; Mule Litters and Chairs, Camel and Elephant Litters, Wheel Carriages. (c) *By Mechanical Means*; Railway Ambulances, Ship or Water Carriage. TREATMENT (with portable appliances and portable drugs). (a) On the Field. (b) In Hut Hospitals. (c) In Tent Hospitals. NAVAL AND MILITARY HYGIENE.

- „ 31B. AID TO SICK AND INJURED IN PEACE. TRANSPORT. (a) *By Human Agency*; Stretchers, Litters, Dhoolies, Palanquins, Hand-Carts. (b) *By Animal Traction*; for Accidents and Injuries, for Infectious Diseases, for Ordinary Sickness. (c) *By Mechanical Means*; Railway Carriages for Sick and Invalids, Water Carriage. TREATMENT (with appliances). (a) Hut Hospitals for Infectious Fevers and for Epidemic Diseases. (b) Tent Hospitals. (c) Hospital Ships. (d) Furniture and Fittings for Sick Rooms.

**Group 4.—THE SCHOOL.**

CLASS 34. DESIGNS and MODELS of Improved Buildings for Elementary Schools Infant Schools and Crèches.

- „ 35. APPARATUS and FITTINGS for Warming, Ventilating, and Lighting Schools School Latrines, Closets, &c.
- „ 36. SPECIAL SCHOOL FITTINGS for Storing and Drying Clothing.
- „ 37. SCHOOL KITCHENS and arrangements for School Canteens. Methods of warming Children's Meals, &c.
- „ 38. PRECAUTION in Schools for preventing the spread of Infectious Diseases, School Sanatoria, Infirmarys, &c.
- „ 39. SPECIAL APPARATUS for Physical Training in Schools, Gymnasia, Apparatus for Exercise, Drill, &c.
- „ 40. LITERATURE, Statistics, Diagrams, &c., relating to Group 4.

**Group 5.—THE WORKSHOP.**

CLASS 41. DESIGNS and MODELS for Improvements in the Arrangements and Construction of Workshops, especially those in which dangerous or unwholesome processes are conducted.

- „ 42. APPARATUS and FITTINGS for preventing or minimising the danger to health or life, from carrying on certain trades. Guards, Screens, Fans, Air-jets, Preservative Solutions, Washes, &c.
- „ 43. OBJECTS FOR PERSONAL USE. Mouth-pieces, Spectacles, Dresses, Hoods, &c., for use in certain unhealthy and poisonous trades.
- „ 44. ILLUSTRATIONS OF DISEASES AND DEFORMITIES caused by unwholesome Trades and Professions. Methods of combating these diseases. Preservative measures, &c.
- „ 45. SANITARY CONSTRUCTION AND INSPECTION OF WORKSHOPS, FACTORIES AND MINES. (a) New Inventions or improvements for ameliorating the condition of life of those engaged in unhealthy occupations. (b) Means of economising Human Labour in various Industrial operations.
- „ 46. LITERATURE, Statistics, Diagrams, &c., relating to Group 5.



**Group 5a.—METEOROLOGY IN ITS RELATION TO THE STUDY OF PUBLIC HEALTH.**

**CLASS 46A. METEOROLOGICAL INSTRUMENTS**, such as are used in climatological investigations ; barometers, aneroids, thermometers, earth thermometers, thermometer stands, hygrometers, anemometers, airmeters, rain gauges, automatic meteorological apparatus, sunshine recorders, evaporation gauges, ozone papers, ozonometers, &c.

- „ **46B. DIAGRAMS, MODELS, AND APPARATUS** illustrative of (a) the climatal conditions prevailing in various parts of the world ; (b) the relations between health and disease ; (c) rainfall, percolation, evaporation, and flow from ground, and (d) other subjects embraced by the Exhibition.

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**DIVISION II.—EDUCATION.**

**Group 6.—EDUCATIONAL WORKS AND APPLIANCES.**

**CLASS 47. CRÈCHES and INFANT SCHOOLS.**—(a) Apparatus and Fittings for Crèches and Infant Schools ; (b) Games, Toys and Kindergarten Amusements ; (c) Models and Appliances for teaching ; (d) Examples of School Work.

- „ **48. PRIMARY SCHOOLS.**—(a) Apparatus and Fittings ; (b) Models and Appliances for teaching ; Text-books, Diagrams and Examples ; (c) Specimens of Work in Elementary Schools.

- „ **49. DOMESTIC ECONOMY AND OTHER FORMS OF TECHNICAL AND INDUSTRIAL EDUCATION FOR GIRLS.**—(a) Models and Apparatus for the teaching of Cookery, Housework, Washing and Ironing, Needlework, and Embroidery, Dressmaking, Artificial Flower-making, Painting on Silk, Pottery, &c. ; (b) Specimens of School Work.

- „ **50. HANDICRAFT TEACHING IN SCHOOLS FOR BOYS.**—(a) Apparatus and Fittings for Elementary Trade Teaching in Schools ; (b) Specimens of School Work.

- „ **51. SCIENCE TEACHING.**—(a) Apparatus and Models for Elementary Science Instruction in Schools ; Apparatus for Chemistry, Physics, Mechanics, &c. ; (b) Diagrams, Copies, Text-books, &c. ; (c) Specimens of the School Work in these subjects.

- „ **52. ART TEACHING.**—(a) Apparatus, Models, and Fittings for Elementary Art Instruction in Schools ; (b) Diagrams, Copies, Text-books, &c. ; (c) Specimens of Art Work, Modelling, &c., in Schools.

- „ **53. TECHNICAL AND APPRENTICESHIP SCHOOLS.**—(a) Apparatus and Examples used in Primary and Secondary Schools for teaching Handicrafts ; (b) Models, Plans, and Designs for the Fitting up of Workshop and Industrial Schools ; (c) Results of Industrial work done in such Schools.



- CLASS 54. SCHOOLS FOR THE BLIND AND FOR THE DEAF AND DUMB.—(a) Apparatus and Examples for Teaching; (b) Specimens of School Work.
- „ 55. LITERATURE, Statistics and Diagrams relating to Group 6 and to the Effects of “Cramming” and Overwork on the Young, &c.
- „ 56. COLLECTIVE DISPLAYS of School Work and Appliances. SCHOOL MUSEUMS.
- „ 57. MACHINERY AND APPLIANCES relating to Group 6.

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TABLE SHOWING WITH WHICH CLASSES THE VARIOUS  
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# MEMORANDA

## FOR THE GUIDANCE OF EXHIBITORS,

DRAWN UP BY THE SUB-COMMITTEES AND APPROVED BY THE  
EXECUTIVE COUNCIL.

### FOOD.

THE official classification of Group 1 of the Exhibition, in which are comprised Classes 1 to 12, will be found on p. 106.

In the first three classes are included what may be termed the Raw Materials of Food. In Class 1, specimens of the actual foods themselves may, when possible, be exhibited, and when this cannot be done, they should be represented by models. The Exhibition, for instance, of uncooked meat would be neither desirable nor practicable, but any exhibits tending to give information as to the various animals used for the food of man, their nature, habits, characteristics, &c., will be welcomed. In the case of cereals and other food-stuffs, the raw grain and the products from it may be exhibited. Fruits and vegetables will for the most part be represented by models, but the Executive Council are also considering the establishment of periodical shows at which the articles themselves can be exhibited and sold. Specimens of foreign fruits, &c., will be gladly received for this purpose. Models of the different fruits imported in a dried or preserved state into this country are specially desirable, in order to illustrate their natural forms.

The classification sufficiently indicates the class of exhibits desired for Classes 2 and 3. It may be added that, where possible, preserved provisions should be put up in bottles, so that they may be visible, not in tins. Not more than three specimens of each kind should be sent in.

In Class 4 are to be included every sort of drink, including milk, as well as those enumerated in the classification. It will take in all exhibits connected with the production of tea, coffee, and other beverages (except those relegated to Class 12), and all illustrating new or little-known beverages, such as Maté or Paraguay tea, Coca, Koumiss, &c.

The exhibits in Class 5 will naturally also be capable of being placed in one or other of the previous classes, but this arrangement has been adopted with the view of giving prominence to any novelties. Food for children and invalids will form a special feature in this class.

As regards Class 6, the Committee think it well to draw attention to the announcement already made by the Executive Council, that, as refreshments come within the scope of the Exhibition, all methods of preparing the same, whether by cookery or otherwise, and the display and sale thereof, will be matters of separate arrangement with those wishing to be represented in this section.



One principal object to be kept in view in this department of the Exhibition will be the diffusion of information as to the economical cooking of food, and the best way of utilising the various kinds of food available to this country. Cheap cooking, both at home and by means of public kitchens, should be amply illustrated. For the purposes of comparison there should be illustrations of every class of foreign cookery, not only of the luxurious sort, but of that practised in the homes of the well-to-do, of the middle class, and of the poorer classes, in foreign countries. As a matter of interest, and with the object of diffusing information on the manner of life of nations differing yet further from ourselves, the Committee hope that means may be found for exhibiting the practice of Eastern cooks, Chinese, Japanese, Indian (Mohammedan and Hindoo), &c. Bakeries will be included in this class, and the Committee hope that the fittings and appliances of the most modern establishments (both English and foreign) may be fully shown.

The object of Classes 7 and 8 is to diffuse popular information as to the nature, constituents, uses, and adulterations of food. Exhibits illustrating these and similar points will be welcome. The Committee trust that the Science and Art Department will assist this portion of the Exhibition by lending and supplementing one of the collections formed by Professor Church.

As regards the last item in Class 8, it should be noted that parasites or other organisms injurious in any way to food or its sources are included.

As regards Foreign Dietaries in Class 9, the Committee consider that this expression must be taken in its widest sense, and as including the food of savage races all over the world. It would therefore comprise specimens of the animal and vegetable substances used as food, beverages, stimulants, &c., by savages or native races of low civilisation, both in the raw and prepared condition, together with appliances and utensils of all kinds used in their manufacture or consumption. Models and drawings illustrative of the subject would also be desirable. As examples may be mentioned sago, and its native manufacture, by Malays, natives of New Guinea, &c.; cassava, and its manufacture in British Guinea; taro, the Polynesian food, and the manufacture of roi from it; kaava and kaava bowls of Fiji and elsewhere. The Committee hope that the materials for a valuable ethnological collection of this sort will be forthcoming from private owners in England.

The exhibits admissible to Class 10 are clearly indicated in the Classification.

Classes 11 and 12 are added as separate classes, because it is necessary that all machinery should be placed together in one gallery where the motive power is provided. Among the processes which the Committee hope to see illustrated may be mentioned, methods of cold storage and transport of fresh meat, ice-making, dairy operations, the preservation of food, making bread, biscuits, &c., the manufacture of confectionery, of condiments, of cocoa and chocolate, and the production and bottling of aerated waters.

## DRESS.

The classification of this Group will be found on page 107.

Class 17A has been added to the Classification at the suggestion of the Sub-Committee. Under it should be displayed a number of illustrative specimens to show the comparative value of different dress fabrics, with reference to their "warmth," their hygroscopic properties, the influence of the colour of materials in modifying the effects of sun-heat, and the like.



It would be well to show under this class models and drawings illustrative of the effects of poisonous dyes (in clothing) upon the skin. Materials dyed with poisonous and non-poisonous dyes could be placed together for purposes of comparison.

The scope of this class may be considerably extended, and the section be made to demonstrate the scientific bases of healthy clothing.

The subject of UNDERCLOTHING is of such great importance that the Sub-Committee are prepared to arrange for a special display of materials and garments, &c., worn next to the skin. Some of these will be shown in a special annexe, to which females alone will have access, or which will at least not be open to both sexes at one time. As one special feature in such an exhibition, the Sub-Committee would suggest a series of models displaying the first clothing of infants as adopted in the various countries of the world—so far as such examples could be obtained.

Class 13. It is suggested that, as far as possible, dresses and costumes shown should be displayed upon lay figures, and that the exhibition of ancient costumes should be encouraged in preference to modern reproductions of the same.

Class 15. It is suggested that the subject of suitable dresses for extreme climates should be demonstrated with as much detail as possible.

Class 16. Under this class it is suggested that especial attention should be given to dresses suitable for women engaging in exercise, such as dresses for mountaineering, for the moors, for swimming, for horse exercise, for gymnastics, and the like.

Class 17. Under this class should be actually demonstrated the value of certain substances used for making muslin and light fabrics non-inflammable. The various artificial starches made for this purpose should be displayed, and their use and effect demonstrated.

The dress of female operatives engaged among machinery may be dealt with in this class; also special dresses recommended or in use in factories and occupations of special character, *e.g.*, dresses for lead and other factories; dresses of nurses and sick attendants; of soldiers and sailors; life-saving dresses; firemen's dresses.

Class 18. Under this class will be exhibited dress injurious to health, casts of feet deformed by boots, &c., spinal and thoracic deformities ascribed to tight-lacing; models to show the position of the viscera displayed by such practices, and the like.

Class 19 The Sub-Committee would suggest the following under this heading:—

Machine *versus* Hand-weaving.

Glove making by machinery.

Lace making, illustrated by operatives from Honiton, Nottingham, Brussels, &c.

The making of hats.

The making of boots and shoes, and of lasts for the same.

The dressing of furs and certain skins.

Sewing and knitting machines, &c. (in limited number).

The manufacture of waterproof fabrics.

The making of crape and some special fabrics.

The application of jute to the manufacture of dress fabrics.

Imitation fabrics.



## WATER SUPPLY AND DRAINAGE OF THE DWELLING-HOUSE.

This Committee deal with the following Classes of Group 3:—21, 22, 23, and 27; the official classification is given on page 107.

With a view to bringing before the public examples not only of thoroughly good sanitary arrangements, but also of the defects existing in ordinary houses, the Committee have, with the sanction of the Executive Council, undertaken to supervise the erection of two model dwellings in the grounds of the Exhibition, one of which will show as far as can be done on the limited scale, a house with good sanitary arrangements, while the other will show the usual defects. In the latter case, no attempt will be made to exaggerate the ordinary conditions; but the object will be to reproduce accurately a state of things unfortunately but too common.

The Committee will be glad to receive from manufacturers whatever examples they may think proper to submit for exhibition of the articles indicated by the classification. It is to be borne in mind that in all cases the exhibits must have a distinct bearing upon health, and that architecture or building construction generally is outside the scope of the Exhibition.

The exigencies of space will not permit the Executive of the Exhibition to invite contributions illustrative of schemes for drainage, water supply, &c., applicable to towns of large districts, and it is therefore to be understood that the exhibits must be confined to domestic sanitation alone.

The classification sufficiently indicates the class of objects desired for exhibition. The Committee would impress upon exhibitors the desirability of, as far as possible, exhibiting their own manufactures only, not those of other makers; and also of restricting their exhibits to typical examples of their appliances, and of not sending more than a single example of each article. Indeed, the Committee cannot undertake to find space for things which are substantially duplicates of one another.

As the exhibition will be a place of popular resort, and is intended for the instruction of the general public rather than specialists, it will be desirable that exhibitors of sanitary wares should assist the Committee in making such arrangements as will bring the articles which it is necessary to show before the notice of the public in a manner as agreeable as possible. It will of course be necessary to show examples of closets, urinals, &c., but these should be so arranged that while it may be possible for anybody desiring to inspect their action to have full opportunity of doing so, they yet will not attract general attention in an undesirable manner.

## CONSTRUCTION AND FITTINGS OF THE DWELLING-HOUSE.

The portion of Group 3, the Dwelling-house, with which this Committee deal is that comprised within Classes 20, 28, 29, 30 and 31. The official classification is on page 107.

It should be distinctly understood with regard to all the above classes that only such exhibits as have a distinct bearing upon health can be admitted. Specimens, therefore, illustrating building construction generally, the decoration of houses, or their furniture,



cannot be admitted unless they are shown to have actual reference to the health of the inmates of the houses.

This Committee is co-operating with the Committee on Water Supply and Drainage in superintending the erection of two model dwellings in the Exhibition grounds, the one showing good, and the other showing defective sanitary arrangements. Further particulars about these model dwellings will be found in the Memorandum issued by the Sub-Committee above referred to.

It is desired that exhibitors should show, as far as possible, their own manufactures only, and not those of other makers, and they should restrict their exhibits to typical examples of their appliances, not sending more than a single example of each article.

In Class 20 it is desired to show not only models and designs for sanitary houses, but also, so far as possible, specimens showing their construction. It is desirable that those exhibitors who are prepared to erect specimens of actual buildings should, as far as possible, co-operate with other exhibitors who may be desirous of showing fittings or furniture for such buildings. The Executive Council will endeavour to facilitate such arrangements, but it will be desirable that the exhibitors should agree between themselves as to the manner in which such collective exhibits may be arranged.

The classification in Class 28 sufficiently indicates the objects it is desirable to show.

Under Class 29 may be included, in order to draw attention to existing defects, specimens of insanitary decoration, such as arsenical wall-papers, hangings, &c., so that the public may be taught what to avoid. Special interest would attach to any evidence of equally good effects being obtained by the use of harmless materials, and in many cases it may be desirable to show, side by side for purposes of comparison, papers, fabrics, &c., treated with poisonous colouring matters, and also with colouring matters of a harmless character.

With regard to Class 30, it may be noted that specimens of furniture would be readily received which can be shown to have any connection with health.

The original arrangement of Class 31 has been somewhat altered. Matters relating to the care of the sick and wounded in war, or of those injured by accident at any time, have been taken out of this class, and a special group has been formed to which they have been referred, namely Group IIIa. Ambulance. (*See page 108*). The Class has also been somewhat enlarged in another direction, so that it includes all appliances for personal cleanliness, public and private baths, &c. It is hoped that a full display of these may be forthcoming. The Executive Council have had under consideration the question of fitting up baths for actual use in the Exhibition, as was done in the Berlin Exhibition, but it has been decided that it would be sufficient to show baths completely fitted, without putting them into action.

## HEATING, LIGHTING, VENTILATING AND SMOKE ABATEMENT OF THE DWELLING-HOUSE.

The portion of Group 3, the Dwelling, with which this Committee deal is that comprised within Classes 24, 25 and 26. The official classification is given on page 107.

In Class 24 will be included Methods of Warming:—(1) by open and closed grates and stoves; (2) by water, air, steam, and gas apparatus, designed to *heat only*; (3) by similar appliances, but combining provision for ventilation and the heating of more than one



apartment; (4) by similar appliances for domestic use, specially designed for the economical consumption of fuel, and intended to minimise the production of smoke or other noxious products of combustion.

Domestic Kitcheners will be included in this class, but appliances for cookery on a large scale will more properly be arranged under Class 6 (Cookery, &c.).

Furnaces and steam boilers for manufacturing operations are not considered to be within the scope of the present Exhibition.

In Class 25 will be included special appliances for ventilation, other than those which may be considered more suitable for Class 24. These will include means for cooling the air supplied to rooms; means for improving the condition of the air in rooms; methods for setting air; the results of experimental researches into the state of air vitiated by combustion or by respiration; results of experiments on ventilation, and any other means of effecting improvement in matters relating to this class or of diffusing knowledge about them.

The official classification sufficiently indicates the class of exhibits which are desired for Class 26. It may be added that electric lighting is to be limited to illustrations of its application to domestic lighting. Its use on a large scale will be practically illustrated by the arrangements made for lighting the Exhibition itself. In the same way, the commercial manufacture of gas is not included, though its production on a small scale for private use is. Exhibits showing the progress of domestic lighting, and affording means of comparison between old and new systems, are specially desired. Photometric and other tests for illuminating materials may be added to the list contained in the classification, and it is desirable that methods of gas lighting, which either assist, or do not interfere with the ventilation, should be shown.

## SCHOOL AND EDUCATION.

The classification of these two groups—4, the SCHOOL; and 6, EDUCATIONAL WORKS and APPLIANCES—is given on pages 108, 109.

It will be seen that in Group 4 are comprised all the exhibits relating to school construction, to the improvement of the sanitary condition of school buildings, and to means for promoting the health of the scholars by physical exercises and otherwise.

The classification sufficiently shows the character of the exhibits the Committee would wish to see provided. They would, however, lay special stress on those included in Class 39, and relating to physical education. They would be glad to see included as many models as may be convenient of typical elementary schools, and they would appeal for this purpose to School authorities and Managers in this and other countries, and to architects who have given special attention to school construction, for the loan of such models, as well as of plans and diagrams. The admission of the latter, however, must be to a certain extent limited by considerations of space.

As regards Class 40 of this Group—and the same remark will apply to Class 55 in Group 6—the Committee are anxious that this class should be limited, with a view to preventing the Exhibition being overburdened with literature. Books stowed away in glazed cases, the backs only being visible, as is the usual custom in exhibitions, are of little practical value or interest; and if available for examination a constant watch is necessary.

Group 6—which forms the second division of the Exhibition within the province of



this Committee—relates entirely to educational works and appliances, these being restricted to such, in the first instance, as attach to primary schools, and secondly, to scientific, artistic, and technical education in secondary and higher grade schools, it being understood that Class 49 comprises what may be considered as technical education for women. Regarding this Group it will be noted that in every Class where they can come in, examples of specimens of school work are included. In the case of primary and infant schools the Committee would be glad to see this part of the Exhibition strictly limited to what is important or characteristic, and the same remark to a great extent applies to Class 49.

The Committee would wish to arrange for as large a display of maps and diagrams as the wall space available will permit.

Of the specimens of work of a handicraft or technical character, the Committee would be glad to see as full a collection as possible, especially of the higher class of work done in certain foreign schools.

The Committee do not consider it at all necessary that extensive collections of apparatus and fittings for infant and elementary schools in use in this country should be shown, especially when it is remembered that the educational collection of the South Kensington Museum is in the close neighbourhood of the Exhibition.

Among other points, on the importance of which the Committee would lay stress, may be mentioned the artistic decoration of schoolrooms, the exhibition of works of art suitable for use in schools, and the exhibition of objects suitable for school museums, or possibly of a typical school museum.

As regards the instruction of the blind and of the deaf and dumb—as in all other departments—the Committee would like the various systems to be fully represented, and it should be understood that no preference would be given to one system above another on account of any individual views which members of the Committee might entertain.

It will be noticed that in Class 55 are included the effects of cramming and overwork on the young. The Committee understand that this subject is mentioned in the classification merely in order that it might be included amongst the subjects for Conferences, and they do not understand that any exhibits intended to illustrate it will be sought for.

As regards collective displays (Class 56), the Committee will endeavour to organise displays of this character, which are likely to have a higher educational value than the exhibition of separate articles.

## INTERNATIONAL CONFERENCE ON EDUCATION.

An International Congress on Educational matters will be held during the week commencing August 4, in connection with the "Education" section of the Exhibition. Amongst the various subjects which it is proposed to discuss may be mentioned the following:—Conditions of Healthy Education; Infant Training and Teaching; Technical Teaching; Teaching of Music in Schools; Special Teaching, *e.g.*, of the Deaf and Dumb and Blind; School Museums and Libraries; Training of Teachers; Promotion of Thrift by Agency of Schools; Inspection of Schools; Examinations; Higher and University Education, &c.

A complete programme, which will be drawn up by the Sub-Committee appointed (a list of which will be found on page 123), will be published in due course.



## AMBULANCE.

The following heads indicate the articles and appliances which the Committee are anxious may be shown by the Army Medical Departments of various countries, the Societies established to render aid to the sick and wounded in war, and other organisations which may be able and willing to contribute.

1. Personal Surgical Equipment, as carried by the Medical Officers of the army in question.
2. Appliances for treatment of wounds, carried by the soldier himself in the field.
3. Personal Surgical Equipment carried by ambulance attendants in the fields, consisting of surgical haversacks (Havresacs Sanitaires), medicine panniers (Caisses Sanitaires), surgical knapsacks, field companions.
4. Ambulance Appliances carried by men, such as stretchers (Brancards), hammocks, dhoolies and palanquins.
5. Wheeled Conveyances wheeled by men—wheeled stretchers.
6. Ambulance Equipment carried by mules, horses, &c. Cacolets, Litières, Mountain Ambulance Equipment (Ambulance de Montagne), cooking equipment for mountain campaigns—portable medicine chests, compressed drugs, &c.
7. Wheeled Vehicles used for the conveyance of sick. Fourgons containing the equipment of Hospital Corps surgery waggons, equipment waggons, field cooking waggons, pharmacy waggons, nursing utensils carried in waggons of field hospital. Books of instruction for use. Diagrams.
8. Railway Ambulances consisting of carriages for wounded, with fittings, cooking carriages, and all the equipment of ambulance trains. Materials for converting ordinary carriages into ambulance carriages.

It would be useful if some attendants accustomed to the use of the material accompanied the articles.

The articles will be arranged in accordance with the classification of Classes 31A and 31B, given on page 108.

## THE WORKSHOP.

This Sub-Committee desire to see illustrated, in as practical a manner as possible, the relation of INDUSTRIAL CONDITIONS AND PROCESSES to HEALTH. The *place of production* of all articles used by man is for the present purpose spoken of as THE WORKSHOP.

In this department of the Exhibition are comprised Classes 41–46. (*See page 108 for classification.*)

The following heads show the principal subjects which the Sub-Committee are anxious should be illustrated in the several classes of this department, the illustrations being expected to include alike the conditions of injury to health and the means proposed for improvement.

Besides apparatus used, or proposed for use, with a view to minimise danger to life and health, the Exhibits may comprise models, drawings, specimens both of harmful products and improved products, &c., and the Committee will be specially glad to receive collections



of specimens, models, diagrams, photographs, &c., showing existing evils or noxious conditions which have been modified by recent improvements.

(a) VENTILATION OF THE WORKSHOP:

By simple discharge of internal air.

By destroying offensive or injurious quality of discharged air.

(b) EFFLUVIUM NUISANCES:

By condensing and utilising vapours.

By consuming vapours.

By other means, as in gas works.

(c) DUST NUISANCES: *e.g.*—

In needle grinding, mother-o'-pearl working, in weaving sheds.

(d) DANGER FROM MINERAL POISONS: *e.g.*—

In arsenic works, white-lead works, playing-card making, card-bronzing, phosphorus and match manufacture.

(e) DANGER FROM ANIMAL POISONS: *e.g.*—

In Wool-sorting, rag-picking.

(f) PREVENTION OF ACCIDENTS IN THE WORKSHOP: *e.g.*—

Protection against heat, injury to eyes; against explosions in the Mine and elsewhere.

## METEOROLOGICAL.

It is desired to illustrate as far as possible the relations of meteorology to health, and for this purpose a special Sub-Committee has been formed. The classification is given on page 109.

It is hoped that the Royal Meteorological Society will establish a Typical Climatological Order Station, provide the complete equipment, and supervise the same. This will be arranged on a level grass space about 30 feet square, which space will be railed in, and provided with a gate through which a limited number of the public can from time to time be admitted.

The attendant will take daily observations from the instruments, which will be exhibited in diagrams, and a copy of them furnished to the Editorial Department of the Exhibition, for publication in the Daily Programmes and also as a communiqué to the Press.

It is hoped that a series of large diagrams illustrative of the climatal conditions prevailing in various parts of the world may be exhibited.

Besides the collective exhibit above described, space will be provided for the exhibition of instruments by manufacturers, inventors, and others, who may desire to show them. Attention is particularly directed to the fact that the Committee specially invite the exhibition of meteorological instruments bearing upon the relations of Climatology to Public Health.

The Committee also appeal to authors of Papers upon the relations between health and disease, rainfall, percolation, evaporation, and flow from the ground, and other subjects embraced by the Exhibition, and invite them to exhibit diagrams, models and apparatus illustrative of their researches.

It should be borne in mind that instruments which are not considered to come within the scope of the Exhibition, as bearing on the relations between Meteorology, Climatology and Health, will not be held admissible.



Among those which it is considered desirable to show may be mentioned:—

Barometers.	Airmeters.
Aneroids.	Rain Gauges.
Thermometers.	Automatic Meteorological Apparatus.
Earth Thermometers.	Sunshine Recorders.
Thermometer Stands.	Evaporation Gauges.
Hygrometers.	Ozone Papers.
Anemometers.	Ozonometers.

Makers are requested to confine their exhibits for the most part to instruments of their own manufacture, and not to multiply examples of identical, or nearly identical, instruments.

## LIBRARY AND READING ROOM.

The Executive Council have assigned a large room, in the Royal Albert Hall, to be used as a Library and Reading Room in connection with this Exhibition, which has been decorated and furnished by Messrs. Liberty & Co., 142 Regent Street, W., and is now opened to the public, admission free, from 11 A.M. to 6 P.M. Authors, Publishers and others have been invited to send copies of works on subjects embraced in either or both of the two Divisions of the Exhibition—HEALTH and EDUCATION.

The Books received have been classified and catalogued, and made available for the use, in the Library and Reading Room, of the public visiting the Exhibition. A Catalogue is printed. All Packages containing Books for the Reading room and Library should be forwarded, carriage paid, to the Librarian, Royal Albert Hall, S.W. The Executive Council cannot hold themselves responsible for any loss or damage to Books sent in by Exhibitors, but a reference to the Regulations will show that every precaution has been taken.

## LABORATORY.

MODEL LABORATORIES OF PUBLIC HEALTH for the display and demonstration of Methods of Examining Food, Air, Water, Soil, and Constructive Materials of Dwellings, Disinfectants, etc., will be formed. These Laboratories would afford an instructive model for municipalities and sanitary authorities.

### LABORATORY FOR BIOLOGICAL RESEARCH,

Under the charge of Mr. WATSON CHEYNE and an Assistant.

The Laboratory will be divided into a large room—the Laboratory proper—and three small ones, two for incubators, etc., and one for cleansing purposes.

The exhibit will include all the instruments, materials, and methods (short of the actual inoculation of animals) employed in the investigation of the bacteria and fungi associated with the zymotic diseases of man, animals, and plants. The methods of testing the power of disinfectants will, within the same limits, be also shown.

In more detail there will be exhibited: the materials and processes employed in preparing sterilised cultivating media—cultivations of various micro-organisms, especially those associated with disease—modes of demonstrating bacteria by staining, etc.—modes of investigating bacteria in air, water, and soil, and of isolating and studying the organisms found—methods for testing the power of chemical agents in destroying bacteria, with illustrations—photographs of the various micro-organisms—micro-photographic apparatus—microtomes, microscopes, incubators, purifying chambers, etc.

Demonstrations will be given from time to time, at which several of the matters



mentioned above will be illustrated, such as the forms of various micro-organisms—cultivations of some organisms to show their modes of growth—methods of preparing sterilised cultivating materials, and of carrying out a series of pure cultivations—methods of examining air, earth, and water for bacteria.

#### HYGIENIC LABORATORY,

Under the charge of Professor CORFIELD assisted by Mr. Cassal.

In this will be exhibited all the apparatus necessary for the Physical, Chemical, and Microscopical examination of Water, Air, Soils, Foods, Disinfectants, etc., and also for the examination of Sanitary Appliances.

Illustrations of the following will be given :—

Microscopical examination of water sediments; chemical examination of mineral and of organic matters in suspension and solution in water; growth of organisms in gelatine and sugar solutions; testing the value of filters.

Methods for estimation of the carbonic acid in air; including the "household test;" detection of other gaseous impurities; chemical and microscopical examination of the organic matter in air.

Mechanical, chemical and microscopical examination of soils.

Chemical and microscopical examination of various articles of food and drink; detection of adulteration.

Examination of "disinfectants," wall papers, articles of clothing, etc.

Apparatus for experiments illustrating the movements of air in pipes, etc., and its passage through various materials; methods for testing the soundness of drain pipes and soil pipes; the efficiency of traps and other apparatus; and any other experiments connected with Hygiene.

Physical, Chemical, and Microscopical Demonstrations will be given from time to time.

### LONDON WATER SUPPLY.

It is intended to illustrate by means of models, sections and diagrams, in a Pavilion specially constructed for the purpose, the Water Supply of all the Metropolitan Water Companies.

This Sub-Committee will specially deal with sources of supply, methods of filtration (including full-sized sections of the filter-beds) and distribution, giving particulars respecting quantity and area under constant supply. They will also show the quality of the water as supplied by each company—bringing into the Exhibition water from each company; and they will publish analyses of the same; and generally display such other exhibits as will convey to the public at large an idea of the magnitude and importance of the Metropolitan Water Supply.

### INDIA.

The object which this Sub-Committee think should be kept in view in considering the arrangements for the Indian Section of the Exhibition is the illustration, in as vivid a manner as possible, of the actual life of the masses of the people of India, as regards the three especial objects of the Exhibition, their Food, their Dress and their Dwellings; also, but to a less extent, their Education.



The Committee feel that they must not rely solely on contributions from India, but that they must also expect the aid both of traders and of private individuals in England, in securing an effective Indian display. They are, therefore, anxious that it should be distinctly understood that applications for space from Indian traders in England will be readily considered, provided, of course, that the proposed exhibits are of a character suitable for the Exhibition. As regards Group 1, Food, it will be desirable that there should be complete collections of the ordinary food of the people in some selected districts of each principal province. Where possible, it would be desirable to have the prepared food itself; when this cannot be done, the raw materials and models might be shown. Thus for a Deccan district, samples of bajra and jowar, the chief grain foods, of wheat, dhal and pulses, and of the flour as prepared by the natives for use; models of the chowpattis or loaves; then the condiments, salt, pepper, pickles, etc., as actually used; ghi, gur, and sweetmeats with the grindstones; models of "chulas" or cooking stoves and the like; cooking pots, dishes, etc., as used. For a coast district, rice in its various preparations, salt and dried fish, etc.

Specimens also of Indian food-stuffs imported in this country are desired, as well as specimens of the various condiments, pickles, preserves, etc., manufactured either for European or local use. Models of edible fruits, especially those known in this country in a dried state, would be useful. Also representations or stuffed specimens of animals and fish used as food. Any illustrations of the processes of preparing rice, tea, coffee, etc., would be welcomed. It would certainly create great interest here if a few native cooks could be brought over, with plenty of materials, who would cook daily, for sale, say a good Mussulman dinner and a good Hindu dinner, with accompaniments such as are used at caste feasts, weddings, etc.

As regards Group 2, Dress, the most important thing will be to show the clothing, etc., of representative classes in representative districts of each province; thus, from Bombay there might be a Gujerat patidar, a Deccan banya, a Konkan fisherman, a Borah trader, a Parsee merchant—with their women: from Bengal and Madras, similar typical examples. The dresses should be shown on lay figures, and should be the ordinary habiliments of the people with their ordinary ornaments, also with charpais, kamlis, rasais, etc. Exhibits illustrating the construction of Indian fabrics, and specimens of any fabrics of special interest are desirable, also illustrations of silk culture, especially tussur.

In Group 3, the Dwelling, possibly there might be exact models of the better class of houses in representative districts (say of a cultivator of the better class, a banker, a shop-keeper), of the cottages of the lower classes, the huts of weavers, fishermen, etc., of European up-country bungalows, and of a bit of a bazaar in an up-country town. With these models should be shown small figures, dressed to represent the people at their usual avocations; models of their furniture and of their domestic animals might be put into their houses. Models of native schools, and any matters connected with the education of the people, would be acceptable. Punkas, tattis and thermantidotes should be admitted, and other means of cooling air drinks, &c.; also means for carrying and preserving water.

If, besides the cooks above mentioned, other Indian workmen could be brought over, potters, blacksmiths, weavers, clothworkers, embroiderers, silversmiths, &c., it would form a most interesting feature in this Exhibition, and, as illustrating the life of the people of India, possibly not an unsuitable feature.



## JURY COMMISSION.

H.R.H. the PRINCE OF WALES, as President of the International Health Exhibition, has delegated to a Commission, selected from among the members of the Executive Council, the duty of making arrangements for the effective carrying out of the work of the International Juries.

This Commission consists of:—Lord Reay (Chairman); Sir James Paget, Bart., F.R.S.; Sir Frederick Abel, C.B., F.R.S., D.C.L.; Sir Philip Cunliffe-Owen, K.C.M.G., C.B., C.I.E.; Dr. George Buchanan, F.R.S.; with Mr. H. Trueman Wood (Secretary of the Society of Arts); and Mr. Gilbert R. Redgrave, Assoc. Inst. C.E., Joint Secretaries.

His Royal Highness has expressed his wish that the Exhibitors should themselves aid in the selection of Jurors, and in order to carry this suggestion into effect, the Exhibitors will each of them be requested to enter, on a form provided for the purpose, the names of three gentlemen to be recommended as Jurors.

From the list thus formed the Commission will make a selection. They will endeavour to give full weight to the opinions expressed by Exhibitors: but it must be understood that they will not feel themselves restricted to the list of names suggested, especially as the gentlemen recommended by a majority of the Exhibitors may, in some cases, be unwilling or unable to serve.

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## PRIZES OFFERED BY THE SOCIETY OF ARTS.

The Council of the Society of Arts announce that they are prepared to award the following prizes in connection with the International Health Exhibition:—

Under the John Stock Trust, a Society's Gold Medal or £20, for the best example of sanitary architectural construction, Classes 20, 28, 29, 30, 32.

Under the Shaw Trust, a Society's Gold Medal or £20, for the most deserving exhibit in Classes 41, 42, 43, and 45 (relating to Industrial Hygiene).

Under the North London Exhibition Trust, a Society's Gold Medal or £20, for the best set of specimens illustrating the handicraft teaching in any school—Classes 49 and 50.

Under the Fothergill Trust, Two Gold Medals (or two sums of £20), one for the best exhibit in Class 27 (Fire Prevention Apparatus), and one for the best exhibit in Class 26 (Lighting Apparatus).

From the Trevelyan Prize Fund, Five Gold Medals (or five sums of £20), for the best exhibit in each of the following Classes—2, 3, 6, 7, and 11 (all comprised within Group 1, "Food").

The "Siemens Prize," a Society's Gold Medal or £20, for the best application of Gas to Heating and Cooking in Dwellings.

Given by Mr. J. L. Stacy, a Society's Gold Medal or £20 for the best exhibit in Class 30.

Each prize will be a Gold Medal, or the sum of £20, at the option of the recipient.

The Council propose to ask the juries in each class to recommend for their consideration either two or three exhibits which they might consider deserving a prize. It will be assumed that all the exhibits in the classes specified, which come under the above definitions, are eligible for the awards. It will not be necessary for any special application to be made in respect of these Prizes.



The following is the arrangement of the Handbooks, Conferences, and Lectures, as they are published in Volumes:—

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 HEALTHY AND UNHEALTHY HOUSES IN TOWN AND COUNTRY. By William Eassie, C.E., with an Appendix by Rogers Field, C.E. *Illustrated.*  
 HEALTHY FURNITURE AND DECORATION. By Robert W. Edis F.S.A. *Illustrated.*  
 HEALTHY SCHOOLS. By Charles E. Paget, M.R.C.S.  
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- MANSION HOUSE COUNCIL ON THE DWELLINGS OF THE POOR.—The Lord Mayor, President; John Hamer, Secretary. 3, Queen Victoria Street, E.C.  
 "The Population of London and its Migrations"—"The Treatment of the London Poor"—"Overcrowding"—"Suburban Dwellings and Cheap Railway Fares"—"On the Creation of a Building Fund"—"Some Difficulties of Sanitary Legislation in the Metropolis"—"Suggestions to the Royal Commissioners."  
 ROYAL INSTITUTE OF BRITISH ARCHITECTS.  
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 "What conditions are essential for a Healthy Dwelling, whether in an urban or in a rural locality, and how far is it desirable that they should be rendered compulsory by legislation?"—"What, if any, restrictions in the interests of health should be enforced in connection with the employment of girls and women in Workshops and Factories?"—"Is it desirable that notification of Infectious Disease should be obligatory?"—"Is it desirable to legislate further respecting the duties of Medical Officers of Health?"  
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President; Charles E. Groves, F.C.S., Secretary. Somerset House  
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“Food Adulteration and Analysis,” with Appendix.
- BRITISH BEE-KEEPERS’ ASSOCIATION.—The Baroness Burdett-Coutts,  
President; Rev. H. R. Peel, M.A., Secretary. Royal Horticultural Gardens,  
S.W.  
“Foul Brood and its Prevention.”—“Adulteration of Honey.”
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- THE DIGESTIVE FERMENTS AND CHEMICAL PROCESSES OF  
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- ATHLETICS. Part II. By Hon. Edward Lyttelton, M.A., and Gerard F. Cobb, M.A.
- DRESS AND ITS RELATION TO HEALTH AND CLIMATE. By E. W. Godwin, F.S.A. *Illustrated.*
- FERMENTATION. By Dr. C. Duclaux, Professor of Biological Chemistry at the Sorbonne. *Illustrated.*
- PUBLIC HEALTH LABORATORY WORK. By W. Watson Cheyne, F.R.C.S., and W. H. Corfield, M.A., M.D., F.R.C.P. With Catalogue as Appendix.
- LONDON WATER SUPPLY. By Colonel Sir Francis Bolton, C.E.
- INDEX TO VOLUME.

**VOLUME XI. (*Published.*)**

CONFERENCES.

- MEDICAL SOCIETY OF LONDON AND NATIONAL HEALTH SOCIETY.—Sir Joseph Fayrer, M.D., F.R.S., Chairman; A. Pearce Gould, Secretary. Address: 11, Chandos Street, Cavendish Square, W.  
Dietaries—Duties of School Managers in relation to Epidemics—Preventive Treatment of Epidemics in Public and High Schools—Grammar and High Schools, their Construction and Arrangement—School Dormitories—Effects of Posture in Schools—Gymnastics in Schools—Gymnastics *Feriencolonien*—The Health and Physical Development of Idiots as compared with mentally sound children.
- ROYAL METEOROLOGICAL SOCIETY.—R. H. Scott, President; William Marriott, Assistant Secretary. Address: 30, Great George Street, S.W.  
Some relations of Meteorological Phenomena to Health.—English Climatological Stations.—Cumulative Temperatures, &c., as shown on the Diagrams exhibited by the Meteorological Office in the International Health Exhibition.—Some occasional Winds and their Influence on Health.—The Equinoctial Gales—Do they occur in the British Isles?
- ASSOCIATION FOR THE ORAL INSTRUCTION OF THE DEAF AND DUMB.—The Earl Granville, K.G., President; A. H. Moses, Hon. Secretary. Address: 11, Fitzroy Square, W. Subject: Oral Instruction of the Deaf and Dumb.  
On the Oral Instruction of the Deaf and Dumb. On the Education of Incurably Deaf Children
- SOCIETY OF TELEGRAPH ENGINEERS AND ELECTRICIANS.—Professor W. Grylls Adams, F.R.S., President; F. H. Webb, Secretary. Address: 4, The Sanctuary, Westminster, S.W.  
Electric Lighting in relation to Health.—Physiological bearing of Electricity in relation to Health.
- EPIDEMIOLOGICAL SOCIETY OF LONDON.—N. Chevers, M.D., C.I.E., President. Address: University College, Gower Street, W.C.  
Health in India—Change of Type in Epidemic Disease—Leprosy in India, and the best means of preventing its increase.
- INDEX TO VOLUME.

**VOLUME XII. (*Published.*)**

LECTURES.

- PARASITES OF MEAT AND FOOD (TWO LECTURES). By T. Spencer Cobbold, M.D., F.R.S.
- CANDLES. By Leopold Field.
- SOAP. By Charles F. Cross.
- HISTORY OF ENGLISH DRESS. By Hon. Lewis S. Wingfield.
- CHILDREN'S DRESS. By Miss Ada S. Ballin.
- TEXTILES GENERALLY. By William Morris.
- PHYSICAL EXERCISES FOR GIRLS. By Miss M. A. Chreiman.
- OLD AND MODERN POISON LORE. By A. Wynter Blyth, M.R.C.S.
- INDEX TO VOLUME.

**VOLUME XIII.**

OFFICIAL CATALOGUE. | JURY AWARDS.



## INTRODUCTION.

THE success which attended the holding of the International Fisheries Exhibition in 1883 naturally suggested that it should be followed by other Exhibitions of a somewhat similar character—that, in fact, it should form the first of a series, instead of, as had been the original intention, standing alone. It is obvious that there were many advantages in such a course. The buildings which had been erected were all or nearly all available for general Exhibition purposes; the organisation was ready; and many of the expenses attending the originating of an Exhibition had been met once for all.

His Royal Highness the PRINCE OF WALES, at the closing ceremony of the Fisheries Exhibition, in his reply to the address of the Executive Committee, naturally referred to so obvious a course, and in the following sentences initiated the idea of the Exhibition of 1884.

“The evidence of the public interest in such Exhibitions, afforded by the vast concourse of visitors from all parts of the realm to that which is now closed, has led me to hope that the buildings which have been erected at so much cost, and which have so admirably served their purpose, shall continue for the next three years to be employed for Exhibitions of a similarly comprehensive character.

“In considering what shall be the subject-matter of these Exhibitions, three topics of paramount interest to our community have presented themselves to my mind. These are Health, both bodily and mental; Industrial Inventions; and the rapidly-growing resources of our Colonies and of our Indian Empire.

“I have expressed a desire that the Exhibition of 1884 will embrace the conditions of health, in so far as, like food, clothes, and dwellings, they fall under the head of Hygiene; or, like appliances for general and technical teaching, gymnasia and schools, under that of Education.”

His Royal Highness further decided that in the succeeding year an Exhibition should be held illustrating the Progress of Invention in this and other countries since the last great London Exhibition of 1862; while he devoted the year 1886 to an Exhibition illustrative of the Products of the Colonies and of the Indian Empire.

In choosing Health for the principal subject of this year's Exhibition, His Royal Highness was actuated by the consideration that while the scope of the Exhibition would be sufficiently limited to enable it to be brought within the available space, it yet embraced a sufficiently wide range to give it a very great interest, while it dealt with a subject naturally the most important of all subjects to the people of this and of every other country. It was decided that while the Exhibition should be limited to matters bearing upon Health, yet that that term should be construed in the widest possible sense, the endeavour being made to illustrate all the conditions of healthful life, as regards the food of the people, their clothing, and the dwellings in which they live.



The classification naturally therefore arranged itself under these three main heads—FOOD, DRESS, and the DWELLING. For convenience of arrangement it was found desirable to add to these three principal groups one dealing with industrial hygiene, in which might be illustrated the effect of manufacturing operations generally upon the health of those who carry them on, a matter of very great, and, as the applications of science to industrial purposes increase, of growing importance. This group was entitled the "WORKSHOP," it being understood that this term included the "place of production" of all articles. The relation of climatology to health appeared to be capable of better treatment in a separate division (METEOROLOGY); while the importance of drawing public attention to the means of assisting those injured in war or by accidents in time of peace, caused the addition of yet another group, for the illustration of such matters, to this department of the Exhibition, and to this group was given the title of AMBULANCE. At the same time it has always been held that the Exhibition is in no sense a medical one, and therefore it was considered unnecessary to extend its scope in such a way that it should take in medical or surgical appliances.

As regards the second main division of the Exhibition, EDUCATION, His Royal Highness felt that the time was singularly appropriate for illustrating this subject, considering the growth of educational systems during the past few years, and the great attention which educational matters have lately been attracting. Since the first Educational Exhibition held in 1854 by the Society of Arts, no Exhibition has been specially devoted to this subject, though of course there have been numerous and valuable displays of educational appliances at all great International Exhibitions which have been held in different countries. Since 1862 there is hardly a branch of education in this country which has not undergone very great changes. The establishment of School Boards may fairly be said to have revolutionised the character and widely extended the scope of elementary education. The standard of secondary education also has been considerably raised by the establishment of high schools both for boys and girls, as well as indirectly by the elevation of the standard in elementary education. The country has been at last thoroughly awakened to a sense of its requirements in the matter of technical education, and is watching with keen interest the progress of the various agencies which are fast arising to supply a want of which we were unconscious a few years ago. Chief among them must be mentioned the City Guilds Institution, which is now just getting into practical work. The present year will also be marked by the appearance of the Report of the Royal Commission on Technical Education. Even the ancient Universities have felt the influence of the popular demand for better and more widely extended education, and probably during the past twenty years greater alterations have been effected in them than during the previous fifty, while the number of the English Universities has been increased by the establishment in the North of England of the Victoria University. Having all these points in view, His Royal Highness considered that an Exhibition specially devoted to education could not fail to be of very great practical use and to attract much public interest, and he therefore decided that a portion of the space available should thus be employed.



In order to bring the exhibits in this division within the limits of space available, it was decided that they should be confined to the illustration of infant and primary education, technical education, art and science teaching, and the teaching of the blind and of the deaf and dumb; technical education being held to include not only handicraft teaching for boys and artisans, but also domestic economy, and all forms of industrial education for girls.

With a view of carrying the above proposals into effect, an Executive Council was appointed by His Royal Highness the PRINCE OF WALES, of which the Duke of Buckingham and Chandos was nominated Chairman, and Sir James Paget Vice-Chairman. The names of the other members of the Council will be found on page 113. They met for the first time on 5th November, 1883, at the Society of Arts, and continued their meetings there until 1st February last, when the place of meeting was changed to the offices at South Kensington. The meetings have been held almost continuously twice a week since November, interrupted only by the two vacations at Christmas and at Easter.

The direction of the work, and all the Executive powers, remained in the hands of this Council, but they were greatly assisted in the undertaking by a number of Sub-Committees selected from amongst the members of a General Committee, which was formed by the Executive at their earliest meetings. Of these Sub-Committees, there were no less than sixteen. Three dealt with the different classes into which the first group, Food, was divided; one, with Dress; three, with the Sanitation, Heating, Lighting, &c., of the Dwelling-house; and one Committee dealt with each of the following subjects:—Ambulance, Workshop (Industrial Hygiene), School and Education, Technical Education, Meteorology, Library, Laboratory, London Water Supply, India.

The first work of the Committees was to prepare, for the guidance of the exhibitors, memoranda dealing with the different classes of the Exhibition. These memoranda were widely circulated, and proved of considerable value. As the applications for space came in, they were referred to one or other of the Committees, and were not accepted until after they had been examined and passed; and the technical knowledge of the various gentlemen composing the Sub-Committees has been, it is hoped, to some extent a guarantee of the character of the articles exhibited. It is by no means to be assumed that the fact of its having been admitted is any guarantee of the merit of an exhibit, but it may be taken that no exhibitor has been granted space unless his application seemed to show some *prima facie* grounds for the space being granted. It is believed that the arrangements have been effective in raising the general standard, and this is what was intended; it was not intended that the verdicts of the juries should be anticipated, nor have they been so.

Besides this work, which fell upon all or nearly all the Committees, most of the Committees undertook to arrange certain special exhibitions, such as would not be likely to be sufficiently illustrated by the exhibits of manufacturers. Where necessary, the funds required for these exhibits were provided by the Executive. The Committee on Dress undertook, through the agency of some of its members, to arrange a series of models illustrating the changes in costume in England since the Norman Conquest. They also took steps for the exhibition of a series of naval and military costumes lent from the Tower, the United Service Insti-



tution, the War Office, and the Admiralty. Arrangements were also made to give visitors to the Exhibition information as to the heat-resisting or heat-transmitting power of fabrics, and as to the extent to which these properties are affected by colour. An arrangement of apparatus intended to illustrate these facts will be found in the Exhibition.

The Committees on the Dwelling House undertook to supervise the erection of two houses in the Exhibition grounds, one of which should illustrate the defects to be found in an ordinary London house, and for the other methods in dealing with these defects. It will be understood that both these model houses are typical, as it is evidently impossible to show in a single building either all the defects which may exist in a number of houses, or the various ways which have been devised by inventors of sanitary apparatus for remedying those defects. Visitors to these houses should not go away with the idea that, because none of the faulty fittings shown in the insanitary house exist in their own houses, that therefore their own houses are faultless; nor, on the other hand, should they imagine that improved fittings in their own possession, but by different makers, are not equally as good as those shown in the sanitary house. These latter have been selected, not with a view of advertising any individual's wares, but in order to illustrate a general principle of House Sanitation.

The labours of the Education Committee have been considerable. Besides dealing with the applications for space from British exhibitors, they, as well as the Committees specially appointed for Technical Education, have been in communication with a great number of foreign educational authorities, with a view of ensuring a fit representation of the systems of education in force in different countries. An important portion of the educational exhibition is formed of the contributions of the Science and Art Department, which will illustrate the results of art-teaching since the Great Exhibition of 1862.

The Meteorological Committee had the special duty of arranging for a typical climatological station, the equipment for which the Royal Meteorological Society had undertaken to provide. This station has been established at a point on the east side of the gardens, to the north of the Central Promenade. Arrangements have been made for the observations taken from the instruments to be published regularly in the daily programmes. With reference to these observations, it is worth mentioning that they cannot be expected exactly to tally with those made at stations in which the conditions as to position, &c., have been more carefully observed than in the necessarily somewhat confined area of the Exhibition Gardens.

The Laboratory Committee was appointed to make arrangements for the establishment of two hygienic laboratories, the special object of these being to afford the public information as to the methods of examining and testing food, air, water, soil, &c. Of these two laboratories one is devoted to biological research, under the charge of Mr. Watson Cheyne. In it will be shown instruments and methods employed in the investigation of the bacteria and fungi associated with zymotic disease; also the methods of testing the power of disinfectants. In the second laboratory, which will be under Dr. Corfield's superintendence, will be shown the apparatus used for physical, chemical, and microscopical examination, &c., and also for the testing of sanitary appliances.



The different Metropolitan Water Companies having undertaken to organise a collective exhibit showing the sources of supply, methods of filtration, distribution, &c., of water, a special Committee for this purpose was appointed. The results of their labours will be found in the collection shown in the Water Pavilion.

The Sub-Library Committee was appointed to supervise the Library and Reading Room, which it was decided to establish in connection with the Exhibition. In answer to a request issued by the Executive Council, Government Departments, Learned Societies, authors, publishers, and others, have been good enough to send a large number of works and papers dealing with Health and Education. These have been properly arranged and classified, and are available for the use of visitors to the Exhibition, from 11 a.m. to 6 p.m., in a room in the Royal Albert Hall contiguous to the Conservatory.

The India Committee was formed with the special object of ensuring that India should be properly represented in the Exhibition. At an early stage of the proceedings the Government declined to render any assistance, and the Committee had therefore to fall back upon individual effort, relying not only on what they might expect to receive from India itself, but also on the assistance of traders and private individuals in England. Perhaps the most interesting portion of the Indian Exhibition will be the Tea Garden, in which will be exemplified the growth and preparation for the market, of Indian tea. This Tea Garden is situated in the grounds to the north of the Indian Court.

One of the earliest Committees formed was the City Committee. This is composed of ten members nominated by H.R.H. the President, and ten elected by a meeting of representatives of the Corporation and the Guilds contributing. The Executive Council are much indebted to the liberality of the Corporation and these Guilds, who have largely contributed to the general purposes of the Exhibition, besides guaranteeing a considerable sum in addition. The Executive Council readily acceded to a suggestion that a certain portion of this amount should be left at the disposal of the City Committee in order to enable them to erect in the grounds of the Exhibition a representation of a portion of Old London. It was at first proposed that there should be an accurate representation of Cheapside at a certain period of its history; but eventually this idea was abandoned, and it was decided to erect what might be considered a typical London street of the date of the sixteenth century. This street, which may fairly be considered to form one of the most interesting portions of the Exhibition, leads to the Pavilion of H.R.H. the Prince of Wales from the entrance to the Exhibition in Queen's Gate.

With regard to the buildings occupied by the Exhibition, it may be mentioned that considerable additions have been made to those erected for the Fisheries Exhibition last year. The principal of these are the Belgian Annexe, on the west side, the additions to the Chinese Court on the east side, the Dairies on the south side, and the Water Pavilion. Extensive alterations have also been made in the existing buildings. The Fish Market has been transformed into a Dining Room, in which dinners will be provided at a charge of a shilling, and also on the system invented by M. Duval, of Paris, by means of which a cheap dinner can be obtained *à la carte*. But the principal addition to the



accommodation at the command of the Executive is caused by their having been able to arrange with the Commissioners of the Royal Albert Hall for the use of the hall during the period of the Exhibition, and also from the City Guilds Institute for the Promotion of Technical Education having most liberally placed at the disposal of the Executive the magnificent building which they have just completed for their Central Institution. As the Institute found that they would only require a portion of their building for some little time to come, and inasmuch as it was not absolutely necessary for them to proceed at once with the fitting up of the whole building, they allowed the Executive Council the use of the greater part of it, reserving to themselves only that portion which it was necessary to fit up at once. In this building the greater part of the educational exhibits will be placed.

With a view partly of forming some permanent record of the Exhibition, and also of increasing its usefulness while it was going on, the Executive Council made arrangements for the publication of a series of Handbooks, similar to those issued in connection with the Fisheries Exhibition last year. They have to congratulate themselves upon having been able to secure the assistance of a most competent body of writers, as will be seen from the List of Handbooks given on pages 143 to 146. At the conclusion of the Exhibition it is proposed to transfer the copyright of these books to the Society of Arts, which Society has undertaken to arrange for their sale, so long as the earlier editions may last, and if there is any public demand for them, to provide fresh editions.

As stated in the first announcements of the Exhibition, Medals of Gold, Silver, and Bronze, together with Diplomas, will be awarded through the agency of International Juries; and besides these prizes the Juries will be asked to award some Gold Medals offered by the Society of Arts for the best exhibits in certain classes. In order, as far as possible, to prevent any reasonable cause of complaint at the awards of the jurors, the exhibitors have been invited themselves to name gentlemen qualified for the post. The selection will be made, as far as possible, in accordance with the nominations of the exhibitors, and special attention has also been devoted to the important point of making such arrangements for the jury work as will ensure that, as far as possible, no exhibitor may have just cause of complaint. H.R.H. the Prince of Wales nominated from amongst the Members of the General Council, a Special Commission for the purpose of supervising this department of the work. Their names are given on page 113.

In concluding this Introduction, the Executive Council have to express their sense of the valuable aid they have received, not only from the members of the different Sub-Committees, but also from the following public bodies:—The Royal Albert Hall, for co-operating with them and enabling the Albert Hall to form a part of the Exhibition; the City and Guilds of London Institute, for placing the new building of the Central Institution at their disposal; the Society of Arts, not only for the Prizes they have offered and their assistance in the matter of the Handbooks, but also for their help in the working of the Committees, most of which, as well as the Executive Council, met for a considerable time at the Society's house; the Council of the National Training School of Cookery for earnest assistance in many important directions; the



London Water Companies for their admirable collective exhibit; and specially H.M. Commissioners for the Exhibition of 1851, who have placed the land and gardens at the disposal of the Executive Council, and have readily granted additional space for the erection of new buildings; and finally to the many subscribers to the Guarantee Fund, without whose liberal aid it would have been impossible to carry to a successful issue the International Health Exhibition of 1884.

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The plaster cast in the entrance Hall is that of the Statue in Bombay of Albert Edward, Prince of Wales, K.G., G.C.S.I., in commemoration of the visit of his Royal Highness to India, 1875-76. Sir Albert Sassoon, C.S.I. Kt., presented this statue to his fellow townsmen of the Royal City of Bombay.

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## COMPLIMENTARY LIST.

THE EXECUTIVE COMMITTEE is indebted to the following gentlemen for Special Services rendered; and for the Exhibits specified below, which have been courteously lent for the use of the Executive at the installation of the Exhibition, and throughout its term.

**ALEXANDER, FREDERICK, COL.,** 129 Inverness Terrace, W.—An Automatic Clock, for use in the Main Entrance of the Exhibition.

**ASBESTOS CO., Limited (THE UNITED),** 161 Queen Victoria Street, E.C.; & Clement Street Works, Birmingham.—The gable ends of the Exhibition Buildings have been painted and decorated by the United Asbestos Company, of London and Birmingham. The paint employed is non-poisonous, and of similar character to the Fireproof Paint supplied by the same Company, and used for the general protection of the Exhibition buildings against fire. The material employed is the specially fine "Asbestos" obtained from the Company's mines in Italy. It is free from all poisonous or noxious ingredients, and is at the same time the most powerful resistant of acids or acid gases.

**AUTOMATIC CLOCK CO., Limited** (Manager H. SAINSBURY), 43 Devonshire Chambers, Bishopsgate, Street, E.C., have erected in the Main Entrance, immediately behind the statue of H.R.H. the Prince of Wales, one of their Automatic Clocks, or Perpetual Regulators. When once regulated, these clocks will indicate the correct time until the works require cleaning, or for a period of about five years.

**BARNARD, BISHOP, & BARNARDS,** Norwich.—Ornamental Cast and Wrought-iron Garden Chairs and Lounges, Ornamental Barriers, &c.

**BELLAMY, JOHN,** Engineer, Tank & Boiler Maker, Byng Street, Millwall, London.—Wrought-iron Cistern for feeding steam boiler. These tanks and cisterns are made of any size, and they are very strong and durable, and are not affected by the weather.

**BENHAM & SONS,** of Wigmore Street, London, W., have supplied and erected in the Secretary's Office a Marble Chimney-piece, an Encaustic Tile Hearth and an Edwards' Smoke-consuming Slow-Combustion Grate. Also in three other offices—Two improved Office Stoves on Tile Hearths, with smoke flues, and an improved glazed ware Lavatory Table.

**BIRT, J. & A. W.,** Dock Street, London Docks, London; and Malaga, Spain.—The Virgin Cork (over 100 bales) used in the various decorations at this Exhibition. Messrs. J. & A. W. Birt's cork forests are in the province of Malaga, in Spain.

**BROWN & GREEN,** 69 Finsbury Pavement.—Brown & Green's Ventilating Stove. The cover can be readily removed and the fire supplied with fresh fuel *without the*

*least escape of smoke.* The inside is lined with fire-brick. In the ash-hole door is a ventilator to regulate the combustion. Near the top of the stove is a second ventilator for the admission of a current of air, which passes over the fire into the flue, preventing any accumulation of gases, promoting uniform draught, assisting to ventilate the room, and consume the smoke.

**CARTER, JAMES, & CO., 237 & 238** High Holborn, W.C., supply all the Grass Seed recently sown in the Grounds of the Exhibition. They also exhibit growing specimens of grasses suitable for permanent pastures, lawns, gardens, &c.

**CLOWES, WILLIAM, & SONS, Limited,** Duke Street, Stamford Street, S.E.—Printing Press, Compositors' Room, and services of staff of printers to undertake, in the Exhibition Buildings, printing for the Executive Council, and for the Foreign and Colonial Commissions.

**COALBROOKDALE COMPANY, Limited.**—The Fountain, modelled by John Bell, forming centre of Water Company's Pavilion, the smaller figures and seats surrounding same. The gates forming the entrance therefrom, to the Pavilion of H.R.H. The Prince of Wales. The Fountain surrounded by Naiads, and the Vases contiguous to the Water Company's Pavilion. A large number of Seats throughout the Grounds. Seats and Art Decorations for rooms set apart for the use of the London and Provincial Press.

**CHEAL, J. & SONS,** Towfield Nurseries, Crawley, Sussex.—Fruit-trees showing various methods of training on the border system; also ornamenting the grounds with a collection of trees, shrubs, plants, &c.

**CHUBB & SONS LOCK & SAFE CO., Limited,** 128 Queen Victoria Street, LONDON, E.C.—One of Chubb's Patent Fire and Thief-resisting Safes. Size 5 ft. 6 in. high, by 4 ft. wide, 2 ft. 2 in. deep, on wheel mounts, fitted with all the recent improvements of the Company; solid tee frame, and solid flange lock case, and gunpowder-proof locks. Weight more than a ton and a half.

**COLLYER, C., & SON,** Window Blind Manufacturers, 36 Farringdon Street, London, E.C.—Collyer's Patent Venetian Blinds are an improved form of Venetian blind suspended by means of metal chains instead of the usual tapes, thus being extremely durable. From the way in which they are put together the laths shut closely over each other, excluding the light more effectually than the usual form of Venetian blind; while they can be opened to admit any amount of light at



pleasure. On this account, and from their durability, they are peculiarly suitable for hot climates. They are made to fix either inside or outside the windows.

**COMPRESSED-AIR FIRE ENGINE CO.**, 26 Basinghall Street, London, E.C. (MR. M. VINNING, R.N. Retired List, Manager), have placed at the disposal of the Executive Council for use by the Fire Brigade Staff during the Exhibition, and as a special prevention against fire, No. 1, Twelve "Anchor" Compressed Air Portable Fire Engines (Vinning's Patent), made in wrought copper, having a constant and very high pressure and an automatic action that makes these appliances, whilst using only plain water, equal in extinguishing effect to the various kinds of Chemical "Extinguishers" using "chemicalized water" or water charged with carbonic acid gas. No. 2, Twelve Small Hand Air Pumps for charging the above with compressed air. No. 3, Twelve Stands for "Anchor" Engines of various designs, in polished oak, walnut, ash, ebonized black, &c. No. 4, One Hand Fire Pump (Fozer Pattern) with air vessel, delivering a constant stream of water. No. 5, Eleven London Brigade Hand Pumps with Non-rusting metal working and frictional parts and improved Ring Stands.

**CONOLLY, HENRY, 53 & 55** Hampstead Road, London, has placed in the various offices gasaliers and brackets with improved shadowless burners.

**CROSSLEY BROTHERS, Limited,** of Manchester & London, lend two "Otto" gas engines situated in the Aquarium pumping station, where they have been working continuously night and day since April 1883. Also an 8 h.p. "Otto" gas engine with shafting, &c., in the Bakery Annex. These "Otto" engines are worked by ordinary lighting gas, and dispense with the dangerous boiler, the unsightly and dirt-diffusing chimney, and the costly attendance of a steam engine and boiler; moreover they can be started at a moment's notice. From a Health Exhibition point of view these engines are interesting, inasmuch as they represent the solution of the smoke nuisance difficulty, so far as the application of motive power is concerned. They are made from  $\frac{1}{2}$  h.p. to 100 h.p., and can be worked with an economy as yet never touched by steam of equal power.

**DAVEY, PAXMAN, & CO.,** Engineers, Colchester. — The supply of Engine and Boiler Power necessary for working the vast system of Electric Lighting throughout the whole area of the Exhibition has been provided by Messrs. Davey, Paxman, & Co., Engineers, of Colchester. The Engines are of splendid construction, and their power is greater than that of any display of electric lighting which has yet taken place, it being much larger than that supplied so

successfully by Messrs. D., P., & Co. for the Fisheries Exhibition last year. The Steam Engines provided for this purpose are six in number, being all Double Cylinders. The two largest Engines are capable of developing 750 horse-power. Nos. 1 and 2 Engines are of the Coupled Horizontal type, and provided with Paxman's Patent Automatic Cut-off Gear, worked direct from the governors, so as to ensure very steady and even running. The cylinders are all steam jacketed. No. 3 Engine is of the Compound Receiver type, indicating 200 horse-power. It is fitted with Paxman's Improved System of Valves. The crank shaft is of steel in one piece. The cranks are at right angles, and accurately balanced. All parts of Engine possible are made of steel. Great care has been bestowed upon the design of this Engine. The automatic valve gear is as described above, and with condenser and good generators this Engine will work with 2 lbs. of coal per indicated horse-power per hour, and run very smoothly and with great steadiness. No. 4 Engine is of D., P., & Co.'s Semi-fixed Compound type of 120 indicated horse-power, and is precisely the same as No. 3 Engine above described, but with locomotive boiler placed above the Engine. No. 5 engine, a semi-portable, capable of being worked to 80 indicated horse-power. This Engine—like the above-named—is provided with Paxman's Patent Automatic Valve Gear and Governors. No. 6 Engine is a Double Cylinder Semi-Fixed Engine, built in a wrought-iron frame, and it is capable of being worked up to 100 indicated horse-power. Steam Boilers. A nest of six large Boilers, of the Locomotive type, is fixed between the two large coupled Engines for supplying them with steam. The whole of these are made to work at 100 lbs. steam pressure. The fireboxes are of D., P., & Co.'s Improved Mild Steel, which has given such good results. Two similar Boilers supply steam for the large Compound Engine. The remainder of the boilers are of the same kind, but attached to the Engines. Altogether nearly 1300 indicated horse-power is provided for.

**DEARDS, MR. SAM,** of the firm of **MESSRS. W. & S. DEARDS,** Patentees of the Victoria Dry Glazing, Harlow, Essex, have supplied and fixed, free of charge, their patent system of Dry Glazing, on "Entrance Porch in Exhibition Road," extending 40 feet each way, also upon the several roofs of buildings now known as that for the Machinery in Motion for Electric Lighting, "The East Corridor," "East Annex," "West Annex," also on the sides of Arcade in front of the Prince of Wales's Pavilion. The above buildings were also glazed by the same firm during the late Fisheries Exhibition. The system adopted is one peculiarly adapted for buildings that may at any time be removed, and it is easily applied or re-erected, no putty, lead, springs, or india-rubber being used. The glass slides into the tubes and is held fast by one screw and stop



on end of tube. Altogether over 6000 feet of the Patent Victoria Dry Glazing is used on the various roofs of the Exhibition buildings.

**RADCLYFFE, DICK, & CO., 128 & 129 High Holborn, W.C.,** have built and furnished the Conservatory attached to H.R.H. Prince of Wales' Pavilion, semi-Elizabethan lantern roof conservatory, fitted with patent opening gear, placing and fixing the ventilators in any position. The floor of marble mosaic. The whole decorated with plants. At the end a grotto and fernery, with mossy banks, fountain, waterfalls, and pools. The whole illuminated by electricity conducted to lamps made to represent flowers and fruit. Also in the Aquarium: a Grotto forming a pool or reservoir for pumping water to aquaria. This forms a cool and refreshing fernery, surmounted by large palms and trees with fruits to hold electric lights. The pool is stocked with anemones, fish, &c., and is specially attractive at night when the contents are disclosed by means of electric light under water.

**DOULTON & CO., Lambeth, London, S.E.,** have placed in the President's Room a Glazed Terra-Cotta Mantelpiece, with Patent Ornamental Fire Clay and Terra-Cotta Stove Apparatus, obviating the use of all ironwork, Hearth Tiles and Glazed Fender. In the General Offices, several Open Stoves in Glazed Terra-Cotta and Fire Clay with Hearth and Fender of the same all in one; Sanitary Appliances to the above consisting of Water Closet, Urinal and Lavatory Basin. In the Prince's Pavilion, Lavatory Basins and Pedestal, Valve Water-Closets, Art Pottery, Flower Vases, Pedestals, &c. Flower Vases, &c., in the Garden of the Room provided for the accommodation of the London and Provincial Press, as well as Art Pottery for the room itself.

**DROITWICH SALT CO., Limited, 8 & 9 Lower Thames Street, E.C.—**(1) Extra Refined Salt for table use. (2) Powdered Salt for cooking purposes, for use in the Practical Cookery Lectures, School of Cookery, and Vegetarian Dining Rooms.

**EDMUNDS, JOSEPH, 10 Stonefield Terrace, Liverpool Road, London, N.—**Hexter's Currie Powder and Paste.—Edmunds' "Empress" Currie Powder, Paste, and Sauce, or use in the Practical Cookery Lectures.

**GALLOWAY, W. & J., & SONS, Knott Mill and Branch Iron Works, Manchester.—**This firm supplies the whole of the motive power and steam used by the exhibitors in the Machinery in Motion Sections of the Exhibition. The Engine is of the Compound type, having two cylinders alongside one another, the pistons being at almost opposite ends of the stroke, which ensures great steadiness of turning. The proportions of the cylinders are as 1 to 3, the high-pressure being 14 in. diameter, and the low-pressure 24 in. diameter, both having a stroke of 2 ft. 6 in., working on to crank-shaft

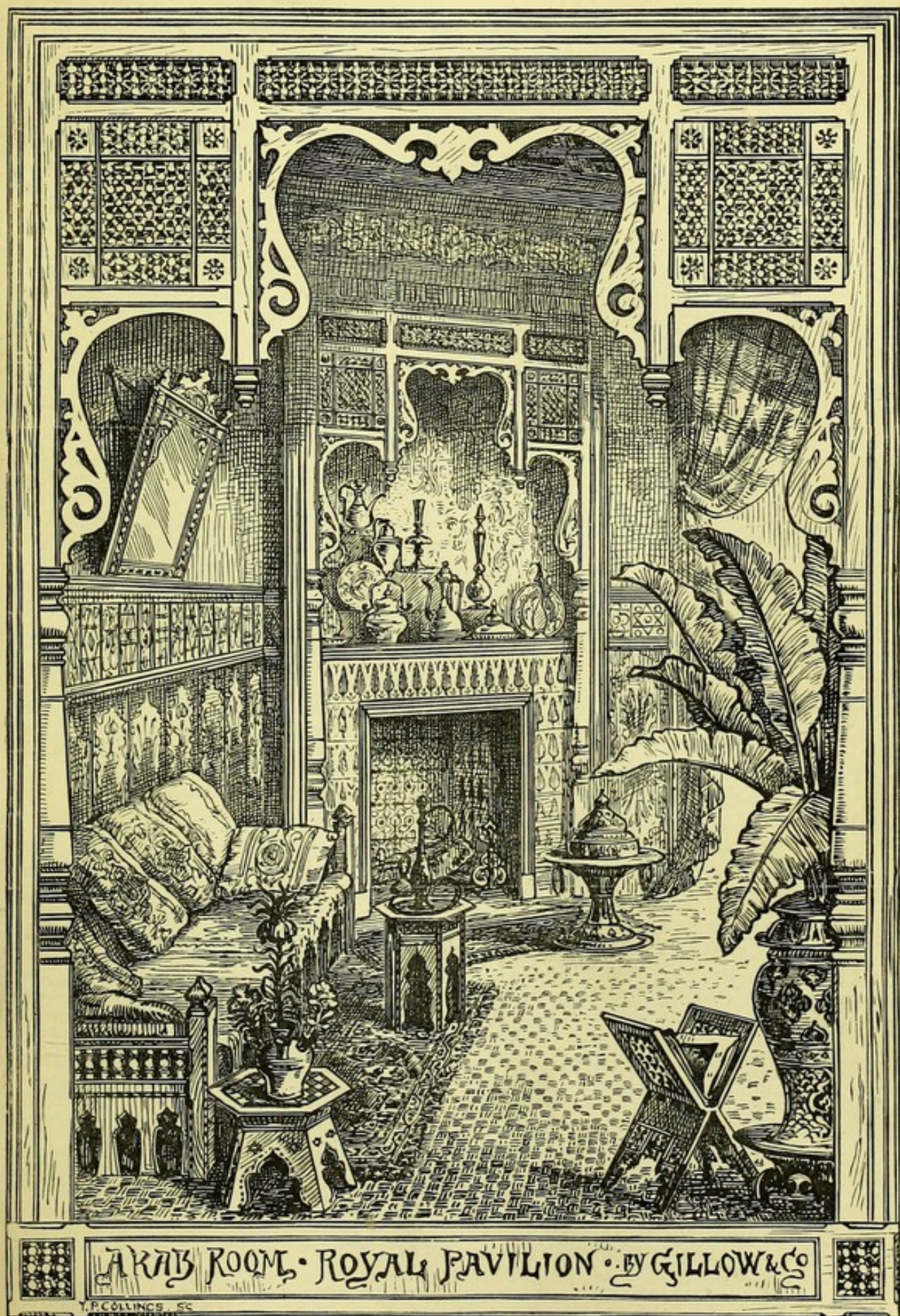
which carries fly-pulley for transmitting the power by means of strap. The valve motion is that known as the "link," the valves being plain flat plates actuated by block moving in quadrant, which cuts off the steam in proportion to the work upon the Engine maintaining a constant lead. The governor is on our patent powerful "Parabolic" system, which gives great steadiness of turning. A Condenser is usually placed in rear of the Engine, the air-pump being double-acting worked by continuation of low-pressure piston-rod, and the whole is mounted on strong bed plate. The Boilers are of the usual Galloway type, 1875 patent, made of steel throughout, 26 ft. long, 6 ft. 6 in. diameter, suitable for carrying 80 lbs. pressure, and are constructed with every modern improvement, both in design and workmanship. The holes are drilled by special tools, and machinery made use of wherever possible. A full set of fittings is supplied with each.

**GILES, B., & CO., Hot-Water & Sanitary Engineers, Blackheath, S.E.**

—(1) Two six-feet Gas Ovens, with gas outside, capable of cooking 50 legs of mutton each, and at one time. (2) Six International Gas Water Heaters. This heater will give a continuous supply of hot water at a cost of 2d. per hour for gas. (3) Four Large International Steamers for cooking meat, pudding, and vegetables. This steamer is capable of cooking 100 puddings at one operation. (4) Six National Training School of Cookery Gas Hot Plates. (5) Four International Gas Fish and Vegetable Steamers. This steamer will cook a dinner for a large family at a cost of 1d. for gas. (6) Two Pastry Gas Ovens, with gas outside the oven. (7) Four Large Potato Steamers, heated by gas. (8) Four Large Fish Fryers. (9) One Hot Giles' Patent Gas Cooking Stove, Oven, Boiler, Steam Kettle, Hot Plate, and Closet.

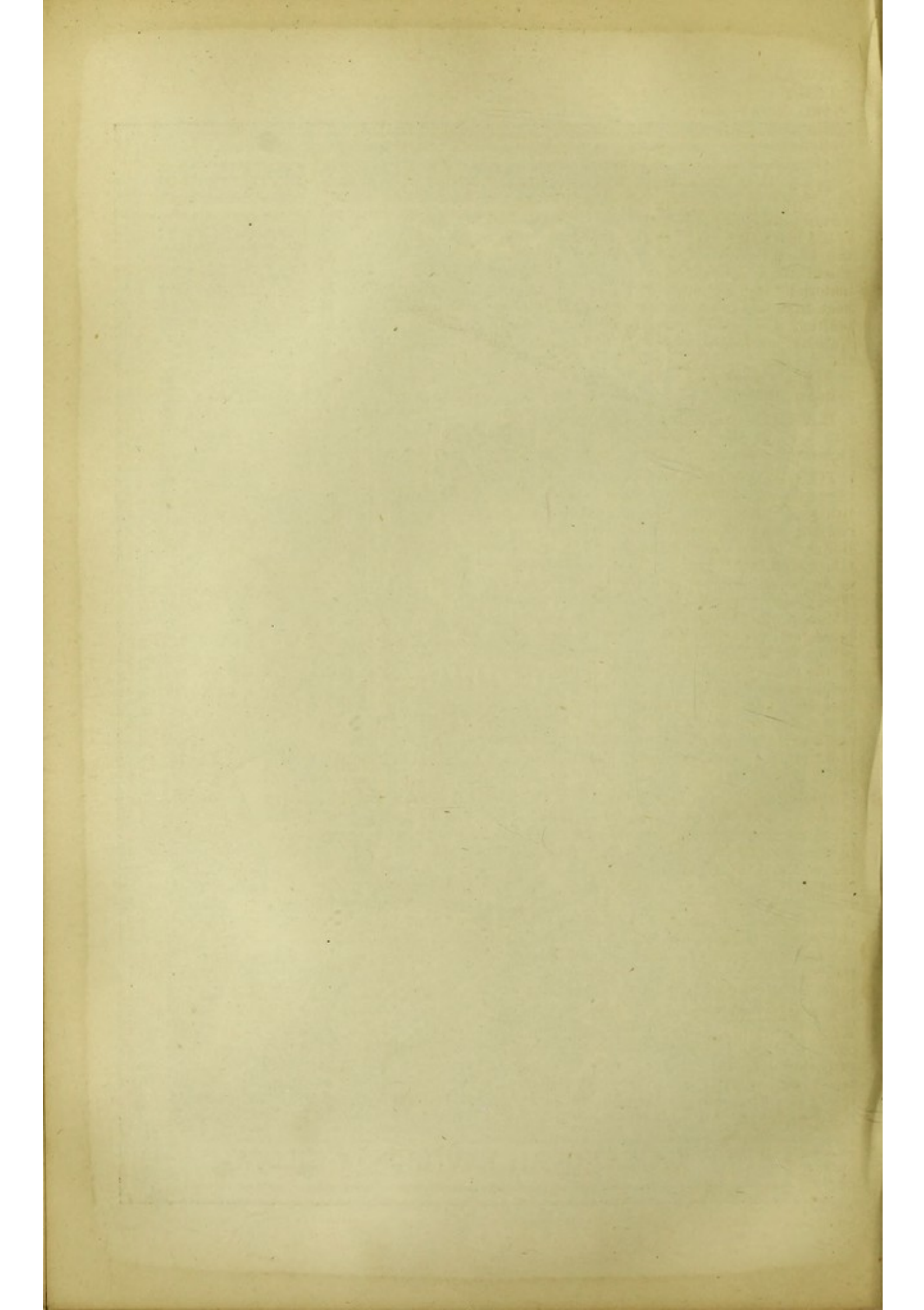
**GILLOW & CO., Decorators to the Queen, 406 Oxford Street, London; Liverpool, Lancaster and Manchester.—**The Royal Pavilion. The complete structural decoration and furniture, comprising the Entrance Hall and Alcoves adjoining, in the Egyptian style with panels of Musharabyeh Woodwork, Oriental Embroideries, Carpets, Metal Work, and Faience. The Dining Room of White Woodwork in the style of Early Louis XIV. The Panels and Pilasters painted on gold in shades of grey and blue, the Chairs covered in Royal Windsor Tapestry. The Smoking Temple in the Classic style, with niches and divans in colour; the room adjoining being hung with Italian Mezzari. The floors of the various rooms are laid with parquet and Anglo-Persian Carpets, specially manufactured. The whole illuminated with the Electric Light. The fittings and furniture of the rooms provided for the accommodation of the London and Provincial Press (Literary Superintendent's Department).





AKAB ROOM • ROYAL PAVILION • BY GILLOW & CO







**GWAUN CAE GURWEN COLLIERY COMPANY**, 3 Mileage Station, Westbourne Park Road, W. — Supply Anthracite Smokeless Coal, for use in the Galloway boilers, where steam is generated for driving the Machinery in Motion.

**HAACKE, A., & CO.**, 21 Lime Street, London, E.C., and 72 Regent Road, Liverpool, have covered eight large boilers of the low motive type and all the steam-pipes in the Electric Light Shed with W. Birkefeld's Fossil Meal Composition, a non-conducting material to prevent the radiation and loss of heat from steam-heated surfaces. This Composition was tested some months ago by the National Smoke Abatement Institution, and the results, which were highly satisfactory, were published in 'The Engineer,' the 25th of January, 1884.

**HARDING, C. D. O.**, Banbury. — Special services in providing Artists for the Decorations of the Exhibition Buildings.

**HELLIWELL, T. W.**, 8 Victoria Chambers, Westminster; & Brighouse, Yorkshire, has erected the glazed covered way leading to the Royal Pavilion on his patent system of Imperishable Glazing without putty. It is constructed so as to be easily taken to pieces and removed. The glass is inserted in metal glazing bars, to which a metal cap is secured by means of brass screws and nuts. This arrangement allows for the full expansion and contraction of the glass, and also saves all painting both inside and out; and there is no putty used, thereby enabling it to be easily taken to pieces and repaired by any handy person. The system is extensively used for all kinds of horticultural work, railway sheds, and all kinds of roof lights.

**HEPBURN & GALE, Limited**, Long Lane, Southwark, London, S.E. — The Main Leather Driving Band, conveying the motion from the 125 H.P. Galloway engine to the whole of the Exhibition. This is a double belt, 73 ft. long by 18 in. wide, and is sewn by hand; the same firm supplied the two 11½ in. double belts carrying the motion to the counter-shafts. In making these belts one centre strip only is taken from the back of each hide, so that there are consumed in the three belts the prime of the hides of about 100 oxen.

**HUMPHREYS, J. CHARLTON**, Knightsbridge, Hyde Park, W., Builder of the Royal Pavilion, officially appointed sole Contractor and Builder to the Health Exhibition, for the whole of the Iron Buildings. — These structures are fire-proof, and have been erected on Humphreys portable principle, — easily taken to pieces, and re-erected any distance; specially suitable for churches, schools, club and reading-rooms, having great heights for ventilation; also as workshops, coach houses, stables, &c. Fifty buildings, in course of construction, may be seen

at his works close by. Catalogues may be obtained at his offices adjoining the Royal Pavilion; clerk always in attendance.

**HUTCHINSON, A., & CO.**, 3 & 4 Great Winchester Street, London, E.C. — Twenty-two Stairs leading from Western Pavilion to Machinery in Motion, covered with Hutchinson's Patent India-rubber Covering. Is noiseless, non-slipping, easy of application. Can be made in width from 3 to 10 inches wide. Manufactured only by exhibitors.

**JEFFREY & CO.**, 64 Essex Road, Islington, N., have supplied the Wall Decorations for the Dining Rooms of School of Cookery. The above firm have just taken out a Patent to be known as "Jeffrey & Co's Patent Hygienic Wall Papers," for rendering all wall papers so far washable that they may be cleaned down with sponge and cold water.

**JENKS & WOOD**, 65 Holborn Viaduct, and Ray Street, Farringdon Road, have placed at the disposal of the Executive, the furniture and draperies of the Jurors' Room. This apartment, arranged as a Club Room, is provided with examples of antique furniture and chairs of various styles. The window hangings are of warm-coloured material, and the whole is illuminated by Electric Light, by Mr. S. J. Mackie, of 57 Gracechurch Street. This firm has also supplied art objects for decorating the room set apart for the use of the London and Provincial Press.

**JOHNSON BROTHERS**, 6 Waterloo Place, Pall Mall, have done the glazing of the Water Companies' Pavilion, on their Patent Imperishable System of Dry Glazing. The leading features in this system are the elastic metal glazing bar, and the channelled horizontal purlin stretching from rafter to rafter to carry the glazing bars. The bars are formed in two parts, of zinc or copper, the top half sliding into the lower half, thus forming an elastic spring holding the glass securely, yet allowing of its expansion or contraction without breakage. The bars and purlins are so formed that in ordinary pitched roofs all condensed water is absolutely taken to the outside. This system of glazing is very effective for curved roofs or domes, no bent glass being required. In the Pavilion roof the properties of the system are severely tested by the numerous angles and extreme flatness of some of its parts.

**KEENAN, MATTHEW**, Armagh Works, Tredegar Road, Bow, E. — Keenan's Non-Conducting Papier Maché for coating boilers, cylinders, pipes, charcoal cisterns, vacuum pans, brewers' steam coppers, hot liquor backs, &c. Mr. Keenan has coated the whole of the main steam pipes and other heated surfaces for the Health Exhibition, and is the sole inventor and manufacturer of this non-conducting material.

**KEITH, J.**, Hydraulic Engineer, 57 Holborn Viaduct, E.C.; Edinburgh & Arbroath. — The dairies are supplied with hot water throughout by Keith's Patent Hot Water



Apparatus, specially designed and fitted up for the Health Exhibition by Mr. James Keith. The apparatus is self-supplying, stands complete in itself without any building or brick-work round it, and requires no special brick chimney. It contains 500 gallons of hot water at one time, and is capable of supplying continuously 500 gallons an hour—or say, an unlimited supply of water within a few degrees of boiling point, under pressure, to the several sinks and hose taps. The whole apparatus stands on one floor level, and the small fire of coke or anthracite coal being entirely surrounded by water, there is no possible risk from fire—the fire itself being regulated to burn very slowly; the cost of fuel per day and attention required are comparatively trifling, the fire-box only requiring to be filled up once in the morning and once at night. The apparatus and pipes are wholly coated outside by Leroy's Patent Non-conducting Composition, which effectually prevents radiation and retains all the heat. (See also entry on page 210.)

**LEETE, EDWARDS, & NORMAN,** Euston Works, 366 & 368 Euston Road, N.W. — (1) Leete, Edwards, & Norman's "Circulating" and "Aerating" system, for purifying sea and fresh water, and maintaining animal life in aquaria. Has been solely employed for this purpose in the Aquarium section since its construction. The sea water is the same as originally procured, i.e. it has not been changed at all. The thorough oxygenation of the water, together with its brightness and purity, testify to the complete efficiency of this system, which is based upon simple natural laws. (2) Leete, Edwards, & Norman's Patent Rotary Pumps, employed in their circulating system, may be seen at work in the Pumping Station of the Aquarium, having been running continuously by day and night since April, 1883. These pumps, and all other parts of the above apparatus, are made in vulcanite.

**LEWIS & COMPANY, Limited,** Bell Founders, Shepherd's Lane, Brixton, S.W., Contractors to the Corporation of the Trinity House, have very kindly lent Bells.

**LINCRUSTA WALTON COMPANY,** 9 Berners Street, W.—Decoration of the Secretary's Office, and of the rooms set apart for the use of the London and Provincial Press.

**MAIGNEN, P. A.,** 22 & 23 Great Tower Street, E.C., has erected the Drinking Fountains in the grounds, fitted them with his "New Service" "Filtre Rapide," and is keeping the filtered water iced for the free use of the public. He has also supplied the offices of the Executive Committee, the Dining Rooms and Bars of the National School of Cookery, of Messrs. Bertram & Roberts, and of the Vegetarian Society, with his "Bijou D" and "New Service" "Filtres Rapides." He has also supplied the large filters necessary to clarify

the sea and fresh water of the Aquarium, also the water softening apparatus for the Fish-breeding Tanks.

**MOORE, JOSIAH, & SONS,** Sekforde Works, St. James's Walk, Clerkenwell, E.C.—In the windows of the Eastern Arcade, on right hand of Chief Entrance, near New Dining Rooms, this firm have supplied and fixed some of their Patent Improved Glass Louvre Ventilators, by which the admission of air is directed upwards and diffused, thus causing a continuous circulation of air and at the same time excluding rain. They can be regulated at pleasure to any degree by means of a very simple and efficacious arrangement worked by a single cord, and are self-closing; and being made chiefly of glass, no obstruction of light takes place. They can be made to any size or form to suit metal or wood sashes, also for sky and fan lights, and are suitable for private houses, offices, warehouses, churches, halls, and public buildings generally. In the window of Arcade on left of Chief Entrance, they have also supplied one of their Improved Circular Glass Ventilators, which are adapted to windows generally.

**MOORE, JOHN, & SONS,** 38 Clerkenwell Close, London, E.C., Clockmakers to H.R.H. the Duke of Edinburgh, H.M.'s Office of Works, the Lords of the Admiralty, the War Department, the Indian Council, the Colonial Government, the Russian Government, the Emperor of Brazil, the Queen of Madagascar, &c., &c., have erected in the Clock Tower facing the Conservatory—(1) A Turret Striking Clock, showing time on a dial 8 ft. diameter, and striking the hours on a bell of 3 cwt. This clock is suitable for a small church or townhall. (2) In the Grand Entrance a Turret Timepiece, with a 5 ft. copper dial. This is suitable for any public building where a striking clock is not desirable. (3) In the East Gallery a Clock for a bell of 1 cwt. with a 4 ft. 6 in. dial, Graham escapement, and compensated pendulum. This clock is suitable for public schools or stables. (4) In the West Gallery a small Turret Timepiece, with 4 ft. 6 in. dial, suitable for village school or public institute. (5) In the principal Dining Room a Striking Clock, in a walnut case, suitable for the entrance hall of a club or mansion; and other clocks for use in the Exhibition.

**MERRYWEATHER & SONS,** Fire Engine Works, Greenwich Road, S.E., have placed at the disposal of the Committee for use by the fire staff of the Exhibition, in case of an outbreak, the following fire extinguishing appliances:—Two Mansion Fire Engines, several chemical Fire Engines, Twenty Corridor Fire Engines, Tozer Portable House Fire Engines, and London Brigade Portable Hand Fire Pumps, as supplied to Her Majesty the Queen, His Royal Highness the Prince of Wales, other members of the Royal Family, as well as to the various Government departments. Several small Manual Fire Engines, with hose



and implements, forming with the hand fire pumps, buckets and hydrants, standpipes and hose, equipments for twenty-four complete Fire Stations.

**MOORE, A. L., & CO., Artists in Stained Glass, 89 Southampton Row, Russell Square, London, W.C.,** have filled the windows in the room used by the Chairman, Secretary and Literary Superintendent. The Duke's Room, which consists of four lights with transoms above, have the arms of England, Ireland, Scotland, and Wales, introduced in upper portion with an elaborate pattern of geometrical leadwork beneath. The Secretary's Room consists of six lights with transoms above, in which are represented figures of Painting, Poetry, Sculpture, Music, the two centre having the Monograms A. S. (Arts and Science) inserted. The window, consisting of three lights and transom, at the end of the passage leading to the various offices is filled with an elaborate subject allegorically treated to represent Fame distributing wreaths of laurels to figures representing the various industries for which the International Exhibitions are being held. In the canopy of the upper portion of this window are introduced the Prince of Wales's feathers, &c., &c. The windows in the Literary Superintendent's room contain heads of artistic and literary celebrities.

**NATHAN & CO., MESSRS.,** have at their own cost furnished specimens of Costumes of the Early Period.

**PULHAM, JAMES & SON, Broxbourne, Herts.** "Rockifying" all the Fish Tanks in the Aquarium Corridor at less than cost price. One of the two Cavernous Recesses free of cost. Decorating the Corridor with a variety of Art Flower Boxes, Pots, Baskets, Vases, &c., by loan during the term of Exhibition free of cost. Also of Vases, Tazze, &c., on various piers about the Exhibition. Manufactured in their Red and Buff Terra Cotta.

**PATENT VICTORIA STONE CO. 283 Kingsland Road.**—The Patent Victoria Stone is laid under the Portico, in the Entrance Hall (Fish Market, Great Refreshment Bar now), Dining Kitchen, and in front of the American Bar. The steps in the terraces are also of the same material. It is an artificial stone which has been largely used during the last thirteen years as footway paving in London.

**PORTER & SON, 23 Cullum Street, Fenchurch Street,** supply the whole of the Indicating Apparatus for communication from the Telephone to the Engine Room, and from the centre of Engine Room to the different Engines driving the Machinery, so as to be able at any time to stop the engines in case of a failure of light in any section of the Buildings.

**POWELL, GEORGE, 104 Newgate Street, London.**—Folding Draught Screens, supplied in Front Vestibule, Office of Literary Superintendent, School of Cookery, &c.

**ROSE (WILLIAM) & CO., Manchester.**—Fire Prevention Apparatus.

**SALVIATI, BURKE, & CO., of Venice; and 311a Regent Street, W.,** supply a large chandelier at the Entrance of the Central Court. This chandelier will be used as an ornamental appliance for the electric light. It has been arranged that the same firm shall supply, later on, some brackets also as an ornamental appliance for the electric light for the illumination of some of the corridors. This Firm has also supplied a chandelier for the room set apart for the use of the London and Provincial Press.

**SHAND, MASON, & CO., 75 Upper Ground Street, Blackfriars Road, London, S.E.,** have placed at the disposal of Her Majesty's Commissioners a number of their improved fire-extinguishing appliances for indoor use, which have been distributed in various parts of the building ready for immediate use. These consist of 2 Double Corridor Fire Engines, to be worked by two men; 10 Improved Corridor Fire Engines, to be worked by one person; and 10 London Brigade Portable Hand Fire Pumps as fitted up for use in public and private institutions, private mansions, &c., and as supplied to Her Majesty the Queen, His Royal Highness the Prince of Wales and other members of the Royal Family, the nobility, &c. An assortment of Chemical Fire Engines, buckets, &c., hydrants fixed into vertical fire-mains in the permanent building, and on the horizontal mains in the grounds, stand pipes, hose of leather, Vancher's original hand-made woven canvas hose, specially prepared to prevent rot, patent tanned canvas hose, lined with india-rubber, branch and jet pipes, &c., as adapted for use in public and private establishments.

**SINCLAIR, JAMES, 104 Leadenhall Street, E.C.**—These well-known Chemical Fire Engines are self-acting and always ready for immediate action by the generation of carbonic-acid gas, one gallon of the contents being of more value than many gallons of plain water. They can be rapidly recharged, and the contents are harmless to life, health or property. Tyndale's Smoke Respirators are to enable the wearer to enter into most dense and pungent smoke with perfect safety, either to rescue life, secure property or extinguish fire.

**STRODE & CO., 48 Osnaburgh Street, N.W.**—Large Gas Burners, used in lighting up the Belgian Court.

**SUGG, WILLIAM, & CO., Vincent Street, Westminster, S.W.**—Large Gas Burners, used in lighting up the Belgian Court.

**THOMAS, J. J., & CO., 87 Queen Victoria Street, E.C., & 285 & 362 Edgware Road, W.**—Wirework Fencing and Ornamental Wire Structures.



**TRELOAR & SONS, 68, 69, & 70 Ludgate Hill, E.C.**—Treloar's Door Mats; made of cocoa-nut fibre, unbleached, and without the admixture of any other material. Similar mats were presented to the Fisheries Exhibition, and were in use during all the time it was open; and none of the mats were worn out, although nearly three millions of people walked over them.

**TROTMAN, J., 196, Holloway Road, N.**—Rustic Summer Houses in various parts of the grounds.

**UNITE, JOHN, 293 Edgeware Road, W.**—Seat, with Awning, in Garden, to Rooms provided for the accommodation of the London and Provincial Press.

**ROBINSON, VINCENT, & CO., 34 Wigmore Street, W.,** at the request of the Indian Sub-Committee, have undertaken and carried out the decoration of the Indian Section, by a considerable and very interesting display of Oriental Carpets and Indian Textiles. The specimens thus placed on view, whether to represent Indian manufactures, or for the purpose of enhancing the effect and interest of the general scheme of decoration, are, in many cases, worthy of a more than passing attention. The well-known fact that the designs of Oriental carpets, whether Indian or Persian, show evidences of a common origin, even when the effect produced would appear to most positively contradict such a supposition, lends a further interest to such a collection as the present, beyond that to be derived from the perfect harmony of colouring and sense of proportion observable even in the most ordinary of Eastern fabrics. This Firm has also supplied carpets for the rooms set apart for the use of the London and Provincial Press.

**WATERLOW & SONS, Limited (PHILIP H. WATERLOW, Chairman), 28 Great Winchester Street, London, E.C.**—The use of offices in the buildings of the Company in London and Paris as City Offices of the Exhibition, and the services of a portion of their staff without any charge.

The following Exhibitors have lent the Appliances mentioned for use in the Belgian Court.

**BIGGS & SON.**—Siemens' Gas Lamps.

**BOWEN, of St. Neot's.**—Gas Lamps.

**GEO. FORREST & SON.**—Gas Fittings.

**IMPROVED GAS & OIL BURNERS CO., Limited, 31 Palmerston Buildings, E.C.**—Douglas Gas Lamps.

**STRODE & CO., 48 Osnaburgh Street N.W.**—Sunlights.

**WM. SUGG & CO., Vincent Street Westminster, S.W.**—Gas Lamps.

The following have been good enough to lend to the Executive Council Apparatus and Materials for use in the Dining Room and Kitchens of the National Training School of Cookery:—

**BECK, F. W., & CO., Fenchurch Avenue, E.C.**—Bouillon Kemmerick.

**COLMAN, J. & J., & CO., 108 Cannon Street, E.C.**—Mustard and Mustard Pots.

**DROITWICH SALT CO., Lower Thames Street.**—Salt.

**EDMUNDS, J., Liverpool Road, N.**—Currie Powder and Paste.

**GILES, B., & CO., Blackheath.**—Gas Stoves, Boilers, Ovens, Steamers, &c.

**KENT, G., 199 High Holborn, W.C.**—Refrigerators, Knife Machines, &c.

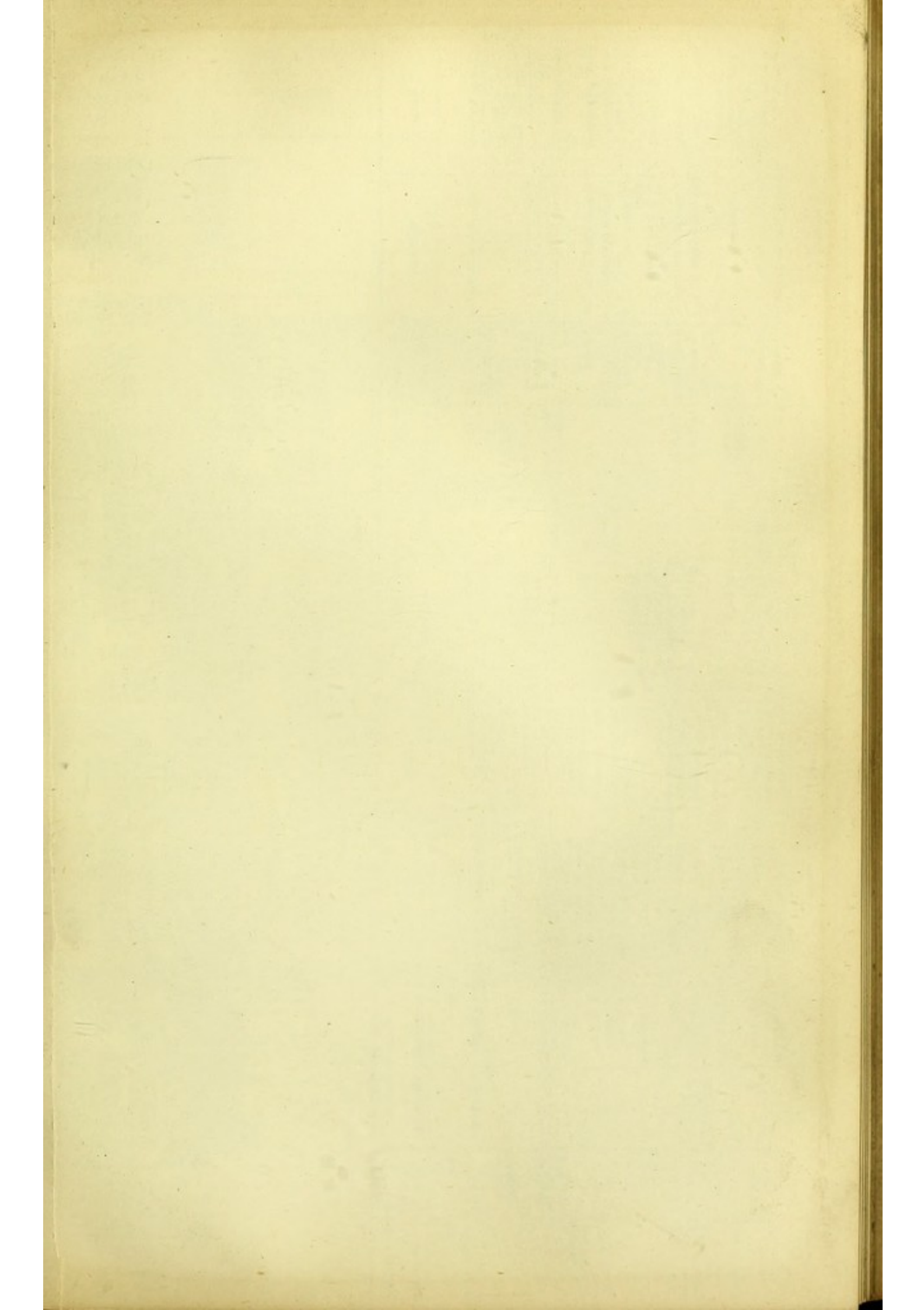
**MAIGNEN, P. A., 28 Great Tower Street, E.C.**—Fitters.

**MOIR, JOHN, & SON, Leadenhall Street, E.C.**—Tinned and Preserved Goods.

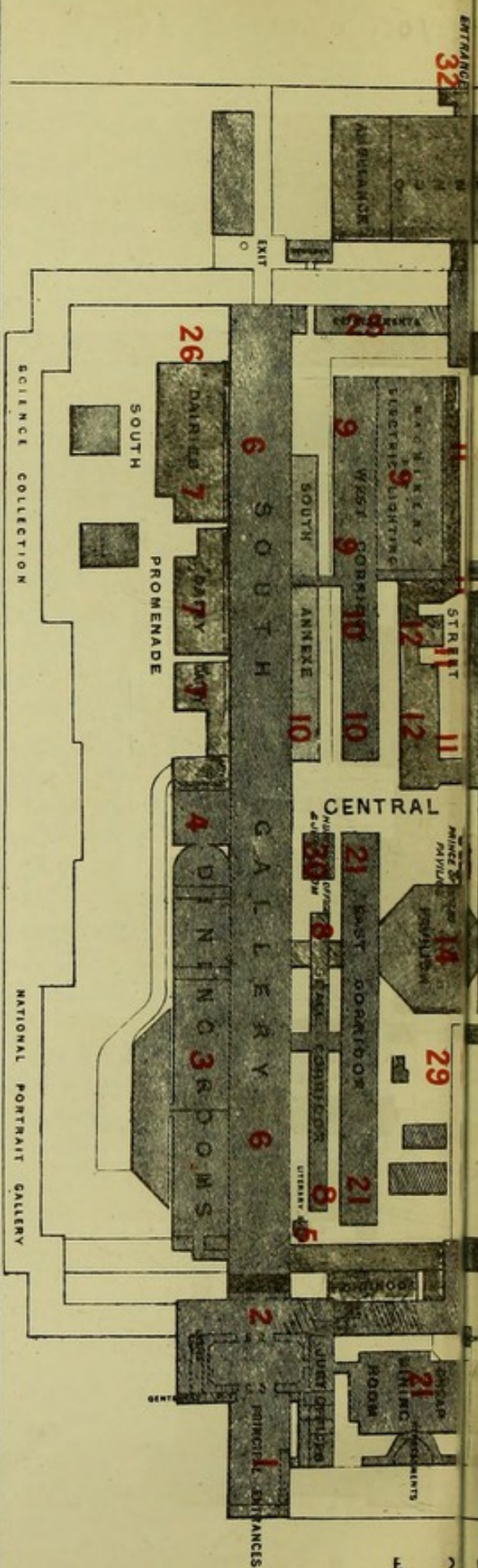
**TYRER, PETER, 70 Long Lane, Borough.**—Mushroom Ketchup.

**YEATMAN & CO., 119 New Bond Street.**—Corn Flour and Baking Powder.





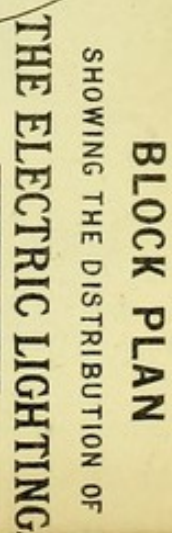




Ref. No.	Space.	Exhibitor.	System of Machine.		System of Lamp.		Ref. No.	Space.	Exhibitor.	System of Machine.		System of Lamp.	
			Continuous.	Alternating.	Arc.	Incandescent.				Continuous.	Alternating.	Arc.	Incandescent.
1	Entrance Vestibule	Swan—Edison El. Lt. Co.				600 Edison	20	Aquarium	Brought forward	28		167	3510
2	Art Gallery	Ditto.				300 Swan	21	West Arcade	Hammond El. Light Co.	9	1 Ferranti	..	1000 Woodhouse Rawson.
3	Dining Rooms, R. & R.	Ditto.	10 Machines	..	..	..	22	East Corridor	Hammond—Brush Co.	..	..	40 Brush	..
4	Cheep Do.	Ditto.	2 Siemens	2 Siemens	..	1900 Swan.	23	W. and E. Quadrant	Pilsen Joel El. Light Co.	4 Schuckert	..	40 Pilsen	..
5	Literary Suppl. Room.	Siemens—Swan	3 Crocker	1 Jablochhoff—Gramme	20 Varley	310 Crocker.	24	East Arcade	Gulcher El. Lt. Co.	4 Gulcher	..	20 Hook.	..
6	South Gallery	Gulcher—Crocker	..	..	..	130 Varley.	25	3rd Class Dining Rooms	H. Edmunds	1 Hookhausen	..	..	..
7	Dairies	Varley Proprietary	..	..	..	..	26	Refreshment Bar	Patonson & Cooper	1 E. & P.	..	..	..
8	Small Corridor	..	..	..	..	..	27	The Cottage Ortole.	T. Taylors-Smith & Wol-	1 J. F.	..	..	..
9	Electric Machinery	Lalmer Clark & Co., Ltd.	1 Brush	..	..	..	28	Lockhart's Cocoa Pav.	A. A. El. Lt. Co. Ltd.	1 Victoria.	..	..	..
10	West Corridor	Clark & Bowman.	1 (L. F.) Paterson & Cooper	..	..	..	29	Central Fountain	R. E. Cropton & Co.	1 Ritzin	..	..	..
11	Old London	..	2 Gramme	..	..	..	30	Ditto	Sonnelt	1 Laebansee	..	..	..
12	Do.	..	1 Ditto	..	..	..	31	Cascades	Ditto	..	..	..	..
13	E. Central Gallery	E. V. & Galshouse	1 E. & V.	..	..	..	32	Water Pavilion Gardens	Gulcher El. Light Co.	1 Gulcher	..	..	..
14	"	A. A. El. Lt. Co.	1 Victoria	..	..	..	33	Chinese Restaurant	Hammond El. Lt. Co.	1 (See 2)	..	..	..
15	Water Pavilion	Oppermann Brothers	1 Oppermann	1 Oppermann	..	300 Woodhouse & Rawson.	34	Indian Tea Room	Hammond El. Lt. Co.	1 Oppermann	..	..	..
16	P. of W. Pavilion	Siemens—Swan	1 Siemens	1 Siemens	..	200 Swan.	35	Q. Gate Entrance	Oppermann—Fox	1 Hookhausen	..	..	..
17	So. Central Gallery	..	..	..	..	..	36	East Light	H. Edmunds	1 Ditto	..	..	..
18	Part of Central Gall.	Jablochhoff	..	4 Jablochhoff Grammes	80 Jabloch.	120 Swan.	37	Indian Court	Bernstein, Co. and H.	..	..	..	..
19	W. Central Gallery	British El. Lt. Co.	4 Gramme	..	10 Brooke	..	..	Conservatory	Siemens	1 Siemens	..	..	..
..	W. Annexe	Anglo-American Brush Co.	1 Brush	..	22 Brush	..	..	Denton's Pavilion.	General El. Lt. Co.	2 Gerard	..	..	..
..	E. Annexe	..	..	..	..	..	..	Smoking Gallery	Varley Proprietary	Accumulators	..	..	..
..	Carried forward	..	13	9	167	\$610	..	Total	..	60	11	536	6199

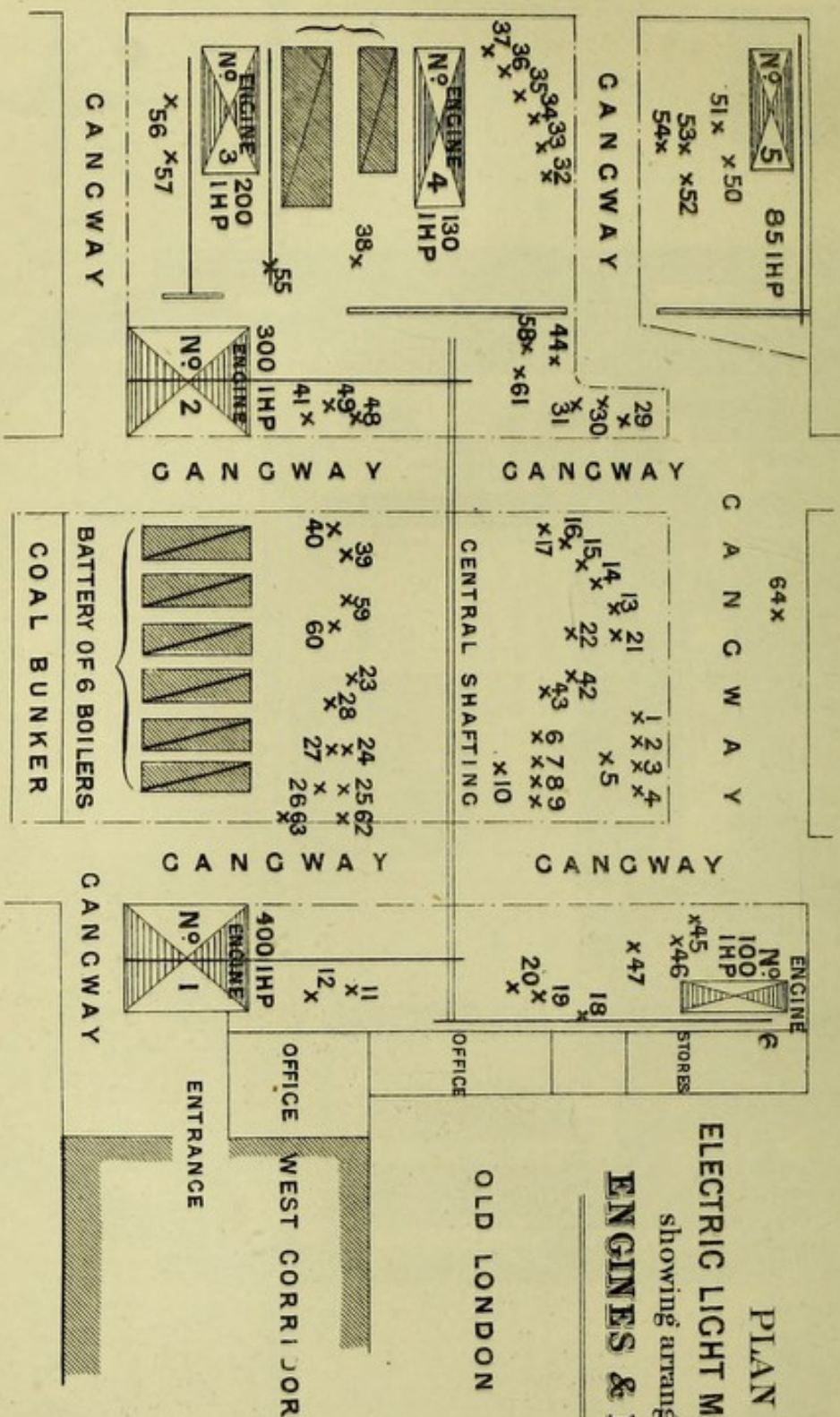


G A T E





PLAN OF  
ELECTRIC LIGHT MACHINERY SHED  
showing arrangements of  
ENGINES & DYNAMOS.





## ELECTRIC LIGHTING.

Further information may be obtained on application to Mr. W. D. GOOCH, the Electrical Engineer for the Commissioners of the Exhibition, at his Office in the Annexe set apart for the Electric Light Machinery.

**ANGLO-AMERICAN BRUSH ELECTRIC LIGHT CO.,** Belvedere Road, Lambeth.—Nos. 18 and 19 on Plan, East and West Annexe, &c., 22 arc lamps, Brush double pattern, driven by 1 continuous current Brush machine. No. 27 on Plan, Lockhart's Cocoa Tavern, and the Oyster Bar, 80 Victoria 100 volt. 20 cp. incandescent lamps, the current for which is taken from 1 continuous current Dynamo, "Victoria" type. This latter is driven by a "Tower" spherical direct action engine. A similar machine, driven by a Kitson-Parson H-speed engine, lighting the same space alternately with the Tower engine. Machines in Dynamo Shed Plan, marked 59-60, 61.

**BAGSHAW & SONS, MESSRS.,** Batley, Yorkshire.—One Patent Friction Pulley Clutch, designed for driving portion of the Edison-Swan Dynamos.

**BARR, R.,** 94 East India Dock Road Agent for Messrs. Oldfield & Walton, Glasgow Link Belting throughout Electric Light Shed.

**BERNSTEIN ELECTRIC LAMP CO. (THE),** 11 Blenheim Street, New Bond Street (per Dr. MAIER), exhibit 40 Bernstein 70 cp. incandescent lamps in the Indian Court, No. 34 on Plan.

**BRITISH ELECTRIC LIGHT CO. (THE),** Turk's Head Yard, Turnmill Street, E.C.—No. 17 on Plan, West Central Gallery, 8 arc lamps of 2000 nom. cp., and 2 arc lamps of 3500 nom. cp., driven by one E gramme machine, excited by an A gramme: and two A grammes, driving single lights. Machines in Dynamo Plan, marked Nos. 18-20.

**CLARK & BOWMAN,** 33a Ludgate Hill, E.C., & 411 Brixton Road, S.W.—No. 10 on Plan, West Corridor and South Annexe, 8 arc lamps of 1000 nom. cp. on the Clark & Bowman Patent, driven by a "Phoenix" continuous current Dynamo, lent for the purpose by Messrs. Paterson & Cooper. Machine in Dynamo Shed Plan, No. 39.

**CONSOLIDATED ELECTRIC LIGHT CO.,** 110 Cannon Street, E.C.—Water Pavilion (part of), No. 14 on Plan, lighted with 75 fifty-volt incandescence lamps of 20 cp. each.

**CROMPTON, R. E., & CO.,** Arc Works, Chelmsford; and Mansion  
VOL. XVIII.

House Buildings, 4 Queen Victoria Street, E.C.—No. 14 on Plan, Water Pavilion 1 Bürgin continuous current dynamo, supplying 50 incandescent lamps. Also No. 33 on Plan, Display of Fountains, Illumination by Reflected Light from base of Clock Tower. The light used is from a Crompton arc lamp of 10,000 cp. nom., and is driven by one large Crompton Dynamo. Machines in Dynamo Shed Plan, Nos. 62, 63.

**DAVEY, PAXMAN, & CO.,** Colchester.—The total Motive power as supplied by this firm for driving the Electric Light Machinery of the Exhibition consists of:—One coupled Horizontal Steam Engine, constructed to indicate 300 horse-power, No. 1 on Plan of Shed, fitted with Paxman's Patent Automatic Expansion Gear controlled by Patent Governor and all modern improvements to secure great economy and perfect regularity of speed. The power is given off by two fly-wheels of 12 ft. diameter and 16 in. width each. One Coupled Horizontal Steam Engine, constructed to indicate 300 horse-power, No. 2 on Plan of Engine Shed, of same design as above mentioned. The power is given off by one flywheel of 12 ft. diameter and 2 ft. width. One Horizontal Compound Steam Engine of the receiver type, constructed to indicate 200 horse-power, No. 3 on Plan of Engine Shed, fitted with Paxman's improved system of slide valves, and having the cranks at right angles. The principal wearing parts are made of steel, and the power is given off by one flywheel of 10 ft. diameter and 18 in. width. One Semi-Fixed Compound Engine with cylinders underneath the boiler, constructed to indicate 120 horse-power, No. 4 on Plan of Engine Shed, of similar design as the one before described. The power is given off by one fly-wheel of 8½ ft. diameter and 16 in. width. One Double-Cylinder Semi-Portable Engine, constructed to indicate 80 horse-power, No. 5 on Plan, with engine on the top of the boiler, and fitted with Paxman's Patent Automatic Valve Gear and Governors. The power is given off by one fly-wheel of 6 ft. diameter and 10 in. width. One Double Cylinder Semi-Fixed Steam Engine, No. 6 on Plan, with engine underneath the boiler constructed to indicate 100 horse-power. Boiler and engine are mounted on strong wrought-iron frame, and the power is given off by one fly-wheel of 7 ft. diameter and



12 in. width. A nest of Six Multitubular Semi-Portable Boilers of the locomotive type for supplying the two coupled horizontal engines with steam. The fireboxes are of mild steel, and the working pressure is 100 lbs. per square inch. Two Multitubular Semi-Portable boilers of the locomotive type for supplying steam to drive the horizontal compound engine.

**DEFRIES & SONS, MESSRS., 147 Houndsditch, E.C.**—One Electrolier in glass, lighted with 72 Swan Lamps. Arts Gallery, No. 2 on Plan.

**EDISON SWAN ELECTRIC LIGHT CO., Limited, Head Offices, 57 Holborn Viaduct; Branch Office, 104 West George Street, Glasgow; Factories, Newcastle-upon-Tyne; Proprietors in the United Kingdom of the Edison and Swan Electric Patents.**—No. 1 on Plan, Entrance Vestibule; No. 2 on Plan, Fine Arts Gallery; No. 3 on Plan, Dining Rooms; No. 4 on Plan, Cheap Dining Rooms, and No. 5 Literary Superintendent's Room—are lit by 1000 Edison and Swan 91 volt incandescent lamps (arranged in parallel arc), which are fed by 10 continuous current machines of the Edison Type. The fittings are supplied by that Company, and are of a character to demonstrate "cheap" system of lighting large areas. In the Fine Arts Gallery one large Metal Electrolier by Messrs. Verity & Sons, with 99 Edison 16 cp. lamps. In the adjacent hall 1 Glass Electrolier, sent by Messrs. Defries & Sons, containing 72 46-volt Swan lamps, 2 in series. Literary Superintendent's Room is lit by 40 Swan incandescent 46 volt lamps, in 2 series, also from this Installation. Machines in Dynamo Shed Plan, marked Nos. 1 to 10.

No. 15 on Plan, Royal Pavilion. This Pavilion is lighted up by about 200 Swan 81 volt incandescent lamps, arranged in parallel series. The lighting is specially arranged to demonstrate the adaptability of the incandescence lamp to decorative illumination. The electric fittings are supplied by Messrs. Gillow & Co. for the Cairene Rooms, by Messrs. Faraday & Son for the other apartments. Machines in Dynamo Shed Plan, marked Nos. 11, 12.

**EDMUNDS, HENRY, Victoria Mansions, Victoria Street, E.C.**—No. 24 on Plan, Central Gallery, illuminated by 25 Hochhausen Lamps, 1000 nom. cp., worked by a direct current H. H. dynamo. No. 33 on Plan, Mast Light, carrying 6 lamps of 3000 cp., each driven by H. H. dynamo. This mast is 120 ft. high. No. 34 on Plan, Indian Court, lighted by 40 Bernstein 70 cp. incandescent lamps driven by one direct-current machine. Machines in Dynamo Shed Plan, marked 29-31.

**ELPHINSTONE & VINCENT, MESSRS., 79½ Gracechurch Street, E.C.**—No. 18 on Plan, East Central Gallery. Exhibit an Elphinstone & Vincent Dynamo

Machine, driving 360 Gatehouse, 42 volt 20 cp. incandescent lamps, in side aisles of East Central Gallery. Machines in Dynamo Shed Plan, Nos. 42, 3.

**WOLVERHAMPTON ELECTRIC LIGHT STORAGE & ENGINEERING COMPANY (THE), (ELWELL & PARKER).**—One Elwell & Parker Dynamo, 8 in. size. 24 Planté (1882 patent) New Pattern Cells. Two Elwell & Parker Dynamo, 6 in. size. 24 Planté Circular Cells. 24 Planté Circular Cells, latest pattern. One Elwell & Parker High Speed Steam Engine and Dynamo combined, for ship lighting or any other purpose.

**FARADAY & SONS, MESSRS., 3 Berners Street, W.**—Fittings. Royal Pavilion, No. 15 on Plan, and West Dining Room, No. 20 on Plan.

**GÉRARD & CO., 82 Hatton Garden, E.C.**—No. 36 on Plan, Doulton's Ceramic Pavilion, 2 Gérard continuous current dynamos, each driving 20 50 cp. and 4 200 cp. incandescent lamps. Machines in Dynamo Shed Plan, Nos. 44, 58.

**GLOVER & CO., 25 Booth Street, Manchester,** have supplied a part of the Service Wires of some of the Installations.

**GREAT WESTERN ELECTRIC LIGHT AND POWER CO., Limited, 4 Great Winchester Street Buildings, E.C.**—One small Victoria Machine and 10 Swan Lamps in the "Bakeries."

**GÜLCHER ELECTRIC LIGHT CO., Limited, Battersea Foundry, S.W.**—No. 23 on Plan, East Gallery, 4 No. 4 machines driving 40 arc lamps, Gülcher system. All these lamps are in parallel arc with rheostatic balance, which is a feature of the Gülcher arc-lighting system. The lamps have a nom. cp. of 500.

No. 30 on Plan, Chinese Restaurant, 150 Crooke's incandescent lamps and 8 Gülcher arc lamps, running on the same circuit in parallel.

No. 6 on Plan, Dairies. These are lit by 350 Crooke's 100 volt. 20 cp. incandescent lamps, arranged in parallel arc, and worked by 4 No. 4 Gülcher machines. Machines in Dynamo Shed Plan, Nos. 32-38.

**HAACKE, A., & CO., 21 Lime Street, E.C.**—Fossil meal composition for coating steam pipes and boilers. Messrs. Davey, Pailman & Co.'s boilers and steam pipes to No. 1 and 2 engines are coated with this composition.

**HAMMOND ELECTRIC LIGHT AND POWER SUPPLY CO., 110 Cannon Street, E.C.**—No. 20 on Plan, Aquarium, West Arcade, and West Dining Rooms. No. 31 on Plan, Indian Tea Room. One Ferranti alternating machine, driving about 1000 Woodhouse & Rawson 50 volt 20 cp. incandescence lamps, arranged on four compound parallel



circuits of double series each—the dynamo having an E. M. F. of 250 volts.

No. 21 on Plan, West and East Quadrant, East Arcade, Third Class Dining Room, and Exhibition Road Entrance. One 40-light Brush continuous current machine, and forty lamps, double Brush improved pattern. Machines in Dynamo Shed Plan, marked Nos. 55, 56, 57.

**HARDMAN & SONS, Earl's Court Station**, supply all the coal for Messrs. Davey and Packman's Engines in the Electric Light shed.

**HEDGES, KILLINGWORTH, 25 Queen Anne's Gate**.—Patent Cutouts, used in Sections Nos. 20 and 14.

**HENLEY TELEGRAPH WORKS CO., Limited, 8 Draper's Gardens, E.C.**, have supplied all the Main Cables required for the Installations except those of Swan, Edison, and Siemens systems.

**JABLOCHKOFF ELECTRIC LIGHT AND POWER CO. (THE), Limited, 1 Great Winchester Street Buildings, E.C.**—No. 16 on Plan, South Central Gallery, Central Avenue, part of East Central Gallery, and part of West Central Gallery. Eighty Jablochhoff Candles, arranged in pairs for forty lamps, each of 500 nom. cp., worked by four Jablochhoff-Gramme self-exciting alternating dynamos, and 250 incandescent lamps of 20 cp., lighting interior rooms in East Central Gallery, worked by one Jablochhoff-Gramme self-exciting alternating dynamo; also one 10 Lt. machine, supplying light to Varley exhibit in Small Corridor. Machine in Dynamo Shed Plan, No. 50-54.

**LANCASHIRE PATENT BELTING CO., THE, Strangeways, Manchester**, supply their Camel Hair Belts to drive portions of the Edison-Swan, Pilsen & Jablochhoff Installations of Dynamos in the Dynamo Shed.

**LATIMER, CLARK, MUIRHEAD & CO., 23 Regency Street, Westminster, S.W.**—Six Arc Lamps, Werner type, and 6 Cardew type of 1000 cp. nominal each, lighting Electric Light Machinery, No. 9 on Plan. Current taken from two Brush machines, Nos. 23, 28 on Plan of Dynamo-shed.

**LAUTENSACK, DANIEL, No. 2, II. Volkersplatz, Vienna**.—Thermopyle on improved plan, with about 3000 couples disposed in 44 rings. The battery gives about 84 volts and 5 ampères, and is burning W. & R. 10 cp. 42 volt incandescent lamps. No. 64 on Plan of Engine Shed.

**MACKIE, S. J.; for ELECTRIC POWER AND LIGHT CONTRACT AGENCY, 57 Gracechurch Street, E.C.**—No. 13 on Plan, Part of "Old London" (Exterior.) Five arc lamps, Lea patent, nom. 2000 cp. each, driven by 2 gramme machines—E and A.

No. 30 on Plan, Jury Room and interior effects of "Old London." Forty incandescent

lamps, 20 cp., Messrs. Wright & Mackie patents, driven by one E gramme. Machines in Dynamo Shed Plan, Nos. 45, 6, 7.

**OPPERMANN BROTHERS, Brew-house Yard, 172 St. John Street, E.C.**—No. 14 on Plan, Water Companies Pavilion. No. 32 on Plan, Queen's Gate Entrance. One alternating current machine, Oppermann patent, 200 volts, supplying current to 300 incandescence lamps, arranged in 4 series of 50 volt lamps each. (1.) Swan type 50-volt lamps in parallel. (2.) Gatehouse type 50-volt lamps in parallel. (3.) Woodhouse & Rawson type 50-volt lamps in parallel. (4.) Consolidated Electric Light Co. type 50-volt lamps in parallel. One spare machine.

No. 32 on Plan, Queen's Gate Entrance. One small machine, Oppermann type, giving current to Fox lamp at the Queen's Gate entrance of the Exhibition. Machines in Dynamo Shed Plan, Nos. 41, 48, 49.

**PATERSON & COOPER, St. Paul's Works, 76 Little Britain, Aldersgate Street, E.C.**—No. 10 on Plan, East Corridor, 8 workshop arc lamps, nom. 1000 cp. driven by one of their improved continuous current (No. 4) "Phoenix" Dynamos—also a similar machine (No. 3) driving 8 Clark & Bowman lamps in West Corridor. Machines in Dynamo Shed Plan, Nos. 39 & 40.

**PILSEN JOEL ELECTRIC LIGHT CO., Telegraph Street, Moorgate Street, E.C.**—No. 22 on Plan, West Gallery, with 40 Pilsen arc lamps nom. 1000 cp., each driven by 3 Schückert direct-current dynamos, 13 lamps each; also 75 50-volt 20 cp. "Gatehouse" Incandescence Lamps in one Quadrant of Water Pavilion, No 14. Machines in Dynamo Shed Plan, marked 24-27.

**ROYER, C., Bondmill, Hopwood Lane, Halifax**.—Leather Belting prepared by a new process.

**SENNETT, A. R., 62 Hatton Garden**.—No. 28 on Plan, hand arc lamps on the Sennett Patent, of large cp., nom. 3500. 6 of these lamps arranged to work by hand are used in the display of illuminations of the central Fountain Water Towers. The current is taken from a Siemens dynamo (v. ante). Machine in Dynamo Shed Plan marked 42.

**SIEMENS BROTHERS & CO., Limited, 12 Queen Anne's Gate, Westminster, S.W.**—No. 35 on Plan, Conservatory; No. 5 on Plan, South Gallery. In Machine Shed—Two of their large size alternating current, W 11 dynamo machines, fed by exciters, which give current for 1080 Swan incandescent lights 46 volts lighting the South Gallery. The illumination in this gallery fully demonstrates the possibility of lighting large areas by incandescent lighting. 1 large shunt wound direct current dynamo-giving current to feed 4 6,000 cp. arc lamps (Siemens' systems for direct current in the Conservatory. These lamps are arranged in parallel arc. One large



Continuous Current Dynamo, running 5 arc hand lamps, and 6 Siemens differential arc lamps, for fountain illumination, from Island and Water Towers. Machines in Dynamo Shed marked on Plan, Nos. 13, 14, 15, 16, 17, 42.

**SIMPSON, A. H., The University, Nottingham.**—Incandescent lamps, tinted a variety of colours by a new process. Conservatory of Prince of Wales's Pavilion, Aquarium, &c.

**SMITH, T. TAYLER, Bush Hill, Enfield.**—No. 26 on Plan. One Elwell & Parker Dynamo driving 40 Woodhouse and Rawson Lamps, lighting the Cottage Ornée.—Special movable Fittings, adapted to use of Electric Light for household purposes.

**SUN ELECTRIC LIGHT CO., 6 Riding House Street, Great Portland Street.**—No. 28 on Plan, Central Fountain, One alt. current Lachaussee dynamo, driving 15 "Sun" arc lamps in series, illuminating the central portion of the great Fountain display, also (14 and 29) the Cascades and Water Pavilion Gardens. Machine in Dynamo Shed Plan, Nos. 21 & 22.

**TROTTER, ALEXANDER P., 7 Furnivals Inn, E.C.**—In Court No. 16 on Plan. Thirty large Patent Dioptric Lanterns on the Jablochhoff Lights, composed of ten panes of prismatic flint glass. The light is both diffused and distributed uniformly by the action of two dioptric systems of prisms. These prisms are designed on optical principles, and are formed by a special process. In Court No. 8, twelve-inch cones in one piece, on the same principle, for use with incandescent lamps. In Dining Rooms No. 20, also 36 Doulton's Pavilion Four-inch Cylindrical Shades for dif-

fusion only, with a double system of dioptric glutings, producing even diffusion of light with a trifling loss compared with opal or ground glass. The result of the systematic optical design is to produce perfectly even diffusion without irregular shadows, as in all cut glass shades. With a 1000 candle power arc light, or a 20-foot post, a circle of 150 feet diameter can be illuminated uniformly all over by the use of the large lantern.

**VARLEY PATENTS PROPRIETARY, Mildmay Park Works, Islington, N.**—No. 8 on Plan, Small Corridor. 20 arc lamps of Varley's Patent Flexible Carbon, driven by 1 10-light alt. current, Jablochhoff Gramme machine, supplied for the purpose by the Jablochhoff Electric Light Company, Limited. No. 37 on Plan, Smoking Gallery, 200 Varley high-up Incandescent Lamps, running from Varley Carbon Accumulators. Machine in Dynamo Shed Plan, No. 54.

**VERITY & SONS, MESSRS., King Street, Covent Garden.**—One Electrolier in Metal in Arts Gallery, No. 2 on Plan, lighted with 99 Edison Lamps.

**WOODHOUSE & RAWSON, 11 Queen Victoria Street, E.C.**—Woodhouse & Rawson Incandescent Lamps. 1000 W. & R. Lamps, 50 volt, 20 candle power, on the Ferranti Machine of the Hammond Co., and distributed through the Aquarium, Western Arcade, and West Quadrant Dining Rooms. 75 ditto, lighting  $\frac{1}{2}$  of the Water Pavilion. 50 ditto, 20 volts, 10-candle power in the Conservatory of the Prince of Wales's Pavilion, in conjunction with Messrs. Dick Radclyffe & Co.'s decoration.



## HYGIENIC LABORATORY.

*(Annexe to City and Guilds Institute.)*

Director—**PROFESSOR CORFIELD, M.A., M.D. (Oxon), F.R.C.P.**

Chief Assistant and Demonstrator—**Mr. CHARLES E. CASSAL, F.I.C., F.C.S.**

Assistant—**Dr. W. FRASER, San. Sci. Cert., Cambridge.**

*(For Laboratory Sub-Committee, see page 123.)*

THIS Laboratory is designed to show, as far as is possible in a temporary building, the arrangements suitable for the examination, from a Public Health point of view, of water, air, foods and drinks, soils, disinfectants, sanitary appliances, and other articles of Hygienic interest. In front of the Laboratory proper is an ante-room in which are arranged cases of apparatus of various kinds for exhibition and use in the Laboratory, and also a model laboratory table.

Projecting into the ante-room and entered from the Laboratory is the balance room, which should be separate from the Laboratory, but is here merely a glazed compartment, so that the operations conducted in it may be visible to the visitors; the balances, lent by Mr. Oertling, are supported on a pier with a solid foundation of masonry to prevent vibration: most of these instruments are very delicate, being capable of weighing to the one-thousandth part of a grain with comparatively heavy loads on the pans.

On each side of the balance room, in the ante-room, is a table on which are placed microscopes with various specimens for examination.

In the body of the Laboratory are placed three working-tables with bottle-racks above them, and drawers and cupboards for apparatus underneath; and around the sides, tables for microscopic work and distillations, with shelves for apparatus and bottles containing reagents, a furnace with sand bath on the top for evaporating purposes, and two glazed draught cupboards in which operations producing fumes may be conducted; these cupboards are provided with flues in which jets of gas are burning in order to produce currents of air which convey the fumes outside the building; the laboratory tables are provided with appliances for the supply of gas and water, and with sinks, the waste pipes of which are connected with a stoneware drain discharging into an open trapped gully outside the Laboratory, and having an inspection opening, with a ventilating pipe carried above the eaves, at its upper end.

The operations conducted in the Laboratory are sufficiently described in the handbook entitled "Public Health Laboratory Work," and consist chiefly in the examination by chemical, microscopical and other means of specimens of water and air with the view of determining the nature and amount of various pollutions, and the analysis of articles of food and drinks to ascertain their quality and to detect the presence and estimate the quantity of impurities and adulterations, also the examination of filtering materials and of disinfectants, and the detection and estimation of poisonous ingredients, such as arsenic, in the colouring matters used for decorative purposes, clothing, &c.

Specimens of accurately graduated flasks, burettes, thermometers and other apparatus used in the operations conducted in the Laboratory may be seen in the cases and on the tables and also in actual use.



## BIOLOGICAL LABORATORY.

(Central Institution of the City and Guilds of London. Room No. 15.)

Director—W. WATSON CHEYNE, F.R.C.S.

THE objects of this Laboratory are to show the minutest forms of plant life, especially those associated with disease, their life-history, and the methods of investigating them.

Some of these minute bodies are injurious to man, animals and plants.

- (a) In man we have—The *Schizomycetes* of anthrax, glanders, tuberculosis, erysipelas, acute necrosis, typhoid fever, pneumonia, recurrent fever, leprosy, cholera, &c.

Actinomycosis, *saccharomyces albicans* (thrush), fungi of diseases of the hair and skin, &c.

- (b) In animals—*Mammalia*.—Bacteria of anthrax, glanders, tuberculosis, septicæmia, &c.

Actinomycosis, fungi of diseases of hair and skin.

*Aves*.—Fowl cholera, *aspergillus*, &c.

*Pisces*.—Salmon disease (*saprolegnia*).

*Mollusca*.—Disease of oysters.

*Arthropoda*.—Disease of crabs (*saprolegnia*), bees (bacteria), silkworms (micrococci), flies (*Empusa muscæ*), &c.

- (c) In plants—Fungi of the diseases of cultivated plants: Rust, bunt, mildew, disease of potatoes, vines, coffee-trees, orange-trees, vegetables, &c.

Diseases of forest trees: Canker, rot, &c.

Diseases of corn, &c.; Ergot, &c.

Some are of use in the production of articles of food by causing fermentation;—as alcohol (yeast), vinegar (*bacterium mycoderma*), sour milk (*bacterium lactis*), cheese (*bacillus* of rennet, *penicillium* of Stilton, Roquefort), &c.

Some are of use in decomposing dead animal and vegetable matters, as the bacteria of putrefaction.

Some fungi are edible, as *boletus*, *agaricus*, *cantharellus*, *moschella*, &c.

Some are poisonons, as *amanita phalloides* and *muscaria*, *boletus satanas*, *kelvella esculenta*, *scleroderma vulgare*, &c., &c.

In addition to the exhibition of many of the above-mentioned forms of fungi, the methods of cultivating and studying them will be shown; the methods of investigating air, water, and soil, with a view to determine the number and varieties of the fungi present; the methods of determining the effect of various reputed disinfectants on the life of these minute fungi; the methods of straining them and demonstrating their presence in the tissues; and apparatus for microphotographing.

Most of the bacteria shown here have been obtained from Dr. Koch's Laboratory in Berlin, as also several maps showing the prevalence of various diseases in different towns, &c. Mr. Plowright and Mr. Worthington Smith have sent a large number of specimens of diseases of plants.



The following have been good enough to lend to the Executive Council Apparatus for use and exhibition in the Biological and Chemical Laboratories :—

BAKER, C., 244 High Holborn, W.C.  
 BECK, R. & J., 68 Cornhill, E.C.  
 BECKER, F. E., & CO., 34 Maiden Lane, Covent Garden, W.C.  
 BREFFITT, E., & CO., 83 Upper Thames Street, E.C.  
 CETTI, E., 36 Brooke Street, Holborn, W.C.  
 CHRISTY, THOMAS, & CO., 155 Fenchurch Street, E.C.  
 COPPOCK, CHARLES, 100 New Bond Street, W.  
 DEANE & CO., 46 King William Street, E.C.  
 DOULTON, HENRY, & CO., Lambeth, S.E.  
 FRAZER, ALEXANDER, 7 Lothian Street, Edinburgh.  
 HEYWOOD, JOHN, Ridgefield, Manchester.  
 HOWE, JAMES, & CO., 73 Farringdon Street, E.C.  
 OERTLING, L., & CO., Turnmill Street, E.C.  
 ORME, J., & CO., 63 Barbican, E.C.  
 POTHS, H., & CO., 50 Leadenhall Street, E.C.  
 POWELL & LEALAND, 170 Euston Road, W.  
 SWIFT, JAMES, 81 Tottenham Court Road, N.W.  
 TOWNSON & MERCER, 89 Bishopsgate Street Within, E.C.  
 WIESNEGG, M., 64 Rue Gay Lussac, Paris.

The whole of the Working Benches, Tables, &c., in the Chemical Laboratory have been specially constructed and lent by

GEORGE M. HAMMER & CO., 370 Strand, W.C.



## SPECIAL EXHIBITION TO ILLUSTRATE THE OPERATIONS AND INFLUENCE OF SCHOOLS OF ART IN GREAT BRITAIN AND IRELAND.

THE Lords of the Committee of Council for Education, Science, and Art Department, South Kensington, having decided that it would be very desirable to hold an exhibition of works executed by students, past and present, of the Schools of Art in connection with the department, such works having been produced since 1862, applied to the Commissioners of the Health and Education Exhibition for a suitable space; and the Promenade Gallery was placed at their disposal.

No systematic illustration of the kind has taken place since 1858, when a portion of the temporary buildings for the South Kensington Museum was used for this purpose. This present Exhibition is an extension in every direction of that effort, including as it does results in several of the decorative arts, that may be said to have had no existence, or at least a very limited development, a quarter of a century ago. On the other hand, art industries, which were in a more or less flourishing condition commercially, at or a little before the period named, have almost ceased to exist, and therefore find no place in this Exhibition, which essentially represents the current work of the present time.

Of course the avowed purpose of the Schools of Art, since their incipient foundation in 1837-38, upon the recommendation of a Special Committee of the House of Commons on arts and manufactures in 1836, were to cultivate and promote the arts of design as applicable to industry, by means of systematic elementary instruction in drawing in the first instance, and equally systematic instruction subsequently in relation to the various decorative arts, by inculcating sound principles in their application to special industries; but without attempting in any way to supersede necessary technical instruction and experience, which after all can be only thoroughly acquired in workshop or manufactory, at the loom or in immediate connection with it, or at the work bench.

In short, the Schools of Art aimed at the preparation of the student, by instructing him in the elementary basis of his future pursuit; and in the case of youths and apprentices already following some special industry, to give them a clear idea of the essential principles of construction necessary to the arts they desired to cultivate. The question of design has always resolved itself in the question of the capacity of the individual student: but where original power existed, and invention came in to further develop and utilise the power of imitation cultivated in the schools, it must be clear that the student was a great gainer by the instruction imparted; while he who had neither originality, imagination, or invention, was made, at least, a better workman by the education given.

The question how far these schools, established originally by the Government, acting in conjunction with the local representatives of the manufacturing interests in large towns, and supported in the first instance by direct money grants, and subsequently by payments on results and recognition by prizes, have fulfilled their original intention, is a subject it is not desirable to enter into here. The works now exhibited are intended as evidence that their influence has not been altogether nugatory.

To expect that everything has been done, which it was the distinct purpose of the early promoters of the schools to achieve, would be as unreasonable as the conclusion that nothing whatever had been done in the right direction. That manufacturers, and especially salesmen,—the commercial medium between the producer and the consumer have not done all they might have done, not only in the interests of better domestic art, their own true personal interests, and above all, in the interests of the country is certain. Much of the evidence given in this exhibition of the progress made, has, like that progress itself, been realised rather in spite of the manufacturer, who, adhering to the traditions of workshop and manufactory, ignored real improvements in design.

The equally obstructive policy of the salesman no doubt influenced the manufacturers in regarding the fashions of the day as the only standard of taste so far as he was concerned. The question of National Credit stands for nothing with him, and the regular sale of British designs and British manufactured goods, as "French," is the best proof that he is compelled to



acknowledge progress, since he gives the credit to what he considers to be superior work to the foreigner.

The limits of the Exhibition, as well as the extent of the industries embraced in the illustrations, will be seen in the classification decided upon by the Department of Science and Art.

#### CLASSIFICATION.

- Sect. I. School Studies in Stages of Instruction. Designs and Models executed by the Students in the Schools.
- II. Ceramic Manufactures, Porcelain, Earthenware, Stoneware, Terra-Cotta, &c.
- III. Glass Cut, Engraved, Flashed, Pressed, &c. Stained and Painted Glass in windows or panels.
- IV. Enamels on Metal. Cloisonné. Champlevé, &c.
- V. Ornamental Metal-work.—Bronze, Brass, Iron cast or wrought. Drawings and Photographs of such works as may have been executed.
- VI. Silver and Gold Plate, Plated Wares, Electro Deposits, including models for silver and gold work. Drawings and photographs of such works as may have been executed.
- VII. Jewellery and Personal Ornaments.—Gold, Silver, Plated or in any other suitable materials. Medals and Peals.
- VIII. Furniture and Wood Carving. Inlaid Wood. Parqueterie. Papier Mâché Ware, &c.
- IX. Decorative Carvings in Stone or Marble, and Plastic Decorations.
- X. Lace.—Point, Pillow, and Machine-made Lace. Drawings and Photographs of such as may have been executed.
- XI. Woven Damasks in Linen and Cotton, plain or in colours.
- XII. Silks, Ribbons, Trimmings, &c., including Furniture and Dress Fabrics and Embroidery in Silk.
- XIII. Mixed Woven Fabrics for Dresses, Shawls, Scarfs, &c.
- XIV. Printed Fabrics.
- XV. Carpets and Tapestry.—Curtains Table Covers, &c.
- XVI. Painted Decorations, Wall Papers, &c.
- XVII. Lithographs, Chromolithographs, &c.
- XVIII. Illuminations. Illuminated Addresses. Title Pages of Books. Bookbindings, &c.
- XIX. Etchings, Engravings on Wood, and Drawings for Engraving.
- XX. Painted Photographs of objects of Decorative Art.
- XXI. Architectural Drawings, Designs, and Models of Buildings.
- XXII. Miscellaneous. Articles not included in any of the above divisions, but yet coming within the object of this Exhibition.

A complete Catalogue of the whole of the exhibits is in the course of preparation based upon this classification, and will be issued shortly.

In conclusion of this brief notice of the purpose of the Exhibition, it ought to be understood that while Schools of Art as a primary function were established originally with the definite purpose already stated, yet their operations and influences have not been confined to special districts in which manufactures are carried on, but have been extended to centres of population where a general knowledge of the principles and practice of art was calculated to create a taste and cultivate the judgment in relation to art and art manufactures; in short, to educate the consumer as well as the producer, in order to create a demand for better and more tasteful articles of every-day use, whether on the person or in the household.

GEORGE WALLIS.

(See *Special Catalogue, on sale at the Official Bookstalls, of the Works of the Schools of Art.*)



DESCRIPTION OF STREET REPRESENTING "OLD LONDON" IN THE INTERNATIONAL HEALTH EXHIBITION AT SOUTH KENSINGTON, 1884, ERECTED FROM THE DRAWINGS AND UNDER THE SUPERINTENDENCE OF GEORGE H. BIRCH, A.R.I.B.A., LATE HON. SEC. LONDON AND MIDDLESEX ARCHÆOLOGICAL SOCIETY.

AMONG the many subjects bearing upon and connected with the one special subject of Health which this Exhibition is designed to illustrate, not one could be more appropriate than the representation of the manner in which our forefathers were housed, and the sanitary conditions under which they lived, and this could not be done unless a faithful representation and reproduction of the actual dwellings of the citizens brought these conditions and illustrated these manners in a realistic and truthful way before our eyes. Realistic, in that these houses are no pasteboard and painted canvas delusions, but honest structures. Truthful, in that they represent no fanciful restorations from written records, but are faithful delineations from actual drawings derived from authentic sources.

It had been suggested that a representation should be made of Old Cheapside, but this was impossible for the reason that there are only two or three representations known, not one of which is sufficiently accurate to depend upon for a truthful reproduction. There is John Stow's graphic and quaint account of Goldsmith's Row, with its four storeys and ten gables beautified with heraldry and woodmen riding on monstrous beasts, cast in lead and richly painted over and gilt. Charming as a mere description, but who would be bold enough to re-erect it from that alone, besides the one fatal and conclusive objection of trying to represent, in a space 25 feet wide, a street which in the original was double the width.

Accordingly, this idea has been abandoned, and the street is composed of various houses grouped together to form a quaint and picturesque thoroughfare of the normal width of an Old London street, the dates of the various buildings being as diversified as are their size and appearance, and the object that has been held steadily in view, is to show the City as it existed before that swift furnace of flame of 1666 swept it for ever from off the face of the earth.

Entering from the Central Avenue immediately in front of the pavilion of His Royal Highness the Prince of Wales, stands one of the City gates—Bishopsgate, reduced in proportion and flanked by the City wall; this gate, not one of the original gates of which there were but four, was broken through the ancient walls, the peculiar Roman manner of building with courses of tiles being shown on the lower part; these walls might have been built during the 400 years of Roman occupation, but more probably after their withdrawal and before the tradition of the Roman manner of building had died out; above the arch on each side are the arms of the City of London and the arms of the Bishopric, and immediately over the gate in a niche stands the statue of one of the bishops, William the Norman, to whom the City was particularly indebted, for by his good offices, all those rights and privileges and immunities which the City had inherited from Roman times and which had been confirmed and strengthened under the Saxon Kings, were reconfirmed by the Conqueror. "William the King, greets William the Bishop and Godfrey the Portreve," a document of singular brevity, but of singular moment and importance in the history of the City. Once a year the City fathers went in solemn procession to his tomb in St. Paul's Cathedral, and testified by this act their grateful recognition. Above, on the towers which flank the gateway, are the statues of Alfred who wrested the City from the Danes, and of his son-in-law, Ældred Earl of Mercia to whom he committed the government thereof.

Passing through the gate the corresponding statue to William the Norman represents St. Erkenwald, the Fourth Bishop of London, A.D. 675, after the re-constitution of the see and



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- ELBOW LANE
- HIGH STREET
- TOWER ALL MALLOW STAINING
- PILLORY & STOCKS
- OPEN LOGGIA
- CRYPT BELOW
- DEBTORS PRISON
- GATEWAY HOLY TRINITY ALDOLATE
- PLAN OF ALCATRAZ PRISON

SCALE OF FEET FOR PLAN



re-establishment of Christianity by St. Augustine. This Erkenwald was a great favourite with the Londoners, and after his canonization, his shrine at St. Paul's, one of the richest in the kingdom, was for many centuries an object of great veneration. The ground floor on each side shows on the right a debtors' prison, and on the left an ordinary lock-up, and beyond are the staircases to the first-floor. After passing through the gateway, the first house on the left is the "Rose Inn" (No. 1), Fenchurch Street, curious as having its front covered with small cut slates, instead of the ordinary lath and plaster and timber construction usual in London.

The next house (No. 2), still keeping to the left, stood in Leadenhall Street, and was known as the "Cock Tavern," the representations of this house, of which there are many, represent it after the gable had been removed, and a flat coping substituted, but in this instance its pristine condition has been reverted to. Following in order is a block of three houses (Nos. 3, 4 and 5) formerly existing in Fleet Street, towards Temple Bar, on the south side, and known by the name of the "Three Squirrels," now Messrs. Gosling's Bank. This system of the houses being known by certain signs irrespective of the avocations, or change of owners, was universal. The "Marygold" at Temple Bar, Messrs. Child's Bank, The "Grasshopper" in Lombard Street, Martin & Co., and the "Golden Bottle," Fleet Street, Messrs. Hoare's, are all instances of a survival of a custom the origin of which had been so entirely at variance with the avocations of the subsequent owners.

This house (No. 6) is a copy of the one which stood at the corner of Fleet Street and Chancery Lane, and was traditionally known as the "Isaac Walton's house." "*Vir et Piscator optimus*," but there is a doubt that tradition in this case was tradition only, as the actual house was two doors further to the west; but apart from this, the house itself was a magnificent specimen of an ordinary citizen's house in Elizabeth's reign, and was for many years a conspicuous ornament to Fleet Street, and in close contiguity to those well-known haunts of the wits of this period, the "Apollo" and the "Devil" Taverns.

Setting back a little from the main line of the street in order to give prominence to Walton's house, and to give it the appearance of a corner house, are two unpretending wooden structures (Nos. 7 and 8) which formerly stood hard by the ancient church of St. Ethelburga, Bishopsgate Street, and were the ordinary type of hundreds of others in the old city, a shop below, and a solar or chamber above.

Standing prominently in advance of these is the old tower of a church, which, although not strictly modelled from that of All Hallows, Staining, differing only in having a larger traceried window, resembles in its general form and outline many others in which our forefathers were wont to worship; most of these churches were small, for the parishes attached to them were also equally diminutive, and this tower type, with bold octagonal staircase turret on one side, was almost universal; there were exceptions in which the towers had lofty pinnacles at each corner, like the present St. Sepulchre's, Holborn, or the more modern re-buildings by Wren, of St. Michael's, Cornhill, and St. Mary, Aldermanbury; and the curious arched superstructure with its five lanterns of St. Mary-le-Bow, or de Arcubus, and the very fine spire of St. Lawrence Pountney; but the generality of the churches possessed towers similar in character to the one depicted here.

Next to the church, and fronting down the street, is a portion of the Middle Row (Nos. 9 & 10), which stood in the Strand, just outside Temple Bar, and was known as Butchers' Row; these houses well represent the overhanging of the stories so prevalent in London where the ground-floor space was very limited, additional room above being obtained by these means at the expense of light and air. Butchers' Row itself and its quaint structures were swept away when Alderman Pickett, with a public spirit far in advance of his times, made one of the first public improvements by widening this portion of the Strand, leaving the church of St. Clement's Danes isolated in the midst of a large oval. These houses are historically interesting, as in one of them the Gunpowder Plot conspirators met.

Elbow Lane.—The site at this point considerably narrows, from 70 to 30 feet, and the houses are not placed parallel, in order to break a perspective which would have been too long for a picturesque effect, and also in order to obtain that sinuosity so characteristic of London streets.

Still keeping to the left we come to a fine large house of two gables (Nos. 11 & 12), which stood in this Middle Row, Strand, and was known as the French Ambassador's house, or the



Duke of Sully's, also Monsieur Beaumont's, both ambassadors here from the Most Christian King to the Court of St. James, or, more correctly speaking, Whitehall. This Duke de Sully was the famous Henri de Béthune, the wise and popular minister to Henri Quatre, King of France and Navarre. That this house was probably occupied by him there can be little doubt; not only from the commonly accepted tradition, but from the fact of its being decorated with badges of the De Béthunes, the French crown and fleur-de-lis, and two hands grasping one another in a true "entente cordiale."

The next (No. 13) is a low structure of wood and plaster, and has been modelled from an old engraving representing a portion of Bishopsgate Street.

Beyond this is an old house (No. 14) which was in Goswell Street of the date of Elizabeth's reign. The windows are mullioned and transomed, and show one peculiarity very general in old London, in carrying on the upper lights continuously.

The next house (Nos. 15) is a fine specimen of timber construction, with carved barge boards. It was situated on the west side of King Street, Westminster. In the first of these tradition allows Oliver Cromwell, as member for Huntingdon, to have lodged when in London for his parliamentary duties.

The last house (No. 16), on the left hand, decorated with medallions of the Roman Emperors in plaster, stood in Little Tower Hill. There is nothing remarkable in the building beyond that the roof line is level and was chosen as a contrast to the all-prevailing gable.

At this point we come to the termination westward of the street, and the entrance is masked by one of the galleried fronts of an old London inn. There are still remaining in Bishopsgate Street, Holborn, and more especially the Borough, several examples of these.

Retracing our steps, we arrive at the next house (No. 17), on our left, which is set diagonally; this was on the west side of Little Moorfields, Finsbury, and was a very fine specimen of plaster work, and was not removed until the commencement of the present century. A low building connects this with two houses possessing considerable interest; they stood at the south corner of Hosier Lane, Smithfield, over against the famous "Pye Corner," where that fearful conflagration of 1666 was arrested, after having laid considerably more than three-fourths of the City in ashes; they were not removed until 1800. (Nos. 18 & 19.)

Another gateway here arrests our steps; this was the entrance to the famous Priory of the Holy Trinity, Aldgate, founded by Queen Matilda, and whose prior, by virtue of his office as representing the Knighten Guild who had made over to this priory their lands and soke, was admitted as one of the Aldermen of London, of the Ward of Portsoken, who, according to custom, sat in Court, and rode in scarlet, or such livery as the other aldermen used. The Priory, at the dissolution, was granted to Sir Thomas Audley, whose daughter, marrying the Duke of Norfolk, gave the name to the house built by Audley out of the ruins of the Priory—"Duke's Place." Beyond the gate is the inn called the "Fountain" in the Minories, which, notwithstanding its heavy projecting stories, was so strongly framed that when it was attempted to remove it, cart-horses had to be employed to pull the beams apart; on one of them was found the date 1480. (No. 20.)

Beyond this is the gable end of the Hall of the Brotherhood of the Holy Trinity, in Aldersgate Street, near to Little Britain. This Hall has been selected as a typical example of the Hall of a Guild or Livery, of which there were many within the boundaries of the ancient City. It was a guild possessing its own property, and connected with the neighbouring church of St. Botolph's, Aldersgate Street, and after the suppression was purchased by some of the parishioners as a place of meeting. It was not removed until the end of the last century, and very accurate drawings by Capon and Carter exist in the Gardner Collection. Mr. Alderman Staples, F.S.A., has given the history of this Guild in his 'Notes on St. Botolph's, Aldersgate.' The ancient stained glass with a figure of St. Blaise, and several ancient shields which existed in 1611, and were noticed by N. Charles, Lancaster Herald, have been faithfully reproduced by Mr. Campbell. Allotments have been made to the following Guilds for special exhibits—Salters, Drapers, Fan Makers, Patten Makers, Cutlers, Sadlers, Leather Sellers, Gold and Silver Wire Drawers, Broderers, Pewterers, Frame Workers, Knitters, and Bowyers.



We now come to one of the most remarkable houses in this street, remarkable not only for its extreme richness of decoration, but as being connected with Sir Richard Whittington, famous in song and in story. It was situated four doors from Mark Lane in Crutched Friars, or Hart Street, up a courtyard, and was described in old leases as Whittington's Palace. Although the house from its style and ornamentation could not possibly have been of his time it is possible that the front only had been ornamented and altered, for in general outline and arrangement it resembled houses of that date—it was richly ornamented with carvings of the armorial bearings of the city companies, which stamped it as being the house of a remarkable personage and one whom the city had evidently delighted to honour. It was impossible to reproduce the extreme richness of its decoration—the cost would have been too great. The ornamentation has therefore only been painted, the original having been entirely carved and painted and gilt. (No. 21.)

Although very accurate prints of this courtyard exist, and several views of the elevation more or less mutilated in the *European Magazine*, an original drawing showing its gables is in the Gardner collection, and from which this representation has been taken.

The next two houses were drawn by Mr. Gwilt before they were removed, and were situated in Bankside, and are picturesque examples of plaster decoration and open balconies. (Nos. 22 & 23.)

The last two houses in this street on the left before arriving at the gate at which we entered were also from the Gwilt collection (now in the Gardner) and stood in the High Street, Borough; they were only removed of late years, and were drawn and measured by Mr. Gwilt. (Nos. 24 & 25.)

The foregoing is but a brief description of the examples which have been selected to illustrate "Old London." As to actual size they have only been slightly reduced, but this has been done in proportion, although such reduction is not to a uniform scale, but has been adopted in the different cases to suit the uniformity of the plan and arrangement of the whole, and, after all, is but a poor attempt at endeavouring to place before nineteenth century London the departed glories, the picturesque streets, the quaint houses, in which our forefathers lived and died, and poor though the attempt may be, yet it may afford some help

"To view the manners of the Town,  
Peruse the traders and gaze upon the buildings,"

and to realise the "London" of the days of Shakespeare, and even of Milton, who, in the "Allegro," struck a chord which still vibrates in many a heart—

"Towered cities please us then,  
"And the busy hum of men."

GEORGE H. BIRCH.



## LONDON WATER SUPPLY.

The eight Metropolitan Water Companies, viz.—

THE KENT WATER WORKS COMPANY,  
THE NEW RIVER COMPANY,  
THE EAST LONDON WATER WORKS COMPANY,  
THE SOUTHWARK AND VAUXHALL WATER COMPANY,  
THE WEST MIDDLESEX WATER WORKS COMPANY,  
THE GRAND JUNCTION WATER WORKS COMPANY,  
THE LAMBETH WATER WORKS COMPANY,  
THE CHELSEA WATER WORKS COMPANY,

have a Collective Exhibit in a Pavilion specially constructed for the purpose, showing the manner in which the inhabitants of London are supplied with water, the object of the Exhibit being to convey to the general public as clear an idea as may be of the magnitude and importance of the Metropolitan Water Supply. The designs and general arrangement of this Exhibit have been carried out by Colonel Sir Francis Bolton, C.E., the Water Examiner to the Metropolis, assisted by the Engineers of the above Companies and the rest of the Sub-Committee.

The Pavilion is an octagonal building, this shape having been adopted in order that each Company might have one side of the octagon for its Exhibits.

From the interior angles of the Pavilion spring eight willow trees, the branches of which, being brought to an apex, form a kind of dome. The ground-work of the dome is covered by "Lincrusta Walton" decoration in imitation of carved and fluted cedar, supplied by Messrs. F. Walton & Co. The floor is laid with Rust's vitreous mosaic, by Messrs S. Belham & Co., and is of a blue colour, to be in character with the rivers Thames and Lea.

The walls are hung with paintings by Mr. J. H. Hooper, showing the intakes and portions of the works of the several Companies. Isometrical plans, maps of the districts supplied, descriptions of the works, and statistical tables (specially compiled for the purposes of this Exhibition), giving, amongst other things, particulars as to quantity, and the area under constant supply, are also shown.

The walls of the Pavilion are decorated by a frieze, the work of Mrs. Wallroth of Sunbury, painted on a silver ground representing river-birds and plants. Mr. G. G. Adams lent also for the decoration of the Pavilion a cast of his well-known statue, "The Diver."

In the centre of the Pavilion is a handsome fountain, lent by the Coalbrookdale Company, representing a swan and boy resting on a basin supported by water-lilies and other aqueous plants.

At each of the interior angles of the octagon are filter beds, supported on a base of Norwegian marble (supplied by the Northern Stone and Marble Company), which illustrate the system of filtration adopted by each Company. In front of them are glass tubes mounted in nickel silver conveying running water to the drinking fountains of each particular Company. During the continuance of the Exhibition the official analyses of the water which each Company supplies is attached to these fountains.

In the Outer Annexe, or Corridor, are the special exhibits of each Company, and at regular intervals there are specimens of the different large mains used in the Metropolis, varying in size from thirteen to forty-eight inches, as well as water meters and hydrants. The number of miles of mains used is painted on each specimen.

Several most interesting specimens of the old stone, wooden, and concrete pipes used in bygone days are exhibited side by side with the iron mains of modern times.



In the Outer Corridor, also, on the left of the main entrance to the Pavilion, is an Exhibit which is unique in its way, being a case lent by the Aqueous Works and Diamond Rock-Boring Company, containing a remarkable and extensive collection of "cores" of different strata obtained in Artesian and other Borings by means of the Diamond-Drill, some of which have been brought up from considerable depths. Several Artesian borings have been executed for different Water Companies by this system.

In the retiring angle South of the door is a specimen of a flexible pipe as used by the Southwark and Vauxhall Company, and in the retiring angle to the North is a complete section shewing a large main as laid in a London street, with all the necessary cocks and appliances. There is also a complete section of a house supplied with fittings in accordance with the requirements of the Metropolis Water Act of 1871.

Messrs. Merryweather & Sons have lent hose-pipes, branches, firemen's equipment, &c., as used by the Water Companies, which are also exhibited in the Annexe.

Contributions to the literature of Water Works generally have been received from a few Provincial and Foreign Water Companies. The Chester Water Works Company also exhibit an old wooden pipe formerly used for conveying water to that City; and the Colne Valley Water Company shew samples of hard chalk water, and the same softened by Dr. Clark's liming process; also a piece of lead piping which has been in use for seven years.

The principal entrance to the Pavilion on the East side is in the form of a Gothic arch constructed of main pipes, joints, and bends used by the Companies for the supply of water.

In the garden adjoining the Water Pavilion is a separate building which contains specimens of various Laboratory apparatus used in making analyses of water.

In the centre of this garden is a fountain with mermaids, also lent by the Coalbrookdale Company.

Between the fountain and the Gothic arch above-mentioned is a wrought-iron Standard, thirty-six feet in height, constructed by Mr. Newman for the Duke of Westminster. This standard carries the electric light for the illumination of the garden, which has been supplied by the Electric Sun Lamp and Power Company. The crystal gas illuminations in this garden have been furnished by Messrs. Defries & Sons.

In the ornamental water in the grounds, fountains of various designs have been arranged which will play at certain hours, and which will be illuminated after dark by means of the electric light. Mr. A. R. Sennett has been appointed by Sir Francis Bolton to carry out the electrical and optical arrangements connected with the illumination of the fountains.

Two Corinthian columns have been erected on each side of the Prince Consort's Statue, from which water jets of considerable height will fall.

In the garden adjoining the Pavilion, Messrs. Simpson & Co., Engineers, of Pimlico, exhibit a large centrifugal pump and engines combined, suitable for irrigation or drainage, being the largest pump of the kind which has yet been constructed. It will discharge 10,000 tons, or 2,240,000 gallons, of water per hour, which quantity is equal to a stream of water 50 feet wide and 1 foot deep, flowing at a velocity of 2 feet per second, and would cover 100 acres to a depth of 1 inch.



## THE AQUARIUM.

ONE of the most popular and attractive features of the International Fisheries Exhibition of 1883 was the Aquarium, situate in the Western Arcade, which was constructed at a great outlay on the most approved system of circulation, under the personal supervision of a committee of specialists appointed by the Executive for that purpose.

The whole of this department has been transferred to the Council of the National Fish Culture Association, with the Marquis of Exeter as its President and Chairman; Edward Birkbeck, Esq., M.P., for its Vice-President; W. Oldham Chambers, Esq., F.L.S., for its Manager and Secretary, and the following gentlemen as Members of its Council:—The Earl of Romney; The Earl of Annesley; Lieut.-Gen. Lord Abinger, C.B.; The Right Hon. Sir W. Hart-Dyke, Bart., M.P.; Sir John St. Aubyn, Bart., M.P.; Sir P. De Grey Egerton, Bart. The Prime Warden of the Fishmongers' Company; The Maclaine of Loch Buy; T. Andrews, Esq.; R. Barclay, Esq.; C. Bates, Esq.; J. Brunton, Esq., M.D.; C. L. Buxton, Esq.; C. C. Capel, Esq.; T. J. Carrington, Esq., F.L.S.; J. H. Crossman, Esq.; Lieut.-Col. Custance; H. Ffennell, Esq.; Francis Francis, Esq.; C. E. Fryer, Esq.; P. Geen, Esq.; Dr. Günther, F.R.S.; Professor Huxley, P.R.S.; A. Jardine, Esq.; H. Lee, Esq., F.L.S.; Rev. J. J. Manley, M.A.; T. J. Mann, Esq.; R. B. Marston, Esq.; O. T. Olsen, Esq., F.L.S.; J. L. Sayer, Esq.; Col. Seddon; W. Senior, Esq.; S. B. Sharpe, Esq.; T. Spreckley, Esq., Chairman Thames Angling Preservation Society; J. Willis Bund, Esq.; Lieut.-Col. Stuart Wortley.

The desire of the Council is to render this section of the International Health Exhibition as attractive and instructive to the public as possible; and with this object in view, arrangements have been entered into and completed for stocking and maintaining the fresh and sea-water tanks with various species of food fishes. There is, too, a well-arranged establishment for the artificial culture of marine and fresh-water fishes, molluscs and crustacea. Experiments and investigations in the various branches of pisciculture will be carried out on a scale which warrants the Council in anticipating results which will tend to the advancement of the science, to the promotion of industries, and to the general welfare of the community, by the dissemination of a cheap and nutritious aliment,—thereby increasing the food supply of this great and ever-extending nation.

In making these arrangements, no expense has been spared, for the Council saw the great necessity of keeping up a constant supply of both marine and fresh-water fishes. In all parts of the country, upon the coast and at the principal inland fisheries, therefore, agents have been employed whose instructions were to obtain and forward to the Aquarium, interesting, curious, or rare specimens of the finny tribe. By this means a collection of fish has been obtained which bids fair to rival that at any similar establishment in or near London.

Not satisfied to limit their task in instructing and interesting the public here, the Directorate of the National Fish Culture Association determined to inaugurate a loan exhibition of stuffed fish, fish-eating birds, and paintings upon fish subjects. With this object in view, an invitation to exhibit was issued to different Angling Associations in London, and to well-known owners of private collections. For a considerable time before the opening of the Exhibition, the staff of the Aquarium were actively engaged in collecting, arranging, and tabulating the various exhibits, and the result is a magnificent show of everything of interest to the angler, the naturalist, and the general public.

The Fish Culture Department is almost an unique establishment of its kind, and in it can be seen young fish hatching out from the ova; fish-breeding implements invented by the Marquis of Exeter and Mr. Oldham Chambers; and many thousands of young fry.

Altogether the Department under the charge of the National Fish Culture Association bids fair to attract no insignificant amount of interest during the term of the Health Exhibition, and to prove, further, of more lasting and permanent importance.

The Council of the Association is desirous of acknowledging the following special services which have been rendered in the Aquarium and Fish Culture Departments, and has much



pleasure in testifying to the uniform acts of courtesy and kindness which have been so liberally accorded to the Council in its endeavours to make the portion of the Exhibition under its control and management attractive and instructive to the public:—

For contributions of apparatus, nets, machinery, models, scientific instruments, and other necessities in the management of an Aquarium—The Atkins Water Softening and Purifying Company, 62 Fleet Street, E.C.; Messrs. Bussell, Gibbs & Co., 75 Wells Street, Oxford Street; J. S. Cragg, Lowestoft; Messrs. Crossley Bros., Manchester and London; Messrs. J. Davis & Co., 6 Kennington Park Road, S.E.; Messrs. Humphrey, Albert Gate; Messrs. Leete, Edwards & Norman; P. A. Maignen, Esq., 22 and 23 Great Tower Hill, E.C.; and for contributions of fish, fresh and marine to the Aquarium and Fish Culture Department, the Most Hon. the Marquis of Exeter; the Right Hon. Lord Suffield; Lord Wallscourt; T. Andrews, Esq., Westgate House, Guildford; the Brighton Aquarium Co.; the Hon. Spencer Baird; the Mayor and Corporation of Beccles; C. C. Capel, Esq.; W. Pearson Coleman, Esq., Whitstable, Kent; Col. Custance; W. S. Everitt, Esq.; E. Jex, Esq.; Rev. H. N. Lubbock; T. J. Mann, Esq., The Grange, Bishop's Stortford; O. T. Olsen, Esq.; Messrs. Poland Brothers; R. L. Pugh, Esq.; W. G. Sandford, Esq.; J. L. Sayer, Esq.; and W. H. Williamson, Esq.

For contributions to the Journal of the Handbook, &c.:—Dr. Francis Day, F.L.S.; H. Ffennell, Esq.; H. Lee, Esq., F.G.S., F.L.S.; R. B. Marston, Esq.; W. Senior, Esq.; and J. P. Taylor, Esq.

#### LIST OF LOAN EXHIBITORS.

**BARBER, H.**, 19 Cincil Street, Lincoln.—One Case of Stuffed Fish.

**BARCLAY, R.**, Bury Hill, Dorking. Three Cases of Stuffed Fish.

**BEASLEY, A. W.**, 14 Greville Place, Maida Vale, W.—A Pike Perch, weight 14lbs.

**BRUNTON, DR. J.**, 21 Euston Road, N.W.—(1) One Case of Grayling. (2) One Case of Lea Trout.

**BUDGE, W. H.**, 1 Queen's Gate Place Mews, S.W.—(1) A Sea Wolf. (2) Stuffed Water Birds.

**BUTT, G. F.**, 49 Wigmore Street, W.—Two Cases of Birds.

**CALLENDER BITUMEN TELEGRAPH CO. (THE)**, Belvedere, S.E.—Royal Sturgeon.

**CARR, MR. & MRS.**, Berwick-on-Tweed.—(1) Cases of Fish. (2) Anchor. (3) Pictures and Photographs. (4) Paintings.

**CAXTONIAN ANGLERS (THE SOCIETY OF)**, Falcon Hotel, Gough Square, E.C.—Several Cases of Stuffed Fish.

**CHAMBERS, HERBERT, M.R.C.S.**—Case of Spider Crabs.

**CLARK, G.**, 48 Warrington Crescent, W.—Two Fine Specimens of Pike.

**CLIFFORD, J. W.**, "Three Colts," Cambridge Road, Bethnal Green, E.—Five Cases of Stuffed Fish.

**COBBOLD, DR.**, 74 Portsdown Road, Maida Hill, W.—Specimen of Deformed Trout.

**CRITCHFIELD, A. C.**, 1 Pownall Road, Dalston, E.—Collection of Stuffed Fish.

**DAVIE, J. H.**, 49 Shaftesbury Road, Hammersmith, W.—One Case of Stuffed Fish.

**EASTWOOD, E. J.**, Cheshunt, Herts.—(1) Stuffed Fish. (2) Stuffed Otter.

**EDWARDS, H.**, 100 High Street, Kingsland, E.—One Case of Fish.

**EEDLE, T.**, 40 Goldsmith's Row, Hackney, E.—(1) Three Cases of Fish. (2) Four Cases of Birds.

**EXETER, THE MARQUIS OF**, Burghley House, Stamford.—Cases of Stuffed Fish, and Paintings of Fish.

**EYRE, H. B.**, Elgin Lodge, Weybridge.—Three Cases of Otters.

**FITZGERALD, MAJOR**, North Hall, near Basingstoke.—One Fish.

**GRESHAM ANGLING SOCIETY (THE)**, Masons' Hall Hotel, City.—Three Cases of Fish (Grayling, Bleak, and Perch.)

**GANT, J. W.**, 61 Harcombe Road, Stoke Newington, N.—(1) Eight Cases of Fish. (2) One Bird.

**GARDNER, J.**, 149 Oxford Street, W.—(1) Thirteen Cases of Fish. (2) Eleven Cases of Birds. (3) A Case of Corals.

**GILBERT, E.**, "Windsor Castle" Hotel, King Street, Hammersmith, W.—One Case of Stuffed Fish.

**GORDON, LORD GEORGE**.—Casts of two Salmon caught by his Lordship.



**GREAT EASTERN RAILWAY.**—Sea Water from Lowestoft, and Map of London. The water is supplied to the public by the Great Eastern Railway Company, in kegs containing 3 gallons each, at 6d. per keg. The map shows the London delivery limits. From Great Eastern Suburban and Country stations it is delivered within the usual cartage limits.

**HORSEY, J.**—Series of Photographs (taken by himself) of the interior of the National Fisheries Exhibition, Norwich.

**JARDINE, A. G., 38 Old Change, E.C.**—(1) Eighteen Cases of Fish. (2) Five Casts of Fish. (3) Six Oil Paintings.

**JARDINE, MRS. ALFRED.**—Two Casts of Trout, painted by Targett, and three paintings of Salmon by Rolfe.

**JOEL, J., 122 Camberwell New Road.**—Stuffed Pike.

**LAYARD, J. G., 40 Millson Road, Kensington.**—One Case of Fish:—a Stuffed Thames Trout (the subject of the litigation *Lewis v. Layard*—an action involving the rights of public to fish in the Thames).

**MANLEY, Rev. J., 39 Upper Kennington Lane, S.E.**—(1) One Case of Fish (Stuffed Trout). (2) One Drawing. (3) One Photograph.

**MARSTON, R. B., "Fishing Gazette Office," Fetter Lane, E.C.**—(1) Two Paintings by Rolfe & Targett. (2) Diagrams of Coarse Fish. (3) Models of Farm and Hand Boxes.

**MATTHEWS, J. A. S., 105 Great Russell Street, W.C.**—Stuffed Pike, weight 35 lbs.

**MOORE BROS., Liverpool.**—Cod-fish Skull and Skeleton of Penguin.

**PUGH, R. L., 16 Comeragh Road, West Kensington, W.**—(1) Nineteen Cases of Fish. (2) One Stuffed Otter, in case. (3) One Heron in case.

**RICHMOND PISCATORIAL SOCIETY, Richmond.**—Thirteen Cases of Specimen Stuffed Fish.

**SACHS, CLAUDE, 22 Hyde Park Gardens, W.**—(1) Japanese Tapestry. (2)

Two China Plates. (3) One China Sauce-boat. (4) Two Japanese Fans. (5) Carved Wood Haddock. (6) Japanese Handkerchief. (7) Fishes in colours. (8) Japanese Plaque.

**SACHS, E., 22 Camden Street, N.W.**—Net, Bamboo Rod, Creels, Stuffed Parrot-fish, Two Fishermen's Nets.

**SACHS, T. R., 22 Hyde Park Gardens, W.**—(1) Six Pictures. (2) Six Cases of Fish.

**SACHS, MISS ALICE, 22 Hyde Park Gardens, W.**—Two Paintings.

**SACHS, MISS FLORENCE, 22 Hyde Park Gardens, W.**—One Case of Fish.

**SHEEN, S. J., 105 Camberwell New Road, S.E.**—Two Cases of Stuffed Fish.

**STARKEY, J., 28 Albion Road, Stoke Newington, N.**—Fifteen Cases of Stuffed Fish.

**TARGETT, T. G.**—Eleven Paintings.

**TAYLOR, G. J., "Friendly Citizen Angling Society," 11 Tranton Street, St. James' Road, Bermondsey.**—Five Cases of Fish.

**TAYLOR, PAUL J., Bromley, Kent.**—Case of one Stuffed Perch, 3½ lbs. weight.

**VALE, J., 27 Hammersmith Road, W.**—(1) One Large Pike. (2) One Large Trout.

**WATTS, E. A., Billingsgate, E.C.**—One Case Stuffed Fish.

**WEBB, J., Kongo House, Hythe.**—Snout of Sword-fish.

**WEBSTER, W. G., 1 Bedford Court, Old North Street, Red Lion Square, W.C.**—(1) Six Cases of Fish. (2) One Picture.

**WEST LONDON ANGLING SOCIETY (THE), (per E. D. MATTHEWS), "Windsor Castle" Hotel, Hammersmith.**—Cases of Stuffed Fish.

**WHALE, J., 74 Leadenhall Street, E.C.**—Shells and Horns.

**WOODMAN, G., 60 Camberwell New Road, S.E.**—Ten Cases of Stuffed Fish.



## COLLECTIVE EXHIBITION OF COSTUME.

### "HISTORY OF BRITISH COSTUME FROM WILLIAM I. TO GEORGE IV."

A SERIES of Wax Figures dressed from contemporary authorities—missals, tombs, statues, and portraits in oil—illustrative of the civil costume of the middle and lower classes from A.D. 1066 to 1820. These Figures, as well as the representations of Military Costume, are exhibited in the West Quadrant (leading from Aquarium to Conservatory).

The costumes executed by Auguste & Co., Wellington Street, Strand, from designs specially made by the Honourable Lewis Wingfield, R.H.A. The wigs by Mr. C. H. Fox, Russell Street, Covent Garden. The wax figures by Mr. Edwards, Waterloo Road.

Reigns during which no important changes in civil costume were made have been omitted. It will be observed that in some instances changes followed each other rapidly, each succeeding reign being marked by a strong individuality (from Elizabeth to Charles II., for example), while in other instances the dress of the lower orders remained much the same for generations.

Each case contains a lady and gentleman of the esquire class, and also a peasant woman and artisan of the same period.

Case I.	William I.	A.D. 1066—1087.	XII.	Charles I.	1625—1649.
II.	Henry I.	1100—1135.	XIII.	Commonwealth	1649—1660.
III.	Henry III.	1216—1272.	XIV.	Charles II.	1660—1685.
IV.	Edward I.	1272—1307.	XV.	Anne	1702—1714.
V.	Richard II.	1377—1399.	XVI.	George II.	1727—1760.
VI.	Henry VI.	1422—1461.		(Town costume.)	
VII.	Edward IV.	1461—1483.	XVII.	George II.	1727—1760.
VIII.	Henry VII.	1485—1509.		(Rural costume.)	
IX.	Henry VIII.	1509—1547.	XVIII.	George III.	1760—1811.
X.	Elizabeth	1558—1603.	XIX.	George, Pr. Reg.	1811—1820.
XI.	James I.	1603—1625.			

### MILITARY COSTUME.

The exhibits of Military Costume comprise a series of figures illustrative of the mode in which the British Army was dressed at various periods of its history from the earliest times to the present day, to which are added, for the purpose of comparison, specimens of uniforms now worn by the armies of some foreign nations. The frames of these figures have been lent by the Royal United Service Institution, after having been completed with heads and hands by Messrs. Tussaud, entirely at their own expense. The armour of the early periods of the historical series has been lent by the War Department from the Tower of London; the costumes of the other periods have been furnished by Messrs. L. & H. Nathan at their own cost; the clothing of the present day has been supplied from the Royal Army Clothing Depot by permission of the Secretary of State for War, and the foreign uniforms have been kindly lent by the Governments of the countries to which they respectively belong.

### HOSPITAL UNIFORMS.

Uniform of Hospital Sister. Uniform of Hospital Nurse. Sent by the House Committee of the London Hospital.

### FIREPROOF DRESS.

Richardson, John & Co., Manufacturing Chemists, Leicester, will exhibit a complete series of the most inflammable fabrics, rendered entirely and perfectly safe from fire. Different materials largely used for dress purposes: as also examples of ball and evening costumes, rendered non-inflammable by chemical processes. Chemically prepared starches: and the various chemicals used will also be exhibited, and their use and effect demonstrated.

### WARMTH OF CLOTHING.

This exhibit includes a series of twelve busts clad in jerseys of the various materials shown on the labels. To each is attached a model thermometer with a scale divided into 100 parts, and the temperatures indicated are those that would be obtained in a series of ideal experiments in which all at starting have a temperature represented by 100, and are allowed to



cool under the same conditions during the time taken by a naked bust to fall to the temperature represented by the zero of the scale. By taking, in this way, the heat lost by a naked body as 100, the degrees shown on each thermometer represent the percentage of heat retained by the material to which it is affixed. The materials shown include flannel, merino, silk, cotton, linen, Cachemir wool and Llama wool of different textures, and are supplied by Messrs. Wheeler & Co., 19 Poultry, E.C.

#### INFLUENCE OF COLOUR ON THE HEAT OF SUMMER AND TROPICAL CLOTHING.

A series of busts with vests of different colours and model thermometers attached to each. The latter mark the actual temperatures (in degrees centigrade) attained by the material exposed to the direct rays of the sun.

#### HYGROSCOPIC QUALITIES OF CLOTHING.

Three woollen ulsters hung on model balances showing the weights: 1st, when quite dry; 2nd, when exposed to moist air; 3rd, when exposed to rain. The bottles attached contain the respective quantities of water held by the material under the conditions mentioned. Supplied by Messrs. Wheeler & Co., 19 Poultry, E.C.

Costumes worn by the Greely Expedition, exhibited by the United States Government.

Shetland Hand-knitting. (1) Two White Lace Shawls. (2) White Lace Dress. (3) White Lace Cloak. (4) White Lace Scarf. (5) Grey Lace Shawl. (6) Black Lace Dress. (7) Brown Lace Shawl. (8) Brown Wrap Shawl. (9) Travelling Cap. (10) Fair Isle Cap. (11) Two Pairs of Fair Isle Socks. (12) Two Pairs of Fair Isle Mittens. (13) Fair Isle Purse. (14) Two Pairs of White Lace Mittens. (15) Two Pairs of Coloured Lace Mittens. (16) Pair of Coloured Silk Lace Mittens. (17) Pair of very fine White Stockings. (18) Pair of very fine White Gloves. (19) Very fine White Necktie. (20) Very fine White Silk Necktie. (21) Pair of Thick Socks. (22) Pair of Thick Gloves. (23) Black Silk Veil. (24) Grey Silk Veil. Lent by Mrs. George Bain, 4 Eton Road, Haverstock Hill, N.W.

284. Dress for Modern Use, adapted from the Greek. Exhibited by Mrs. Emily Pfeiffer Mayfield, West Hill, Putney.

288. "The Nonpareil Velveteen" in various stages of manufacture, and in its perfected state. Woman at work with a knife more supple than the most delicate watch-spring and a point as fine as a needle, producing, from what appears to the unpractised eye a plain cloth, the pile or plush of the Velveteen. Fifty thousand cuts with the knife are required to produce 100 yards, the operation occupying a week. Exhibited by Messrs. Henry Mann, Son, & Co., Manchester.

323. A Lady's Costume for the Highlands. Exhibited by Mrs. H. F. Baxter, The Tower, Hampstead.

336. Invention for Decorative Embroidery and Fancy Work. By using this appliance, art embroidery may be produced with any sewing machine. Exhibited by Mr. H. Paget, Little Heath, Potter's Bar, Middlesex.

337. Manufacturing of Gloves from the skin to the finished glove, omitting those processes which the limited space will not allow, but which are supplemented by photographs. Exhibited by Messrs. Dent, Allcroft & Co., of 97 Wood Street, London; & Worcester, Leicester, Martock, Torrington, Brussels, Grenoble, Paris, & Leipsic.

The following Plaster Casts will also be shown:—(1) Plaster Cast of Normal Liver. (2) Plaster Cast of Liver deformed by tight lacing. (3) Plaster Casts of normal Feet at various ages. (4) Plaster Casts of Feet deformed by improperly shaped boots.



## THE LIBRARY AND READING ROOM.

### ROYAL ALBERT HALL.

*Librarian, MR. CARL A. THIMM, Member of the Library Association.*

The Reference Library and Reading Room is now open for the use of the public visiting the Exhibition from 11 A.M. to 6 P.M. Admission free.

The rooms are in the Albert Hall, which can be entered either from the Royal Entrance of the Hall, or through the Conservatory from the Grounds.

The Library contains English and Foreign works, and Governmental Reports on every subject embraced by the Exhibition, also Reference and Miscellaneous Works.

In the Reading Room the current numbers of the daily, weekly, and monthly newspapers and periodicals can be seen, as well as a large collection of English and Foreign Medical, Sanitary, Literary, Educational and other Journals.

The books have been classified, and the catalogue has been published.

The rooms have been decorated and furnished by Messrs. Liberty & Co., Chesham House, 142 & 144 Regent Street, W.

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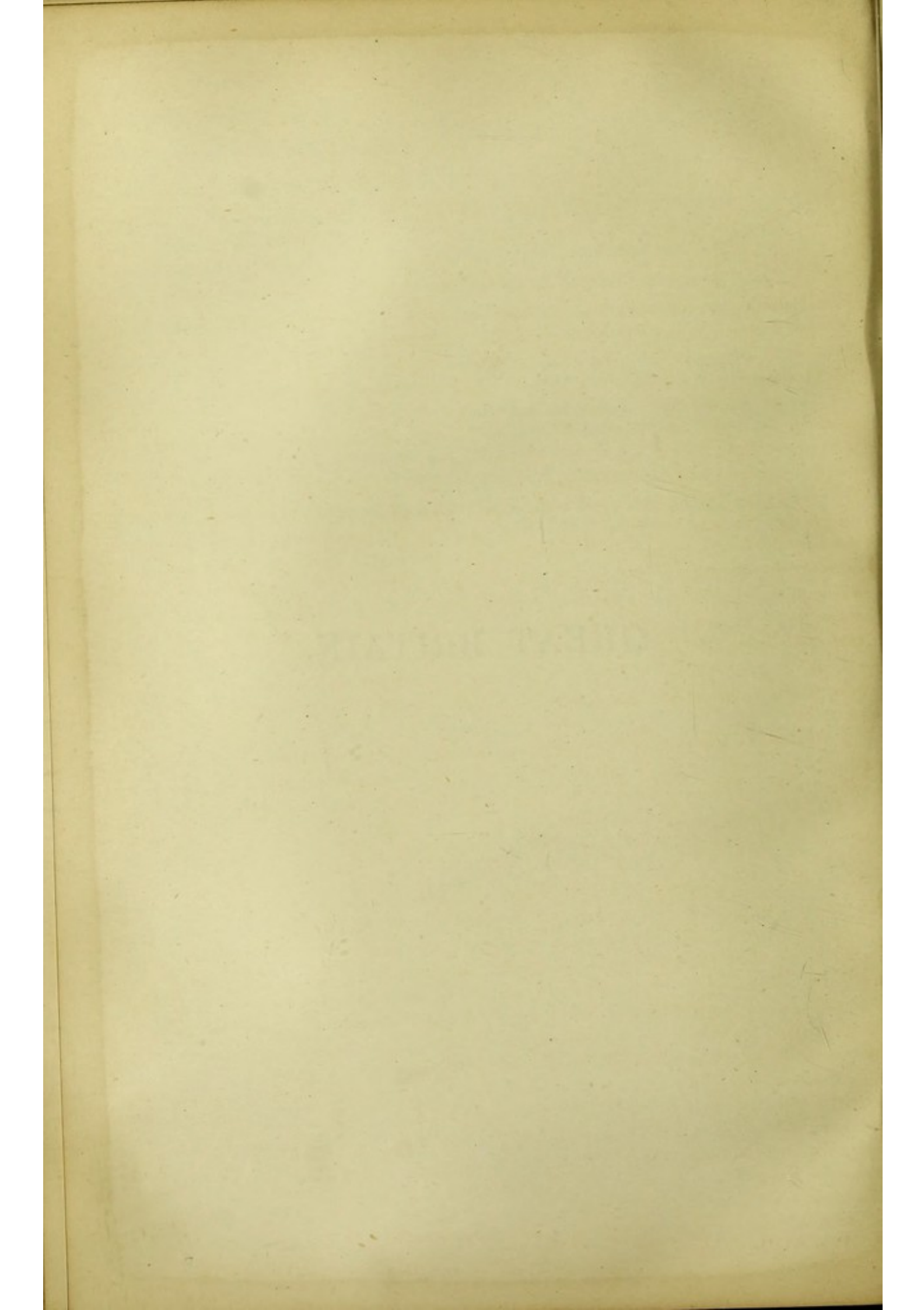
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**GREAT BRITAIN.**







## GREAT BRITAIN.

### FOOD.

Food claims by right the first place in the economy of an Exhibition devoted to Health for our physical well-being is more effected by meat and drink than by any other essential of existence. Fresh air, it is true, is a more constant necessity of life, but Almighty Providence sends the air we breathe so freely to our wants, that the getting of it costs us neither thought nor pains.

Taking the conditions of modern civilisation as they stand, it is still the struggle for food that occupies most of our thoughts and energies. In spite of the increased productiveness of the earth wrought by modern agricultural science; in spite of the labours of the chemist, engineer, and economist; in spite of high farming, steam ploughing and harvesting, quick transit, artificial refrigeration, and all those other seeming miracles of food production and distribution, which are in truth no more than the intelligent application of nature's laws; in spite of all these things, to get its daily food is yet the great struggle of civilised humanity, as it was that of the primitive founders of our race. Artificial wants have increased side by side with the artificial means science has put into our hands for supplying them. It is this that has rendered the labour of the few thinking men of so little avail for releasing the many from the drudgery of life. If with the increasing fruitfulness of the earth, brought about by man's husbandry, we could combine the simpler wants of a more primitive age, modern existence would afford leisure for peaceful study and health-giving enjoyment, instead of being a state of continuous striving and turmoil.

With but a few exceptions the vegetable world is the source of all food, and it is the province of vegetation to elaborate from inorganic matter the organic substances necessary to the sustenance of animal life. Flesh-feeding animals require the intermediate agency of herbivorous creatures, to prepare these vegetable substances for their diet; but, whether by one step or two, the principles which go to make up living and breathing nature, spring from the vegetable kingdom.

The aim of the physiologist is to reduce this broad fact to the details by which these changes are brought about, in order that he may construct a system showing what substances are best fitted for our support. It is at this point that the student is impressed by the narrow limits within which human knowledge is encompassed. The chemist may split up the vegetable food into what are classed as elements; and he may analyse the animal substances they go to form, and find again the same elements. But the changes which are involved in the building up of the human frame from the food we eat, can be followed but to a limited degree, and the vital principles of these changes have not yet been grasped by the human intellect.

The principal elements in vegetable substances are carbon, hydrogen, oxygen and nitrogen, the first being the most plentiful. Carbon is obtained from the carbonic acid in the atmosphere. Chlorophyll, which occurs in the leaves of plants, has the power, under the influence of the sun's rays, of extracting the carbon and liberating oxygen. Animal life is supported by the reverse process to that which develops the vitality of plants; for, in breathing, the animal absorbs oxygen from the atmosphere and gives off carbonic acid; and the balance of nature is thus maintained between the animal and vegetable kingdoms.



The hydrogen found in plants is obtained from water. Nitrogen, which forms an important element in the economy of plant life, comes from the soil, traces only being obtained from the atmosphere, notwithstanding that there is 79 per cent. of this element in the air we breathe. Sulphur and Phosphorus are also present in vegetable matter, and in addition to these, certain mineral substances are required to make up the vegetable structure. These are drawn from the earth in which the plant grows.

Dr. Prout divided the principles contained in organic substances used as food into three classes:—the saccharine, oleaginous and albuminous. More recent writers have combined the first two classes under the name of “non-nitrogenised” or “calorifacient” principles, whilst the term albuminous has been generally superseded as a class definition by the more comprehensive title “nitrogenous.” In both these subdivisions the three elements, carbon, oxygen, and hydrogen, are found; whilst in the nitrogenous compounds there is of course nitrogen, and a little sulphur. The nitrogenous principles have been called by Liebig “the plastic elements of nutrition,” as they go mainly to build up the material of the body, whilst the calorifacient principles, as their name implies, are mostly of use in supplying heat by their oxidation.

The nitrogenous principles are subdivided into albumen, fibrine and caseine by some physiologists: connected with these, but having a lower value, are the osseids, such as gelatine. The albuminoids are the principal elements of nutrition. They are substances of a highly complex nature, composed of carbon, oxygen, hydrogen, and nitrogen, with about 2 per cent. of sulphur. Different forms of albumen exist in large quantities in all animal bodies, but the white of egg is the best known albuminous substance. Fibrine is composed of the same elements, in slightly different proportions. Caseine is a compound principally found in milk. It likewise contains carbon, oxygen, hydrogen and nitrogen, together with about one per cent. of sulphur. Cheese contains about one-third of its weight of caseine.

The Vegetable Albumen of cereals, roots, and oleaginous seeds differs from that obtained from animal substances in the proportions of carbon, hydrogen, oxygen, nitrogen, and sulphur, contained in it. Vegetable fibrine is found in cereals, whilst vegetable caseine or legumine is the nitrogenous constituent of peas, beans, and some other vegetable substances of a like nature. It is said to be easy of digestion, whilst animal caseine is often found to be very indigestible. A species of vegetable cheese is made in some countries from legumine. Gelatine is very similar to Albumen in chemical composition, being made up of carbon, hydrogen, oxygen and nitrogen, with a small amount of sulphur. It differs essentially, however, from albumen, fibrine and caseine in their power of building up muscle. No gelatinous principles exist in the vegetable world. Glue and size are well known gelatinous compounds of the coarser kind. Isinglass is a purer description.

The various nitrogenous principles contained in food are necessary to supply the waste of tissue in our bodies. The albuminoids undergo no chemical change until they enter the stomach, when the gastric juice acts upon them and digestion commences. The gastric juice contains a ferment called pepsin and an acid which has been variously estimated by different physiologists. Peptones are the substances obtained by the action of the gastric juice on albuminoids. Their most noticeable feature is their excessive diffusibility, which enables them to be readily absorbed. Peptones pass from the stomach to the intestines as chyme, and the process of digestion is there completed, the bile and pancreatic juice playing an important part in the final preparation, after which these alimentary principles pass into the circulation and appear in the blood as albuminoids and as haemoglobin, its characteristic red colouring matter. Science has not yet traced the further changes that occur, although there is no difficulty in



determining the composition of the substances produced by analysis. The doubt, however, may arise whether such analysis can convey a true interpretation of the state existing during life. Contrary to what is perhaps the popular notion, gelatine possesses little nutritive value, the feeding properties of soups and jellies being probably obtained from the albuminous substances contained in them. The nitrogenous principles in food are, therefore, more especially those which are required for supplying the waste of tissue and building up the various parts of our bodies. The heat-giving and force-producing agents are mainly the non-nitrogenous principles.

The most efficient heat-producing diet is obtained from fats which belong to the class of alimentary principles known as glycerides. The elements of which fats are composed are carbon, hydrogen and oxygen, the former element being greatly in excess of the latter two. Stearine, palmitine and oleine are the principles most common in fats. The former is the chief constituent of suet. Fat is digested in the small intestines by means of the pancreatic juice, from thence it mixes in the circulation, becoming saponified by the alkaline principles in the blood. Vegetable fats are generally considered less easy of digestion than those of an animal nature. Next to fats in the scale of heat-giving properties come the carbohydrates. Of these starch is the most common, and is only found in the vegetable world. In the process of digestion starch is changed into sugar, and in this state passes into the circulation. Sugar is another important member of this group. Cane sugar and grape sugar are both taken as food, the former in many well-known domestic preparations. The latter occurs in juices of fruits and other parts of plants. Cellulose is the fibre of vegetable substances, and is necessarily taken into the stomach when mixed with other constituents of food, but is not supposed to discharge any alimentary function. Lignose is a substance of a similar nature. Alcohol must also be classed as an article of diet, although by some it is claimed that it undergoes no chemical or physical change when taken into the stomach, but is egested from the lungs and skin. The evidence on this point however is by no means conclusive.

The chief mineral substance taken as food is salt, but other mineral principles are requisite in order to build up the human frame. These are plentifully distributed in the ordinary diet of mankind, and call for no special consideration in apportioning the dietary of a healthy person. Water is not generally considered as food, and being an inorganic substance, and undergoing no chemical change when drunk, it cannot properly so be classed. It is, however, as necessary to our existence as any solid substance, and indeed about three-fourths of the human body are composed of water.

Although the popular demand is for pure water, strictly pure water would be very unsuitable to domestic uses. Oxygen and carbonic acid gas should always be present in it. A proportion of mineral substances should also be contained in water in order to render it more serviceable for drinking purposes, but the weight of these should be extremely small. Water should, however, hold no organic matter in solution or suspension. The London Water Companies, as is well known, filter the water supplied through sand and gravel. It is desirable, however, that domestic water should be either boiled or passed through an efficient filter, as the companies' process cannot in all cases be pronounced by any means perfect. It is necessary, however, that the filter should receive attention, and the filtering substance be cleaned at intervals, otherwise it is liable to become a source of absolute danger.

It is clearly impossible to follow here the action by which the food we eat becomes a part of our living body. We can only hope to frame rules of dietary for our better guidance by tentative means. Much has been done by men of science in this direction, but considering how vast is the importance of the subject, our knowledge may be said to be infinitely small. At the present



time vegetarianism is being urged with considerable vigour by a body of men who at any rate must be accredited with zeal even by those who would deny to them discretion. Although the great majority of physiologists are outside their ranks, it is impossible, from the knowledge afforded by abstract science, to confute their reasoning. Vegetarianism is an extreme doctrine, but in this respect serves to illustrate how desirable a series of scientific, practical and exhaustive experiments are, so that rules, more or less comprehensive, for indicating the most desirable regimen to adopt under various conditions of life may be laid down. Such experiments would have to be of a far-reaching nature, both as to time and the subjects operated upon, and would necessarily entail great expense. Much might be done, too, in collecting and tabulating such information as may be gathered from the food and habits of various races of mankind. If the Health Exhibition of 1884 accomplishes anything substantial towards these ends, the good that will result to mankind through its agency will be almost incalculable.

Rules and regulations are, however, but a means to an end. To be effective they must be obeyed. If people would, even now, walk by the lights they have, much sickness, or at least chronic ill-health would be avoided. The greatest foe to our health now comes in the guise of friendship in that elaborate culinary preparation which adds course upon course and meal upon meal, leading to the endless train of ailments that follows over-eating, although the indulgence may never be carried to gluttony. In the primitive condition of our race, the struggle for food, and the exertion necessary to obtain it, effectually prevents mankind from suffering the modern ills that result from habitual over-eating. We have so far departed from our natural life, that those not employed in manual labour have lost the healthful stimulus of exercise, but in place of this we have gained the security of civilisation which tends so much in other ways to our physical well-being.

G. R. DUNELL.

*May 1st, 1884*



## CATALOGUE.

## DIVISION I.—HEALTH.

## GROUP I.—FOOD.

## CLASS I.

*(South Gallery—opposite Main Entrance.)*

Selected Displays of Unprepared Animal and Vegetable Substances used as Food in various countries. Stuffed Specimens of Animals, Birds, &c. Models, Drawings, and Illustrations of the same.

1. **WEBB, E., & SONS**, Royal Seed Establishment, Wordsley, Stourbridge, Worcestershire.—(1) Webb's Royal Museum of Prize Medal Seeds for the farm and garden. Specimens of Roots, Grasses, Cereals, and other agricultural and horticultural produce. (2) Webb's Popular Boxes of Vegetable Seeds, arranged to produce a continual supply of the best and most nutritious vegetables all the year round.

2. **KEILICH, H., & SON**, 59 Edgware Road, W.—Heads of Oxen, Bison, Antelope, and Deer, stuffed.

3. **MEEK, EDWARD G.**, Naturalist, 56 Brompton Road.—Cases of Stuffed Wild Duck, Pheasants, Grouse, Ptarmigan, Dead Game, &c.

4. **SPALDING, ROBERT B.**, 46 High Street, Notting Hill.—(1) Stuffed Birds, Animals, &c. (2) Eggs. (3) Insects and Entomological Apparatus.

5. **TALLERMAN, D.**, 46 Basinghall Street, E.C.—Fresh Mutton and Beef, from Australia, New Zealand, River Plate, America, and Russia.

6. **GOODWIN, ERNEST**, 88 Hop Exchange, Borough, S.E.—Hops, English and Foreign.

7. **WHEELER, J. C., & SON**, Gloucester.—Two Collections of Seeds, one producing food for man, the other producing food for animals; consisting of 300 of the most approved species and varieties in cultivation.

8. **SUTTON & SONS**, Queen's Seedsmen, Reading, Berks.—(1) 664 Specimen Models of Sutton's Improved Vegetables, &c., modelled by Sutton & Sons. (2) 50 Specimen

Models of Sutton's Agricultural Roots, &c. (3) 200 Specimen Grasses, sorts as used for producing hay and herbage for cattle. (4) 560 Specimens of Sutton's pure home-grown seeds, including—(a) Seeds producing vegetables for man. (b) Seeds producing plants as food for man. (c) Seeds used as direct food for man. (d) Seeds producing honey for bees. (e) Seeds producing condiments. (f) Seeds producing oils. (g) Seeds producing roots for cattle. (h) Seeds producing herbage and hay for cattle.

9. **WARD ROWLAND, & CO.**, 166 Piccadilly, W.—Food from the London Markets—specimens of edible birds, animals, &c., some adaptations of natural features.

10. **CARWARDINE, THOMAS E.**, 84 City Road, E.C.—Tapioca, Sago, Split Peas, Scotch Barley, Rice, Lentils, Lentil Flour, Haricot Beans, Scotch Brose, Hominy, Wheat, and all the various produce from wheat in the manufacture of flour.

11. **BUTT, GEO. F.**, 49 Wigmore Street, London.—Her Majesty the Queen's Prize Heifer, "Cherry Blossom," stuffed entire.

12. **SABINE & RICHARDSON**, 106 Dunster House, Mincing Lane, and 6 George Yard, Fenchurch Street, E.C.—(1) Indian Teas and Coffees. (2) Specimens of various Plants and Seeds illustrating process of cultivation and manufacture. (3) Models, Drawings, &c.

13. **WARD ROWLAND, & CO.**, 166 Piccadilly, W.—Food from the Poultry Farm—specimens of poultry arranged naturally.

14. **BEALES, ALFRED**, 371 Portobello Road, W.—Stuffed Specimens of Domestic Poultry.

15. **WILLS & SEGAR**, Royal Exotic Nursery, Onslow Crescent, S.W.—All kinds of Flowers, Plants, Bouquets, and Floral Decorations, Flower-pots, Vases, &c.

16. **CARTER, JAMES, & CO.**, 237 & 238 High Holborn, W.C.—The Vegetable Food Products of the World, viz.—(1) Seeds used as direct food for man. (2) Seeds producing plants used as direct food for man.



- (3) Seeds used as, or producing condiments.  
 (4) Profitable Oil-yielding seeds and their uses.  
 (5) Seeds for honey bee. (6) Seeds producing dress fabrics, &c.

**EDMUNDS, JOSEPH**, 10 Stonefield Terrace, Liverpool Road. (See Class 2.)

## CLASS II.

(South Gallery.)

Prepared Vegetable Substances used as Food, including Tinned, Compressed and Preserved Fruits and Vegetables. Bread, Cakes, and Biscuits of all kinds. Tobacco.

**17. FARNWORTH, R. D.**, 26 Drury Lane, Liverpool. — (1) Flour, "Queen's Own." (2) Flour, "Morning Star." (3) Wheat Meal, "Golden Grain." (4) Flour, Self-raising. (5) Oatmeal, "Pin Head." (6) Baking Powder.

**18. HANNAY & CO.**, West Gorton, Manchester. — Manufacturers of Plain and Fancy Biscuits for home and foreign trade.

**19. PHILLIPS, W. FLEMING, Dr.**, St. Mary Bourne, Andover, Hants. — Specimen of Maté or Paraguay Tea, with Maté Cup, and Bambilla—the tube used in drinking the tea.

**20. KING, FREDERICK, & CO.**, 6 Bishopsgate Avenue, E.C. — Edwards's Preserved Potato and Desiccated Soup. This Soup consists of Beef and Potatoes concentrated.

**21. MUMFORD, GEORGE S.**, Newcastle Granary and Steam Mills, Farlington Road, E.C. — Flour, Grain, Split Peas, Oatmeal, Crushed Linseed, &c.

**22. CHASE & CO.**, Adelaide Buildings, London Bridge. — American Tinned Meats and general American Food Products.

**23. ZUPPINGER, P. H.**, 59 Mark Lane, E.C. — Hungarian Flour and Bread, &c., (made of such flour), Hungarian Macaroni, Vermicelli, &c.

**24. WAYDELIN, CHARLES**, 26 Boro' High Street, S.E. — Hungarian Flour (brand MBD), and Hungarian Wheat.

**25. TURNER & CO.**, London Street, Bethnal Green, E. — (1) Patent Prepared Maize Corn Meal. (2) Patent Prepared Hominy. (3) Malt Flour, for use in Bread-making, &c. (4) Patent Kiln-dried Maize Germs for horses, cattle, sheep, pigs, and poultry. (5) Kiln-dried Maize Meal for general live stock and poultry. (6) Model of Kiln (Tomkins, Courage & Cracknall's Patent) used in preparing the above products. Also for drying hops, malt, and all kinds of grain, consumes its own smoke, burns any kind of fuel, and does not allow the products of combustion to come in contact with the material being dried.

**26. JONES, ORLANDO, & CO.**, York Road, Battersea. — Maize Products and Chapman's Entire Wheat Flour.

**27. USSHER, W. H.**, 46 Lorne Terrace, Bath. — (1) Flour from Bananas, and Biscuits, Bread, and Cakes from same. (2) Banana Jelly.

**28. CLARKE, W. G., & SON**, Limehouse, London, E. — Biscuits of all kinds.

**29. AIKMAN, ANDREW**, Corn Merchant, 17 Queensferry Street, Edinburgh. — (1) Midlothian Oatmeals (fine, medium, round, pin-head). (2) Scotch Barleys (Pot and Pearl). (3) Pease Brose.

**30. GLEN MILLS CO.**, 37 Exchequer Street, Dublin. — Self-raising Flour of various descriptions.

**31. GRANT, JOHN**, Craig Mills, Dundee. — (1) Scotch Oatmeals and Groats. Preparations from Scotch Oats in different sizes, (2) Scotch, Pearl, and Pot Barleys, Preparations from Scotch Barley.

**32. WALSH, ELLIOTT & RENNIE**, Sidney (Agents, J. S. LAURIE & CO.), 14 St. Mary Axe, E.C. — Australian Preserved Meat.

**33. HARRIS & CO.**, 17 & 18 Upper George Street, Bryanston Square, W. — Cakes, Biscuits, Bread, &c.

**34. SCOTT, A. & R.**, Glasgow & London. — (1) Scott's Improved Midlothian Meal. (2) Scott's Midlothian Meal Biscuits. (3) Scott's Midlothian Groats. (4) Scott's Midlothian Oatmeal. Sole Makers of Scott's Midlothian Oat Flour, which is prepared from the finest quality of Midlothian oats; it is a satisfying, nourishing, and easily digested food for infants and invalids.

**35. BREAD REFORM LEAGUE (THE)** (Miss YATES, Hon. Sec.), 8 Northumberland Terrace, Regent's Park. — Wheat Meal, and Wheat-Meal Bread and Biscuits, by millers and bakers willing to supply them. The Bread Reform League is a purely uncommercial association, organized solely to teach the dietetic advantages of wheat meal.

**36. EDMUNDS, JOSEPH**, 10 Stonefield Terrace, Liverpool Road, N. — (1) Gorgona Anchovies, Anchovy Paste and Essence. (2) Baking Egg and Custard Powder. (3) The New Concentrated Custard Pudding. (4) The Empress Currie Powder and Paste, Chutneys and Sauces. (5) Hexters Chutneys, Essences, Brown Colour Currie Powder and Paste used by the National Training School of Cookery. (6) Specimens of Seeds used in the manufacture of Currie Powder—Green Ginger, Vanilla, Mexican and Bourbon, and Cochineal, black and silvered. (7) Searcy's Oriental Salt.



37. **BROWN & POLSON**, Paisley ; and 99 Queen Victoria Street, London, E.C.—(1) Corn Flour from Maize. (2) Starches from Maize. (3) Cattle Food from waste products. (4) Specimens of Maize in grain and on cobs.

38. **HUNTLEY & PALMERS**, Reading ; and 162 Fenchurch Street, London, E.C.—Plain and Fancy Biscuits and Cakes.

39. **FORTT, JAMES**, 13 Green Street, Bath.—Biscuits of all sorts. Speciality: The Original Bath Oliver Biscuit; Dr. Oliver, inventor, 1735.

40. **PEEK, FREAN, & CO.**, London, S.E.—Fancy Biscuits and Cakes of all descriptions.

41. **WIX, C., & SONS**, 3 Mitre Street, Aldgate, E.C.—Pickles, Sauces, Jams, and Potted Meats, and Condiments used in food.

42. **DICKSON & RENWICK**, 39 Lombard Street, London, E.C.; and at Glasgow and Liverpool.—(1) Preserved Canned Meats. (2) Preserved Canned Fish. (3) Preserved Canned Fruits.

42a. **ANDERSON, R. W.**, 92 Upper Thames Street, E.C.—Baron Liebig Extract of Meat.

43. **HILL, W., & SON**, 60 Bishops-gate Street, E.C.—Bread, Biscuits, and Confectionery.

43a. **DUNCAN, JAMES**, 9 Mincing Lane, E.C.—Sugar, refined, and Syrup.

44. **BLAXALL & CO.**, 70 Lamb's Conduit Street, W.C.—(1) Home-made Marmalades, Jams, Jellies. (2) Preserved Fruits and Confectionery.

45. **NEWSON, W., & CO.**, 24 Jewin Street, E.C.—Indian Condiments, Chutnee, Curry Powder, &c.

46. **KING, ROBERT**, 32 Sussex Place, S.W.—(1) Tea, plant-growing, the prepared leaf and flower from the various countries growing same. (2) Coffee, plant-growing, in parchment, in pod and in berry. (3) Whisky, pure Old Highland malt.

47. **FREEMAN & HILDYARD**, 27 Great Dover Street, Borough, S.E.—Baking Powder, Pudding Powder, Custard Powder, &c., &c.

48. **BEACH, T. W., & SONS**, Ealing Road Gardens, Brentford; and at the Rt. Hon. Lord Sudeley's Fruit Plantations, Toddington, Gloucestershire.—Whole Fruit Jams.

49. **CLARKE, NICKOLLS, & COOMBS**, Hackney Wick Works, E.—(1) Jams. (2) Candied and Drained Peels and Confectionery.

49a. **MORRISON, WOOD, & CO.**, Abbey Steam Works, Stratford, E.—Jams, Marmalades, Peels, and Sweets of all kinds.

50. **LOW, HUCKVALE, & CO.**, 23, 24 & 25 Billiter Street, London; Old Corn Exchange, Manchester; White Horse Street, Boar Lane, Leeds; 24 The Side, Newcastle; 31 Carrs Lane, Birmingham; 40 St. Enoch Square, Glasgow; 17 Stephen Street, Bristol (Sole Agents for the following Companies—The Central Queensland Meat Export Co., Limited, Rockhampton, Queensland; the Queensland Freezing & Food Export Co., Limited, Brisbane, Queensland; the Hogarth Australian Meat Preserving Co., Darling Downs, Queensland; the Gear Meat Preserving Co. of N.Z., Limited, Wellington, N.Z.; the City Meat Preserving Co., Balmain, New South Wales.)—Australian and New Zealand Preserved Meats.

51. **BARNES & CO.**, 137 Upper Thames Street, E.C.; Factory, Mill Lane, Tooley Street.—(1) Jams, Jellies, Marmalade, Tart Fruits, Table Jellies, Pickles, &c. (2) Preserved Meats, Fish, and Vegetables. (3) Potted Meats and Fish.

52. **SUTTON, G. F., & CO.**, 100 High Holborn, W.C.—Concentrated Flavouring Essences and Granular Preparation of Fresh Herbs.

53. **CHAMBERLIN MANUFACTURING CO.**, 1 Denman Street, S.E.—Cream Baking Powder for Bread, Cakes, Puddings, Pastry, &c., especially adapted for persons with weak digestion.

54. **OSBORNE, CHARLES, & CO.**, Ormside Street, Old Kent Road, S.E.—Vegetable substances prepared in vinegar and otherwise. Preserved Fruits, Malt Wine, and Spiced Vinegars.

55. **BIRD, ALFRED, & SONS**, Devonshire Works, Birmingham (established 1837).—Bird's Home Specialities: (1) Bird's Custard Powder. (2) Bird's Blanc Mange Powder. (3) Bird's Baking Powder. (4) Bird's Concentrated Egg Powder.

56. **HARTLEY, W. P.**, Bootle, Liverpool.—Marmalade and Preserves.

56a. **KAY BROTHERS**, Chemists, Stockport.—(1) Essences prepared from Fruit for Syrups, Beverages, and Cordials for aerated water manufacturers and household use. (2) Linseed Lozenges—a solidified Linseed Tea. A sweatmeat totally soluble and very demulcent.

57. **McCORQUODALE, D. A., & CO.**, Lochty Preserving Works, Carnoustie, N.B.—Manufacturers of Preserved Potato and Vegetables, for Emigrant and General Ship Stores, Exportation, &c. Preserved Potato in Cases. Preserved Vegetables in tins.

58. **COLMAN, J. & J.**, 108 Cannon Street, London; and Carrow Works, Norwich.—Mustard, Genuine and Mixed, Mustard Products, Oil, &c.



59. YEATMAN & CO., 119 New Bond Street, W.—Yeast Powder, Baking Powders, Flour, Self-raising Flour, Corn Flour, Callsayme Bitters, Lime-juice Cordial, Custard Powder, Egg Powders, Curry Powder, Flavouring Essences, Disinfecting Powder and Insect Powder.

60. POTTER & CLARKE, Viaduct House, Farringdon Street, E.C.—Sweet Herbs of all sorts for culinary purposes, Seeds and Spices, also Composition Cordial.

61. POTT, R. & N., 22 Southwark Bridge Road.—Vinegars, Materials, Models, &c.

62. WILLS, W. D. & H. O., 53 Holborn Viaduct, E.C.; The Virginia Cavendish Works, Bristol; & Hamburg.—Tobacco, Snuff, Cigar and Cigarette Manufacturers; also Manufacturers of Tobacco for export in bond.

62a. HAYES, J. H., 7 Exhibition Road, South Kensington, S.W.—Importer of Turkish, Egyptian, Russian, Havannah, Brazilian, Mexican, French, Hungarian, Arabian, Cabanas, and other cigarettes. Havannah Cigars, Patagas, Murias, Upmanns, Cabanas, Villar y Villar, Intimidad, Henry Clay, Coronas, Morales, Caliope, Larranaga, Manilla, Jamaica, Lunkah, and all the choicest Brands. Sole proprietor of Brand La Flor de Juan Haze (British). — (1) Primrose Tobacco and Cigarettes. (2) Beaconsfield, Cromwell and Paxton Smoking Mixtures.

63. HIGNETT BROTHERS & CO., 66 Whitechapel, Liverpool.—Tobacco and Snuffs.

64. COPE BROTHERS & CO., Lord Nelson Street, Liverpool.—Cigarettes.

65. DREW & SONS, Shadwell, London.—Biscuits, Cakes, and Sponge Goods.

66. WALKER & HARRISON, Phoenix Biscuit Works, Ratcliff Cross, London, E.—Manufacturers of Ship and Dog Biscuits, Game and Poultry, Meals, &c. Biscuits of all sorts, Meal, and Flour.

67. SPRATTS, Bermondsey, S.E.—Spratts Patent Biscuits of all sorts.

68. GRANT, ALEXANDER, 146 Oxford Street, W.—(1) The "Mayfair" Whole Meal Beef, Fowl, Tongue, Game, Ham, Cheese, &c., Biscuits. (2) Fowl Rusks. (3) Wedding and other cakes, &c., &c. (4) Epicerie of Fowl, Beef, &c. (5) Food for Infants and Invalids.

69. VAN ABBOTT, G., 5 Princes Street, Cavendish Square.—(1) Gluten, Bread, Biscuits, Flour, Macaroni, Vermicelli, Semola and Chocolate. (2) Bran Biscuits and Powder. (3) Hypophosphite of Lime Biscuits. (4) Malt Biscuits, Norwich Biscuits. (5) Saccholac, Vegetable Bread and Milk. (6) Extract of Vegetables, Ivory Jelly.

70. HOLMES & COUTTS, Washington Street, New York (Agent, LATHAM & CO., 17 Philpot Lane, E.C.).—Sea Foam Wafers.

71. ROMARY, ALFRED, 26 Church Road, Tunbridge Wells.—The Tunbridge Wells Water Biscuits.

72. STEWART & CO., 46 Old Bond Street.—Wheat Bread, Biscuits, and Rusks.

73. BRYANT BROTHERS (Sole Agents for London, HEWITT & YOUNG) 44 Connaught Street, Hyde Park Square; Manufactory, 15 Argyle Street, Bath.—Samples of Bryant's Old Bath Oliver Biscuits.

74. HERBERT & JONES, 48 High Street, Kensington, W.—Wedding and other Cakes, Royal Dutch Gingerbread, &c.

75. BOLLAND & SON, Chester.—Wedding Cakes, &c.

76. MURRAY & CO., 48, 50 & 52 Southampton Row, London; and Boston, U.S.A.—American Confectionery.

76a. LORIMER & CO., 42 & 44 Hargrave Park Road, Junction Road, N.—Flavouring Essence, Fruit Syrups and Cordials.

77. CURR, THOMAS, 22 School Hill, Aberdeen.—(1) Essence of Coffee. (2) Essence of Coffee with Chicory. (3) Essence of Dandelion.

78. LIEBIG, BARON, Cocoa and Chocolate Works, 40 & 41 Bermondsey Street, S.E.—(1) Cocoa and Chocolate and perfected Foods for Infants and Invalids, including red label (for Invalids), blue label and gold label (Breakfast Cocoas), yellow label (Pure Extract of Cocoa), and every class of Cocoa Powder and Chocolate. (2) Milk Food for the Nursery, a pure nutritious specially prepared substitute for mother's milk for infants, and highly recommended as a perfect food for children and invalids. (3) Malto-Lequimine Farina, the most nutritious food known, is largely used as an article of diet for Invalids and Dyspeptics, and also for daily household use as an admixture with other foods.

79. FRY, J. S., & SONS, Bristol and London.—(1) Chocolate in Cakes. (2) Chocolate Confectionery. (3) Cocoa Extract. (4) Homœopathic Cocoa. (5) Cocoa and Malt Extract.

80. TULLOCH, W., & SON, 26 & 27 Bury Street, E.C.—(1) Pure Dutch Cocoa. (2) Tulloch's Nectar. (3) Recherché Chocolate. (4) Fletcher's Family Food. (5) Captain Dick's Sauce. (6) French Confectionery. (7) Oatmeal.

81. GOUNDRY & CO., Limited, 181 Upper Thames Street, E.C.—Goundry's Patent Consolidated Tea. By hydraulic pressure of 80 tons on each  $\frac{1}{4}$  lb. of Tea, the bulk



is reduced to one-third, and the quantity of liquor increased by one-third.

**82. PHILLIPS & CO., 8 King William Street, E.C.**—Tea, Coffee and Cocoa Merchants, and Manufacturers of pure Cocoa and Chocolate.

**83. PREVET, C., & CO., late CHOLLET & CO., 134 Fenchurch Street, London, E.C.**—Prepared Vegetable Substances, Dried and Compressed Vegetables and Fruits, Practical Dietetics, Army and Navy Rations, Prison and Workhouse Diet, Tropical and Arctic Dietaries. Also Condensed Vegetable Soups.

**84. PINK, EDWARD, & SONS, Staple Street, London, S.E.**—Jams, Marmalades, Red and Black Currant Jellies, Apple Jelly, Calves Foot Jelly, Bottled Fruits, Pickles, Sauces, Table Vinegar, Raspberry Vinegar, Salad Cream, Syrups for Ices, &c. Flavouring Essences, Lucca Oil, Potted Meats, Potted Bloaters and Anchovy.

**85. SALMON & GLUCKSTEIN, 34 Whitechapel Road, London.**—Tobacco, Pipes, &c.

**85a. THUDICHUM, DR., 11 Pembroke Gardens, W.**—Meal Bread and Meal Biscuits. (*South Corridor Annexe.*)

**86. VEGETARIAN SOCIETY, Head Quarters at 75 Princess Street, Manchester, with Branches throughout the Country.** Supported by Subscriptions and Donations. Sixpenny and other choice Dinners, as per Daily Bill of Fare, from 12 to 6. Soups, Savouries, Pies, Puddings, Porridge and Milk, and other refreshments at the bar, without fish, flesh or fowl. Tea, Coffee, and Cocoa from 4 p.m. to the close of the Exhibition. The whole of the profits will be devoted to the feeding of the poor of London and other large towns during the winter of 1884-5. For the purpose of feeding the poor, boxes will be placed in the restaurant for any donation. Cookery Books and Vegetarian literature on sale at the counter placed at the entrance, on application.

**ALLEN, F., & SONS, Canal Road, Mile End, E.** (*See Machinery in Motion, Western Gallery.*)

**BARNETT & FOSTER, Niagara Works, 26 Eagle Wharf Road, N.** (*See Machinery in Motion, Western Gallery.*)

**CHALLEN, DAVID, 121 Mildmay Road, London, N.** (*See East Corridor Annexe.*)

**KAY BROTHERS, Stockport.** (*See Class 24.*)

**WATT, J., & SONS, 6 Gledhow Terrace, S.W.** (*See Machinery in Motion, Bakeries*)

## CLASS III.

(South Gallery.)

Prepared Animal Substances used as Food in a preserved form—Tinned, Smoked, Salted, Compressed, and Prepared Animal Foods of all kinds; Food produced by Insects, such as Honey, &c.

**87. TITLEY, WILLIAM, & SONS, 2, 3, & 4 Abbey Gate, Bath; 59 Victoria Street, Bristol.** Established 1748. —Provision Merchants. Proprietors of the celebrated Bath Brand Hams, and Bath Brand Bacon, Cheddar and Somerset Cheese, Prize Medal American Cheese.

**88. BLANCHFLOWER & SONS, 1 Cousin Lane, London, E.C.; and Great Yarmouth, Wholesale French and Italian Warehousemen.**—(1) Sauces, Pickles, Jellies, &c. (2) Preserves. (3) Fish, Meats, Game, Soups, Vegetables, Sausages, &c., in tins and earthenware.

**89. KEMMERICH, E., & CO., Santa Elena, South America.** (Sole Consignees for the United Kingdom, **BERK, F. W., & CO., 1 Fenchurch Avenue, E.C.**)—(1) "Kemmerich's Extract of Meat." (2) "Bouillon Kemmerich."

**90. CUNNINGHAM, DE FOURIER & CO., Duncan Street, Whitechapel, E.**—Preserved Meats: Napier brand, De Fourier brand.

**91. McCALL & CO., Houndsditch, E.**—Tinned Meats.

**92. BRAND, H. W., Limited, 5 Vere Street, Oxford Street, W.**—(1) Potted Meats, Sauces, &c. (2) Essence of Beef. (3) Concentrated Beef Tea, Soups, and other Specialties for Invalids.

**93. MAIELLI & CO., 8 Coburg Place, Bayswater.**—Invalid Turtle Soup; prepared by I. W. Rope, 27 Hyde Park Place, Marble Arch, W.

**94. POULTON & NOEL, 62 Buckingham Palace Road.**—Preserved English Provisions of all kinds, including Belgravian Rolled Ox Tongues, Belgravian Savory Ox Tongues, Sheep's Tongues, Oxford Brawn, Pressed Beef, Ox Cheek, Cambridge Sausages, Game Pies, Roast Pheasants, Partridges, Quails, &c., &c.

**95. CHRISTY, T., & CO., 155 Fenchurch Street, E.C.**—(1) New food Products: Pemmican, dried meat in powder; Agar-Agar, a seaweed for jellies. Coca-Maté-Cola. (2) For Health: Menthol and Menthol Plants. (3) A Collection of Seed of the newest varieties of Cinchona (*Calisaya*), Coffees, Teas, Cocoa, Papaw (for rendering meat tender), Tonic Barks and Roots, Quinine Barks, Ginseng and Alstonia Constricta.



96. **MACONCHIE BROS.**, Raglan Works, Lowestoft.—Preserved Provisions.

97. **RUFFIN, N.**, 55 Charlotte Street, Fitzroy Square, W. Provision Preserver.—(1) Preserved Boar's Head and Galantine of Turkey in tins. (2) Products of the Périgord. (3) Truffles. (4) Pâtés. (5) Extract of Fowl.

98. **LIBBY, McNEILL, & LIBBY**, States Street, Chicago, U.S.A.—Tinned Meats of various kinds for domestic and army purposes.

99. **AYLESBURY DAIRY CO.**, Koumis.—(1) Koumis Extract. (2) Artificial Human Milk. (3) Milk Food for infants.

100. **DROITWICH SALT CO.**, Limited, 8 & 9 Lower Thames Street, E.C.—(1) Salt of various kinds. (2) Brine from which salt is produced.

101. **BELLIS, THOMAS K.**, 6 Jeffreys Square, E.C.—Turtle Soup, Preserved Calipash and Calipee, Turtle Green Fat, and Sun Dried Turtle.

102. **SYDNEY MEAT PRESERVING CO.**, Limited (THE), 150 Leadenhall Street, E.C.—(1) Boiled Beef and Mutton. (2) Compressed Corned Meats. (3) Liebig's Extract of Meat. (4) Neat Foot Oil.

103. **BARNETT, E., & CO.**, 2 & 2a Blomfield Street, London Wall, E.C.—Jewish Smoked and Salted Meats, Sausages, Poultry, Soups, &c.

104. **ANGLO - SCANDINAVIAN CONDENSED MILK CO. (THE)**, 6 Victoria Warehouses, Mansell Street, E.—Condensed Milk in 1 lb. tins.

105. **BENEKE & CO.**, 2 Coleman Street Buildings, Moorgate Street, E.C.; Loebau, Saxony.—Natural Mineral Table Waters.

105a. **MALTINO CO.**, Limited, 24 & 25 Hart Street, Bloomsbury, W.C.—Extract of malt, wheat, oats, and barley.

106. **CONDENSED MILK CO. OF IRELAND (THE)**, Lansdowne, Limerick.—Condensed Milk in tins.

107. **BUMSTED, D., & CO.**, 36 King William Street, E.C.—Salt of various kinds, and a specimen of "Salt that has lost its savour."

108. **MANGER, J., & SON**, Acme Salt Works, 337 Kingsland Road, London.—Special Manufacturers of the Prize Medal Table Salt, the Prize "Acme" Butter Salt, and Salt of every description. Salt of various kinds.

109. **GRIDLEY & CO.**, Bishopsgate Avenue, E.C.—Isinglass: (1) Russian for invalids and clear jellies. (2) Brazil for blanching, &c. (3) Penang and Bombay as used by brewers for fining beers.

110. **WESTON & WESTALL**, 115 Lower Thames Street, E.C. (Agents for CORBETT'S Worcester Salt, manufactured by JOHN CORBETT, M.P., Stoke Prior Salt Works, Worcester-shire.)—Salt made from natural brine.

111. **WEBB, JUBAL**, High Street, Kensington, W.—Collection of Cheese, Bacon, and Hams. Specimens of English, Russian, Swiss, French, Italian, German, American, Dutch, New Zealand, Norwegian, and other kinds; also specimens prepared for export. Models of export packages, &c. Specimen of Bog Butter from Ireland, buried in an Irish bog hundreds of years ago, presented to Mr. Webb by Alderman Purdon, Dublin; also Photos of various Shows and Exhibitions.

**BARNES & CO.**, 137 Upper Thames Street, E.C. (See Class 2.)

**EDMUNDS, JOSEPH**, 10 Stonefield Terrace, Liverpool Road, N. (See Class 2.)

**GRANT, ALEXANDER**, 146 Oxford Street, W. (See Class 2.)

**WALSH, ELLIOTT, & CO.** (Agents, J. S. LAURIE & CO., 14 St. Mary Axe, E.C.). (See Class 2.)

(East Corridor Annex.)

112. **WALLIS, SONS & LIDSTON**, 37 Great Tower Street, E.C.—Lard in Tins, Pails, &c., by Naphey & Son, Philadelphia.

112a. **DEANS, MRS. E.**, The Prairie, Hastings.—Model of Hospital.

113. **HUGHES, BROS.**, Liverpool.—English Refined Lard in bladders, tierces, firkins, tins, seamless pans, galvanized buckets and pails.

113a. **MOIR, J., & SON**, Limited, 148 Leadenhall Street, E.C.—(1) Preserved Vegetables and Fruits. (2) Cocoa and Milk. (3) Chocolate and Milk. (4) Soups. (5) Meats and Game in tin and glass. (6) Boiled Beef in 12-lb. tins as supplied to Admiralty in 1851; also Boiled Beef in 6-lb. tins as supplied for the use of the French troops during Crimean War, 1853.

113b. **CHALLEN, DAVID**, 121 Mildmay Road, N.—Wilson's American Toast and other Biscuits.

113c. **BRITISH BEE KEEPERS' ASSOCIATION**.—Exhibition of Pure Honey, produced in the United Kingdom, and appliances used in its production. Comb Honey in supers. and sections. Rim and Extracted Honey in glass jars. Modern Frame Hives, Straw Hives, Extractors, Smokers, Supers. Comb Foundation, Crates, and every article connected with modern Bee Keeping. Specimens of Adulterated Honey and the articles used as adulterants, &c., &c.

113d. **SEARCY, JOHN**, 55 & 57 Connaught Street, Hyde Park Square, London.—(1) Oriental Salt; a table condiment,



being a pure preparation of the small red chilli. (2) Celery Salt; made from the celery. (3) Royal Marmalade.

**113e. NEIGHBOUR, GEORGE, & SONS, 127 High Holborn; and 149 Regent Street, W.**—(1) Living Italian Bees at work in glass hives. (2) Living Camiolan Bees at work, in glass hives. (3) New Bar Frame Hive, called "The London," with new system of adjusting frames. (4) Philadelphia Frame Hive, with sectional supers. (5) Improved Cottage Hive. (6) Neighbour's Guinea Frame Hive, with sections. (7) Straw Bar Frame Hive. (8) Cottager's Bar Frame Hive; and all apparatus connected with bee-keeping.

**113f. MARK, JOHN, St. Ann's Square, Manchester.**—Choice Cigars of the Cabarga brand.

**113g. BRANSON & CO., The Chase, Clapham.**—Coffee Extract.

**113h. LANCELAND, WOOD & CO., Acton.**—Incubators.

#### CLASS IV.

Beverages of all kinds—(a) Alcoholic; (b) Non-alcoholic; (c) Infusions (Tea, Coffee, Cocoa, Chocolate, &c.)

**113i. NISBET BROTHERS, Water Lane, Great Tower Street, E.C.**—Champagne and other Wines.

**113k. EVANS, SONS & CO., 56 Hanover Street, Liverpool.**—(1) Montserrat Lime Fruit Juice Cordials and Sauce. (2) Conroy's Malt Coffee.

**114. HEARN, A. J., Chatham, Kent.**—Infusion of Tea.

**115. SMITH, T. & H., & CO., Edinburgh; and 12 Worship Street, London, E.C.**—(1) Essence of Coffee. (2) Essence of Coffee with Chicory. (3) Essence of Chicory with Coffee. (4) Coffee and Milk. (5) Cocoa and Milk. (6) Chocolate and Milk.

**116. ROSE, L., & CO., Patentees of the Lime Juice Beverages, 11 Curtain Road, Finsbury, E.C.; and at Leith, N.B.**—Lime Juice Cordial and other lime juice beverages, as originally introduced by the exhibitors, prepared from the lime fruit and preserved entirely free of alcohol, possessing the valuable medicinal properties of the lime fruit as an anti-scorbutic, &c.

**117. DE ROJAS BROTHERS & CO., 24 & 26 Basinghall Street, E.C.**—(1) Caracas Coffee. (2) Caracas Bitters.

**118. CLARK & CO., Coffee Works, Queen's Road, Battersea.**—Extract of Coffee.

**119. ALLEN, FREDERICK, 155a Upper Thames Street, E.C.**—India, China, Japanese, Ceylon Teas and special blends, known as Hands' Afternoon Tea and Hands' Fine Blended Kaisow, and proper method of infusing the same.

**120. AUSTRALIAN WINE CO., Limited (THE) (J. COCKS, Manager), Mill Street, Hanover Square, W.**—(1) Varieties of Red and White Australian Wines. (2) Illustrations of the various Grapes from which Australian wines are produced.

**121. BARRETT & CO., Bond Street, Vauxhall, Aërated Waters and the Barrett's Screw Stopper Bottling Co., Limited, 87 Wandsworth Road.**—Bottlers of Beer and Stout.

**121a. WHITE & CO., 1 Playhouse Yard, Barbican.**—Lime Juice Cordial and British Wine.

**121b. GULLIVER, S., & CO., Vale of Aylesbury.**—Whiskey, Curaçoa, Cordials, British Wines, &c.

**121c. CHURCHMAN H., Horsham, Sussex.**—Liqueurs of various kinds.

**121d. DAVIS, JOSEPH, & CO., Fitzroy Works, Kennington Park Road, S.E.**—(1) Apparatus for Milk Analysis. (2) Milk and Cream Tests. (3) Water Testing Apparatus, and various scientific tests and instruments.

**122. AUSTRO-BAVARIAN LAGER BEER BREWERY & CRYSTAL ICE FACTORY, Limited (THE), Tottenham.**—(1) Beer in cask and in bottles. (2) Hops. (3) Barley Malt. (4) Special Beer Engines. (5) Bottling and Packing Materials.

**123. IND, COOPE, & CO., Romford; and Burton-on-Trent.**—Ale and Stout in cask and bottle.

**124. BURGOYNE, P. B., & CO., London Offices, 50 Old Broad Street, E.C.**—Australian Wines from the Colonies of South Australia, Victoria, New South Wales, and Queensland.

**125. TALBOT, T., & CO., Mineral Water Manufacturers, Commercial Road, Gloucester; and Church Street, Monmouth.**—Mineral Waters, &c.

**126. COLONIAL WINE CO. (THE), Tower Dock, Tower Hill, E.C.**—Australian, Californian, and Syrian Wines.

**127. BODEGA COMPANY, Limited (THE), 14-18 Bethnal Green Road, E.**—Sherries and Manzanilla Wine (special).

**128. "WEINLAUBE" (ADMINISTRATION OF THE), Klosterneuburg, near Vienna; and at Trieste, Austria.** Principal, The Baron A. BABO, Junior. London Offices, 50 Lime Street, E.C. (Manager, O. HOCHBRUNN).—(1) Austrian and Dalmatian Wines. Samples exhibited in a "Weinlaube" or Arbour, such as are to be found in all Austrian vineyards. Attendant: Peasant girl in Dalmatian national costume. (a) "Austria-Blume" ("Flower of Austria"), White. (b) "Austria-Blume" ("Flower of Austria"), Red. (c) Dalmatian, Red. (d) "Strohwein, roth" ("Straw-wine"), Red. (2) Models of latest improved Wine-



making Appliances (presses, filters, casks, &c.), as used in the Imperial and Royal Oenological College at Klosterneuburg. (Director, the Baron August Babo.) (3) Wine Map of Austria-Hungary. (4) Photographs of the Vineyards, &c. (5) Series of Coloured Drawings of Grapes, and Drawings illustrating ravages of the "Phylloxera." (6) Specimens of "Phylloxera vastatrix" in alcohol. (7) Microscopical preparations of same. (8) Instruments for Analysis of Wine.

129. **FOLKS, W. T.**, 47 Mark Lane, E.C.—Lima & Fils' Champagne, &c.

130. **CHRISTMAS, JOHN, & CO.**, Rickford, Worplesdon, Surrey.—British Wines.

130a. **SYMONS, JOHN & CO.**, Totnes, Devon; and Ratcliff Cross, London.—(1) Devonshire Cider for Home use and Exportation. (2) Apple Must. The Must of the Apple refined and preserved by a new process by which the natural healthful properties of the fruit are retained. (3) Champagne and Moselle Wines (Symonia Brand) made from choice home and foreign fruits, treated and fermented by an original and scientific process.

131. **CORRY, WILLIAM, & CO.**, Cromac Springs, Belfast.—(1) Aerated Waters. (2) Fluid Magnesia and Lemon Syrup.

131a. **PARKER, JOHN**, Woodstock, Oxon.—Samples of English Wine made from Grapes grown in front of cottages; no spirit added. (1) Red Wine made in 1863. (2) Red Wine, made 1874. (3) White Wine, made 1878. (4) Red Wine, made 1882; this last, a sparkling wine, made from hot-house grapes.

132. **RAWLINGS, H. D.**, Nassau Street, Berners Street, W.—Aerated Waters.

133. **PITT & CO.**, 28 Wharf Road, City Road, N.—Mineral and Aerated Waters, Ginger Ale, &c.

134. **CANTRELL & COCHRANE**, Dublin; and Belfast.—Aerated Waters, Natural Waters, Aromatic Ginger Ale, Sparkling Montserrat, Club Soda, Lemonade, Kali or Potass Water, Lithia Water, Seltzer Water.

135. **FELTOE & SONS**, 27 Albemarle Street, W.—Spécialité Lime Juice.

136. **APOLLINARIS CO.**, Limited (THE), 19 Regent Street, S.W.—Apollinaris Natural Mineral Water.

137. **CARTER, H. W., & CO.**, Old Refinery, Bristol.—Aerated and Mineral Waters, Cordials, Soluble Essences, &c.

139. **MAY-DAVIS & CO.**, Esher Street, Westminster, S.W.—(1) Aerated Waters and Beverages, in improved bottles. (2) Purified (Defecated) Water.

140. **BRITISH AND FOREIGN MINERAL WATER CO. (THE)**, 382 New City Road, Glasgow.—(1) Aerated

Beverages and Artificial Mineral Waters. (2) Chemicals and other products used in the manufacture. (3) Model of Machinery.

141. **SALUTARIS WATER CO. (THE)**, 236 Fulham Road, S.W.—Salutaris, which is pure distilled water aerated. Still Salutaris, which is pure distilled water, filtered but not aerated. Sweetened drinks, made with pure distilled water, in quart champagne bottles, besides other sizes, such as Salutaris Cyder, Ginger Ale, Lemonade, Gingerade. Also Soda, Seltzer, and Potash Waters all made with pure distilled water. Patent Stopper for champagne quart, also corkscrew. Also Syrups for mixing with Salutaris.

142. **VANRENEN, S., & CO.**, High Constantia, Cape of Good Hope; and 36 Crutched Friars, Mark Lane, E.C.—Samples of Wines in bottles.

143. **GRANT, THOMAS, & SONS DISTILLERY**, Maidstone.—"Grant's Morella Cherry Brandy;" "Tonic Liqueurs;" and "Sparkling Morella," a non-alcoholic substitute for wine.

144. **BUSWELL, C., & CO.**, 9 & 11 Devonshire Street, Bishopsgate Street, E.C.—(1) Wilson & Parker's Pure Xerez Wines. (2) Tom Moore's 1 star, 2 star, and 3 star Irish Whisky. (3) Walter Scott's 1 star, 2 star, and 3 star Highland Whisky. (4) Glavier's Champagne. (5) Mouton Monastel's Claret.

145. **DENYER, F. T., & CO.**, 27 Regent Street, and 26 Dover Street, W. Importers of the Pure Wines of Sanlucar, Manzanilla, Solera, and Amontillado. They are also importers of the New Sparkling Wine, Royal Rhinegau Champagne.—Pure Spanish Wines.

146. **GREGER, MAX, Limited**, 7 Mincing Lane, E.C.; 2 Old Bond Street, W.; & 66 Sumner Street, S.E.—Hungarian Wines of all sorts.

147. **VITALI, E.**, 5 & 6 Great Winchester Street Buildings, E.C.—Valtellina Wines, Sassella, Inferno, Barolo, Capri Pomino, Sparkling Wines, and Exhibitor of Eucalyptus preparations by the Trappist friars at the Tre Fontane near Rome.

148. **SALT, THOMAS, & CO.**, Burton-on-Trent.—(1) Pale and Burton Ales in cask and bottles. (2) Samples of Hops, Malt and Barley.

149. **LOVIBOND, H., & SON**, Cannon Brewery, North End, Fulham.—Pale Bitter Ales in casks.

150. **COLLIER BROTHERS**, Essex Brewery, Walthamstow.—Ales brewed for family use:—The Amber Ale, the B A Bitter Ale, and other kinds of Ale and Stout.

150a. **KING, R.**, 32 Sussex Place, South Kensington, S.W.—Highland Whisky. Highland Malt. (See Class 3.)



151. DAVIS & LITTLEWOOD, Mansion-house Chambers, 11 Queen Victoria Street, E.C.—Glencoe Whisky in bottles.

152. URQUHART, HENRY, 16 Water Lane, Gt. Tower Street, E.C.—Specimens. Glen Urquhart Old Highland Blended Whiskies. Perigeux et Cie. Champagnes, "Grand Vin de Cabinet," Extra quality.

153. STANSFELD & CO., Brewers, Wine and Spirit Merchants, Swan Brewery, Walham Green.—Ale and Stout in casks.

154. BISQUIT, DUBOUCHÉ, & CO., Cognac, France.—Brandy.

155. MERRITT, T. & CO., 48 Mark Lane, E.C.—Scotch Whisky (Glenrosa).

156. COATES & CO., Blackfriars Distillery, Plymouth.—"Original Plymouth Gin."

156a. McCracken, J. & R., 38 Queen Street, Cannon Street, E.C.—Bowler Swiss Champagne.

156b. TURNBULL & WOOD, New-castle-on-Tyne, Perth; & 15 Clifford Street, W.—Glen Whisky.

157. GILLMAN & SPENCER, Castle Brewery, St. George's Road, S.E., and Patent Maltings, Gordon's Wharf, Rotherhithe.—(1) Patent Gelatinized Malts, samples of—Gelatinized Rice, Barley, Wheat, and Oat, Malts. (2) Beers brewed from Gelatinized Rice Malt.

158. SAUNDERS, JAMES, & CO., 15 Charlotte Street, Fitzroy Square, London, W.—O B (old blended) Scotch and Irish Whiskies, Cognac Brandy, Malt, and Malting Barley.

159. ANDERSON & SHAW, 6, 8, 10 & 12 West Campbell Street, Glasgow.—(1) The "Challenge" Old Highland Whisky. (2) "Perfection of Old Scotch," matured for years in our bonded warehouses.

160. DUBLIN WHISKY DISTILLERY CO., Limited (THE), Jones Road, Dublin; & 77 Mark Lane, London.—Whisky.

161. FALKNER, FRANCIS, 83 Grafton Street, Dublin; & 40 Charing Cross, London.—Old Irish Whisky.

162. STALLARD, JOSIAH, & SONS, Limited, 4 Albemarle Street, W.; and Worcester.—Old White Port, Pure Gin, and British Cordials.

163. WRIGHT & GREIG, 90 West Campbell Street, Glasgow; London Office, Worcester House, 34 Eastcheap, E.C.—"Roderick Dhu," old Highland Whisky, a thoroughly matured spirit of fine style and bouquet.

BARNETT & FOSTER, Niagara Works, Eagle Wharf Road, N. (See *Machinery in Motion, Western Gallery.*)

BENEKE & CO., 2 Coleman Street Buildings, Moorgate Street, E.C.; & Loebau, Saxony. (See Class 3.)

BOWRING, HENRY, Dorset Soda Water Works, Bond Street, Weymouth. (See Class 11.)

BRANSON & CO., The Chase, Clapham. (See *East Corridor Annexe.*)

ETZENSBERGER, R. & CO., Midland Grand Hotel, St. Pancras; and 13 Great Andrews Street, Shoe Lane, E.C. (See *Pavilion near Eastern Arcade.*)

IDRIS & CO., Ascham Street, Kentish Town, N.W. (See Class 12.)

LIEBIG, BARON, Cocoa and Chocolate Works, 40 & 41 Bermondsey Street, S.E. (See Class 2.)

MAIGNEN, P. A., 22 & 23 Great Tower Street, E.C. (NORMANDIN, MAIGNEN & CO., Chateaufneuf, France.) (See Class 12.)

NORMANDIN, E., & CO., Chateaufneuf, France. (See Class 12.)

SCHWEPPE, J., & CO., 51 Berners Street, W. (See *Pavilion Outside.*)

SOLMS, PRINCE GEORGE FREDERICK DE, Braunfels, Nassau. (London Representative, W. KERR, 6 Leinster Square, Hyde Park, W.) (See *Pavilion in Central Avenue.*)

YEATMAN & CO., 119 New Bond Street, W. (See Class 2.)

## CLASS V.

(South Gallery.)

New Varieties of Food. Food for Infants, Food for Invalids, New Concentrated Foods of all kinds.

164. SAVORY & MOORE, 143 New Bond Street, London, W.—Preparations of the digestive ferments for peptonising (artificially digesting) food, Peptonising apparatus, Disinfecting Vaporising apparatus, &c.

165. HOFF, L., 29 New Bridge Street, Blackfriars.—Hoff's Malt Preparations.

166. MELLIN, G., Marlboro' Works, Peckham, S.E.—Mellin's Food for infants and invalids.

167. CEREALS MANUFACTURING CO. (THE), 44 Great Tower Street, E.C.—American Breakfast Cereals, freed from all impurities, hulled, crushed, steam-cooked, and desiccated. White Wheat, White Oats, Barley, Yellow Maize. Only the woody bark has been removed, but all the nourishing properties have been retained, and the indigestible starch converted into digestible sugar so as to render the whole palatable and easily digested, being steam-cooked and perfectly pure it cannot turn musty or sour.



168. CRAWFORD, A. & SON, 20 Mill Street, Belfast.—Irish Corn Flour.

169. SAMUELS, E. J., 139 Cheapside, E.C.—New preparation of Cocoa-Nut as Cakes, Confectionery, &c.

170. MOTTERSHEAD & CO., 7 Exchange Street, Manchester.—(1) Benger's Self-Digestive Food. (2) Benger's Peptonised Beef Jelly; and (3) Liquor Pancreaticus (Benger) for the preparation of Peptonised or partially-digested Foods.

171. NESTLÉ, HENRY, 9 Snow Hill, E.C.—Nestlé's Milk Food for Infants and Condensed Swiss Milk.

172. BRAND & CO., 11 Little Stanhope Street, Mayfair, W.—(1) Essence of Beef. (2) Concentrated Beef Tea. (3) Invalid Turtle Soup. (4) Turtle Jelly. (5) Calf's-foot Jelly. (6) Beef Tea Jelly. (7) Soups for invalids. (8) Albuminous Extract of Beef. (9) Essences of Chicken, Mutton and Veal for invalids. (10) Mutton, Veal, Game, and Chicken Broth for invalids. (11) Potted Chicken, Ham, Partridge, &c. &c. (12) Essence of Malt. (13) Savoury Meat Lozenges.

173. NEWMAN, S., 9 & 10 Railway Approach, London Bridge, S.E.—Johann Hoff's Malt Extract and Preparation.

174. EKINS, ARTHUR E., The Laboratory, St. Albans, Herts.—Malted Farinaceous Food, specially prepared for infants, as being the best substitute for mother's milk. Requires neither boiling nor straining.

175. BARKER, THOMAS, 3 Bury Street, St. James', S.W.—(1) Invalid round rusks. (2) Flat unsweetened rusks. (3) Brown digestive biscuits. (4) York and Jamaica. (5) Bedford. (6) Water. (7) Medium captain. (8) Light-baked captain. (9) Double-thick captain. (10) Olivers. (11) Thick brown.

176. MASON, GEORGE, 417 King's Road, Chelsea, S.W.—Manufacturer of (1) Essences of Beef, Veal, Mutton and Chicken. (2) Concentrated Beef Tea. (2) Savoury Meat Lozenges. (4) Invalid Turtle Soup. (5) "O K" Sauce and Relish. (6) Herbaceous Seasoning Mixture. (7) Potted Ham, Beef, and Tongue. (8) Yorkshire and Camp Pies, &c.

177. BONTHRON, J., 106 Regent Street, W.—Diabetic Bread, Biscuits, and Flour.

178. TORRANCE, W. H., 20 North Bruntsfield Place, Edinburgh.—Rusks for infants and invalids.

179. BRUCE, MINTYRE, & CO., 108 Eglinton Street, Glasgow.—Oat Flour, White and Brown.

180. MULLER, WILLIAM (representing THE SWISS DAIRY CO., Lucerne), 15 Abchurch Lane, E.C.—Pure Unsweetened Condensed Milk in boxes of 48 1 lb. tins and in cans containing 56 lbs. each.

181. LOEFLUND & CO., 148½ Fenchurch Street, E.C.—(1) Malt Extract (pure *Hordeum*) (2) Condensed Cream Emulsion (*Cremor Hordeatus*). (3) Malt Extract Lozenges. (4) Kindermilch.

182. UHLICH, R., & MULLER, 2 Bury Street, St. Mary Axe.—Samples of Walcker's Pure Condensed Milk.

183. SWISS MILK CO. (THE) (Agent, A. MOOS), 84 Basinghall Street, E.C.—Pure unsweetened milk (Edelweiss Brand) in patent adjustable stoppered bottles. Milk Sugars, &c.

184. ROBB & CO., 79 St. Martin's Lane, London.—Infants' Food, Nursery Biscuits, and Nursery Biscuit Powder.

185. EPPRECHT, H., Grande Rue, Berne, Switzerland (Agents, SCOTT & WULFF, 66 Leadenhall Street, E.C.).—Epprecht's Food for Infants.

186. FIRST SWISS ALPINE MILK EXPORTING CO., Romanshorn, Switzerland.—Milk in tins and bottles.

187. KOPF'S COMPRESSED FOOD CO., Limited, 28 Hearn Street, Curtain Road, E.C.—Consolidated Soups, Extract of Meat and Cocoa Chutnee, Chutnee Sauce, Turtle Jelly, and Infants' Food.

188. STUETZ, R., Successor to Dr. MIRUS, Pharmacy of the Court, Jena, Germany (Agents, POTHS, H., & CO., 4 Sugar Loaf Court, 50 Leadenhall Street, E.C.)—Leube-Rosenthal's Improved Meat Solution.

189. KREOCHYLE COMPANY (THE), Birkbeck Road, Leytonstone, E. (Agent, T. VINCENT RIORDAN, 1 Whiteley Road, Upper Norwood, S.E.)—Liquid Meat. A food for invalids and infants containing, in addition to other meat extractives, the whole of the soluble albumen of the meat in an uncoagulated and easily digestible form.

190. SQUIRE & SONS, 413 Oxford Street, W.—New Varieties of Food.

190a. LORIMER & CO., Hargrave Road, Junction Road, N.—New Tasteless Cod Liver Oil. Extract of Malt, and Chemical Food.

BRAND, H. W., Limited, 5 Vere Street, Oxford Street, W. (See Class 3.)

EDMUNDS, JOSEPH, 10 Stonefield Terrace, Liverpool Road, N. (See Class 2.)

GRANT, ALEXANDER, 146 Oxford Street, W. (See Class 2.)

KAY BROTHERS, Stockport. (See Class 24.)

LIEBIG, BARON, Cocoa and Chocolate Works, 40 and 41 Bermondsey Street, S.E. (See Class 2.)



**SCOTT, A. & R.,** Glasgow; and London. (See Class 2.)

**SEARY, JOHN,** 55 & 57 Connaught Street, Hyde Park Square, London. (See South Corridor Annexe.)

**VAN ABBOTT, G.,** 5 Princes Street, Cavendish Square. (See Class 2.)

**YEATMAN & CO.,** 119 New Bond Street, W. (See Class 2.)

## CLASS VI.

(South Gallery.)

**Cookery Practically Demonstrated. Economical Cooking, Workmen's and other Kitchens, Cheap Restaurants, Bakeries, Cafés, Foreign Cookery, &c.**

**BARNETT & FOSTER,** Niagara Works, 26 Eagle Wharf Road, N. (See Machinery in Motion, Western Gallery.)

**BENHAM & SON,** 50 Wigmore Street, W. (See Class 20.)

**BROWN & GREEN,** 69-71 Finsbury Pavement, E.C. (See Class 20.)

**CONSTANTINE, T. J.,** 18-20 Norman's Buildings, St. Luke's, E.C. (See Class 20.)

**MARSHALL, J.,** 442 Strand, W.C., & 162 Earl's Court Road, Kensington. (See Machinery in Motion, Bakeries.)

**MASON, WILLIAM F.,** Longsight, Manchester. (See Machinery in Motion, Bakeries.)

**WRIGHT, JOHN, & CO.,** Birmingham. (See Class 24.)

## CLASS VII.

(South Gallery.)

**The Chemistry and Physiology of Food and Drink. The Detection of Adulteration, Materials used as Adulterants, Analyses, Food Constituents and Equivalents, Tables, Diagrams, &c.**

**191. SCIENCE & ART DEPARTMENT,** South Kensington.—Illustrations of the Chemistry and Physiology of Food. From the Food Collection in the Branch Museum, Bethnal Green.

**192. LONG, JOSEPH,** 20 Little Tower Street, E.C.—Hydrometer and Saccharometer.

**193. CARPENTER, H. S., & NICHOLSON, W. O.,** 32 Holborn Viaduct, E.C.—Method for Testing Water.

**194. BURROUGHS, WELLCOME & CO.,** Snow Hill Buildings, London, E.C.—(1) The "Burroughs" Beef and Iron-Wine, with and without quinine. (2) The

"Enterprise" Drug Mills. This mill can be easily regulated to grind to any degree of fineness, and by merely turning a thumb-screw can be opened and the cutters removed in a minute. (3) The "Kepler" Extract of Malt is free from alcohol. (4) The "Kepler" Cod Liver Oil, with or without Extract of Malt. (5) The "Kepler" Extract of Malt in combination with pepsin, with iron, with chemical food, with phosphorus, with hops, with chocolate, with iron and quinine, with beef and iron, &c. (6) The "Kepler" Food for Dyspeptics and Infants. Prepared upon Liebig's principles, and perfectly soluble in water.

**195. WATSON, W., & SONS,** 313 High Holborn, W.C.—(1) Microscopes and Apparatus. (2) Watson's Patent Mechanical stage for microscopes. (3) Watson's Rotating Object-holders for ready comparison of samples under investigation. (4) Collection of Microscopic Objects for analytical comparisons. (5) Spectroscopes, Lactometers, Cream Testers, Hydrometers, Saccharometers, &c.

**196. HILMER, OTTO,** 64 Friedrichstrasse, Berlin.—Egg, Butter, and Milk Tester.

**197. KNIGHT, JOHN, & SONS,** Silvertown Soapworks and Oil Mills, Victoria Docks, London, E.—Cotton Seed Oil and Oleo-Margarine.

**198. GRIFFIN, JOHN I., & SONS,** 22 Garrick Street, Covent Garden.—Tests for Analyzing Food, &c.

**199. BEARDSLEY, AMOS,** Grange-over-Sands.—Gypsum as an Adulterant.

**200. BOLTON & PARTNERS, Limited,** 4 The Sanctuary, Westminster, S.W.—(1) Beet Seed. (2) Beet Roots. (3) Different Qualities of Beet Sugar. (4) Beet Molasses. (5) Sugar, extracted from molasses by strontia. (6) Samples of Strontia in different stages: sulphate, carbonate and hydrate, and other matters connected with the manufacture of beet sugar.

**201. FULLWOOD, R. J., & BLAND,** 31 Beviden Street, Hoxton, London.—Annatto for colouring cheese, butter, &c.

**202. PARKES MUSEUM OF HYGIENE,** 74a Margaret Street, Regent Street, W.—Illustrations of the Chemistry and Physiology of Food and Nutrition, with indications of the subjects embraced, arrangements adopted, and appliances used at that Institution.

**203. SOCIETY OF PUBLIC ANALYSTS (G. W. WIGNER, President).—**(1) Materials used as Adulterants of articles of food. (2) Adulterated articles commonly sold in this country. (3) Adulterations which have been suppressed. (4) Adulterations practised abroad. (5) Admixtures generally protected by labelling.



## CLASS VIII.

(South Gallery.)

Diseases due to Unwholesome and Improper Food. Drawings and Models of Animal and Vegetable Parasites, &c.

204. COBBOLD, T. S., M.D., F.R.S., 74 Portsdown Road, W.—Drawings of Parasites and Parasitic Diseases:—(1) Trichina and Trichinosis. (2) Lung Parasites, destructive to sheep. (3) Beef Measles and the Beef-tapeworm. (4) Hydatids and the Hydatid forming tapeworm. (5) The Liver Fluke, which produces "rot." (6) Various Flukes of animals and men.

"WEINLAUBE" (ADMINISTRATION OF THE) Klosterneuburg, near Vienna; London Office and Cellar, 50 Lime Street, E.C. (Manager, OTTO HOCHBRUNN). (See Class 4.)

## CLASS IX.

(South Gallery.)

Practical Dietetics. Army and Navy Rations, Prison and Workhouse Diet, Foreign Dietaries, &c.

205. CUNLIFFE-OWEN, SIR PHILIP, K.C.M.G., C.B., C.I.E.—Coffee Stall and Coffee-making Apparatus.

206. HULETTS, E. G., 25 Betterton Street, Bloomsbury.—Canteen for Army, Navy, Cyclists, or Tourists, contains the new compressed food sufficient for two days' rations.

MOIR, J., & SON, Limited, 148 Leadenhall Street, E.C.—(See Class 3, 113a East Corridor Annexe.)

PREVET, C., & CO., late CHOLLET & CO., 134 Fenchurch Street, E.C. (See Class 2.)

## CLASS X.

(South Gallery.)

Publications and Literature, Models and Diagrams relating to Group 1.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.—Sutton's new work on the culture of vegetables and flowers, illustrating animal and vegetable parasites. (See Library.)

COOK, R., & HAMMOND, W. H. C., Broadway House, Westminster (London Sea Water Supply).—Map showing line of conduit for supply of sea water from Lancing to London, and mode of distribution and localities. (On Wall in Bakeries.)

"WEINLAUBE" (ADMINISTRATION OF THE) Klosterneuburg, near Vienna; London Office and Cellar, 50 Lime Street, E.C. (Manager, OTTO HOCHBRUNN). (See Class 4.)

## CLASS XI.

(South Gallery.)

Apparatus and Processes for Conserving, Storing, Conveying and Distributing Fresh Food of all kinds.

207. SELF-OPENING TIN BOX CO., 19 Kirby Street, London, E.C.—Tin Boxes.

208. ICEPLE MANUFACTURING CO., 90 Cannon Street, E.C.—(1) Iceple, a substitute for Ice, keeping in fresh condition meat, fish, or any other provision. (2) Infant's Food, a substitute for mothers' milk. (3) Invalids' Food, an agreeable substitute for cod liver oil. (4) Balma, a harmless and painless powder; will immediately arrest decomposition in amputation, healing wounds, &c. (5) Jordana, a toilet powder. (6) Blanca, a tooth powder compounded on the most scientific principle. (7) Insect Powder, destroys all obnoxious insects. (8) Mosquito Fluid, prevents the approach of mosquitoes and flies.

209. D. H. SHUTTLEWORTH - BROWN, 5 Huggin Lane, Queen Victoria Street, London, E.C.—(1) Smoker's Coffee Jug, clarifies by precipitation, infuses without losing the aroma, and keeps the coffee hot. (2) Smoker's Coffee Maker for public houses. (3) Smoker's Tea-kettle for gas-stoves, &c., prevents condensation of aqueous vapour, and has several practical advantages. (4) Smoker's Butter-cooler for table use. (5) Smoker's Canisters for the Parcels Post, and for aromatic substances. (6) Smoker's Cowl for stuffy chambers and smoky chimneys.

210. VIDIE, JAMES, & SON, Pantin Glass Works (Sole Agent, C. MELIN, 37 Crutched Friars, E.C.).—Syphons, Seltzogene, Bottles, and Glass ware. Patentees of the "Octagonal" Syphon.

211. STIFF, JAMES, & SONS, London Pottery, Lambeth, S.E.—(1) Jars for wines, spirits, or beer. (2) Acid Taps, Airtight Covered Jars, and other covered jars for domestic purposes.

212. BOWRING, HENRY, Dorset Soda Water Works, Bond Street, Weymouth.—Aerated Waters of various kinds.

213. EDMUNDS, JAMES, 23 Southampton Buildings, Chancery Lane, London.—Manufacturer of the "Ne Plus Ultra" Feeding Bottle, invented and patented by Mr. E. O. Day, Assistant Surgeon to the Royal Hospital for Women and Children, London. The improvements in this feeding bottle consist of, amongst others, a stopper and tube formed in one piece of non-collapsible india-rubber, and a vent hole in the neck of the bottle.

214. RILEY, CHARLES, & CO., Langley Lane, Vauxhall, S.W.—Feeding Bottles with Pellegrin's Patent Hygienic Fittings.



215. **CHERVAT, W. J.**, 42 Bentley Road, Kingsland Road, N.—Models of Brewers' Casks, made from Memel Oak to a scale of one pint to a barrel. They are made the shape, and composed of the same number of staves, pieces of heading and hoops, as the casks they represent.

216. **FLEMING, G.**, 128 Strand, W.—Air-tight and Lock Corks, by which any bottle, large or small, can be safely locked and kept perfectly air-tight.

**SOWERBY, ELLISON, & CO.**, Glass Works, Gateshead; & 6 Coleman Street, E.C. (See Class 12.)

**BARNETT & FOSTER**, Niagara Works, Eagle Wharf Road, N. (See Machinery in Motion, Western Gallery.)

**COMMITTEE OF IMPORTERS OF AUSTRALASIAN FROZEN MUTTON (THE)**. (See Machinery in Motion, Western Annexe.)

**HALL, J. & E.**, Dartford Iron Works, Kent; 23 St. Swithin's Lane, E.C.—(See Machinery in Motion, Western Annexe.)

**HASLAM FOUNDRY & ENGINEERING CO., Limited (THE)**, Derby. (See Machinery in Motion, Western Annexe.)

**LAWRENCE & CO., Limited**, 22 St. Mary Axe, E.C.—(See Machinery in Motion, Western Annexe.)

**LONDON GUELPH PATENT CASK CO., Limited (THE)**, 18 Beer Lane, E.C. (See Machinery in Motion, Western Annexe.)

**PISTON FREEZING MACHINE & ICE CO.**, 301 & 303 Oxford Street, W. (See Machinery in Motion, Western Gallery.)

**RAMSEY, WILLIAM**, Farringdon Glass Works, E.C. (See Class 21.)

**WHITELEY, WILLIAM**, Westbourne Grove, W. (See Machinery in Motion, Western Annexe.)

**WOOLF & CO.**, 119 New Bond Street, W.—(See Machinery in Motion, Western Gallery.)

## CLASS XII.

(South Gallery.)

Machinery and Appliances for the preparation of Articles under Group 1.

217. **MAIGNEN, P. A.** 22 & 33 Great Tower Street, E.C.—Patent "Filtre Rapide," Class A and B, for clarifying wines, spirits, beer and chemicals, and all other liquids. **NORMANDIN, MAIGNEN & Co.**, Chateaufneuf, France.—Sparkling Sauterne, a sparkling white claret.

**E. NORMANDIN & Co.**, Chateaufneuf, France.—Cognac Brandies.

**DE MONTIGNY & CIE.**, Reims.—Champagne Wine, with patent wire cutter.

218. **MAPPIN BROS.**, 67 King William Street, E.C.; and 222 Regent Street, W.—Cutlery, Electro Plate, &c.

219. **RODGERS, JOSEPH, & SONS, Limited**, Cutlers to Her Majesty, 6 Norfolk Street, Sheffield.—Cutlery.

220. **PREIST & CO.**, 514 Oxford Street, W.—Cutlery, &c.

221. **ALUMINIUM CROWN METAL CO.** (Webster's Patent), 34 Leadenhall Street, E.C.—Cooking and drinking utensils, spoons, forks, sanitary fittings.

222. **GERANT, EUGENE, & CO.**, 139 and 141 Farringdon Road, E.C.—Improved Soda Water Machines, Seltzogenes, Syphons, Filling Machines, &c.

223. **CELLULOID CO.**, 42 Newington Causeway, London.—Celluloid Articles, Brushes, &c.

224. **HOLBROOK, R.**, 1, St. John's Road, South Norwood.—Excelsior Tin Opener.

225. **MAPPIN & WEBB**, 158 to 162 Oxford Street, W.; and Mansion House Buildings, City. Factory: Royal Plate and Cutlery Works, Sheffield.—Sterling Silver, Electro-plate and Cutlery.

226. **LANGTON, ROBERT, SON, & CO.**, 9 King Edward Street, Newgate Street, E.C.—Wrought Iron Enamelled Ware, comprising Cooking Utensils, Toilet Services, Dinner and Mess Sets, Dinner Plates and Bowls (marked) for regimental use, Baskets fitted with Dinner Services, Military Bucket Canteens.

227. **LLOYD, THOMAS, & SON**, 327 Old Street, Shoreditch, E.C.—Makers of Flour Mills and Dressing Machines to grind and dress at the same time by hand, also for horse or steam power; they divide the meal into five parts. Fine Flour, Seconds, Thirds, Pollard, and Bran. Mills for making Whole Meal. Oatmeal Mills and Dressing Machines. Coffee Mills, plain and ornamental.

228. **PARKIN & MARSHALL**, Telegraph Works, Sheffield.—Cutlery and Electro-plated Goods.

229. **KENT, G.**, 199 High Holborn, W.C.—Sick-room Requisites.

230. **DOWS, CLARK & CO.**, 46 & 47 Frith Street, Soho, W.—American soda water making machines and filterer.

231. **IDRIS & CO.**, Ascham Street, Kentish Town, N.W.—Aerated Waters in silvered syphon bottles, prepared with distilled water, and absolutely free from all metallic and organic impurities.

232. **BERTRAM, LEOPOLD B.**, 5 Colville Mansions, Powis Terrace, Bayswater.—A new patent colander saucpan and cook-pot cover-strainer, steams and prevents boiling over; retains the solid matter in the cook-pot or saucepan whilst the liquid can be strained off.



233. DEAN, MRS., The Prairie, Hastings.—Oven and Various Kitchen Utensils.

234. KITE, JAMES, 220 Upper Kennington Lane, S.E.—Basting Apparatus.

234a. STOCK, HENRY, 35 Burnaby Street, Chelsea.—The Autodeiknumic or Self-indicating Coffee Pot, provisionally patented. The chief advantage of this instrument is that an infusion of coffee may be prepared for the breakfast-table with as little trouble as tea now is.

235. SILVER, S. W., & CO., Sun Court, Cornhill, E.C. (Agent, T. VINCENT RIORDAN, 1 Whiteley Road, Upper Norwood, S.E.)—(1) Silver's "Camp Kettle and Camp Fire Combined," being a mess tin with rations, and having self-contained heating apparatus, for soldiers, sportsmen, and travellers. (2) Silver's "Norwegian," for cooking and keeping food hot. (3) Silver's "Norwegian" Invalid Companion for keeping beef tea, &c., hot for many hours, without the use of fire or flame of any kind. (4) "Housemaid's Friend," by which water is kept hot for many hours.

236. MORTON, J., 39 Cheapside, E.C.—Electro-plate, Table Cutlery, &c.

237. WALKER & HALL, Howard Street, Sheffield.—Coffee Apparatus; also Makers of Sir Philip Cunliffe-Owen's Coffee Apparatus, &c.; also Electro-plated Goods.

238. HERRING & SON, Chertsey.—Steam Cooking Apparatus and Horse Pumping Engine, for sewage or water.

239. DU CANE, Col. Sir E. F., R.E., K.C.B. (Surveyor General of Prisons), Home Office, Whitehall, S.W.—(1) Model of Cells in a Prison, showing method of ventilating and warming, fittings, furniture, &c. (2) Model of a Prison Bath-house, Latrines, and other rooms. (3) Models to illustrate diets for a prisoner at *hard labour* on public works, for each day of the day. (4) Models to illustrate diets for a prisoner at *light labour*, each day of the week. (5) Six Drawings, illustrating prison buildings constructed by prison labour. (6) Model of a Cell (full-size), showing furniture, fittings, and employment of a convict at hard labour in-doors. (This is in the Grounds outside, adjoining exhibit in Main Building.)

240. ANGLO-AMERICAN TIN STAMPING CO. (THE), Stourport, Worcestershire (Agent, T. VINCENT RIORDAN, 1 Whiteley Road, Upper Norwood, S.E.)—(1) Seamless Wrought Iron Enamelled Ware, warranted free from all injurious ingredients. (2) Seamless Tinned Ware, coated with pure tin only.

241. GENERAL PRINTING BLOCK CO., Limited (THE), 63 Fleet Street, E.C.—Wood Blocks for printing Floor Cloth, Wall Paper, Calico, Velvet, and Silk; and End Grain Blocks for Butchers, Cooks, &c.

242. STANGE, JOSEPH, Tunstall Road, Brixton Road.—(1) Sugared and Unsugared Prepared American Maize for Biscuits and Digestive Dessert Bon-bon. (2) Infants' and Invalids' Food. (3) Machines for making the same.

243. BARFORD & PERKINS, Engineers, Queen Street Iron Works, Peterborough (Agent, T. VINCENT RIORDAN, 1 Whiteley Road, Upper Norwood, S.E.)—Steam Cooking Apparatus for roasting, boiling, and heating meats, soups, vegetables, tea, &c., in an economical, wholesome, and expeditious manner,—suitable for Union workhouses, prisons, restaurants, &c.

244. GROOM & CO., Liquorpond Street, London, E.C.—(1) Patent Potato Steamer, Registered Milk Saucepan, Bacon Toaster and Dish. (2) Registered Stove Cleaner. (3) Registered Oil Can and Lamp Filler. (4) Well and Dry Platform Sponge Bath, Bronchitis.

245. SOWERBY, ELLISON, & CO., Glass Works, Gateshead; & 6 Coleman Street, E.C.—Pressed Glass Appliances.

ALAND, HENRY, & SON, 46 Commercial Road, Lambeth. (See Machinery in Motion, Western Gallery.)

ALLEN, F., & SONS, Canal Road, Mile End; & Bishopsgate Street, E.C. (See Machinery in Motion, Western Gallery.)

ARCHER, G., 9 Essex Road, Islington, N. (See Machinery in Motion, Western Gallery.)

BAKER, JOSEPH, & SONS, Engineers, 58 City Road, E.C. (See Machinery in Motion, Bakeries.)

BARNETT & FOSTER, Niagara Works, 26 Eagle Wharf Road, N. (See Machinery in Motion, Western Gallery.)

BEARE, GOSNELL, & CO., 8 Southwark Street, S.E. (See Machinery in Motion, Western Gallery.)

BLAKE, WILLIAM THOMAS, 175 City Road. (See Machinery in Motion, Western Gallery.)

BOYES, EBENEZER, Albert Road, Peckham. (See Machinery in Motion, Western Gallery.)

BRITISH SYPHON MANUFACTURING CO. (THE), 2 Gresham Buildings, Basinghall Street, E.C. (See Machinery in Motion, Western Gallery.)

CHRISTY, THOMAS, & CO., 155 Fenchurch Street, E.C. (See Machinery in Motion, Western Annexe.)

COLMAN, J. & J., Carron Works, Norwich. (See Machinery in Motion, Western Gallery.)



**DOWS, CLARK, & CO.,** 46, 47 Frith Street, Soho Square, W. (*See Machinery in Motion, Western Gallery.*)

**GALLOWAY, JAMES,** Bolton Brass Works, Bolton, Lancashire. — (*See Machinery in Motion, Western Gallery.*)

**GENERAL PRINTING BLOCK CO. (THE),** Limited (Manager, P. W. WILLIAMSON), 63 Fleet Street, E.C. (*See Class 19.*)

**GIBBS, W. A.,** Gilwell Park, Chingford, Essex. (*See Machinery in Motion, Western Gallery.*)

**GILLINGS, JAMES,** 71 Kings Road, Chelsea. — Improved Method of Smoking Meat. (*See Outside.*)

**GLOBE MILL CO. (THE),** 68, 71 Chiswell Street, E.C. (*See Machinery in Motion, Bakeries.*)

**GOUNDRY CO.,** Limited, 181 Upper Thames Street, E.C. (*See Class 2.*)

**HANCOCK, F. & C.,** Engineers, Dudley, Worcestershire. (*See Machinery in Motion, Western Gallery.*)

**HAYWARD, TYLER & CO.,** 84 & 85 Whitecross Street, E.C. (*See Machinery in Motion, Western Gallery.*)

**HUGHES, J., & SONS,** 217 Great Dover Street, S.E. (*See Machinery in Motion, Bakeries.*)

**KENT, GEORGE,** 199-201 High Holborn, W.C. (*See Machinery in Motion, Western Gallery.*)

**LEETE, EDWARDS, & NORMAN,** Engineers, Euston Works, 366-368, Euston Road, N.W. (*See Machinery in Motion, Western Gallery.*)

**MAIGNEN, P. A.,** 22 & 23 Great Tower Street, E.C. (*See Class 21.*)

**MOXON, JOHN,** 35 Florence Street, Islington, N. (*See Machinery in Motion, Western Gallery.*)

**MUSTO, J. J., & CO.,** Engineers, 21 Clinton Road, Mile End, E. (*See Machinery in Motion, Bakeries.*)

**NORMANDY'S PATENT MARINE AERATED FRESH WATER CO.,** Limited, Custom House Station, Victoria Docks. (*See Machinery in Motion, Western Gallery.*)

**NYE, S., & CO.,** 143 Oxford Street, W. (*See Machinery in Motion, Western Gallery.*)

**OVENS, WILLIAM & THOMAS,** Engineers, 54 St. John Street, E.C. (*See Machinery in Motion, Western Gallery.*)

**PERKINS, A. M., & SON,** Seaford Street, Gray's Inn Road, W.C. (*See Machinery in Motion, Bakeries.*)

**PERKINS, B., & SON,** Bermondsey Street, S.E. (*See Class 31.*)

**PFLEIDERER, PAUL,** 86 Upper Ground Street, Blackfriars Road, S.E. (*See Machinery in Motion, Bakeries.*)

**PINK, E., & SONS,** Staple Street, Long Lane, Boro', S.E. (*See Machinery in Motion, Western Gallery.*)

**RAMSEY, WILLIAM,** Farringdon Glass Works, E.C. (*See Class 21.*)

**RICHMOND & CHANDLER,** Southall Street, Manchester. (*See Machinery in Motion, Bakeries.*)

**ROYLE, JOHN J.,** 27-29 King Street West, Manchester. (*See Machinery in Motion, Western Gallery.*)

**SALES, POLLARD & CO.,** Farringdon Road, E.C. (*See Machinery in Motion, Western Arcade.*)

**SIEBE, GORMAN, & CO.,** 187 Westminster Bridge Road, S.E. (*See Machinery in Motion, Western Annexe.*)

**SPONG & CO.,** 226 High Holborn, W.C. (*See Machinery in Motion, Western Gallery.*)

**STEVENSON & DAVIS,** 11 Queen Victoria Street, E.C. (*See Machinery in Motion, Western Annexe.*)

**SUN KNIFE CLEANING MACHINE CO. (THE),** 6 St. Swithin's Lane, E.C. (*See Machinery in Motion, Western Gallery.*)

**UNIVERSAL MIXING AND CHOPPING MACHINE CO.,** Limited, (THE), 11 Queen Victoria Street, E.C. (*See Machinery in Motion, Western Gallery.*)

**"WEINLAUBE"** (Administration of the) Klosterneuburg, near Vienna; London Office and Cellar, 50 Lime Street, E.C. (Manager, OTTO HOCHBRUNN). (*See Class 4.*)

## DAIRIES.

(South Gallery.)

**246. PURE STANDARD FOOD CO.,** 19 Buckingham Street, Charing Cross, — Dairy Appliances, Pure Foods, especially Butter and Milk, Condensed Milk, with and without sugar, and other preparations made with milk and dairy appliances. (*Dairy.*)

**246a. EXPRESS DAIRY CO.,** Limited (THE). Chief Offices, Bloomsbury Mansions, W.C. Branches, 272 Strand, W.C.; Blackheath Village, S.E.; and Heath Street, Hampstead, N.W.; Dairy Farm, College Farm, Finchley, N.W. Goat Farm, Hill Top, near Dorking. — A Complete Working Dairy, fitted up



and equipped for fully illustrating the production and manufacture of Dairy Products. (1) Milk, showing the care taken in its production, and method of preparation, transport and delivery, to ensure its reaching the consumer pure and free from germs of disease. (2) Cream, showing the extraction from milk by several varieties of Centrifugal Cream Separators. (3) Butter, its manufacture, preservation, and packing for export. (4) The Manufacture of Cheese and other Dairy Products. (5) The manufacture of Special Dairy Preparations for the use of invalids and children. (6) Models and Drawings of Sanitary Systems, and Ventilating Appliances necessary for, and applicable to Dairies, and Dairy Farms. (7) The composition of Milk and Dairy Products, and the methods used for the detection of adulteration. The exhibits include four breeds of Dairy Cattle, several varieties of Goats, a model of the Company's Experimental Farm, College Farm, Finchley;  $\frac{1}{2}$ -inch scale; the "Hadskod" Cream Separator, the Improved Horizontal Separator (both these will be exhibited for the first time in this country), and the "De Laval" Separator, a Blanchard Factory Churn, Butter Workers, Cheese Making Appliances, Retail Delivery Van, Laboratory fitted up for the complete analysis of Milk and Dairy Products, Drawings and Models illustrating Dairying. The Machinery has been supplied and fixed by the "Dairy Supply Company," Limited, of Museum Street, London, W.C. The Dairy was erected from the designs of A. T. Fallicks, Esq., Architect.

**247. LONDON AND PROVINCIAL DAIRY COMPANY (THE) (GEORGE P. FULLER & JOHN I. WATTS, Proprietors).** Chief London Offices, 4 Halkin Street West, Belgrave Square, S.W. Branches, Avenue Farm, Brixton Hill, Brixton, S.W.; & 9 Queen's Road, Bayswater, W. Country Dairy Farms, Whistley, near Devizes, Wiltshire.—

**CLASS I. Live Stock.**—(1) Pedigree Shorthorn and Alderney Dairy Cows. (2) Pure and Cross-bred Prize Poultry of all kinds. (3) Milk in its natural state as yielded by healthy and well-fed cows. (4) Cream in its raw state. (5) Eggs. Selected specimens from the domesticated and wild fowl as used for food in England. (6) Samples of various animal, vegetable, floral, fruit, bulb, and seed products, yielded on and applicable to an English Dairy Farm. (7) Stuffed specimens of the Whistley four-horned Sheep, and other animals and birds. (8) Various Models, Drawings, and Illustrations—including the entire building, with internal and external arrangements of the "Illustrative Dairy," designed and erected by Exhibitors. **CLASS II.**—(9) Bread, Cakes, Biscuits, Farmhouse Custards, Cheese Cakes, and other confectionery made from milk and cream and other ingredients. (10) Preserved Fruits and Vegetables. **CLASS III.**—(11) Butters—fresh and cured—in prints, rolls,

tubs, and jars of various sizes. (12) Cheese—Cheddar, North Wiltshire, Cream, Sweet Curd, and other specimens of English make. (13) Creams—Prize Clotted, Iced, Fruited, and other varieties. (14) Natural Cow's Milk, in sealed glass bottles, for the especial use of infants and invalids. (15) Wiltshire smoked Bacon, Hams, Chaps, Lard, Sausages, &c. (16) Honey, &c. **CLASS IV.**—(17) Curds and Whey. (18) Specially prepared Creams. (19) Milk and Cream in sealed bottles for the use of the nursery and general household. (20) Koumiss. (21) Milk Soda. (22) Artificial Human Milk. (23) Buttermilk. (24) Peptonized Milk. (25) Whey and other beverages. **CLASS V.**—(26) Milk.—Specially prepared natural cows' milk, in sealed glass bottles, as food for infants and invalids. **CLASS VII.**—(27) Collection of Milk, Cream, Butter, and Egg Testing Apparatus, including Patent Percentage Lactometer, Hydrometer, Milk Thermometers, Floating Glass Thermometers, Lacto-Thermometer, Creamometers, The Dairyman's Complete Milk Tester, Glass Testing Tubes and Jars, Balances, Weights and Scales, Graduated Cream Glasses, Lactobutyrometer, for obtaining exact results of fat. Microscopes, Egg Testers, Lamps, Water Baths, Gas Burners, Saccharometers, Porcelain, Glass, Tin, Zinc, and Iron Utensils, Brushes, Chemicals, &c. **CLASS X.**—(28) A Collection of Publications and Literature, Paintings, Engravings, Models, and Diagrams, including modern and improved Dairy Account Books, &c., relating to Group 1. **CLASS XI.**—(29) The rapid and complete separation of the cream from the milk by application of centrifugal force. (30) The separation of cream from milk by total submersion of warm milk in cold water. (31) The extraction of cream from milk by ordinary setting. (32) The effectual and economic system of cooling and preserving the properties of country milk for transit to London and other large towns by means of the patent capillary water refrigerator. (33) Butter churning, making, working, printing, and moulding in all its branches. (34) Cheese making in all its details—including Cheddar, Wiltshire, Cream, Sweet Curd, and other established varieties. (35) Cream making and moulding in variety. (36) Curds and Whey, plain and sweetened and other dairy foods and drinks. (37) The preservation, in perfect condition, for any length of time, either in temperate or tropical regions of any requisite quantity of meat, poultry, fish, milk, butter, eggs, vegetables, and other provisions by the Patent Cold Dry Air Machine, worked by gas engine. (38) The preservation of dairy and other perishable foods by Ice Refrigerators. (39) The medically recommended sanitary means adopted by the Exhibitors as a security against adulteration and infectious contaminations for preserving, conveying, and distributing milk and cream to the general public, practically illustrated and explained. (40) Improved Milk and Produce Distributing Van, with churns and apparatus



complete. (41) New Pattern Milk Delivery Cart, with brass and tin churn, &c. (42) Model Milk Perambulator, with churn and fittings. (43) Steel and Tin Railway Churns, for conveying milk and cream. (44) Specially constructed Box, with sliding trays, for conveying butter, &c. (45) Patent Box, with wire holders for the safe conveyance of eggs by rail or road. (46) Non-injurious Chemical processes for conserving foods. CLASS XII.—(47) The "Otto" Silent two and a half horse power Gas Engine, with conveniently arranged shafting for driving all the machinery and appliances requiring motive power in this Dairy. (48) De Laval's Cream Separator, with tin milk receiver, &c., complete. (49) Hathaway's Improved Prize Revolving Butter Barrel Churn, with archimedian concussion dashers, anti-friction roller bearings, patent air discharge valve, metallic mouth, and all the latest improvements, fitted for steam or other power in seven sizes, suitable for any dairy. (50) Hathaway's Patent Shakespearian "End-over-End" Butter Churn, fitted and finished in the same way as the barrel churn, with archimedian concussion dashers and eccentric motion, adapted for any power or dairy in nine sizes. (51) The "Springfield" Bradford's Patent Rotary Butter Worker, fitted with fast and loose pulleys for power. (52) Patent Royal "Albany" Combined Butter Worker and Table. (53) Bradford's New Patent "Little Albany" Butter Worker. (54) "Board and Roller" Butter Worker. (55) Improved Revolving-Disc Milk Pan Stand. (56) Carson & Toone's Double-Prize Cheese Press, fitted with iron stool. (57) Carson & Toone's Single Cheese Press for small cheeses, fitted with iron stool. (58) Wilkins & Sons' Steam Cheesemaker, comprising strong steam and hot-water tin tub holding 50 gallons, with copper steam or water chamber, rotary card knives, brass tap and strainer, brass scale of imperial gallons, tilting platform, oval strainer with hooks and guards, slicer, curd scoop, and india-rubber hose complete. (59) Wilkins & Sons' Portable Steam Boiler, with funnel to the above. (60) Wilkins & Sons' Champion Curd Mill, with fly-wheel. (61) Cheese Vats, Hoops, &c., constructed for making various kinds of cheese. (62) Improved Butter Table, with ice chambers, and a variety of butter prints, moulds, vats, &c. (63) Specially constructed Hand-Screw Cheese Press, with vats, dies, &c., for making sweet curd cheese. (64) Lawrence & Co.'s Patent Capillary Refrigerator for cooling milk and other liquids. (65) Refrigerator for preserving foods and drinks by the aid of ice in closed chambers. (66) Carson & Toone's Portable Farm and Dairy Boiler, complete. (67) Hall's Patent Modern Cold-air Machine, for preserving the freshness and natural properties in perfect condition for any length of time in any region, either on shore or on board ship, of any quantity of meat, poultry, fish, milk, butter, eggs, &c., with cold-air chamber attached, fitted with convenient doors and windows for illustrating

the same. (68) Water Fountain, with basin and fittings for flushing drains of dairy. (69) New and Improved Aviaries, Coops, Cages, and other Poultry Appliances. (70) Portable Farm and Dairy Boiler, complete. (71) Dairy and Garden Seats and Tables in variety. (72) Iron Safe for dairy books, &c. (73) Cheese and Butter Scales and Weights. (74) Cheese and Butter Salt. (75) Water and Grease Proof Dairy Paper. (76) Annatto and Rennett. (77) Collection of minor Utensils, Tools, &c. used in and about a dairy farm. (78) Cooley's Patent Portable Creamery. (79) Improved and Patent Horizontal and Vertical Rotary and Oscillating Barrel Vessels and Moulds for making iced creams. (80) White Cedar Dairy Tubs and Keelers. (81) Bott's Improved Capillary Refrigerator. (82) I.X.L. Self-Gauging Butter Press. (83) Reid's and other Butter Workers. (84) Cow House and other fittings with modern appliances, feedings, and treatments for dairy cows in detail. (85) Smith & Sons' Prize Medal Clock, from the International Exhibition of 1862, with striking and electric apparatus.

247a. WELFORD & SONS, Limited, Warwick Farm Dairies. Chief Office and Working Dairy, Elgin Road, Maida Vale, W. Branches: South Kensington, adjoining the Metropolitan Railway Station; Bayswater: 78, Queen's Road, W.; Maida Hill: 4, Warwick Place, N.W. Farms of 300 acres: The Home Farms, Willesden, W.—(1) A complete Working Dairy, illustrative of our system, as carried out at our chief dairy, under the supervision of Drs. B. W. Richardson and F. A. Mahomed, our medical officers, the supplies from which are distributed to our respective branches for delivery in all parts of London. (2) Shed of Alderney Cows, Pen of English Goats, Pen of African Sheep. The C<sup>o</sup> warehouse fittings by Messrs. Musgrave and Co. Floor composed of granite concrete and clinker bricks, ventilation by moveable open shutters, and pipes beneath the floor, thereby ensuring a continual current of air in circulation all over the shed, as approved by our veterinary staff, J. Woodger and H. Priestman, Esqs., M.R.C.V.S.L. (3) Cream separating by centrifugal motion, showing the extraction of the cream from the milk by this instantaneous process. (4) Refrigerators, by Lawrence, for cooling the milk. (5) Churning, by Taylor's "Eccentric" and Bradford's "Cotswing" Churns, and Butter working ready for the table, without being touched by hand, with the Royal Albany Butterworker. (6) Danish Hardening Boxes, for cooling and hardening the butter. (7) Specially constructed Iron Milk Stand. (8) Laboratory, with diagrams, showing the microscopical constituents of milk, by our analyst, A. Stokes, Esq., F.A.S. (9) A complete Set of Appliances for Testing and Examining Milk. (10) A Stand of 14 Goblets showing the constituents of an imperial gallon



of milk. (11) A Model of the drainage adopted at our chief dairy, from designs by our Sanitary Engineer, E. Vigers, Esq., A.R.I.B.A., and approved by the Sanitary Assurance Association.

**247b. BRADFORD, T., & CO., High Holborn, London, W.C.**—Model Dairy, which is built of glazed bricks, consists of four rooms, viz.—1, Milk-receiving room; 2, Boiler. 3, Working room; and 4, Milk-setting room; First. Milk-receiving room; this is really the entrance to the Dairy, and is used for the reception of the milk cans; from this we pass into the boiler room, which contains the heating apparatus, by means of which is provided an ample supply of boiling water for washing and scalding the dairy utensils, and also raises the temperature of the different rooms in the winter. The next is the milk-setting room, where the milk, after being sieved, is placed in twenty-four shallow pans, which are placed upon four patent revolving disc milk pan stands: the advantage of the latter is that the pans can be revolved and the milk skimmed without any disturbance. There is also a portable arrangement for showing the Cooley system of cream raising. The next room is the working room, in which is a Bradford's Patent "Diaphragm" churn with removable dash, which renders the collecting and cleansing of the churn a very easy matter; there being no fixed obstructions in it. The butter worker is Bradford's new patent "Albany;" this rolls the butter by a backward and forward movement, thereby ensuring not only its being perfectly cleansed, but perfectly salted without breaking the grain of the butter. When not in use as a butter worker it can be immediately converted into a dairy table. In the corner of this room is a trough of sufficient capacity, fitted with hot and cold water, and so arranged that besides serving for ordinary washing up and scalding purposes, it is available for in-

serting pans therein for raising or lowering the temperature of the milk. There is no drain inside the building. The floor is laid with an incline, along which is an open earthenware channel, which conveys the drainage into a suitable grid placed outside the building. The perfect ventilation of the Dairy is obtained in the following manner; the roof is made on the Cavity principle, and is fitted at the top with one of Bradford's new "Walness" ventilators. The hot air given off by the heating apparatus rises over the false roof or ceiling, and by rarifying the air in the ventilating cowl creates an increased current of cold air into and through the dairy. The cooling of the dairy is effected by bringing a current of cold air through underground earthenware pipes into a central ventilating chamber constructed of glazed bricks, having a slate top which serves as a table. The cooling is also assisted by a flow of water passing through the underground pipes and the ventilating chamber, and thereby assists in cooling the air in its transit. The flooring of the different rooms is laid with Victoria stone and red and blue tiles. The Dairy is complete with all the most modern utensils and apparatus for making and preparing butter for the table or market.

**247c. KEITH, JAMES, Engineer, 57 Holborn Viaduct, E.C.; Edinburgh and Arbroath.**—The Dairies are supplied with hot water throughout by Keith's Patent Circulating Hot-water Apparatus, designed and fitted up for the Health Exhibition by Mr. James Keith, Gas, Hydraulic, and Heating Engineer, London, Edinburgh, and Arbroath. (See also pages 159, 160, in Complimentary List.)

**247d. HINDLEY, E. S., 11 Queen Victoria Street, E.C.**—The engines and boilers also in connection with Messrs. Welford and Sons' Model Dairy are supplied by the above.

## DRESS.

THE history of dress is for the most part a history of ornamentation, for in all ages, and amongst all races of mankind, personal adornment rather than usefulness and comfort has been the leading feature of its design. This being the case, it is easy to imagine how soon the founders of our race substituted, for the skins of beasts, fabrics of wool, flax, or silk; materials that would afford a more ready means of obtaining ornamental effect.

Our modern dress comes to us from so many sources, and modified by such various influences, that it is difficult to assign to it any definite origin. At the time of the Roman invasion the Britons were by no means the half-naked savages that they are often pictured in the popular mind. It is true the common people clothed themselves mostly in skins, and such garments, being stiff and cumbersome, were doubtless thrown aside during active exertion, either in daily labour, or in the battle-field. But the clothing of the higher classes was of a much more



elaborate nature. The arts of spinning and weaving cloth were known, and in dyeing the Britons were especially skilful. The distinctive difference between the dress of the Britons and Romans of this period was that the former wore drawers underneath the tunic, the latter garment being the common dress of both races. The short cloak which formed the outer vestment of the Britons was less cumbersome, although lacking the grace of the Roman toga. At this time the dress of women, which continued in substance the same for several centuries, was a long flowing robe, confined at the waist, with hanging sleeves, and a voluminous head-dress completely concealing the hair.

It is generally supposed that women are exclusively the votaries of Fashion, and that the majority of excesses in dress have been perpetrated by their sex; but history tells us how great is this mistake. Priestly wrath has been called forth in all ages, and with reason, by the magnificence of male attire. The extravagance of the fourteenth and fifteenth centuries was almost incredible; the fops of those days decorated themselves with gay colours and hung their clothes with bells and jangles, till it was difficult to distinguish a knight from a fool. They had points to their shoes of such length as to require a chain to fasten them to the knee; another fashion was to make the sole of the shoe so broad that actually a statute was passed limiting the width to six inches. Shoulders and sleeves of doublets were padded, and ruffs were so high that it must have been difficult for the wearers to turn their heads. But the extravagance of this age was exceeded by the grotesque absurdity of that which followed. Men wore their trunk hose stuffed so "That," as we are told, "over the seats in the Parliament House there were certain holes, some two inches square, in the walls, in which were placed posts, to uphold a scaffold round about the house within, for them to sit upon who used the wearing of great breeches stuffed with hairlike wool sack, which fashion being left in the eighth year of Elizabeth, the scaffold was taken down, and never since put up." These trunk hose sometimes cost £100, and fine cambric or lawn shirts £10 each. Through all this time the variations in the dress of women were comparatively small, the eccentricities being chiefly confined to the head-dress. This was at one time composed of two horns, with a veil spread over them, to which was added a coif for covering the hair. After this a single horn with a long veil trailing back from it was worn, a fashion carried to so great an extravagance by Queen Isabella of Bavaria that she had the doorways of the Palace at Vincennes heightened, in order to pass through without stooping.

Upon the accession of Elizabeth to the throne women began to claim an equal right with men to extravagance of attire. The grotesque female costume with the high ruff, stomacher and fardingale are well known. One good feature of this period, however, was the abolition of the heavy head coverings, although the deceitful and unclean practice of wearing false hair, more than counterbalanced the gain in this direction. In the reign of Charles I. dress was rich in the extreme, and was distinguished by a grace and elegance that has perhaps neither before nor since been equalled. The prim dress of the Puritan came as an interregnum between the richness of the first Charles and the extravagance of the second. In the reign of the latter wigs, at once the most useless and ungraceful of coverings, came into fashion and held their sway for over a hundred years. It was at this time, too, that the doublet and hose began to give place to the square skirted coat; a fit complement in lack of grace and utility to the full-bottomed wig of the same period. We have escaped the wig, but the coat yet survives in the modern frock coat, with its flapping skirts and ungraceful outline. Although the male dress of to-day cannot be strictly described as either ornate or convenient, yet there are indications that the canons of good sense are gaining ground. However, that crowning absurdity of male costume, the tall hat, still holds its own.

Contemporary female dress is now passing through a phase of absurdity. The swelling hump at the back, with which women extend their skirts is even more ungraceful than the crinoline of twenty years ago.

The Health Exhibition will afford the public a means such as has never before existed of studying the history of British Costume. By the disinterested exertions of Mr. Frederick Treves, F.R.C.S., and the Hon. Lewis Wingfield, who may be said to represent respectively the Hygienic and Artistic aspects of dress, a collection of draped figures has been arranged, illustrating the costumes of male and female figures of different stations in life from the time of the Conquest to the beginning of the present century.



That much remains to be done to render our dress healthful need hardly be said, and few will be found to question the importance of the subject; but in spite of all Fashion will always hold its sway, and the only hope of substantial gain the hygienists can have is, to enlist her on the side of health. Fortunately there need be nothing unsightly in healthful attire, and one of the primary objects of this Exhibition will be an attempt to show that a costume may be at the same time hygienic and graceful; indeed it is only a vitiated taste nourished on an unnatural craving for notoriety, and vulgar ostentation, that gives birth to the extravagances which ultimately become the Fashion. That female dress originates with those devoid of artistic feeling is apparent, and the efforts that have been made within recent times to wrest the empire of fashion from the hands of the milliners would have been crowned with greater success, had the artistic enthusiasts with whom they originated been themselves freer from the reproach of fantastical vanity. The vagaries of the aesthetes are even more ridiculous than the brainless absurdities of fashion. It is a hopeful sign that we see those of real artistic feeling working side by side with men of high scientific attainments. Whether a true interpretation of natural beauty combined with good common sense will prove an alliance strong enough to curb the sway of frivolity the present Exhibition may perhaps show.

C. DUNELL.

May 1st, 1884.

## GROUP II.—DRESS.

## CLASS XIII.

(East Quadrant.)

Collections illustrative of the History of Dress, National Costume, &c.

248. **WATERMAN & CO.,** Rupert Street, Bristol.—(1) Hygienic Boots and Shoes, manufactured of the best materials on Anatomical principles. (2) Patented "Cyclist's Shoes to ensure safety in riding by the prevention of slipping.

249. **DOWIE & MARSHALL,** 455 West Strand, W.C.—Boots and Shoes suited for the normal state of the foot and for the recovery of distorted feet.

250. **GILLIGAN & SON,** Tanners, Reading and Gomshall.—(1) The Lion Brand Sole Leather, oak-bark tanned by long process; manufactured from stout English ox hides. (2) The Lion Brand Waterproofed Sole Leather, for heavy and light boots. (3) The Lion Brand Waterproofed Upper Leather, for light walking and heavy fishing boots.

251. **ALLINSON & CO.,** St. Giles' Terrace, Northampton.—Manufacturers of "Hercules" Boots and Shoes.

252. **BURGESS, C. O.,** 160 Regent Street, W.—Boots and Shoes, Boot Trees and Lasts.

253. **CROCKETT & JONES,** Boot and Shoe Manufacturers, Northampton.—Health Boots and Shoes.

254. **INDESTRUCTIBLE BOOT & SHOE SOLE CO.** (Borrett's Patent) (C. DAGGETT, Manager), 134a Kingsland Road.—Boots and Shoes.

255. **LILLEY & SKINNER,** Paddington Green, London, W.—(1) Boots and Shoes. (2) The "Perfect" Boots (Hannibal's new system), light and flexible. (3) The "Sensible" Boots, new shape made on hygienic principles.

256. **MARKIE, JAMES,** Wood Street, Finsbury.—(1) Markie's Patent Metal Shoe Lasts, constructed so that shoes may be made to fit perfectly close round the quarters. (2) Ladies' and Gentlemen's Riding, Carriage, and Walking Boots and Shoes.

257. **OGDEN, F., & CO.,** 13 Sloane Street, S.W.—Boots, Lasts and Boot Trees.

258. **POCOCK BROS.,** 235 Southwark Bridge Road, S.E.—(2) Boots and Shoes manufactured upon Hygienic principles. (2) Specimens of Boots and Shoes as worn in the Middle Ages.

259. **LUTWYCHE & CO.,** Boot and Shoe Manufacturers (Wholesale and Export only), 136 High Street, Borough, London, S.E.—Napoleon Ventilated Waterproof Cavalry Boot, Waterproof Crocodile-Hide Shooting Boots, Crocodile and Serpent-Skin Slippers, Gout Boots, and other Spécialités for the home and colonial markets.

260. **BLETCHLY, HENRY,** 11 Northgate Street, Gloucester.—Boots and Shoes, Lasts, and Plaster Casts.

261. **WISE, JOHN,** 29 Craven Terrace, Lancaster Gate, London, W.—(1)



Ladies' Hygienic Boots and Shoes, to lace and button. (2) Gentlemen's Boots and Shoes of every description. (3) Children's Boots and Shoes.

262. **BRANCH, JOHN**, 87 Bethnal Green Road, London.—(1) Boots and Shoes. (2) Patented and Registered "Reversible."

263. **LANAGAN, FRANCIS**, 9 Brownlow Street, Bedford Row, W.C.—Boots, Models, &c., illustrating the rational and irrational principles of boot making.

264. **HALL, WILLIAM**, 39 Edgware Road.—Boots and Shoes of Normal Design, made by hand.

265. **FITZ GERALD, FRANCES, MISS**, Valentia Island, Ireland.—Jerseys and other articles knitted by Irish peasants.

266. **BURGESS, C. O.**, 160 Regent Street, W.—Last Making.

267. **WALKER, MATTHEW**, Dunstable.—Straw Hats and Bonnets, and Straw Hat Sewing Machine.

268. **LINCOLN, BENNETT & CO.**, 1, 2, & 3, Sackville Street, and 40, Piccadilly, London, W. Manufactory, 23, 24, & 25 Nelson Square, & 19 & 20, Charlotte Street, Blackfriars Road, S.E.—Silk and Felt Hats in variety. Tweed Hats, Caps, &c., for all climates, with a display of Hats in all stages of manufacture and specimens of the materials of which they are made.

269. **HEATH, HENRY**, 105 Oxford Street, W.—Hats and Caps.

270. **COOPER, CORAH, & SONS**, St. Margaret's Works, Leicester.—(1) Ladies' and Children's Jersey Specialities. (2) Hosiery, &c.

271. **BECK, LOUISA**, 24 Connaught Street, Hyde Park.—Hygienic Dress with Divided Skirt.

273. **CARTER, J. S.**, 267 Oxford Street, W.—Dresses for Tourists, &c.

274. **JAY, W. C., & CO.**, 243 Regent Street, W.—Mourning Costumes, Black Silks, Crapes, Millinery, Mantles, Jet.

275. **DENT & ALLCROFT**, 97 Wood Street, London.—Gloves.

276. **HAMILTON & CO., Limited**, Co-operative Shirt and Dressmakers, 326 Regent Street (corner of Mortimer Street), late of 27 Mortimer Street.—(1) Artistic Costumes, designed with reference to comfort in wear, and adapted to modern requirements. (2) Divided Dress, for athletics or ordinary wear, indistinguishable from ordinary skirts.

277. **JAEGER'S, DR., SANITARY WOOLLEN SYSTEM CO., Limited**, 42 & 43 Fore Street, E.C.—Clothing.

278. **MIDDLETON, JONES, & CO.**, 6 Chorlton Street, Manchester.—Sole manufacturers of the "Sandringham," "Falcon," and "Beau Idéal" Velveteens.

279. **RATIONAL DRESS SOCIETY** (President, **VISCOUNTESS HARBERTON**). Dépôt, 23 Mortimer Street, W.—(1) Several Varieties of Out-door and Evening Dresses with Divided Skirts, for ladies and children. (2) Mrs. Bishop's Rocky Mountain Travelling Costume.

280. **WESTLANDS, LAIDLAW, & CO.**, 8 Howard Street, Glasgow; and 133 Aldersgate Street, E.C.—Hats and Caps.

282. **LEWIS, WILLIAM**, 13 Cheapside, E.C.—(1) Gentlemen's Pure Natural Grey Wool Underclothing. (2) Neat, Bright, and Pure Spun Silk Underclothing. (3) Specimens of Silk Hose, upwards of 100 years old.

283. **FARMER & ROGERS**, 117 Regent Street, W.—(1) Japanese Figures in National Costume. (2) Chinese Embroidered Robes. (3) Indian Cashmere Shawls.

284. **PFEIFFER, EMILY, MRS.**, Mayfield, West Hill, Putney.—Dress for modern use adapted from the Greek. (See *Western Quadrant*.)

285. **BUCKINGHAM & CHANDOS, DUKE OF**, Stowe House, Buckingham.—(1) Collection of Specimens of Buckingham Lace, formed in 1844. (2) Lace Scarf, made in 1851. (3) Lace Dress, made in 1864. (4) Collection of Lace, present make. (5) Point Lace Handkerchief, and a Guipure Lace Handkerchief made in the International Health Exhibition. (6) Design for a Point Ground Lace Scarf, being made for the Duke of Buckingham and Chandos. (7) Photograph of a Lace Flounce made in 1883, in the manufacture of which 600 bobbins were used.

285a. **ROBINSON, PETER**, Oxford Street and Regent Street.—(1) Handkerchiefs made at the International Health Exhibition. (2) Designs of Lace and Flounce to be made for him by R. Viccars. (The Buckinghamshire Lace Workers to be seen daily at work.)

286. **HONITON LACE MAKING CO. (THE)**, Exhibited by **MARSHALL & SNELGROVE**, 334-338 Oxford Street, W.—Specimens of Ancient and Modern Honiton Lace and Lace Making. The art of making Honiton Lace was first introduced into Devonshire by certain Flemings who took refuge in England during the religious persecutions in Flanders in the sixteenth century. Since then the making of



Lace has given employment to many women and children; in the year 1851 from 7,000 to 8,000 were so employed; at the present time, however, not more than 300 to 400 are employed.

287. **GORER, S.**, 113 Edgware Road—Collection of Articles of Personal Adornment.

288. **MANN, HENRY, SON, & CO.**, Manchester.—“The Nonpareil Velveteen” in various stages of manufacture. (See West Quadrant.)

290. **DONEGAL INDUSTRIAL COMMITTEE**, 38 Wimpole Street, W.—Knitting and Weaving by hand. Specimens.

291. **HENRY DUNKLEY**, 13 and 15 Buckingham Palace Road, S.W.—(1) Boots and Shoes made upon hygienic principles, hand sewn. (2) Military, Hunting, Racing, fishing, and shooting boots, Highland brogues, and Livery Top Boots. (3) The “Patented Mounted Service Boots,” as adopted by the Mounted Rifles. (4) Ladies’ Walking and Dress Boots and Shoes. (5) Children’s Boots made especially to support weak ankles.

292. **OSTERODE FLANNEL Co.**, 36 Cannon Street, E.C.—Articles of clothing made from Osterode Flannel, and collection of leggings and gaiters.

293. **BECTIVE BOOT CO. (JAMES BRANCH)**, Bishopsgate Street, E.C.—Boots and Shoes.

**SOMERVELL BROS.**, Netherfield, Kendal. (See Class 15.)

#### CLASS XIV.

(East Quadrant.)

Waterproof Clothing, India-rubber, Gutta-percha, &c.

296. **BRITANNIA RUBBER CO.**, 32 Cannon Street.—India-rubber Goods.

297. **CORDING, GEORGE**, 125 Regent Street; 62 Piccadilly; and 231 Strand.—India-rubber Clothing and Invalid appliances.

298. **MANDLEBERG, J., & CO.**, Patentees and Manufacturers, 14 to 22 Thomas Street, and 69 High Street, Manchester. London Warehouse, 29 Cannon Street, E.C.; and at Glasgow and Dublin.—(1) Waterproof Garments, comprising Ladies’ and Gentlemen’s patented ven-

tilated Waterproof Cloaks and Coats, domestic articles, &c. (2) Waterproof Garments, ventilated, specially prepared for extreme climates. (3) Waterproof Dress, ventilated, for sport, hunting, &c.

299. **SLAZENGER & SONS**, 56 Cannon Street, London.—(1) Waterproof Garments. (2) Air Water Beds and Cushions.

300. **SWAN & EDGAR**, Regent Street; and Piccadilly, London.—Gosamer Water-proof Clothing.

301. **THE WARNERIZING CO. Limited**, Old Ford, E.—By Royal Letters Patent, Clothing, Drapery of every description, from the most delicate materials, white or coloured satin, velvet, silk, lace, &c., to the heaviest broad cloths and tweeds, rendered water repellant and incapable of injury from rain or dampness, also preventing moths and mildew, without affecting the original colour or finish. Boots and shoes, when treated, keep the feet dry and warm in the wettest grass, a most important preservative to health and protection from cold, &c. Sail-cloth, bunting, and fishing nets made rot proof.

302. **SILVER, S. W., & CO.**, Sun Court, Cornhill, E.C. (Agent, **T. VINCENT RIORDAN**, 1 Whiteley Road, Upper Norwood.)—(1) Silver’s Original Ventilating Waterproof Coat, also with recent improvements. (2) The “Transvaal,” with Silver’s Patent India Rubber Steel Plate for protecting the shoulder from recoil. (3) Rifle with Silver’s Patent Ebonite (India Rubber) Hand Guard, for neutralizing the effects of the Heated Barrel. (4) Silver’s “Regina” Hammock for keeping the body off the ground when camping out.

304. **TURNER, GEORGE, & CO.**, 181 Choumert Road, London, S.E.—(1) Waterproof Ventilating Cape Sleeve Poncho Coat for walking, riding, cycling and driving; also fitted as a ground sheet for bivouac. (2) Ordinary Coat with Cape Sleeves. (3) Photographs and Drawings showing various applications.

305. **ANDERSON, ANDERSON, & ANDERSON**, 37 Queen Victoria Street, E.C.—(1) Waterproof Garments of every description, thoroughly ventilated for walking, fishing, shooting, driving, yachting, riding, bicycling, camping, touring, and general wear. (2) The Waterproof “Health” Coat, invented specially for the I. H. E. (3) The Waterproof Poncho for the Brazils and other tropical countries. (4) The Waterproof “Buckland Jacket” for fishing and shooting. (5) Waterproof Garments of every description for ladies, girls and boys.

306. **BENJAMIN, B. & SONS**, Ulster House, Conduit Street.—Water-



proof Clothing and Goods, and Models of Sporting Attire.

**307. ROYAL RUBBER Co.,** Richmond Road, Barnsbury.—India rubber goods especially for ladies.

**SOMERVELL BROS.,** Netherfield, Kendal. (See Class 15.)

## CLASS XV.

(East Quadrant.)

Furs, Skins and Feathers. Dresses for Extreme Climates, &c.

**309. INTERNATIONAL FUR STORE,** Fur and Skin Merchants, Wholesale and Retail (T. S. JAY, Manager), 163 Regent Street, W.—Fur Garments and Skins. The Ventilating Sealskin Jacket. The Hygeian Patent. The "Im-penetrable," a perfect chest protecting cape, and fur-lined cloaks combining great warmth with extreme lightness.

**311. PAULIG & CO.,** 11 Old Bond Street, W. — Furs. Specialities, Dolmans, and "Visites."

**312. NORMAN, S. W.,** 3 Belgrave Mansions, Grosvenor Gardens, S.W.—Furs and Skins. Fur costume for extreme climates. Boots, Stockings, Gloves, Muffs, &c. with magnetic appliances.

**313. COBURN, R. C.,** 7 Holloway Head, Birmingham.—Capes, Hats, Muffs, &c., made of Feathers. Banner, Fire, and Hand Screens, the designs worked entirely in feathers.

**314. ELLWOOD, J., & SONS,** 24 Great Charlotte Street, Blackfriars Road, London.—Sole Inventors, Patentees, and Manufacturers of the Air-Chamber Hat for India. Various forms of Head-dress made on their Air-chamber principle, as exported to India and other Tropical countries.

**315. BRADFORD MANUFACTURING CO.,** Bradford, Yorkshire.—(1) Dress Fabrics all Wool. (2) Dress Fabrics, Wool and Cotton. (3) Dress Fabrics, Wool, Cotton, and Silk. (4) The Celebrated "Century" Cashmeres.

**316. SOMERVELL BROS.,** East Quadrant, Netherfield, Kendal, Cumberland.—(1) Natural Boots, ladies' and children's, approved by the Ladies' Sanitary Association; also gentlemen's. (2) Waterproof "K" Boots, for shooting, fishing, and walking. (3) City Boots, made with anhydrous waterproof soles. (4) Anhydrous Waterproof Leather.

**317. THRESHER & GLENNY,** next door to Somerset House, Strand, W.C.—Gentlemen's India Gauze Underclothing. Kashmir (a substitute for flannel), India Tweed and Junga Cloth (impervious to Spear grass).

**318. HARRIS, JONES & Co.,** 265 & 267 Oxford Street, W.—Tropical Suits and Fur-trimmed Suits.

**MANDLEBERG, J. & Co.,** Patentees and Manufacturers, 14 to 22 Thomas Street, and 69 High Street, Manchester. London Warehouse, 29 Cannon Street, E.C.; and at Glasgow and Dublin. (See Class 14.)

## CLASS XVI.

(East Quadrant.)

Dress for Sport, Hunting Suits, &c.

**319. ROBINSON, PETER,** 216 Oxford Street, W.—Boys Gymnastic Suits, Jersey Costumes, Boating and Cricketing Suits, Hunting Suits, Tennis and Football Suits, Jersey Suits suitable for Athletics, Bicycling and Tricycling Suits, Regulation "Man o' War" Suits, Girls' easy loose-fitting Walking Suits.

**320. GOODMAN, J. T. W.,** 47 Albemarle Street, W.—(1) A Lady's Cycling and Walking Costume combined, registered design. (2) The Ladies' C. T. C. Costume. (3) A Gentleman's Cloak of new design, combining lightness, elegance and general utility. (4) A Shooting Suit made of the new Khaki cloth, the material adopted by the War Office for the troops on active service.

**321. WORTH et Cie.,** Court Dress-makers and Corsetiers, 134 New Bond Street, London, W.; 15 Sloane Street, S.W.; and 74 King's Road, Brighton.—Various Dresses.

**322. HOWELL, JAMES, & CO.,** Limited, 5, 7, & 9 Regent Street, S.W.—Hygienic and Hygroscopic Dress Fabric, manufactured to produce a sufficient amount of warmth with the least weight, and possessing special facilities for absorption of perspiration. It is adapted for general wear and for Dresses for Sport, Yachting and Travelling. Samples of non-ventilating materials. Samples of wool in its natural state and in stages of manufacture. Yachting Dress made from above fabrics.

**323. BAXTER, H. F., MRS.,** The Tower, Hampstead.—A Lady's Costume for the Highlands. (See Western Quadrant.)

**BENJAMIN, B. & SONS,** Ulster House, Conduit Street, W.—(See Class 14)



**MANDLEBERG, J. & CO.**, Patentees and Manufacturers, 14 to 22 Thomas Street, and 69 High Street, Manchester. London Warehouse, 29 Cannon Street, E.C.; and at Glasgow and Dublin. (See Class 14.)

## CLASS XVII.

(East Quadrant.)

Life-saving Dress. Divers' Dress.  
Fireproof Dress.

325. **SEXTON, JOSEPH**, Bowes Road, Southgate, London, N.—(1) Life-Saving Apparatus. (2) Patent Cushions, Vests, and Belts. (3) Fabric (which may be cut for linings of garments without destroying its buoyancy). (3) Patent Deck Seat for Channel and River Vessels.

326. **BELL, JOHN**, 118 Southwark Street, S.E.—Asbestos Fireproof Dress.

327. **SIEBE, GORMAN, & CO.**, 187 Westminster Bridge Road, S.E.—(1) Diving Apparatus (Royal Navy pattern) fitted with Telephones. (2) Fleuss Diving-dress. (3) Fleuss Breathing-dress (for working in noxious gases).

328. **BIRT, J. & A. W.**, 42 Dock Street, London Docks.—Life-Saving Dress. Buoyancy derived from Cork:—As worn by Life-Boat Men: Board of Trade and Admiralty pattern; for Passengers. Buoyancy derived from Bladders (Klixbull-Birt Patent), Life-Saving Oilskin Coat; Bathing Dress, Belts, and Cushions; the Patent Bladders screwed in press, showing them to be almost indestructible.

329. **PATENT LIQUID CYANITE CO. (THE) (MARRIOTT, Manager)**, 33 Mildmay Chambers, Bishopsgate, E.C.—(1) Fire-proof Dress. (2) Cyanite, a Fire-proof priming for Paint, Varnish, &c.

330. **STARTIN, DR. JAMES**, 17 Sackville Street, W.—Healthy Dyed Gloves and Stockings, &c. Unhealthy Dyed Gloves, Stockings, &c., which have produced injury to the skin.

## CLASS XVIII.

The Comparative Value of Different Dress Materials for Articles of Clothing.

**FOSTER, JAMES**, 41 Friargate, Preston. (See Machinery in Motion, Western Arcade.)

## CLASS XVIII.

Publications and Literature, Patterns, Statistics, Diagrams, Models relating to Group 2.

331. **LADIES' SANITARY ASSOCIATION (THE)** (Miss ROSE ADAMS, Secretary), 22 Berners Street, Oxford Street, W.—Publications of the Society, Books and Tracts on Sanitary and Domestic Subjects.

332. **BRANNON, MISS E. M.**, Hygiea Lodge, Walton Naze Park, Essex.—(1) Model of Fireproof Dress and specimens of Fireproof Starched Stuff. (2) Drawings of Fireproof and Sanitary Dress. (3) Diagrams illustrative of the principles of Healthy Dress.

333. **NATIONAL HEALTH SOCIETY (THE)**, 44 Berners Street, W.—Little Books and Pamphlets.

**ROTH, Dr. M.**, 48 Wimpole Street, Cavendish Square, W. (See Class 39.)

## CLASS XIX.

(East Quadrant.)

Machinery and Appliances for the Preparation of Articles under Group 2.

335. **DONEGAL INDUSTRIAL COMMITTEE** (President, MRS. ERNEST HART. Hon. Secretaries, MISS TAIT; MISS HART, 38 Wimpole Street, W.)—Knitting, Spinning, Weaving, and Embroidery by hand, as done by the peasantry of the West Coast of Donegal, under direction of the Committee, and from their designs and patterns. Also Woollen and Silk Hosiery and other hand-made articles of clothing, dyed with non-poisonous vegetable art dyes, made expressly for the Committee. [Sold wholesale by the Committee; and retail, in London by Messrs. Debenham & Freebody, Wigmore Street; Marshall & Snelgrove, Oxford Street; Waukenphast, Haymarket; and Poole & Lord, Oxford Street.]

336. **PAGET, H.**, Mount Park, Harrow-on-the-Hill, Middlesex.—Invention for Decorative Embroidery and Fancy Work. By using this appliance, art embroidery may be produced with any sewing machine. (See Western Quadrant.)

337. **DENT, ALLCROFT, & CO.**, 97 Wood Street, London; & Worcester, Leicester, Martock, Torrington, Brussels, Grenoble, Paris, & Leipsic.—Manufacturing of Gloves from the skin to the finished glove, omitting those processes which the limited space will not allow, but which are supplemented by photographs. (See Western Quadrant.)



THE following particulars in connection with Messrs. DENT, ALLCROFT & Co.'s Exhibits may not be uninteresting to visitors to the INTERNATIONAL HEALTH EXHIBITION.

Their business originated at Worcester in 1802, the founders being Messrs. John and William Dent (whose busts may be seen in the Exhibit). The London House was opened in 1834, and soon after became the headquarters of the firm. The principal manufactory is still at Worcester, situated on the left bank of the Severn, near the Cathedral. The factory has seen many changes; in 1645 it belonged to the Windsor family; the owner, Thomas, Lord Windsor, fought with Charles I. at Naseby, and on the failure of the King's cause, became despoiled of his property, and was himself imprisoned. The mansion then passed into the possession of the head of the Warmstrete family, who for many years had been Registrar to the Cathedral and Diocese of Worcester. About the year 1700 it was sold to William Evett, a glover, and shortly afterwards the celebrated Porcelain Works were started in part of the premises: from those works were sent the china now so much prized by collectors. The manufacture of porcelain was carried on under varying fortunes for more than a century, and in the year 1840 the works were amalgamated with those of Messrs. Chamberlain & Co., and as a porcelain factory it ceased to exist; it then passed into the hands of its present occupiers, and has been enlarged to meet the growth of the business until no room is left for further additions.

On the premises nearly one thousand hands are employed. Many of the goods exhibited in their case in the Eastern Quadrant were made at this factory, but examples of the work of their other factories are also shown—Kid and Suède gloves made in their manufactories at Paris, Grenoble, and Brussels; Silk and Taffeta Gloves from their factories at London, Martock, and Torrington, and Woollen Knit Gloves from their Leicester works. The kid and chevrette leather, made up in their English and foreign manufactories, is prepared in the dressing yards at Grenoble, Fontaine, and Ottignies, near Brussels. The supplies of raw skins are drawn from all parts of the Old and New Worlds; kid skins from Ireland, all parts of Germany, Austria, Spain, Italy, and the finest from the French Departments of Touraine, Poitou, Auvergne, Dauphiné, and the frontiers of Switzerland; those most suitable for the Suède gloves, now so much worn, are collected in the Argentine Republic: and chevrette, or young goat skins, for stouter gloves, from Saxony, Bavaria, and Bohemia. Lamb skins, now largely used, are sent from all parts of Russia in Europe, Italy, Turkey, Servia, Spain, Asia Minor, Arabia, Persia, and South America. Sheep skins are drawn from various countries in Europe, and in large quantities from the Cape Colony—Colt skins from Russia—Kangaroo from Australia—and furs of all sorts from both hemispheres.

The Exhibit commences with the leather when stained, but previous to this it undergoes many important operations, the majority of which are unsuitable for exhibition in this place, and would have required a large amount of space.



The Photograph No. 1 shows the interior of a dressing shed, where the work of unhairing the skins takes place, the skins here shown have been soaked in pits of limewater of various strengths until the hair comes easily off the skin; this is done by scraping the skin with a blunt-edged knife, and then by rubbing the surface of the skin with the hand to remove the small hairs which remain; all of these processes are shown in this photograph. The skins then undergo a process of fermentation which absorbs the fatty matter and cleanses them from all impurities, they are then put into a mixture of water, flour, yelk of eggs, alum, and salt, which is contained either in large vats or drums, or in the revolving boxes, as shown in Photograph No. 5, to be "nourished," after which they are dried in hot rooms, or in the open air, according to the season and state of the weather. The next process, that of staking, is the same as shown in the exhibit; the skins are here drawn over a crescent-shaped knife, and all the stiffness caused by drying is thus worked out, and the skin is made soft and is now what is known as white leather; in this state the leather is kept as long as convenient, but rarely less than four or six months, and is stored in large rooms kept as near as possible at an equal temperature. This rest allows the leather to "feed," and improves it to a very great extent. When required for glove-making the leather is well washed, and again soaked in liquor made of the yelks of eggs, varying in strength according to the weight of the skins. Some slight idea of the quantity of eggs used by the firm in staining only may be formed when it is known that upwards of 80 gallons of yelk is used weekly in their factory at Worcester, and about the same quantity in each of their dressing yards; this is equal to 3,000,000 eggs per annum. The washing-room at Worcester is shown in Photograph No. 2. The skins are then taken in hand by the stainers, by whom they are laid out on tables and washed down with ammonia to prepare them for colouring; this is done by brushing all parts of the skin with a brush dipped in the colour required, until it is equally dyed or stained. The colour is then made fast with what is known as a "striker," a chemical preparation suited to the colour, which is carefully brushed over every part of the skin. The stained leather is then taken to the drying-rooms, and hung up till dry. Photograph No. 3 shows the men at work at the staining tables, and a portion of the staining room.

Photograph No. 4 is a view of a section of the building where the dyes are extracted by boiling in large coppers the various woods used in this process. In the Exhibit will be seen some of the woods most largely used in the production of dyes—logwood, fustic, brazil, and various seeds which possess colouring properties.

The work from this point is shown in the Exhibit: the staking or stretching the skin over the knife to remove the stiffness caused by drying; the doling or reducing the skin to an even substance with a sharp knife, by which the superfluous flesh is removed; and then the cutting into pieces of the required size; the punching or cutting the fingers, &c., by means of a punch shaped as a hand; the cutting and punching of the thumbs and fourchettes, or pieces for the sides of the fingers; and then the putting the various parts together.



The sewing of gloves is a very important industry in the agricultural districts. The work is done at the homes of the sewers, and collected by the travellers and sewing clerks, who visit Worcestershire, Herefordshire, Oxfordshire, Devonshire, and Somersetshire. The various sorts of sewing are shown in the Exhibit, and visitors can now see how many operations a glove undergoes before it is fit for wear.

Varieties of machine-sewing are exhibited; this sewing is now brought to a great state of perfection, but for the best class of gloves for ladies' wear, machine work is not so suitable as the round seam sewing done in the frame. The importance of this industry may be gathered from the fact that a falling off in the quantity of any sort of sewing deprives thousands of industrious poor of many comforts.

In addition to the kid and other gloves already mentioned, Messrs. DENT, ALLCROFT, & Co. manufacture real and imitation Buck and Doe Gloves. This leather is without doubt the first which was used for glove making. Specimens of all sorts will be found in the case in the Eastern Quadrant. Attention is also called to the Patent Clasp Fastener, which they introduced, and which has proved a most simple and effective fastening. The machine used for fixing the clasps on the gloves is shown in the Exhibit—and with it a very ingenious machine for attaching a button which is largely used on certain sorts of gloves.

Although the manufacture of gloves is of so complex a character, special orders for wedding and other important events are executed in a few hours, and special sizes of every description made, from the miniature gloves as worn by the "Midgets" to those made for the Chinese giant Chang.

MESSRS. DENT, ALLCROFT, & Co. have thus far called attention only to the English portion of their manufactures, but they are also the largest manufacturers of foreign gloves. Specimens of the work produced in their factories are shown in the Eastern Quadrant, the celebrated gloves known as the "Dumont," "Landier," "François Calvat" and "Armand Calvat," "Foussi," &c., being made in the Paris and Grenoble factories; whilst their establishment in Brussels, from which are issued the "Clarisse" and other brands known as Brussels gloves, is the largest in Belgium. To supply the public through their firm more than 4 millions of kids and lambs are slaughtered annually.

Sufficient will be seen to impress the observer with the importance of the manufacture of gloves as an English industry; it is one of the oldest of English manufactures, and if an impetus be given to this work which gives employment to so many thousands of persons living in agricultural districts, Messrs. DENT, ALLCROFT & Co. will feel that their efforts to bring this manufacture before the public have been well rewarded.



**338. ABERCORN, HER GRACE THE DUCHESS OF**, Green Street, Grosvenor Square, W.—Exhibition of Home-made Socks and Stockings, knitted by the poor women of Baron's Court, Newtown Stewart, Ireland.

**AUBLET, HARRY, & CO.**, 71 Scruton Street, Curtain Road, E.C. (formerly 38 Spital Square, Bishopsgate Street, E.) (See *Machinery in Motion, Western Gallery.*)

**BRAMLEY, J. L., & CO.**, 170-172 Ebury Street, Eaton Square, S.W. (See *Machinery in Motion, Western Arcade.*)

**FOSTER, JAMES**, 41 Friargate, Preston, Lancashire. (See *Machinery in Motion, Western Arcade.*)

**GORDON & GOTCH**, 15 St. Bride's Street, Ludgate Circus, E.C. (See *Machinery in Motion, Western Arcade.*)

**GRANT, W. HENRY**, Foleshill, Coventry. (See *Machinery in Motion, Western Arcade.*)

**HARRISON PATENT KNITTING MACHINE CO. (THE)**, 128 Portland Street, Manchester. (See *Machinery in Motion, Western Arcade.*)

**HEATH, HENRY**, 105-109 Oxford Street, W. (See *Machinery in Motion, Western Arcade.*)

**KIRBY, BEARD, & CO.**, 115 Newgate Street, E.C. (See *Machinery in Motion, Western Arcade.*)

**LONDON & LEICESTER HOSIERY CO., Limited (THE)**, 41 Charterhouse Square, E.C.; & Winnifred Street, Leicester. (See *Machinery in Motion, Western Arcade.*)

**LOOG, HERMANN**, 127 & 128 London Wall, E.C. (See *Machinery in Motion, Western Arcade.*)

**MILBOURNE, JAMES JOSEPH, SENR.**, 176-180 Columbia Road, Hackney Road, E. (See *Machinery in Motion, Western Arcade.*)

**PATENT AUTOMATIC KNITTING MACHINE CO., Limited (THE)**, 417 Oxford Street, W.; & 159 Upper Street, Islington, N. (See *Machinery in Motion, Western Arcade.*)

**PEARSON & CO.**, 9 Acorn Street, Bishopsgate Street, E.C. (See *Machinery in Motion, Western Arcade.*)

**POCOCK, BROTHERS**, 235 Southwark Bridge Road, S.E. (See *Machinery in Motion, Western Arcade.*)

**ROTHWELL, WILLIAM**, 16 Market Street, Bolton. (See *Machinery in Motion, Western Arcade.*)

**SELF-ACTING SEWING MACHINE CO., Limited (THE)**, 233 Regent Street, London. (See *Machinery in Motion, Western Arcade.*)

**UNIVERSAL KNITTING MACHINE CO.**, 95 Humberston Gate, Leicester. (See *Machinery in Motion, Western Arcade.*)

**VERTICAL FEED SEWING MACHINE CO. (THE)**, 52 Queen Victoria Street, E.C. (See *Machinery in Motion, Western Arcade.*)

**WANZER SEWING MACHINE CO., Limited (THE)**, 4 Great Portland Street, Oxford Circus, W. (See *Machinery in Motion, Western Arcade.*)

**WHEELER & WILSON MANUFACTURING CO. (THE)**, 21 Queen Victoria Street, E.C. (See *Machinery in Motion, Western Arcade.*)

**WHITE SEWING MACHINE CO. (THE)**, 19 Queen Victoria Street, E.C. (See *Machinery in Motion, Western Arcade.*)

#### ANNEXE.—ALBERT HALL.

**340. MEZ, CHARLES, & SONS** (Agent, C. HASSOLD, 9 Austin Friars, E.C.)—Knitted Underclothing.

**341. BOOTH & FOX**, 81 Hatton Garden, E.C.—Real Down Quilts, Down Clothing.

**342. HAMMOND, MISS KATE**, 14 Temple Street, Brighton.—A Layette and Improved Sleeping Garment and Drawing Room Wrap.

**343. LOADER, MISS E.**, 112 High Street, Thame, Oxon.—A Model Baby dressed in hygienic clothing.

**344. MEADE-KING, MISS M.**, Old Trafford, Manchester.—(1) Baby Clothes. (2) Night Dress for a child. (3) Flannel Combination Garment for a child. (4) Combination Garment for a lady. (5) Apron for a hospital nurse. (6) Apron for a housekeeper. (7) Specimens of Marking and Darning. The needlework of Nos. 2 to 7 inclusive is by inmates of the Ladies' Jubilee Charity School, Manchester, an Institution for the maintenance and training for domestic service of poor girls, chiefly orphans. The work has all been done by girls under 15 years of age.

**345. FRANKS, MISS SARAH**, 23 Mortimer Street.—Models with Underclothing, &c., suitable to be worn under the Rational Dress.

**346. BENTALL, MISSES E. & A.**, The Towers, Malden, Essex.—Complete set of Underclothing.

**347. GLOVER, MRS. E. L.**, 110 Queen's Road, Bayswater.—(1) Satin Corsets. (2) Corsets for spinal support. (3) Nursing, Riding, and Children's Corded Expanding Bands. (4) Belts and Surgical Appliances.



348. BREESE, A., 34 Brewer Street, Regent Street, W.—Hoven's Patent Stocking Suspender.

349. SMITH, FREDERICH HENRY, 52 Queen Victoria Street, E.C.—Smith's Patent Mode of Lacing Garments and other articles, and Patent Grip for securing cords and laces.

350. KNIGHT, HENRY, & CO., 3 Fell Street, Wood Street, E.C.—Stocking Suspenders.

351. BLINKHORN, EDWARD, 69 Finsbury Pavement, E.C.—"Belgravia" Stocking and Sock Suspender, and Children's Brace-Stocking-Suspender.

352. BAYER, CHARLES, Corset and Underclothing Manufacturer, Albion Stay Factory, Bath; Rue Rochelle, Barle-Duc, France; 29 Great James Street, Londonderry, Ireland. (Warehouse, 9 Wigmore Street, London, W.)—Corsets, Flannel Clothing, &c.

353. SYKES, JOSEPHINE, & CO., 280 Regent Street, W.—Surgical Belts, Corsets and Bodices, &c.

354. STEELE, MRS. THOMAS, 52 High Street, Tunbridge Wells; and 24 Margaret Street, Regent Street, London.—Hygienic Porous Elastic Corsets and Supporting Belts.

355. ROSENTHAL, D., & CO., 5 Cripplegate Buildings, Wood Street, E.C.—Corsets, &c.

356. WISE, MRS. ANN, 15 High Street, Manchester Square, London, W., Patent Belt and Corset Maker by special appointment to Her Majesty the Queen. (1) Ladies' Elastic Anatomical Chest Expanding Corsets. (2) Patent Abdominal Supporters. (3) Gestation, Nursing and Riding Corsets. (4) Young Ladies' and Children's Elastic Stays and Bands. (5) Stocking Suspenders, Elastic Girdles, French Petticoat Bands, &c., &c.

357. WRIGHT, J. (Mr. R. DARWELL), 2 Church Walk, Richmond, Surrey.—Boneless Stays.

358. WORTH & CO., 4 Hanover Street, W.—Hygienic Corsets.

359. THOMSON, W. S., & CO., New Fairfield Works, Old Bailey, E.C.—Patent Coiled Wire Spring Section Corsets.

360. GENTY, MADAM EUGENIE, 31 New Bond Street, W.—(1) Corsets (2) Inventor of the new patented Health Busk, which enable the ladies when indisposed to unclasp their corset instantaneously.

361. SYMINGTON, R. & W. H., & CO., Market Harboro'.—Corsets.

362. VAUGHAN, LUKEY, & CO., Manufacturing Outfitters, 63 & 64 Baker Street, W.—Flexible Stays and Belts, &c.

363. SCHMITTER, OSCAR ROTH-  
RIST, Switzerland (Agent, H. AM-  
MAM, 2 Star Court, Broad Street, E.C.)  
—Ladies' and Gentlemen's Health Crape Underclothings.

364. BAUER, MRS. A., 134 Oxford Street, London, W.—Hygienic and Improved Shapes in Handmade and Woven Underclothing for Ladies and Children, &c.

365. WELCH, MARGETSON, & CO., 16 & 17 Cheapside, E.C.—Pine Wool Anti-rheumatic Underclothing.

366. LEWIS & ALLENBY, Regent Street, and Conduit Street.—Ladies' and Gentlemen's Underclothing, made from their "Silk Long Cloth" (registered).

368. HUTCHINSON, A., & CO., 3 & 4 Great Winchester Street, E.C.—Ventilating Dress. Shields or Preservers (Camfield's Patent), made only in Europe by Exhibitors. In same Case:—A Child's Cot fully trimmed, with Patent Brass Folding Frame, is shown by Messrs. Debenham & Freebody, of Wigmore Street.

369. HARRIS, MRS. M. PENLEY, 14 Buckingham Palace Road, S.W.—Infants' Hygienic Clothing and Ladies' Outfitting.

370. YOUNG & NEILSON, Portland Square, Bristol.—Ladies' Corsets.

## DWELLINGS.

THE study of preserving the normal condition of our existence, known as Health, becomes, as civilisation advances and removes us further from our original primitive life, a problem of increasing complexity and importance. By the laborious application of the few natural laws which human ingenuity has yet compassed, in however imperfect a manner, the physiologist endeavours to evolve a system by which we can retain the intellectuality and security of our artificial modern life without sacrificing the vigour of a more primitive state of existence.

The science of hygiene is therefore conservative rather than constructive—or is constructive so far only as it may be necessary to neutralise effects which are the results of the intellectual development of mankind. With food its province is to tell us where we have erred and what to avoid, rather than what to eat and drink.



Fresh air is second only to good food in the code of hygiene; and indeed all other principles are but necessary in order to give the two great elements—wholesome food and fresh air—opportunity to perform their proper functions. The preservation of the atmosphere of large towns in a wholesome state presents a problem the foundation of which rests upon that important section of Sanitary Science with which its name is more intimately connected in the public mind. The disposal of sewage is a question that has occupied the energies of statesmen, engineers, and financiers for more than a generation, and yet we seem only on the threshold of this great problem. Whatever may be the outcome of the increased prominence it must continue to occupy in the future, there can be no doubt that by our present system we are doing violence to that eternal cycle of action and reaction which appears to be the fundamental law of all nature's handiwork, as well in establishing the economy of a Universe as in ordering the existence of the smallest organic atoms.

But for good or evil the hydraulic system of removing refuse matter is that which prevails in this country, and being a system it is so far better than chaos, that in London, since its completion in 1871, the average saving in human life, which may fairly be attributed to its influence, has been 12,000 souls a year. Our metropolis has 2300 miles of sewers, all of which communicate more or less directly with vast reservoirs on the banks of the Thames twelve miles below London Bridge. Here an average of 150 million gallons of sewage is discharged in the river daily. Various schemes for the utilisation of sewage have been proposed from time to time, but none of these can be said to have achieved a success so pronounced as to lead to the hope that any one of them will entirely supersede the system now in force. In saying this, however, it must be remembered that the financier has been the leading figure in bringing these schemes into practical shape. The projectors of the system at present in use were never hampered by considerations of profit and loss. The difficulty of applying the sulliage of our towns and villages to the use ordained for it by nature chiefly lies in the fact that it is removed by a water system. Many of the constituents of the soil that would be so valuable for fertilizing the earth, and are so noxious when discharged into our rivers, are washed out by their water transit, so that even when the excess of water has been drained away the sludge remaining is to a great extent unfit for agricultural purposes unless enriched by chemicals. The vast network of sewers and drains in London has cost between four and five million pounds sterling. This system has proved to be effective for removing the sulliage from our more immediate neighbourhood, and the introduction of any fresh plan would entail a great additional expense. From a hygienic point of view drains should be devoted to the removal of water alone, or at any rate such water only as may be unpolluted to any serious extent by organic matter. The dry earth system of dealing with fæcal matter in which the removal would be made day by day, would give immunity from those diseases which arise from the noxious effects of sewer gas. It is estimated that 10,000 carts and horses would be required to carry out such a service, and the expense would be so great that there is little hope of its introduction at present. An intermediate system has been suggested by which the present sanitary arrangements of the dwelling-house would remain undisturbed, and yet the existing sewers would be freed from the conveyance of fæcal matter and other house refuse. This would involve the construction of a series of subways costing a large sum of money. The advantages of the system over that in use are in many respects very great, and the problem may be said to be one of finance. The use of subways has often been advocated for other purposes, such as laying telegraph and telephone wires, water and gas pipes, &c. It has been well said that every man expects to escape typhoid fever, cholera, and other pestilence, whilst no one hopes to escape the rate collector, so that the possibility of sickness or death is preferred to an extra 3*d.* or 4*d.* in the pound on the rates.

But it is not only from a point of view inspired by the fear of typhoid and cholera that we should consider questions of hygienic importance. One of our most able writers on this subject has shown, by means of deductions based on sound reasoning, that little more than a third the life allotted to mankind by nature is realised even in our own favoured land. Reasoning from the basis of analogy furnished by the lives of other animals, the natural span of man's existence should be one hundred and five years. The human frame arrives at maturity upon the completion of twenty-one years, and the time of its vitality should be five times the duration of its growth. It is so with the lower animals; but man—protected from the vicissitudes of life by the resources reason has brought to his aid—is waning in body when half of the term of his



natural existence has been spent, and becomes decrepid should he survive for three-quarters of the life span allotted to him by nature. When it is remembered that the best of the world's thinking is done by those who are nearest the grave, and how vast must be the stores of experience that even genius need draw upon to achieve its greatest possibilities, this sacrifice of life must be looked on as more deplorable, and the value of the hygiæologist's labours be seen in its truer light.

But there is yet another side to this all-important subject. Were man to live to the three-score years and ten of the Psalmist, with powers undimmed, and the faculty for enjoyment which health alone can give, unimpaired, then, even if life were less easy to part with, the sense of human happiness would be increased so immeasurably over our present store as to be almost beyond the conception of the mind.

But so far are we from reaching any ideal standard of healthy living that, according to Mr. Henry C. Burdett the well-known statistician, nearly £600,000 is expended annually upon the administration of the Hospitals of London, and about one million out-patients are relieved during the year. These, Dr. Richardson tells us, are mainly the wretched poor, injured by bad drainage. The returns of the Ancient Order of Foresters show that at the age of thirty-five years there are twenty-two cases of sickness to one of death. At the age of twenty years the loss of time from illness amounts to 1.5 per cent. of the working hours, whilst at forty years old the proportionate loss is 2.6 per cent.

May 1st, 1884.

G. R. DUNELL.

### GROUP III. — THE DWELLING-HOUSE.

#### CLASS XX.

(*South Central Gallery*.)

Dwellings, Models and Designs for the same, and Specimens of Buildings erected in the grounds. Fittings and Accessories for Dwelling-houses. Completely-fitted Apartments.

374. W. PHILLIPS & SON, 10 Baker St., Portman Square, W.—(1) Model of scientific drainage to town house where entire system is unavoidably inside the house. (2) Model of scientific drainage to town house where system of drainage is partly outside; both showing method of disconnection of drains from sewer, ventilation of soil pipes and water-closets, severance of wastes from drainage, &c. (3) Trapping of soil-pipes. (4) Drawings of sanitary work and drainage executed. (5) Patent "trap" for sewer disconnection. (6) Patent "grease" gulley and "trap." (7) Examples of defective and faulty work taken out of houses and dangerous to health. (8) Designs and examples of plain and decorative work as affecting health in materials and execution by durability, lightness, washable nature non-poisonous qualities, &c. (9) Example showing white lead as sewer-gas detector.

375. CONOLLY, HENRY, Drummond Street, Hampstead Road; & Tolmer's Square, London, N.W. (1) High and Low Pressure and Non-Concussive Valves for water. (2) Gun-metal Cocks for the water and steam. (3) Improved Self-Closing Valves for Baths, Lavatories, &c. (4) Examples of Decorative Earthenware for Lavatories. (5) Concealed Urinals and Lavatories,

Housemaid and Slop Sinks. (6) Model Bath Room, fitted with the "Acme" Spray Douche and Needle Baths, furnished complete. (7) Safety Valve Closet (Conolly's Patent) trapped above floor line, and Non-overflowing and Self-Trapping (Conolly's Patent) Valve Closet. The "Nestor" Patent Valve Closet and the New Patent "Ultimus" Closet, all earthenware. (8) Glass and Earthenware Urinals, with Automatic Flushing Cisterns. The above appliances are shown in action as in actual use with the latest improvements of Water-waste Preventers, Lavatories, fitted complete with Tip-up Basins or with Quick-waste Action and Non-overflowing arrangement. (9) Samples of high class Gas-Fittings as applied to Electric Light.

376. CLARK BUNNETT & Co., Engineers, Rathbone Place, W.—(1) Safety Passenger lifts. (2) Safety luggage lifts. (3) Dinner lifts. (4) Warming and ventilating apparatus. (5) Iron staircases. (6) Metallic blinds, &c.

377. COLLINSON & LOCK, 109 Fleet Street, E.C.—(1) Ceilings of Plaster (2) Wall Decorations of Plaster, Washable Papers, &c. (3) Bed-room Furniture. (4) Reception-room Furniture.

378. JACKSON & GRAHAM, 84 Oxford Street, W.—(1) Bedroom, Dressing-room, Bath-room and W. C. fitted complete.

379. JENKS & WOOD, 65 Holborn Viaduct, E.C.—(1) Wall Decorations, Furniture and Floor Coverings for the dwelling-house, artistic in character, and of harmless materials. (2) Furniture and Appliances for the Sick Room.



**380. HINDLEY & SONS, 290-294 Oxford Street, W.**—A Completely Furnished Apartment. Wood-pannelled dado, framework and ceiling, oak parquet floor. The walls hung with washable Japanese leather paper. A painted wood mantelpiece, and mahogany furniture.

**381. HOVELL, W. B., St. Andrew's Basket Works, Bedford Street, Norwich.**—Wicker Furniture, comprising Drawing-room and Library Chairs, Wicker Lounges, Wicker Tea Tables, Ladies' Work Tables, Nursery Stands, Linen Baskets, &c.

**382. STONES, JOHN, Patent Revolving Shutter and Movable Division, and Lift and Hoist Manufacturer, Ure Mills, Ulverston.**—(1) Movable Sound-proof Partitions for dwelling-houses, schools, &c., which swivel and fold into pilasters or recesses in walls. (2) Sound-proof Revolving Shutter. (3) Full size Model of Balance Weight Revolving Shutters, with the ascending, descending and vertical motions. (4) Draught Excluder.

**383. ALLEN, EDWARD E., 111 Cheyne Walk, Chelsea.**—Models of Cottages.

**384. CHUBB & SONS' LOCK & SAFE CO., Limited, 128 Queen Victoria Street, E.C.**—(1) Chubb's Patent Detector Lock, Latches, and Keys, used in fitting up dwelling-houses of all kinds, from a palace to a cottage, and for all other purposes that a lock can be adapted to. (2) Ornamental Locks and Keys. (3) Model of Chubb's Patent Fire and Thief Resisting Bankers' Strong Room made to Scale. (4) Model of a Lockmaker's Work-bench and Tools.

**385. KAYE, JOSEPH, & SONS, 93 High Holborn; and Bank Works, Kirkstall, Leeds.**—Kaye's Patent Indestructible Locks and Fastenings.

**386. ADAMS, ROBERT, 17 Blackman Street, Borough, S.E.**—(1) Locks and Furniture. (2) Sash Fasteners. (3) Sash Bolts and Ventilators. (4) Weather Bars. (5) Casement Stays. (6) Norton's Door Springs. (7) Casement Bolts. (8) Patent Reversible and Sliding Window. (9) Casement Fasteners and three-throw Bolts. (10) Rack Fanlight Openers. (11) Spring Hinges. (12) Sash Centres. (13) The New Ventilating Bar for window-sashes. (14) The Panic Door, for theatres, schools, and other public buildings, which ascends into a prepared recess by slightly turning a handle, which, being covered with a glass door, can be easily smashed in case of need to give the audience instant egress.

**387. BORN, PHILIP, 29 Tavistock Road, Westbourne Park.**—Improved Patent Folding Lattice Shutter, for fixing in

the insides of rooms and other places; admits light and air, and is a sure protection against burglars. Made of wrought iron, and bronzed in any desired colour to match the wall-paper.

**388. BLYTH, A. W., Medical Officer of Health, The Court House, Marylebone; & GREENE, DR. RICHARD, Medical Superintendent of the County Asylum, Berry Wood, Northampton.**—Model and accompanying plans of a House to be let out in tenements.

**389. LUCAS, JAMES MOORE, Ennerdale Road, Selwyn Court Estate, Kew Gardens.**—Model Design of a perfect sanitary private residence, constructed specially for the International Health Exhibition, upon the latest sanitary principles. The house will be completed and ready for inspection on May 8th, and open to the public upon presentation of card. Kew Gardens station is 21 minutes by District Railway from South Kensington.

**390. O'KEEFFE, MATHIAS T., M.I.C.E.I., 40 Holbeck Road, North Brixton, S.W.**—Models of Sanitary Houses, to be constructed at the corners of important thoroughfares so as to afford secure means of escape from fire in any of the adjoining premises, and specially adapted as approaches to light-foot bridges, over dangerous street crossings, and at the same time providing ladies' resting-rooms, lavatories, &c.

**391. TURNBULL, J. R., LIEUT.-COL., The Priory, Torquay.**—(1) Model (Skeleton) of a London House, showing how the drains should be ventilated and carried under the house from the back to the street sewer, according to the "open system"; also ventilating pipes, &c. (2) Model, showing a length and section of a drain laid according to the "open system," with pitch-sealed joints. (3) Model of ditto in brick channel, showing step for necessary work at the drain at any considerable depth: pitch-sealed joints, &c. (4) Model, gas or water-pipe laid in the usual way, but with pitch-sealed joints.

**393. ALLEN, A. H., 111 Cheyne Walk, Chelsea, S.W.**—Model of a Labourer's Cottage, intended to illustrate a special improvement in that class of dwellings, viz., by substituting for the ordinary combustible partitions between the rooms the use of non-combustible partitions constructed of wood quartering, coated with silicate paint, and filled in with slate panels.

**394. ALLEN, C. B., 111 Cheyne Walk, Chelsea, S.W.**—Plan and Model of a Miner's Cottage. The noteworthy improvement here is that of keeping the Fire-places or sources of heat in the centre of the building and away from the outer wall, thus to avoid all loss of heat. The model also exemplifies the possibility of adapting architectural forms to such structures.



**395. SMITH & TURNER, 50 Bartholomew Close, E.C.**—(1) Ben Turner's Patent Adjustable, Regulating, Double Action Door-Springs to throw doors beyond right angle. (2) Improved Water Bars. (3) Improved Ball Door Holders and Slam Springs. (4) Special made Hinges (spring and otherwise). (5) Door and Window Bolts and Buffers. (6) Casement Bolts. (7) Adjustable Door Centres and Springs, for door and other purposes.

**396. PENNY, WILLIAM JOHN, 11 Sidmouth Street, Gray's Inn Road, W.C.**—Double Action Sashes and Frames, with inlet and exhaust ventilator.

**397. TUCKER, J. D., The Parade, Bromley, Kent.**—Tucker's improved "weather-tight" Sashes and Frames, effectually exclude all draughts, dust, wet, &c.; will not rattle or shake, work freely, simple in construction, perfect in effect, and are practically airtight.

**398. EDWARDS, GEORGE, 68 Brompton Road, S.W.**—(1) Patent Fittings for opening, closing, and fastening ordinary window sashes. (2) A Model Window, with the fittings affixed.

**399. SALVIATI, DR. BURKE & CO., 311a Regent Street, W.**—(1) Mosaic Pictures. (2) Venetian Mirrors and Venetian Blown Glass. (3) Venetian Chandeliers. (4) A variety of Wine Glasses, Decanters, Finger Glasses, and Ice Plates; Centrepieces, Flower Vases, Candelabras, and other Table Ornaments.

**400. LITCHFIELD, SAMUEL, 3 Bruton Street, Bond Street, W.**—(1) Wall Tapestry. (2) Oak Panels and Carvings. (3) Oak Chimneypiece. (4) Oak Cabinet. (5) Inlaid Table. (6) Chairs in old leather. (7) Carved and Decorated Negro Figure. (8) Carved Oak Chest. (9) Stove and Fittings. (10) Decorated Ceiling. (11) Curious Striking Clock in carved case. (12) Carpets and Rugs. (13) Fender. (14) Ottoman. (15) Carved Doors. (16) Carved Ivory Figures. (17) Brass Sconces. (18) Curtains. The above arranged to show a salon and entresalle, completely furnished.

**401. SMEE, WILLIAM A. & S., 89 Finsbury Pavement, E.C.**—Boudoir and Bed-room Furniture and Decoration, as applied to health.

**402. MAYOR AND CORPORATION OF BATH.**—Bathing Appliances of the hot mineral baths of Bath (the property of the mayor, aldermen and citizens of Bath) in the 2nd and 19th centuries.

**403. TUBERVILLE, SMITH, & SON, Importers of Foreign Carpets and Matting, 9 Great Marlborough Street, Regent Street, London, W.**—A Smoking-room in the Oriental style, with modern accessories. Designed by H. & J. Cooper.

**404. KENT, GEORGE, 199, 200, 201 High Holborn, W.C.**—(1) Model Kitchen, Scullery and Wash-house suitable for the middle classes, fitted with all the most approved appliances and domestic labour-saving inventions, including the Patent Knife-cleaning Machine. (2) Kent's Patent Ascension Water Filters. (3) Kent's System of Self-Filling for Filters. (4) Kent's Water Meters (patented January, 1884). (5) The Albo-Carbon Gas Burners, and a variety of fittings adapted to their use. (6) Kent's Patent Improved Duplex Albo-Carbon Gas Burner (Triple, Argand), and a variety of fittings adapted to their use.

**405. BENHAM & SONS, 50 Wigmore Street, W.**—Kitchen Fittings, for a club or first-class hotel.

**406. BROWN & GREEN, Limited, 69-71 Finsbury Pavement, E.C.**—Model Kitchen for Villa.

**407. CONSTANTINE, T. J., 61 Fleet Street, & 18 & 20 Norman's Buildings, St. Luke's, E.C.**—Model Kitchen for Artisan's Cottage.

**408. DOULTON & CO., Lambeth. PAVILION.**

Decorated *Externally* with ornamental Doulton ware ridges, columns, ballusters, arches, frieze, impost, &c. Also friezes and subject-tile panels in underglaze Faience. Ornamental panels in Silicon-ware. Coloured tile roofings. *Internally*.—Arranged to show four distinct designs of patent fireplaces with glazed mantelpieces, hearth tiles, fenders, and fire-iron rests. Ventilating shafts and art pottery.

#### IN FRONT OF PAVILION.

A flight of Terra Cotta steps, with patent silicon treads.

#### STANDS AROUND PAVILION.

No. 1. Fitted up as bath-room, &c., containing porcelain bath, with patent Lambeth instantaneous water-heating apparatus, to obtain hot water bath in ten minutes, locking apparatus to valves, tip-up lavatory with ornamental enclosure complete, and hot and cold valves, improved buffers to basin. Water Closet of improved manufacture, ornamental basin and trap (no riser needed), with seat-action water-waste preventing service.

No. 2. Exhibition of Fireplaces, &c.—Open Fireplaces on slow-combustion principles. Open Portable Fire Stoves, to fix to any fire-opening. Close Portable Fire Stoves. Glazed Mantelpieces. Glazed Tile Hearths and Fenders, &c. Wood Mantelpieces, with tile decorations.

TERRA COTTA Dado Tiles. Large Gothic Window. Medallions in Glazed Frame Work. String Courses and General Building Work.

No. 3. Exhibition of Filters, &c.—Patent Manganous Carbon Filters of various kinds. Refrigerating Filter. Pocket Filters. Syphon



Filters. Patent Granulating Filter. Bailey Denton's Aërating Filter. Improved High-Pressure Filter. Aërating Carbon Filter Valve, to draw off filtered water direct from the main, suitable for high and low-pressures. Drip Pans, Filter Stands. Stoneware Drinking Vessels. General Stoneware, for domestic use. Lift and Force Pumps, for acids. Stoneware of every kind, for chemical manufacture and for the laboratory. Insulators. Water-tight Underground Tubes, for electric wires. Battery Jars, Accumulators, Porous Cells and Pottery of all kinds, for electric purposes. Plumbago for clay crucibles.

No. 4. Sanitary appliances in action, and general Queen's Ware. Trough Urinal, with automatic flush tank and stoneware drip channel. Trough Water Closet, for schools, factories, &c., with automatic flush tank. Lambeth Valve Closet. Lambeth Trapless Closet. Lambeth Flush-out Closet. Vacuum Water-waste Preventing Flushing Apparatus, with chain and pull, or to work with seat action. Lambeth Combination Closet, urinal, and slop-sink, in one piece of pottery, with ornamental pan and trap, arranged to obviate the use of any enclosure. Urinal Basins, with supply valves, treadle action, and automatic flush-tank. Lavatory Basins, with plug and tip-up action, hot and cold valves, and wood enclosures, with Doulton ware ornaments and tile decorations. General Brass Work, consisting of Draw-off Valves, Stop Valves, Ball Valves for high and low pressures and Lavatory Valves. Improved combined stop and regulating valve, prepared to receive the water company's seal. Automatic Aërating Filter Valve. Improved High-pressure Draw-off Water-waste Preventing Valve. Flush Tank. Grease Interceptor. Slop Sink. Queen's Ware Closets, Basins, Traps, Butler's Sinks, and sanitary ware of every description.

#### EXHIBIT OUTSIDE PROMENADE GALLERY.

Patent Flush Tank. Patent Flushing Syphon for use in brick reservoirs, and to discharge with drop by drop supply, true level not needed in fixing. Doulton's Patent Incorrodible Cottage Pump, for efficiency, durability, and cleanliness. Sanitary Stoneware of every description, including drain-pipes, bends, junctions, sewer-blocks, invert-blocks, traps, gullies, air bricks, damp-proof course, rain-water shoe, valve traps, opercular pipes. Kitchen Sinks. Water Closet Pans and Traps. Sewer Gas Interceptors. Ventilating Traps. Grease Interceptors. Mud Interceptors. Patent Jointed Enamelled-ware Tested Pipes, for under-house drains. Manholes with enamelled channels, showing the latest improvements, and in actual use, being connected with the adjoining water-closets. Patent Sanitary Safety Trap, for connecting w.-c. with soil pipe. Patent Jointed Soil Pipes in enamelled ware. Registered Kenon Air Chamber Floor and Trap. Registered Kenon Improved Trap. Air Inlet (Cregeen's Patent). Bonding Bricks. Metallic Blue Ware for stable and other pavings, copings,

arch blocks, building and moulded bricks, &c., &c. Terra Cotta, Chimney Tops, Wall Coping, Cornice, Vases, &c. Channel Pipe, Coping, and Sluice Valves for irrigation.

409. CLIFF, JOSEPH, & SON, 2 Wharf, King's Cross Goods Depot, N. —(1) Model Bath-room and Kitchen, lined with Cliff's Glazed Bricks. (2) Cliff's White and Coloured Plain Kitchen Sinks with fittings, Rolled ditto, Housemaids' ditto, Corner ditto, Butler's Pantry ditto, Slop ditto, Wash Tub ditto. (3) Cliff's White Glazed Slab Cistern, Sanitary Tubes, Yard and Street Gulleys, Pott's Edinburgh Sewer Trap, Wortley Glazed Tile Stoves, Ventilator or Leeds Stove. (4) Cliff's Glazed Brick Fireplaces, Fenders, Slabs, and Tiles. (5) Cliff's Glazed and Blue Bricks, Damp-proof Courses, Ellison's Patent Ventilators. (6) Cliff's Air Bricks. (7) Model of Hall shewing Decorative Faience in Panels, Fireplaces, &c., White, Coloured and Ornamental Glazed Bricks, Hall's Patent Hanging Tiles, Glazed Slabs for dados, &c. (8) Glazed Bricks and Slabs for lining baths, Porcelain Baths and Foot Baths.

410. WILCOCK & CO., Burmantofts.—(1) Glazed Bricks for wall surfaces. (2) Burmantoft's Architectural Faience for constructional decoration. (3) Burmantoft's Decorative Pottery. (4) Faience Panels for fireside decoration. (5) Hearths of Burmantofts Faience. (6) Faience Mantels, Fireplaces, and Hearths.

411. TEMPLEMAN, T. L., Station Road, Taunton, Somersetshire.—Model of Artisans' and Labourers' Dwellings, showing a separate system of ventilating each living room. Also simple sanitary arrangements suitable for these dwellings, in action. This model may be taken in three parts, showing interior. Invented and made by exhibitor.

412. METROPOLITAN RAILWAY CO., per General Manager.—Model of Artisans' Dwellings proposed to be erected in the Minories in substitution of the dwellings demolished by the construction of the Tower Hill Extension Railway.

413. QUAYLE, D. F., Bridge House, Castleton, Isle of Man.—Quayle's Patent Window Protector.

414. HOBBS, HART, & CO., 76 Cheapside, London, E.C.—Specimens of Jewel and Plate Safes for family use, also their new Universal Action Locks for Dining and Drawing Rooms, and special locks for Asylum and Hospital purposes.

ALLEN, EDWARD E., 111 Cheyne Walk, Chelsea. (See Outside.)

CLARK, BUNNETT, & CO., Limited, Engineers, Rathbone Place, W. (See Outside.)



**COALBROOKDALE CO., Limited** (THE), Coalbrookdale, Shropshire; & 43 Holborn Viaduct, E.C. (See Class 24.)

**DICK RADCLYFFE & CO., 128 & 129 High Holborn, W.C.** (See Royal Pavilion.)

**HEMBRY, B., & CO. 16 Newgate Street, E.C.** (See Class 30.)

**HORNE, ANDREW, 75 Brewer Street, Woolwich, S.E.** (See Class 30.)

**HORNE, W. C., 5a Aldermanbury Postern, E.C.** (See Outside.)

**HOWARD, EDWARD, Norfolk Steam Works, 34 Upper Gloucester Place, N.W.** (See Class 23.)

**HUMPHREYS, J. C., Albert Gate, Knightsbridge, Hyde Park, S.W.** (See Outside.)

**HYGIENIC AND SANITARY ENGINEERING COMPANY, Limited (THE), 23 & 24 Charing Cross.** (See Class 23.)

**POCOCK, ALFRED WILMER, Cadogan Iron Works, Lots Road, Chelsea, S.W.** (See Class 21.)

**SMITH, T. TAYLER, Bush Hill, Enfield.** (See Outside.)

**STEVENS, ROBERT, Bromley, Kent.** (See Class 29.)

**SYMONS, H. C., 2 George Street, Blackfriars Road.** (See Class 23.)

**TAGNON, ADOLPHUS, 137 Gray's Inn Road, W.C.** (See Class 24.)

## CLASS XXI.

(East Central Gallery B.)

**Water Supply and Purification.—Meters, Filters, Water-Fittings, Cisterns, &c.**

**416. ROBERTS, CHARLES GAY, Haslemere, Surrey.**—Automatic Rain-water Separators, to reject the foul and store the clean water from roofs.

**417. SPONGY IRON DOMESTIC FILTER COMPANY (THE), 22 New Oxford Street, London, W.C.**—(1) Galvanized Iron Model Cylinders in operation, to represent the working model of the spongy iron process at work at the Antwerp Waterworks. (2) Special Ball-cock Spongy Iron Domestic Filter in operation. (3) Specimens and Sections of different Spongy Iron Filters, including a section shewing the arrangement of special Ball-cock Filter.

**418. SILICATED CARBON FILTER CO., Battersea.**—(1) Silicated Carbon Filters, for domestic purposes, travelling, ship's cabin, hospitals, infirmaries, army and ambulances, &c. (2) Patent Movable Block Filters. (3) Double Cylinder Filters for soda water manufacturers, breweries, distilleries, biscuit bakeries, &c.

**419. BOSTON FILTER CO. (J. FERGUSSON, Manager), Station Street, Boston, Lincolnshire.**—Collection of Prize Medal Improved Rapid Water Filter. Manufactured by Exhibitors.

**420. REVOLVING BALL FILTER CO., Limited, 23 Cornhill, E.C.**—The Revolving Ball Filter.

**421. JUDSON, DANIEL, & SON, 77 Southwark Street, S.E.**—Judson's new "Perfect Purity" Rapid Water Filter. "Jackson's Patent."

**422. MAIGNEN, P. A., 22 & 23 Great Tower Street, E.C.**—(1) Maignen's Patent "Filtre Rapide." (2) "Cottage" and "Bijou D" Classes for household purposes. (3) "Tourist" class in unoxidable white metal, as used by Stanley on the Congo. (4) "Service" and "New Service" class to filter the whole supply of the house. (5) "Large Supply" class suitable for waterworks, dyers, brewers, &c. (6) Drinking Fountains with "Filtre Rapide." (7) "Field Service" class, as sent to Suakim by the War Office. (See Ambulance.) (8) "Wine and Spirit Filtres Rapides." (9) Maignen's patent process of Softening Water. (10) Maignen's process of Sewage Purification.

**423. WILSON, GEORGE, The Chestnuts, Elmers End, Kent.**—Wilson's Patent International Filter.

**424. ROBERTS, THOMAS, Levenshulme, Manchester.**—Self-cleansing, High-pressure Water Filters, for domestic and manufacturing purposes.

**425. DOULTON & Co., Lambeth, S.E.**—Filters.

**426. FROST, J. R., 16 Little Britain, E.C.**—Model of Sanitary Plumbers' Work of a private residence, including hot water supply.

**427. SPENCER, T., 32 Euston Square, London.**—Magnetic Water Filter.

**428. HARRIS & JANEWAY, 69 High Street, Lambeth, S.E.**—Filters.

**430. JOHNSON, S. H., & CO., Stratford.**—(1) Machinery for the Purification of Water by Patent Carbon Paper Filters. (2) Filtering generally as applicable to the purification of rivers from pollution arising from sewage and other sources.



431. JOWETT, WILLIAM M., & CO., City Filter Works, 75 Corporation Street, Manchester.—(1) Rapid Water Filter. (2) Compressed Charcoal Block Filters. (3) Filters for ship or steamboat purposes. (4) Glass Table Filters. (5) Pocket Filters.

432. BAILEY & CO., The Pottery, Fulham.—Filters and Sinks.

433. BASKERVILLE, R., 136 Newington Butts, S.E.—(1) Fountain Jets, facsimile of Jets playing in grand Fountain. (2) Fountains for gardens and ferneries. (3) Metallic Flowers, as made for Colonel Sir Francis Bolton, Metropolitan Water Examiner.

434. UNIVERSAL FILTER CO. (THE), 35 Queen Victoria Street, E.C.—London's Patent House Filter.

435. OSWALD, W. R., 75 Gracechurch Street, E.C.—(1) Water Filters for domestic purposes, and Bright Metallic Filters. (2) Waterproofed, Enamelled, Sanitary Fittings.

437. BELL, ANDREW, 18 Tib Lane, Manchester.—(1) Filters for attaching to the house-tap. (2) High-pressure Filters for attaching to the main to filter all the water entering into the mansion or mill. (3) Steam Boiler Filter, preventing incrustation. (4) Cistern Filters for any pressure, high or low. (5) Pocket Filters. (6) Office Decanter Filters, &c.

438. GRAHAM, J. H., & CO., Great Eastern & Willow Street, E.C.—Filters. Stone, Glass, Terra Cotta, Electroplated, Pocket, Syphon, Ships, &c. All fitted with their patent Improved Carbon Blocks (and where taps are required) with Patent Non-corrosive Taps.

440. BROOKE, EDWARD, & SONS, Fieldhouse, Huddersfield.—Earthenware Cisterns.

441. CRAIG, J. & M., Kilmarnock, N.B.—(1) White Enamelled Fireclay Scullery Sink, and White Enamelled Fireclay Washing-tub. (2) Buchan's Patent Ventilating Drain Trap. (3) Buchan's Patent Fireclay Cleansing Stone and Buchan's Patent Fireclay Slop Stone. (4) Metal Gratings. (5) Buchan's Ante-Bell Trap, with Patent Slop Stone and Metal Grating complete. (6) Buchan's Patent Access Pipe and Rest. (7) Buchan's Patent Grease Trap for Kitchen Sinks, &c.

442. CROUCH & JAY, Regent's Wharf, Maroon Street, Limehouse, E.—(1) Galvanized Iron Open Cisterns. (2) Painted Iron Open Cisterns. (3) Galvanized Iron Filter. (4) Hot-water Cistern. (5) Hot-water Circulating Cylinder. (6) Circular Cistern. (7) Feed Cistern. (8) Automatic Self-cleansing Cistern.

443. HOWIE, J. & R., Hurlford Fireclay Works, Kilmarnock, N.B.—(1) Enamelled Fireclay Cisterns, Baths, Sinks, Pickling-tubs, Wash-tubs, Vases, Trusses, Bricks, and Tiles. (2) Chimney Can for curing a blow-down. (3) Disconnecting Traps, Sinks, Sink-stones, and Gulleys.

444. RAMSEY, WILLIAM, Farringdon Glass Works, E.C.—(1) Glass Tanks. (2) Models and Materials used in their construction. (3) Cements. (4) Glass Plates. (5) Metal Fittings. (6) Glass Balls. (7) Supply, Overflow, and Water Service Pipes, &c. (8) Glass Filters. (9) Silvered Glass (non-mercurial) for mirrors and reflectors. (9) Dairy Glass. (10) Milk Pans. (11) Cream Dishes. (12) Bee Glasses. (13) Propagating Glasses. (14) Rolling-pins. (15) Pastry Pans.

445. GLENFIELD CO., Limited (THE), East Shaw Street, Kilmarnock, N.B. (Agent, T. VINCENT RIOR-DAN, 1 Whiteley Road, Upper Norwood, S.E.)—(1) Sluice, Steam, Wheel, Air, Disc, and Ball Valves. (2) Key's Patent Pressure Reducing Valve. (3) Ball Hydrant with Branch and Stand Pipe. (4) Spindle Hydrants. (5) Valve Hydrants. (6) Brass Millcock. (7) Kennedy's Patent Wells. (8) Brass Cocks. (9) Pressure Reducing Valve Model, "Key's" Patent. (10) Pressure Gauge. (11) Pressure Recorder. (12) Small Kennedy Water Meter.

446. SANITARY REFORM & ENGINEERING CO. (THE) (C. R. STEVENS, M.S.A., F.S.S., &c., Manager), 292 Brockley Road, London, S.E.—(1) C. R. Stevens' Patented Gas Grate. (2) Hot-water Apparatus.

447. ULLATHORNE, GRANVILLE SHARP, 63 Queen Victoria Street, E.C.—Valves and Apparatus in connection with the prevention of waste of water.

448. PRINGLE, ROBERT, M.D., Surgeon-Major, H.M. Indian Medical Service, 2 Aberdeen Terrace, Blackheath, S.E.—(1) Model of a Tank for drinking-water, or Household Cistern, for increasing and maintaining the purity of the water. (2) Model of Cattle Drinking Trough, for maintaining the purity of the water, and preventing public cattle drinking troughs becoming a means of spreading infectious diseases among horses and cattle.

449. HOMEWOOD, GEORGE, Ockendon Road, Cuckfield, Sussex.—Patent Water-waste Preventer.

450. MULLER, J. A., C.E., Central Patent Offices, 6 St. Paul's Churchyard, E.C.—Water Meter, Water-waste Preventer.

451. HALLIDAY, J., Water Street, New Town, Manchester.—(1) High-pressure, self-cleansing Filter for drinking and domestic purposes. (2) High-pressure, self-cleansing Filter, in glass and metal, showing



the action of filter. (3) High-pressure, self-cleansing Filter, for dealing with large quantities of water; for waterworks of small villages or manufacturing purposes. (4) Low-pressure Filter for tanks or cisterns, with regulating valve for dealing with the required quantity of water per hour.

**452. CANDY, FRANCIS JAMES,** Highfield, Ditton, Cambridge.—Invisible Closet, consisting of a series of Basins which turn up to empty themselves, with cisterns and ventilation above and drain below; the whole enclosed by a door, which in use meets another door and forms a scullery, bath-room, lavatory, or a water-closet.

**454. TORQUAY TERRA COTTA CO., Limited,** Hele Cross, Torquay.—Terra Cotta Plaques, Slabs, Cameos, Vases, Tazzas, Water Bottles, Filters, Jugs, &c., plain and decorated.

**455. POCOCK, ALFRED WILLMER,** Cadogan Iron Works, Lots Road, Chelsea, S.W.—(1) Patent Mortice Locks, Latches, &c. (2) Ornamental Iron Work for Dwelling-houses. (3) Water Meters. (4) Special Castings for Drainage Purposes.

**456. SHARP & CO.,** 11 Holborn Circus, E.C.—(1) Ventilators and Chimney Cows. (2) Hydraulic Rams. (3) Lavatories and Baths. (4) Pumps. (5) Plumbers' Brass Work. (6) Corona Sun Burners. (7) Damp-proof Solution.

**457. CHEDGEY, MESSRS., & CO.,** The Grove, Great Guildford Street, S.E.—(1) Patent Bored and Polished Glass Cylinders, Turned Glass Rollers, Plungers, Balls, &c. (2) Glass-lined Piping, Bends and T pieces.

**458. LE GRAND & SUTCLIFF,** 100 Bunhill Row, E.C. (Agent, T. VINCENT RIORDAN, 1 Whiteley Road, Upper Norwood, S.E.)—(1) Abyssinian and Artesian Tube Wells and Pumps (Norton's Patent). (2) Abyssinian Tube Wells (Boring and Driving Apparatus). (3) Models of Abyssinian Tube Wells and Horizontal Mains, with bends and branch-pieces illustrating the method of obtaining water in large quantities for towns, &c. (4) Deep Well Pumps for raising water to surface when beyond the reach of an ordinary lift-pump. Abyssinian Tube Wells; the method of driving and boring in operation, at intervals. (*At back of Dairies in South Gallery.*)

**459. ANDERSON, R., & CO.,** Lead & Brass Works, Duke Street, Liverpool. (Agent, T. VINCENT RIORDAN, 1 Whiteley Road, Upper Norwood, S.E.)—(1) High-pressure Bib and Stop Taps, assorted sizes. (2) Lavatory Taps and Bath Fittings. (3) Copper Circulating Cylinders. (4) Copper Bath Boilers. (5) Lift and Force Pumps. (6) Single and Double Deep Well Pump.

**460. ISLER, C., & CO.,** 88 Southwark Street, S.E.—Artesian-bored Tube Wells and Driven Tube Wells. This system is the most economical and expeditious for obtaining either large or small supplies of pure water.

**462. QUIRK, BARTON, & CO.,** 61 Gracechurch Street, E.C.—Patent Tin-lined Lead Pipe, absolute security from the danger of lead-poisoning in the conveyance of water, beer, and other liquids. (2) Patent Tin-lined Sheet Lead for lining cisterns, &c., for storing water or other liquid for dietetic purposes. (3) Quirk, Barton, & Co.'s Composition Gas Tubing. (4) Quirk, Barton, & Co.'s Laminated Lead for damp walls, damp courses, roofs, &c. (5) Quirk, Barton, & Co.'s Non-poisonous Paints, dry, and ready for use. Also manufacturers of Tea Leads for India, China, Japan.

**464. COOPER, H. DUDLEY,** 33 Wimpole Street, W. (Agent, T. VINCENT RIORDAN, 1 Whiteley Road, Upper Norwood, S.E.)—Patent Glass-lined Iron Piping for the conveyance of hot and cold water in dwelling-houses, hospitals, breweries, &c., as also for gas purposes.

**BARNETT & FOSTER,** Niagara Works, 26 Eagle Wharf Road, N. (*See Machinery in Motion, Western Gallery.*)

**BECK & CO., Limited,** 130 Great Suffolk Street, Southwark, S.E. (*See Class 23.*)

**BELL, JOHN,** 118 Southwark Street, S.E. (*See Class 24.*)

**BLUNDELL, G. T., & CO.,** West India Road, Limehouse, E. (*See Machinery in Motion, Western Annex.*)

**BOLDING, JOHN, & SONS,** Grosvenor Works, South Molton Street, W. (*See Class 23.*)

**BOURTREEHILL COAL CO.,** Dreg-horn, Ayrshire, N.B. (Agent, BROAD & CO., Paddington.) (*See Class 22.*)

**BOWER BARFF RUSTLESS IRON CO., Limited,** 23 Queen Victoria Street, E.C. (*See Class 23.*)

**CAPPER, SON, & CO.,** Ingram Court, Fenchurch Street, E.C. (*See Class 23.*)

**CLEMENTS, JEAKES, & CO.,** 51 Great Russell Street, Bloomsbury, W.C. (*See Class 31.*)

**CLIFF, JOSEPH, & SONS,** 2 Wharf, King's Cross Goods Depot, N. (*See Class 20.*)

**COALBROOKDALE CO., Limited (THE),** Coalbrookdale, Shropshire; & 43 Holborn Viaduct, E.C. (*See Class 24.*)



**CONOLLY, HENRY**, Drummond Street, Hampstead Road, N.W. (See Class 20.)

**DOULTON & CO.**, Lambeth, S.E. (See Class 20.)

**FARMILOE, GEORGE, & SONS**, 34 St. John Street, E. (See Class 23.)

**FARQUHAR OLDHAM FILTER CO. (BATEMAN & LEVICH)**, Cornhill Chambers, White Lion Court, Cornhill, E.C. (See Machinery in Motion, Western Annexe.)

**FELL, JOHN, & CO.**, 9 Fenchurch Street, London, E.C. (See Class 31.)

**HERRING & SON**, Chertsey. (See Class 12.)

**HYGIENIC & SANITARY ENGINEERING CO., Limited (THE)**, 23 & 24 Charing Cross. (See Class 23.)

**JENNINGS, GEORGE**, Palace Wharf, Stangate, S.E. (See Class 31.)

**KEITH, JAMES**, Hydraulic Engineer, 57 Holborn Viaduct, E.C.; & Edinburgh & Arbroath. (See Class 24.)

**KENT, GEORGE**, 199-201 High Holborn. (See Class 20.)

**MARTINEAU & SMITH**, Holloway Head, Birmingham. (See Class 24.)

**MIDLAND RUSTLESS IRON CO.**, 35 Dudley Road, Wolverhampton. (See Class 27.)

**OWEN, HENRY, & CO.**, 82 High Street, Kensington, S.W. (See Class 23.)

**OWEN, SAMUEL**, 57 Fann Street, Aldersgate, London, E.C. (See Class 31.)

**PRICE, SONS, & CO.**, 69 Victoria Street, Bristol. (See Class 26.)

**REYNOLDS, F. W., & CO.**, Acorn Works, Edward Street, Blackfriars, S.E. (See Machinery in Motion, Western Gallery.)

**ROYLE, John J.**, 27-29 King Street, West Manchester. (See Machinery in Motion, Western Gallery.)

**STARKIE, GARDNER, & CO.**, 24 Albert Embankment. (See Class 24.)

**STIDDER, J. G., & CO.**, 50 Southwark Bridge Road, S.E. (See Class 23.)

**STIFF, J., & SON**, London Pottery, Lambeth, S.E. (See Class 22.)

**SUGG, W., & CO., Limited**, Vincent Works, Westminster. (See Class 26.)

**TYLOR, J., & SONS**, 2 Newgate Street, London, E.C. (See Class 31.)

**WHITELEY, WILLIAM**, 157 Queen's Road, Bayswater. (See Class 23.)

## CLASS XXII.

(South Annexe.)

House Drains, their Construction and Ventilation.—Sewer Disconnection; Sinks, Traps, Gullies; the Disposal and Utilization of House Refuse.

465. **WALDRAM, JNO., C.E.**, 16 Craven Street, W.C.—Length of oaken drain pipe, over 100 years old, found in foundations of Old Hatchett's Hotel, Piccadilly.

466. **LEFTWICH, RALPH WINNINGTON, M.D.**, 231 Kennington Road, S.E.—Model of a Portable Ventilating Shaft for Street Sewer Man-holes.

467. **DEAN, SAMUEL C.**, Bramber Road, Fulham, S.W.—Ventilators for sewers, drains, works, and hospitals, purifying the gases from sewers, contagion from hospitals mephitic vapors from works.

468. **MASTERS, HENRY**, Architect, M.S.I., 18 Meridian Place, Clifton, Bristol.—(1) Drawing showing the application of the double check system of house drainage. (2) Fittings, &c., used in carrying out the above system, viz.: main-trap, grease catch-pit, cleansing cover, waste pipe, head and air valve, air pipe terminals, and tumbler sink flusher, patent combination bag suitable for drain testing apparatus.

469. **BAILEY & CO.**, The Pottery, Fulham, S.W.—(1) Haughton's Gullies and Fat-Traps. (2) Owen's Gullies and Fat-Traps. (3) Bailey's Gullies and Fat-Traps, War Office Traps, Sinks, Desideratum Gullies. (4) Robert's Patent Tight-Joint Pipes.

470. **HAWKSLEY, CHARLES**, 30 Great George Street, S.W.—Method of testing the soundness of drains (without disturbing the internal arrangements of a house) by means of air introduced at a slight pressure. The exhibit illustrates a house drain of stoneware pipes terminating in a lead soil pipe with an ordinary syphon trap, attached to which are fitted the testing appliances, consisting of a common plumber's force-pump and two ordinary 6-inch gas pressure gauges.

471. **HOUGHTON, R., & CO.**, 21 Sloane Terrace, S.W.—(1) Houghton's Improved Gully for bath, waste sinks, and surface drains (self-cleansing). (2) Stable Gully or Interceptor for Solids. (3) Fat Interceptor for scullery sinks. (4) Various Traps and Appliances used by Houghton & Co. for carrying out sanitary arrangements. (5) Specimens of Plumbing Work, Joint Making, &c. (6) Dangers to Health, specimens of bad workmanship. (7) Diagrams of House Drainage, showing basement plans.

472. **ELLIS, JOSEPH J.**, Ellistown Collieries, Brick, Pipe, & Fire Clay Works, Ellistown, nr. Leicester.—Ellis-



town Glazed Sanitary Ware, viz.: Socket Pipes, Junctions, Breeches, Bends, Elbows, Cover Pipes, S. and P. Traps, Yard Traps, Street Gulleys, Syphons, Ventilating House-Trap, Flap-Trap Sink, Curved and Square Double Junctions, Flue Linings, Ellistown Trap, Furnace Lumps, Boiler Seating Blocks, Flue Quarries, Grate Backs, and all description of Fire Clay Goods, Crucible and Cement Clays, ground and in lump, &c.

473. **NOOTT, MAJOR FRANCIS H.**, Rookwood, Parkhurst, Isle of Wight.—Noott's Patent Drain-pipes. Plain lengths of Double Half-socketed Drain Pipes, a Double Junction and one length of the ordinary pattern, to show the mode of junction between the new pattern pipes and those of the existing pattern.

474. **WATTS, JOHN, & CO.**, Broad Weir Works, Bristol.—The Patent Asphyxiator for applying the smoke test to defective drains, for disinfecting rooms, bedding, clothing, &c.

475. **BATTEN, WILLIAM**, 150 Lizzells Road, Birmingham.—(1) Batten's Patent Ventilating Man-hole Cover for sewers, with elm blocks and fixed Dirt Boxes. (2) Man-hole Cover for sewers with elm blocks. (3) Ventilator with Flushing Box, Dirt Boxes, and Lamp-hole Cover combined. (4) Ventilator with Dirt Boxes and Lamphole Cover combined.

476. **STIFF, J., & SONS**, London Pottery, Lambeth, S.E.—(1) Water Filters. (2) Stoneware Drain Pipes, Junctions, Bends, Gully Traps. (3) Interceptor Sewer Gas Excluding-Traps. (4) Weatherly's Waste-water Trap. (5) Bavin's Trap, Pipe, Traps, &c. (6) Longrove's Inspection Pipes, &c. (7) Rain-water Pipe Inspection Trap. (8) Kitchen, housemaid's, and hospital Sinks. (9) Dr. Soper's Drain Disinfecter; Stoneware Closet Pans, &c.

477. **PATENT VICTORIA STONE CO. (THE)**, 283a Kingsland Road, E. Works, Stratford, Essex; Groby Quarries, Leicester.—Paving, Flower Vases, Sinks, and other sanitary appliances. This Paving is also laid in Entrance Hall, Fish Market, Fish Kitchen, American Bar and terrace steps.

478. **BIRD, FREDERICK, & CO.**, 11 Great Castle Street, Regent Street, W.—A Collection of Sanitary Iron Work, such as charcoal ventilators, trapped gullies, flushing valves, tide flaps, &c., of improved patterns and designs, used in the construction of sewers and house drainage.

479. **BIRMINGHAM SANITARY ASSOCIATION**, 28 Upper Priory, Birmingham.—Pott's Patent Edinburgh Air-Chambered Sewer-Trap, for the total disconnection of house drains from the main sewer and the admission of fresh air throughout all the drains fixed above it.

480. **HEWES, JOHN**, 4 East Street, London Road, Leicester.—Utilization of Sewage Refuse, Hewes's proposed patent process for gas making from sewage deposit, with drawings and small apparatus, also proposed system for prevention of river pollution from sewage matter by precipitation and deodorization (with drawings).

481. **HARRISSON, T. HARNETT**, Civil Engineer, 21 Harrington Street, Liverpool.—Patent Improved Collar Joints by which infallible joints as to strength and tightness are made between pipes of unlike materials without altering the continuity of equal diameter. As all joints between earthenware and lead for sanitary fittings, now the most insecure and dangerous in dwellings.

482. **DEAN, HENRY**, Wolstanton, Stoke-on-Trent. (1) Dean's Patent and Improved Gullies and Traps of various sizes, and shapes for disconnecting sink, bath, and lavatory waste-pipes, &c.

483. **GREEN, HENRY, & SON**, 155 Cannon Street, London Bridge, E.C.—Working Model, illustrating lifting of sewage by the automatic action of the tide.

484. **MC KEE, ROBERT ROBERTSON**, 341 Main Street, Kirkcaldy.—Improved Supply and Regulation Apparatus for flushing drains.

485. **LONDON SANITARY PROTECTION ASSOCIATION**, 1 Adam Street, W.C.—(1) Specimens of Defective Plumbing removed from London houses, such as water traps without any seal, ventilating pipe choked with birds' nests, &c., defective connections between sinks, &c., and soil pipes. Pipes wholly and partially choked with deposit. Pipes and traps corroded by sewer gas. (2) Models of good Pipes, Traps, &c.

486. **NEWMAN, FRANCIS**, 5 ST. Thomas Street, Ryde.—(1) Syphon with conical enlargement to form seating for a valve, the object being to retain water in a house drain for the purpose of testing the joints after being laid as well as at other times, and also for the purpose of flushing; Valve for insertion in same. (2) Connection for house drain for similar purposes but without a syphon.

487. **BOTHAMS, JOHN C., M.I.C.E.**, City Engineer, Salisbury.—(1) Improved Chimney Top and Louvre Bricks used in its construction.

488. **CREGEEN, HUGH S.**, Bromley, Kent.—Patent Air Inlet Head for the ventilation of house drains.

489. **ELSTOB, CHARLES MILLS**, 191 Cornwall Road, Notting Hill, W.—(1) Particulars of a new system for the ventilation of street sewers and for the destruction of sewer gas and disease germs in the drainage of large cities. (2) Plans and Elevations of Build-



ings, arranged in flats constructed upon sanitary principles by which no emanations or effluvia from the closets, sinks, or drains can escape into the dwelling-rooms.

490. **PAGE, EDMUND**, 4 Henrietta Villas, Godwin Road, Forest Gate, Essex.—(1) Design for Improved Glazed Earthenware Grease Interceptor. (2) Gully-Trap for kitchen sinks.

491. **OUGH, HENRY**, 16 Austin Friars, E.C.—Stoneware Pipes exhibiting the application of Stanford's patent joint to sewers, drains, water conduits, &c.

492. **WALLER, GEORGE, & CO.**, Holland Street, Southwark Street, S.E.—Sanitary and Drainage Appliances.

493. **NORTH BRITISH PLUMBING CO.**, 4 Upper Baker Street, N.W.—A System of Cast Iron Drainage for houses, as introduced by the North British Plumbing Company, including drain-pipes, disconnecting chamber, floor, and trap, air-tight covers, terminals, bends, junctions, gullies, &c.

494. **NICOLL, DONALD**, 12 Buckingham Street, Charing Cross, W.C.—Models of Apparatus adapted for the interception, disposal, and utilization of sewage in connection with street subways, to be also used for the passage of telegraph, telephone, and electric light wires, pneumatic tubes, separate gas and water service, to be easy of access in cases of fire or overflow by bursting of pipes in dwellings.

495. **COCKRILL, J. W.**, Borough Surveyor, Great Yarmouth.—(1) Model of Movable Flushing Tank. (2) Sewer Junction Block.

496. **KING, H.**, Clarence Place, High Street, Kensington.—House Drains, their construction and ventilation. (1) Model of Man-hole for inspection and clearing purposes, &c. (2) Arrangement for rain-water, bath-water, cistern-waste, and housemaid's sink all to empty into an improved gully before entering into main drain. (3) Process to prevent sewer gas from entering into the house by using Buchan's Patent Trap, and by using Botting's Mica Valve to allow a continual flow of fresh air to pass through the drain to above roof as tested by the Anemometer.

497. **CANDY & CO., Limited**, Great Western Potteries, Chudleigh; The Marland Terra-Cotta Works, Torrington; The Annery Potteries, Bideford, Devonshire; & 11 Queen Victoria Street, E.C.—(1) Glazed Stoneware Sanitary Traps, Grease-Traps, and Sewer Ventilators, also Silt-buckets for preventing the choking of drains. (2) Assortment of highly vitrified stoneware Sanitary Pipes, Junctions, &c., with Stanford's and other Patent Joints. (3) The Patent Double Sewer Gas Excluder. (4) Sewer and Soil Pipe Ventilator and Interceptor combined, made in one piece of best glazed stoneware

without joint or corners. (5) Patent Exhaust Ventilators and Chimney-tops, with improvements for creating a powerful up-draught. (6) Patent Terminals and Blowers for forcing fresh air into buildings, sewers, and drains. (7) Specimens of a new kind of plain and ornamental Sanitary Brick, specially prepared from prepared clay. (8) Specimens of a new kind of Paving Brick and Tile, designated granite vitrified, damp proof, and of flint-like hardness. (9) Specimens of Facing and Ornamental Building Bricks of True Terra Cotta. (10) Specimens of Architectural Terra Cotta.

498. **CROSTHWAITE, R. W.**, Iron-founder, Union Foundry, Stockton-on-Tees; and Paul's Wharf, 24, 26 & 237 Upper Thames St., and 153 Queen Victoria St., London, E.C.—(1) The Stockton Street Sewer Grate, consisting of double Trap and Precipitate Collector combined. (2) Sewer Entrance Grate. (3) Gully Grate. (4) Liverpool and other Sink-traps. (5) Kitchen and Universal Sinks.

499. **CLIFF, JOSEPH & SONS**, 2 & 4 Wharves, Goods Station, King's Cross, N.—(1) Salt Glazed Sanitary Tubes, Junctions, Bends, and Syphons. (2) Invert and Junction Blocks. (3) Kitchen and Scullery Sinks, various sizes. (4) Dodd's Patent Traps. (5) Ellison's Patent Air Bricks. (6) Knight's Patent Chimney Terminal. (7) Vales' Patent Chimney Terminal. (8) Vitrified Stable Bricks. (9) Damp Proof Courses. (10) Paving Tiles, various colours. (11) Improved Grease Traps.

500. **WADSWORTH, HENRY, & SON**, Patent Wheel, Axle, and Waggon Works, Halifax, Yorkshire.—(1) Models of the "Wadsworth" Patent Tipping Waggons and Carts for the removal and discharge of House and Street Refuse. (2) Models of the "Wadsworth" Patent Balancing Water Carts and Four-Wheeled Water Van. (3) Case of Models of the "Wadsworth" Patent Wheel, Hub or Rave, specially suitable for the above Waggons or Carts or others. (4) Sketches or Designs of other Waggons and Carts for Sanitary Purposes.

501. **IMPERIAL STONE CO (THE)**, 41 Parliament Street, S.W.—(1) Sinks. (2) Egg-shaped Isaac Shone's House Ejector Sewers. (3) Nest of Pipes for barrel drains and water conduits. (4) Junctions. (5) Trap Gully Stones. (6) Street Gullies. (7) Specimens of Coping. (8) Caps. (9) Window Cells. (10) Window Heads. (11) Mullions. (12) Transomes. (13) Key-stones Steps. (14) Landings and Paving. (15) Petrosilicon for paving basement-floors, stables, cowhouses, granaries, barns, corridors, yards, garden paths, &c.

502. **BANNER BROTHERS & CO.**, 11 Billiter Square.—(1) Drawings and Models illustrating the Banner System of



Sanitation as applied to hospitals, mansions, public buildings, &c., and also to sewers. (2) Rotating Cowl Ventilators. (3) Fixed Finial Exhaust and Down Draught Ventilators for houses, ships, drains, &c. (4) Soil Pipe Traps in rustless iron and stoneware. (5) Grease-Traps and Gullies. (6) Man-hole iron Covers with air-tight joint, patent hollow kerb.

**503. BROAD & CO.,** Brickmakers, 2 & 4 South Wharf, Paddington, W.—(1) Broad & Co.'s suggested System of Domestic Drainage. (2) Broad & Co.'s Improved Inspection Gully, Fat-Trap, and Air Inlets. (3) White Enamel Cisterns, Sinks, Milk Coolers, &c.; also various kinds of Gully-Traps and articles of general sanitary utility.

**504. BOURTREEHILL COAL CO.,** Dreghorn, Ayrshire (Agents, **BROAD & CO.,** South Wharf, Paddington, W.).—Collection of White Enamelled Fire-Clay Cisterns, Baths, Butlers' and Housemaids' Sinks, Washing Tubs, Slop Stones, Hospital and Slop Sinks, &c.

**505. ANGELL, A. T.,** 144 Fulham Road, London.—Patent Airtight Manhole Covers and Tip Syphon Trap.

**BECK & CO., Limited,** 130 Great Suffolk Street, S.E. (See Class 23.)

**BELHAM, S., & CO.,** Britannia Works, 155 Buckingham Palace Road. (See Class 24.)

**BOLDING, JOHN, & SONS,** Grosvenor Works, South Molton Street, W. (See Class 23.)

**BOWER BARFF RUSTLESS IRON CO.,** 23 Queen Victoria Street, E.C. (See Class 23.)

**BOWES, SCOTT, & READ,** Broadway Chambers, Westminster, S.W. (See Class 23.)

**CAPPER, SON, & CO.,** Ingram Court, Fenchurch Street, E.C. (See Class 23.)

**CLIFF, JOSEPH, & SON,** 2 Wharf, King's Cross Goods Depôt, N. (See Class 20.)

**CONOLLY, H.,** 53-55 Drummond Street, Hampstead Road. (See Class 20.)

**CORPORATION OF LIVERPOOL.** (See Outside.)

**CRAIG, J. & M.,** Kilmarnock, N.B. (See Class 21.)

**DENT & HELLYER,** 21 Newcastle Street, Strand, W.C. (See Class 23.)

**DOMESTIC ENGINEERING AND SANITARY APPLIANCES CO. (THE),** 24 High Holborn, W.C. (See Class 23.)

**DOULTON & CO.,** Lambeth, S.E. (See Class 20.)

**DYER, FREDERICK,** 66 High Street, Camden Town, N.W. (See Class 24.)

**FARMILOE, GEORGE, & SONS,** 34 St. John Street, E.C. (See Class 23.)

**HOWIE, J. & R.,** Hurlfold Fire Clay Works, Kilmarnock, N.B. (See Class 21.)

**HYGIENIC & SANITARY ENGINEERING CO., Limited (THE),** 23 & 24 Charing Cross. (See Class 23.)

**INGHAM, WILLIAM, & SON,** Wortley Fire Clay and Glazed Brick Works, Wortley, W. Leeds; and 35 Bucklersbury, E.C. (See Class 28.)

**JEAKES, CLEMENTS, & CO.,** 51 Great Russell Street, W.C. (See Classes 24 and 31.)

**JENNINGS, GEORGE,** Palace Wharf, Stangate, S.E. (See Class 31.)

**LAMB, J. M., & CO.,** 119 Finchley Road, South Hampstead, N.W. (See Class 25.)

**MAIGNEN, P. A.,** 22 & 23 Great Tower Street, E.C. (See Class 21.)

**MANCHESTER CORPORATION (THE),** Manchester. (See Class 23.)

**MIDLAND RUSTLESS IRON CO.,** 35 Dudley Road, Wolverhampton. (See Class 27.)

**MANUFACTURERS AND MILL-OWNERS' MUTUAL AID ASSOCIATION,** 5 The Sanctuary, S.W. (See Outside.)

**CHAMBERS, MONNERY, & CO.,** 41 Bishopsgate Street Without, E.C. (See Class 28.)

**NATIVE GUANO CO.,** 29 New Bridge Street. (See Outside.)

**OWEN, HENRY, & CO.,** 82 High Street, Kensington, S.W. (See Class 23.)

**PHILLIPS, W. & SON,** 10 Baker Street, Portman Square, W. (See Class 20.)

**POCOCK, ALFRED WILLMER,** Cadogan Iron Works, Lots Road, Chelsea, S.W. (See Class 21.)

**PRIESTLY, MRS.,** 17 Hertford Street, Mayfair. (See Class 25.)

**SHARP, HENRY, JONES, & CO.,** Bourne Valley Pottery, Poole, Dorset. (See Class 23.)

**STIDDER, J. G., & CO.,** 50 Southwark Bridge Road, S.E. (See Class 23.)

**WEST CENTRAL SANITARY ENGINEERING CO. (THE),** (W. SMEATON, Senior Manager), 7 Drury Court, Strand, W.C. (See Class 23.)

**WHITELEY, WILLIAM,** Queen's Road, Bayswater. (See Class 23.)



## CLASS XXIII.

(East Annexe.)

Water and Earth Closets, Ash Closets, Commodes, Urinals, Disinfecting Powders and Fluids, Insect Destroyers.

506. **BOWES SCOTT, & READ**, Broadway Chambers, Westminster.—(1) Flushing Cistern, fitted with Field's Patent Self-Acting Syphon (model). (2) 1,100 Gallon Flushing Cistern, fitted with Field's Patent Self-Acting Annular Syphon for flushing drains with bath or clear water. (3) Cast-iron Field's Patent Self-Acting Flush Tank. (4) Earthenware Field's Patent Self-Acting Flush Tank. (5) Bowes, Scott, & Read's Patent Enamelled Earthenware Latrine, fitted with Field's Patent Self-Acting Flushing Cistern. (6) Bowes, Scott, & Read's Patent Cast-iron Latrine. (7) Bowes, Scott, & Read's Patent Salt-Glazed Earthenware Latrine. (8) Three sizes of Field's Patent Self-Acting Annular Syphons (cast-iron and stoneware) for building into brick chambers for flushing sewers. (9) Bowes, Scott, & Read's Patent Self-Acting Trough Urinal (enamelled earthenware).

507. **SHARP, HENRY JONES, & CO.**, Bourne Valley Works, Poole, Dorset.—(1) Sewer Disconnectors. (2) Intercepting and Ventilating Sewer Traps, Syphons, Sinks, Traps, and Gullies. (3) Rock Concrete Tubes for large sewers, conduits, wells and water-tanks. (4) Newman's Patent Testing and Flushing Syphon. (5) Glazed Bricks.

508. **HYGIENIC AND SANITARY ENGINEERING CO., Limited (THE)**, 23 & 24 Charing Cross, London. (1) Model Dwelling, showing "Bostel's" Sanitary System complete throughout, as carried out by this Company. (2) Bostel's Patent Safety Ball Valves, Bib Taps, Stop Taps and Unions. (3) Bostel's Improved Automatic Drain Flusher. (4) Bostel's Patent Interceptor Ventilated Drain Trap. (5) Two Tucker's Grease Intercepting Traps for Drains. (6) Several Bostel's Patent Joints for drain, soil or rain water, also Pipes and Patent Ventilators for drains, &c. (7) Bostel's Patent Brighton Excelsior Water Closets, Urinals, and Slop Sinks. (8) Commode for invalid.

509. **EMANUEL, A., & SONS**, 53, 55 & 57 Marylebone Lane, W.—(1) Specialities in Valve Water Closets. (2) Seat-action Syphon Water-waste Preventer, and Water-waste Preventers for other Closets. (3) Urinals and Swing Door Action Urinal. (4) Speaking-tube Fittings. (5) Every description of Lavatory and Plumbers' Brass Fittings. (6) Various Designs of Cabinet Stands and Earthenware Lavatories.

510. **TYLER (HAYWARD) & CO.**, 84 & 85 Whitecross Street, London,

**E.C.**—(1) Hayward Tyler & Co.'s Prize Medal Flush Valveless Closet. (2) Sanitary Reform Valve Closet. (3) Howard's Patent New River Syphon Cistern, or Water-waste Preventer. (4) Chandler's Patent Court Supply Cistern. (5) Hayward Tyler & Co.'s Improved Water-waste Preventers. (6) "Bramah" pattern screw-down Valves. (7) Selection of screw-down Valves, Hydrants, and Fire Fittings. (8) Improved Pumps for water supply.

511. **WARNER, JOHN, & SONS**, Crescent Foundry, Cripplegate, E.C.—(1) Latham & Way's Tempering Tubes. (2) Copper Cooking Utensils. (3) Water Fittings—Cisterns, Baths, Lavatories, Water Closets, Invalid Closets, Pumps and Pumping Machinery. (4) Extincteurs of Fire. (5) Heating Apparatus. (6) Cowls for Ventilation.

512. **MC CALLUM, J. B.**, Municipal Offices, Blackburn. (Agent, T. VINCENT RIORDAN, 1 Whiteley Road, Upper Norwood, S.E.)—(1) Water-Closet Cistern, pull action. (2) Water-Closet Cistern, seat action. (3) Water-Closet Basin. (4) Water-Closet Seat.

513. **GREGORY, THOMAS**, Clapham Junction, S.W.—(1) Shrewsbury Tipper Flushing Water Closet, with Hopper Pan. (2) The same with Swan-neck Basin, holding 9 in. x 8 in. area of water.

514. **DORRETT, ANTHONY**, Southsea.—The Excelsior Silent Hydraulic Water Closet, Flushing Apparatus, with perfectly automatic action, has portable seat, thus enclosure easily disinfected, cistern always empty while apparatus at rest, fills noiselessly during use; 2 gallon flush certain, constant flow impossible, positive waste preventer, free from springs, cannot get out of order.

516. **DALE, R. F., & CO.**, Bear Lane, Southwark, S.E.—Patent Water Closets and Flushing Cisterns.

517. **ROBERTSHAW, JAMES**, 3 & 5 Simpson Street, Angel Street, Rochdale Road, Manchester.—(1) Patent Sanitary Dividable Closet, dry pail system. (2) Patent Window Blind Furniture. (3) Patent Valve Tap for steam, water, or gas.

518. **WHITELEY, WILLIAM**, 157 Queen's Road, Bayswater.—(1) Improved Flushing Cistern for urinal. (2) Improved Baths, Sinks, Closet Apparatus, Lavatory Basins and Enclosures. (3) Assortment of Plumber's Work. (4) Improved Traps and Gully Traps. (5) Improved Method of Cement Facing for external or internal walls.

519. **SYER, MILTON**, 36 Rye Lane, Peckham.—Patent improved Pneumatic Water Waste Preventer, for water closets, &c. Sanitary ware, plumbers' brasswork and fittings.



**520. BAKER, J. M. B., 62 Holborn Viaduct, E.C.**—Water Closet Disinfector, as supplied to H.M. Navy, hospitals, mansions, and dwellings. (1) Capillary Sun Guard for Helmets or other head-gear, cooling (by evaporation) the air surrounding the neck and back of head, thus reducing the chances of sun-stroke, and adding greatly to the comfort of the wearer. (2) Full-size Bedstead, Bed Coverlet and Pillow, for ambulance or domestic use. The whole packs in a tube 3 ft. 8 in. long by 3½ in. diameter, and weighs only a few pounds. The most portable and compact form of bedstead and bedding ever devised.

**521. WALLER, THOMAS, 43 Fish Street Hill, E.C.; & The Grove, Southwark.**—(1) Patent Ventilating Water Closet, with inclined tops and ventilating tube complete. (2) Patent Supply Cistern for same. (3) Erection of Patent Urinal with Ventilator complete, to be seen in action.

**522. JENNINGS, GEORGE, Palace Wharf, Stangate, Lambeth.**—(1) Jennings Patent Improvements in Water Closets. (2) The Portable W.-C. (3) The Valve W.-C. and Trap, in one piece of ware. (4) The Trapless Valve W.-C. (5) The Trapped and Trapless Bramah Valve W.-C. (6) The Wash-out Monkey W.-C. (7) The Seat-action W.-C. (8) The Door-action W.-C. (9) The Waste-preventing arrangement for W.-C. (10) Various forms of Urinal Apparatus. (11) Jennings' Patent School Lavatories, Closets, W.-C., and improved sanitary appliances for schools.

**523. SHANKS & CO., Tubal Foundry, Barrhead, nr. Glasgow.**—Water Closets and Urinals.

**524. MANCHESTER CORPORATION (THE), Manchester.**—(1) Model of Vehicle for the collection of excreta pails and house refuse. (2) Models of Apparatus for manufacturing excreta, etc., into Manchester concentrated manure, comprising Concentrator, Condensor, Exhauster, and Agitator. (3) Model of Special Boiler for generating steam, adapted for the consumption of house refuse. (4) Models of Machinery for manufacturing bricks from house refuse, comprising Brick Press, Disintegrator, Elevator, and Grinding Mill. (5) Samples of Mortar, Bricks and Brickwork, Oil, Candles, Concentrated Manure, and Cement, made from house refuse. (6) Manchester Cinder-sifting Closet. (7) Commodes. (8) Galvanized Steel Excreta Pails and Covers. (9) Model of Manchester Street-sweeping Machine. (10) Drawings of Sanitary Works.

**525. SAINT HELENS, MAYOR & CORPORATION OF.**—A full-sized model of a pair of closets upon the pail and tub system.

**526. LONDON PATENT AUTOMATIC DISINFECTOR CO. (J. KENT, Manager), 53 Queen Victoria Street, E.C.**—Automatic Disinfectors attached to water-closets, for flushing the pipes and drains with

a powerful disinfectant every time the W.-C. is used, and Perfumed and other Disinfectants of the strongest power.

**527. WOOD, JAMES, 4 Bladud Buildings, Bath.**—Portable Disinfecting Commode.

**528. WILCOCK & CO., Burmantofts, Leeds.**—School Latrines, Closets, &c.

**529. NICHOLLS, RICHARD, 283 Strand, W.C.**—Improvements in Closets, Night Commodes, Dust Bins, Cesspools, Manure Hole.

**530. DENT & HELLYER, 21 Newcastle Street, Strand, W.C.**—(1) Plumbers' Traps. (2) Grease Traps. (3) Drain Traps. (4) Baths. (5) Sinks. (6) Water Closets.

**531. FARMILOE, THOMAS & WILLIAM, Rochester Row, Westminster.**—(1) Valve Closets, Wash-out Closet, Pumps. (2) Lavatory Basins and Urinals. (3) Plumbers' and Engineers' Brasswork. (4) Patent Syphon Valveless Water-waste Preventer.

**532. OWEN, HENRY, & CO., 82 High Street, Kensington, S.W.**—(1) Owen's New Patent Oblique Valve Ventilating Closet, with automatic action to valve (basin trap and overflow combined). (2) Stoneware Trap and Porcelain Basin. (3) Water-waste Preventive Cisterns. (4) Owen's Patent Single Flushvent and overflow combined. (5) Galvanized Cistern. (6) Cast-iron Cistern. (7) Cast iron Cistern, with syphon and automatic action to lever. (8) Tip-up Lavatory, Urinal, or Slop-sink combined, fitted complete for hot or cold supply. (9) Owen's Patent Surface Gully and Fat-Trap combined.

**533. WEST CENTRAL SANITARY ENGINEERING CO. (THE), 7 Drury Court, Strand, W.C.**—(1) Valve Wash-out Water Closets. (2) Improved Water Closet, with after-flush. (3) Concealed, Folding, and other Urinals. (4) Flushing Water-Closet Tank, with Electric Indicator. (5) Special Specimens of superior general Plumbers' Lead Work.

**534. STIDDER, J. G., & CO., 50 Southwark Bridge Road, S.E.**—(1) Stidder's Patent Sluice Valve, for gas or water. (2) Removable Stuffing-box for packing the glands of sluice and other valve spindles. (3) Frost-resisting Stand Pipe. (4) Hydraulic Ball Valve. (5) Wash-up Sink. (6) Bath Water Waste Preventers. (7) Lavatory with enclosure fitted with Shampooing Apparatus. (8) Stidder's Patent Twin Ventilating Stoneware Drain and Soil Traps. (9) Stidder's Patent Fat or Grease Trap. (10) Stidder's Patent School Board Pattern Drinking Fountain. (11) Stidder's Patent Fire Hydrant Street Box and Cover. (12) Stidder's Patent Exhaust Cows. (13) Smoke Ejector. (14) Fresh Air inlet Mica Valve. (15) Stidder's Patent Closets, Sinks, Urinals, &c.



**535. MOULE'S PATENT EARTH CLOSET CO., Limited, 5a Garrick Street, W.C.**—Moule's Dry Closet System.

**536. SHARP & CO., 11 Holborn Circus, E.C.**—(1) The Banner Patent Water Closet. (2) Ship Closets. (3) Earth Closets. (4) Electric Bells. (5) Disinfectants. (6) Drainage System. (7) Thomas Boyle's Ventilators.

**537. "AUSTIN" ANTISEPTIC CO. (THE), 61 Wool Exchange, Coleman Street, E.C.**—(1) The Austin's Automatic Flushing and Antiseptic Tanks. (2) Austin's "Porous" Disinfectant for every description of Water-waste Preventers or other Cisterns; no fixing required. (3) Austin's Antiseptic Disinfectant.

**538. BOWER BARFF RUSTLESS IRON CO., Limited (THE), 23 Queen Victoria Street, E.C.**—(1) Ornamental and Art Metal Work. (2) Hot Water Pipes and Castings. (3) Fenders, Stoves, &c. (4) Builders' and Sanitary Castings, Rain-water Pipes, Traps, &c. (5) W.C. Fittings. (6) Cooking Stoves and Utensils. Boilers, &c. (7) Water Pipes and Fittings, Filter and Meter Castings. (8) Ventilating Bricks and Grates; all rendered rustless by the Bower Barff process.

**539. BOLDING, JOHN, & SONS, Grosvenor Works, South Molton Street, W.**—(1) Valve Water Closets. (2) Water Waste Preventers. (3) Earthenware Water Closets. (4) Water Closet with seat action. (5) Water Closet to work with the door. (6) Water Closet, with trap above floor level. (7) Portable Water Closets. (8) Commodes. (9) Earthenware, Enamelled Iron, and Slate Urinals. (10) Mr. Gill's Patent Urinal, Urinal Valves, &c. (11) Ball Valves. (12) Bib Valves. (13) Hot Water Cocks. (14) Copper Plunge Bath. (15) Enamelled Iron Plunge Bath. (16) Bolding's Patent Bottle Trap. (17) Drawn Lead Traps. (18) Hand-made Traps. (19) Earthenware Gully Traps. (20) Fire Hydrants. (21) Fire Cocks, Hose Pipes and Hose Unions. (22) Ventilators. (23) Inlet Valve. (24) Pipes for Ventilation.

**540. CAPPER, SON, & CO., Ingram Court, Fenchurch Street, London, E.C.**—(1) Pearson's "Twin Basin" Water Closets, fitted with Jones's Joint, for connecting the closet with the soil pipe. (2) Pearson's Water-economizing Closets. (3) Ventilating Cowls. (4) Bower's Patent Sewer Gas Trap, for sinks, baths, lavatory basins, &c. (5) Water Fittings, Baths, Lavatory Apparatus, Sinks, &c.

**541. BECK & CO., Limited, 130 Great Suffolk Street, Southwark, London, S.E.**—(1) Sluice Valves. (2) Stand-posts for Street Watering. (3) Hydrants. (4) Street Boxes. (5) Ball Valves. (6) Ventilators for Sewers, Water Closets and

Water Waste Preventers. (7) Gun metal and iron Fire Cocks, Standpipes, Water Meters, Bell's Patent double and single Valve Stop and Bib Cocks for constant supply services. Pumps of various kinds for hand and power; Hose and Fittings for same.

**542. FARMILOE, GEORGE, & SONS, 34 St. John Street, E.C.**—(1) Cooper's Patent American Gun Metal Bib, Stop Range, Bath and Lavatory Valves, with patent fibre seatings for hot or cold water and high or low pressure. (2) Patent Waste-preventing Cisterns. (3) The Patent Eos Water Closet. (4) Du Bois' Patent American drawn Lead Traps and bends for soil pipes, sinks, bath wastes, lavatory wastes, &c.

**543. BOAKE, A., & CO., Stratford.**—Professor Tuson's Disinfectants (liquid and powder).

**544. PARKER, JOHN, Woodstock, Oxon.**—(1) Parker's Improved Dry Earth Closet, self-acting. (2) Parker's Improved Ash Closet, self-acting. (3) Prints and Illustrations of Closets.

**545. LAWSON & DONKIN, Trinity Chambers, Bournemouth.**—A Patent Combination Earth and Water Closet.

**546. HOWARD, EDWARD, Norfolk Steam Works, 34 Upper Gloucester Place, N.W.**—(1) Snell's Improved Duplex Ventilating Lid and Automatic Flusher, for water closets and sinks. (2) Bullivant's patent air-tight and noiseless Sliding Sash Window, with improved arrangements for cleaning and reglazing. (3) Warhurst's Patent Automatic Draughts Preventer, for house doors, railway carriage doors, and casement windows. (4) Warhurst's automatic Locking Sash-fastener. (5) Warhurst's Automatic Locking Spring Latch for doors.

**547. BLUNDELL, G. T., & CO., West India Road, Limehouse, E.**—(1) Blundell's Patent Double- and Single-valved Water Closet. (2) Blundell's Patent Duplex (quadruple acting) portable Fire Engines.

**548. SANITARY APPLIANCE CO. (THE), 4 St. Ann's Square, Manchester.**—Model of Morrell's Patent Self-Acting Cinder-Sifting Ash Closet. The Closet makes use of Household Ashes for sanitary purposes by separating the dust from the cinders, a dose of ash-dust being delivered over the soil on each use of the closet; the sifted cinders fall at the rear. A perfectly inodorous closet is secured without any extra attention whatever.

**549. NESS & CO., Darlington.**—(1) "Thymo-Cresol" Disinfecting Fluid, "Thymo-Cresol" Disinfectant, Deodoriser, antiseptic and insecticide (non-poisonous and non-corrosive). A mixture of the most powerful disinfectants: contains, with others, Thymol, Phenol, and Cresol. (2) "Thymo-Cresol" Disinfecting Powder, a dry, absorbent, and powerfully disinfectant powder.



**550. GIBBS, D. & W.,** The City Soap Works, London, E.C.; and Abbey Chemical Works, Stratford, E.—(1) Concentrated Carbolated Creosote Disinfecting Fluid. (2) Aphis Wash Fluid Insecticide. (3) Creosote and Sulphur Sheep Dip. (4) Non-corrosive Boiler Fluid. (5) Disinfecting and Medicated Soaps—Hard, Soft, and Toilet—Coal Tar, Carbolic Acid, Carbonic Creosote, Juniper Tar, Sulphur, &c., Dog Soap, &c.

**551. SPRATT'S PATENT,** Bermondsey.—Disinfectant Soap, for destroying lice and other vermin infesting the skin.

**552. CALVERT, F. C., & CO.,** Bradford; & Manchester.—(1) Carbolic Acid or Phenol, and Disinfecting Powders. (2) Toilet Requisites of sanitary value.

**553. JEYES' SANITARY COMPOUNDS CO., Limited** (L. HAKEMAN, Manager), 43 Cannon Street, E.C.—(1) Jeyes' Perfect Purifier Disinfectant, non-poisonous and non-corrosive in use. (2) Jeyes' Sanitary Powder. (3) Jeyes' Disinfectant Soap for household purposes. (4) Jeyes' Sublime Disinfectant Toilet Soaps.

**554. SANITAS CO., Limited (THE),** Three Colt Lane, Bethnal Green, E. (C. T. KINGZETT, F.I.C., F.C.S., Managing Director).—(1) "Sanitas" Disinfecting Fluid. (2) "Sanitas" Disinfecting Oil. (3) "Sanitas" Disinfecting Emulsion (antiseptics, disinfectants, oxidants and air-purifiers). (4) "Sanitas" Disinfecting Powder. (5) "Sanitas" Soaps and Soap Powder. (6) "Sanitas" Vaseline. (7) "Sanitas" Disinfecting Furniture Cream. (8) "Sanitas" Antiseptic Gauze. (9) "Sanitas" Toilet Fluid. (10) "Sanitas" Tooth Powder. (11) "Sanitas" Toilet Powder. (12) "Sanitas" Disinfecting Fumigator and Vaporiser.

**555. SYMONS, H. C.,** 2 George Street, Blackfriars Road.—(1) Window and Venetian Blind Adjustment by a Coiled Cord-Break, to fasten in slot by hand; or by a weight acting automatically. (2) Water Waste Preventing and Flushing Cistern. The valve cannot remain open and the Belt-Break times the closing of the valve to regulate the water automatically. Specially suitable for tenement dwellings and workshop urinals. (3) Automatic Break, applied direct to ordinary water-closets, to avoid the expense of removal and replacement of pipes or valves.

**556. SHILTON, ALFRED J., F.C.S.,** 40 Paradise Street, Birmingham.—Affinitan, a new disinfectant fluid, which does not stain and is free from smell.

**557. "CHLOROZONE" FLUIDS CO. (THE),** Albert Embankment, Lambeth, S.E.—(1) "Chlorozone" Great Oxygenating agent—non-poisonous. (2) "Eureka," a Cleansing and Sanitary Fluid.

**559. MACKEY, MACKEY & CO.,** 1 & 2 Bouverie Street, E.C.—(1) Disinfectants obtained from coal tar:—Absolute Phenol, Carbolic Acid, Carbolic Soap, Cresylic Acid, Coal Tar Soap. (2) Disinfectants from vegetable sources:—Terebene, Creosote, Turpentine, Pyroligneous Acid, Charcoal. (3) Disinfectants from Mineral sources:—Sulphurous Acid, Chloride of Lime, Permanganate of Potash, Sulphate of Iron, Sulphate of Copper, Sulphate of Zinc, Chloride of Zinc. (4) Special Disinfectants:—Oxychlorogene, Chloromanganese, Epulixon, Sanitizer, Camphorin. (5) Antiseptics:—Salicylic Acid, Boracic Acid, Borax, Thymol, Menthol.

**560. SANITARY PAPER CO. (THE),** 30 Bury Street, London, E.C.—(1) Pure Sanitary Paper in rolls 5 inches wide and 500 feet long (unperforated). (2) Bronzed and Brass Holders, fitted with patent cutter for detaching with facility any length of paper required. The paper is healthy and economical in use, and well-adapted for the Boudoir, Dressing-room and Lavatory.

**561. CONDY & MITCHELL, Limited** (ALEX. D. MITCHELL and H. J. BOLLMANN CONDY, Joint Managers), 67-68 Turnmill Street, E.C.—(1) Condy's Fluids for sanitary purification and disinfection. (2) Condy's Ozonized Water. (3) Condy's Remedial Fluid. (4) Condy's Health Powder. (5) Automatic Disinfectant.

**562. BILLING, H. J., M.D.,** 61 Cannon Street, E.C.—Dr. Billing's Thymol Disinfectant Fluid.

**563. NEW CARBOLIC SANITARY CO., Limited (THE),** London Works, Hackney Downs Railway Station. (W. ADAMS, Joint Manager).—Various Disinfecting Powders, Fluids and Soaps.

**564. MEIHE, J. R.,** 15 Abchurch Lane, E.C.—Disinfecting Fluid, called "Anti-Microbe."

**565. OVERBURY, HENRY,** High Street, Alcester.—Sulphur Disinfectant.

**566. DOMESTIC ENGINEERING AND SANITARY APPLIANCES CO. (THE),** 24 High Holborn, W.C.—(1) The Oxford Wash-out Closet and Black Steel Rustless Slop Tray. (2) The Oxford 3-gallon direct action Steel Flush Tank for closets. (3) The Oxford Press Down Valve Closet with special vent and enamelled steel slop tray. (4) The Oxford 3-gallon Automatic Steel After-flush Tank for Valve Closet. (5) The Oxford Disinfecting Fluid. (6) The Imperial Soil-pipe Extractor Ventilator. (7) The Imperial Soil-pipe Extractor Ventilator, with 7 ft. steel shaft. (8) The Imperial Soil-pipe Extractor Ventilator, with 7 ft. steel shaft with Trapped Rain-water Head. (9) The Oxford Waste-receiver, Self-cleansing Trap, for sinks, rain-water pipes, &c. (10) The Oxford Stable Gully with Strainer. (11) The Oxford At-



tachment for Valve and Pan Closet, container to carry off closet odours.

**568. McDOUGALL BROS., 10 Mark Lane, E.C.**—(1) Carbolic and Sulphurous Disinfectants (Mc Dougall's patents), in powders, fluids, and soaps. (2) Carbolic Acid (various), crystal and liquid, for medical, sanitary, and manufacturing purposes. (3) Carbolic Soaps, for medical, toilet, and sanitary purposes. (4) Carbolic Insect and Disinfecting Soaps. (5) Carbolic Fumigator (self-acting) for households, to destroy infectious germs. (6) Sulphurous Fumigator, to generate sulphurous fumes without fire or flame.

**569. BRITISH PATENT PERFORATED PAPER CO., Limited (THE), 12 Long Lane, West Smithfield, E.C.**—Perforated Toilet Paper in rolls (sanitary paper).

**570. NATIONAL CHEMICAL CO. (THE), 29 Suffolk Grove, Great Suffolk Street, S.E.**—Chloride of Lime in waterproof packages; air-tight and odourless. Specially prepared for home trade and export. Is neat, clean and convenient for use, retains its strength unimpaired.

**571. SUTTON, JOHN MAULE, M.D., M.R.C.P., Hoy Lake, Cheshire.**—(1) Apparatus for drying excreta and urine. (2) Dr. Maule Sutton's Disinfecting Tripod Stand, used for disinfecting dwelling-houses and rooms with sulphur.

**572. CLUTTERBUCK, GEORGE, 12 Queen's Road, Peckham, S.E.; and Ashburnham Road, Greenwich, S.E.**—(1) An Improved Water-waste Preventer. (2) Clutterbuck's Chemical Closet Cleaner, a sanitary disinfectant.

**573. DOUGHTY, J., & CO., 121 Westminster Bridge Road, S.E.**—(1) Carbolic Disinfecting Powder and Fluid. (2) Eucalyptozone Disinfecting Fluid. (3) Eucalyptozone Toilet Soap, &c.

**574. WHEELER, JAMES, 100 High Street, Ilfracombe.**—Pixene. A new development of the hygienic virtues of Pine Tar, providing for the first time in the history of hygiene the entire group of its volatile, air-purifying hydrocarbons in a condition readily miscible with water, and proving highly useful as an Atmospheric Purifier and elegant antiseptic for the bath and general toilet purposes.

**575. HARTIN'S CRIMSON SALT CO. Limited, 51 Foregate Street, Worcester.**—Hartin's Crimson Salt, a deodoriser and a disinfectant; acts by the evolution of nascent oxygen when in contact with organic matter and thereby completely destroys the offensive and dangerous character of such matter. This preparation by reason of its concentrated form, is capable of extraordinary extension in water, and can readily be used in its most active condition, namely, when recently brought

into solution. Owing to special treatment in its manufacture it dissolves with great rapidity, and can at all times be depended upon for condition and purity.

**BATEMAN, WILLIAM H., 90 Cannon Street, E.C.; and Nelson Wharf, Millwall, E.** (See Class 28.)

**BRADFORD, T. & CO., 140, 143 High Holborn, W.C.**—(See Machinery in Motion, Western Gallery.)

**CHESEBROUGH MANUFACTURING CO., 41 Holborn Viaduct, London, E.C.** (See Class 31.)

**CLIFF, JOSEPH, & SONS, 2 Wharf, King's Cross Goods Depôt, N.** (See Class 20.)

**CONOLLY, H., 53-55 Drummond Street, Hampstead Road.** (See Class 20.)

**DOULTON & CO., Lambeth, S.E.** (See Class 20.)

**KAY BROTHERS, Stockport.** (See Class 24.)

**LYON, F., 94-96 Harleyford Road, S.E.** (See Class 31.)

**MORRIS, LITTLE, & SON, Doncaster and Stoke-on-Trent.** (See Outside.)

**OWEN, SAMUEL, 57 Fann Street, Aldersgate Street, E.C.** (See Class 31.)

**TYLOR, J., & SONS, 2 Newgate Street, London, E.C.** (See Class 31.)

**YEATMAN & CO., 119 New Bond Street.** (See Class 2.)

## CLASS XXIV.

(East Arcade.)

Grates, Stoves, Kitcheners, Ranges, Boilers, &c., for Domestic Use. Apparatus for Heating and Warming, Smoke Abatement, &c.

**576. BARNARD, BISHOP & BARNARDS, Norfolk Iron Works, Norwich; & 91, 93, 95 Queen Victoria Street, London, E.C.**—(1) Slow Combustion Grates, Stoves, Kitcheners, Ranges, &c. for domestic purposes, all constructed with a view to smoke abatement. Also Everitt and Barnard's "Glow" Stove. (2) Objects for internal decoration consisting of carved wood mantel-pieces and all necessary fittings for the hearth.

**577. COALBROOKDALE CO. Limited (THE), Shropshire; and Holborn Viaduct, London.**—(1) Improved Grates and Ranges. (2) Pavilion Grates. Covered way and Fireplaces in House erected by Mr. Taylor Smith for the Wolverhampton Electric Light Co. (3) Fireplaces and Over Mantels in cast iron. (4) Drinking Fountains fitted with Maignen's patent filters. (5) Works executed from designs by students of Science and Art Department.



**578. MAPPIN & WEBB, 158 to 162 Oxford Street, London, W.**—(1) The Abbotsford Patent Smoke-Consuming Slow Combustion Stove. (2) Mantelpieces in carved wood, marble and carton pierre, also in wood and bronze. (3) Decorative Furniture for the stove and hearth. (4) Lustre and other Tiles. (5) Special hand-painted Tiles. (6) Fenders. (7) Dogs. (8) Fire-irons, &c.

**579. YATES, HAYWOOD & CO., AND THE ROTHERHAM FOUNDRY CO., Limited, 95 Upper Thames Street, E.C.**—(1) Marble Chimney Pieces, Stoves and Fenders. (2) Iron Chimney Pieces with ornamental stoves and fenders. (3) Cooking Ranges. (4) Ventilating Air Stoves.

**581. STEEL & GARLAND, 45 Holborn Viaduct, E.C.; & Wharnccliffe Works, Sheffield.**—Smoke Consuming and Warm Air Ventilating Grates:—(1) "Kensington" Smokeless Grate. (2) The "Wharnccliffe" Patent Warm Air Ventilating Grate. (3) The "Perfect" Slow Combustion Stove for burning coke. (4) The "Miser" Smoke Consuming Pillar Air Stove. (5) The "Country Parson's" Slow Combustion Grate and other grates suitable for Dr. Siemens' apparatus for gas fires.

**582. HERRING & SON, Chertsey.**—(1) Improved Cooking Range. (2) Improved Fire Lump Grates. (3) Brookwood Warming and Ventilating Grates.

**583. KINVETT, MRS. A., 204 Caledonian Road, N.**—Fire Economiser for ordinary grates.

**584. BELHAM, S., & CO., Britannia Works, 155 Buckingham Palace Road.**—Complete arrangements of practical, economical and artistic appliances for the combustion of coal in domestic and other buildings, viz.—(1) Grates on the principle of slow with perfect combustion and consumption of smoke, with fuel chamber and hot-air feeding box and coved firebrick linings, also with descending smoke-flue, conducting the smoke to bottom of fire bars and under same to ascending smoke-flue on opposite side, during which course the carbon is consumed and only the vaporous but sootless products conveyed to the chimney. (2) Chimney Piece with over-mantel cabinet of Italian walnut wood, with panels and fireplace in Rust's vitreous mosaic. (3) Flue Pipes for construction of chimneys so as to obviate all chance of down draughts. (4) Ornamental terminals of Chimneys above roofs, as a substitute for unsightly cowls, to prevent smoky chimneys even in the most exposed positions. (5) Stove with Rust's vitreous mosaic panels. (6) Floor Decoration in Rust's vitreous mosaic, see specimen floor in the Water Companies' Pavilion. (7) Granulated Glass Cement for Wall Decoration. (8) Special Stoneware Traps for ventilating drains.

**585. STARKIE, GARDNER, & CO., 24 Albert Embankment, S.E.**—(1) Wrought metal Dog and Basket Removable Grates for burning wood, coal, coke and gas fires with heat reflectors. (2) Wrought metal Fittings, chiefly iron, for lighting purposes, adapted for gas, oil and the electric light. They combine strength and economy. (3) Tank and other Filters manufactured under Colonel Crease's patent. (4) Carferal, a new and cheap filtering material compounded of alumina iron and carbon.

**586. MULDOON BROS., 33 Roman Road, Barnsbury, N.; and King William Street, Wandsworth Road, S.W.**—(1) Marble and Enamelled Slate. (2) Chimney Pieces in different coloured marbles. (3) Curb Fenders. (4) Tiled Hearths and Stoves. (5) Enamelled Slate Tablets, Lavatory Tops, Sinks, &c.

**587. BOYD, ALEXANDER, & SON, 105 New Bond Street, W.**—Special Grates and Stoves for supplying fresh external air moderately warm, &c.

**588. DAVIDSON, H. W., Bartholomew House, E.C.**—Davidson & Speir's Patent Fire Blower, for prevention of smoke and regulating the draught in ordinary grates.

**589. GRAFTON, SIDNEY, 54 William Edward Street, Birmingham.**—Grate with fitting with easy communication to the exterior building for air communication and air connections. This grate is constructed to convey the heat, which in ordinary grates is absorbed by the grate or its setting, and further to convey into the apartment a current of super-heated air, thereby minimising the consumption of fuel.

**590. HALL, GEORGE, Pump Street, Worcester.**—George Hall's Registered Fire Lump Grate, fitted complete. New registered Perforated Bars. G. Hall's registered Chimney Cowl.

**591. RITCHIE & CO., 23 St. Swithin's Lane, E.C.**—The "Lux-Calor" Hygienic Condensing Gas or Oil Stoves, Ritchie's Patent Gas Heating, Lighting, Ventilating Apparatus.

**592. THE DURHAM COAL OWNERS' AND COAL CONSUMERS' ASSOCIATION, Limited (WILLIAM STOBBS, Manager), 16a Baker Street, Portman Square, W.**—Common register grate with smoke consuming back, and with special draft for burning coke and smokeless coal. This appliance can be seen in action at the Baker Street office.

**593. TAYLOR, WILLIAM PECK, 21 Finsbury Pavement, E.C.**—Diagrams illustrating an invention of Improvements in the means of, and apparatus for preventing or curing smoking chimnies, and entirely preventing down-draught. The up-draught is sufficiently increased to secure a cheerful, clear fire



extract the deleterious gases, and diffuse a current of pure heated air through the apartments. Also Improved Terra Cotta Wind Guards, which have cured the most inveterate smoky chimneys, and entirely abolished cowls, &c.

**594. SMITHS, JAMES, 22 Pine Street, Liverpool.**—Smokeless Domestic Grate.

**595. CARRON CO., 15 Upper Thames Street, E.C.**—(1) Kitchen Ranges of various descriptions. (2) Register Stoves. (3) Tiled Hearths. (4) Mantel Register Stoves. (5) Hall Stoves in brass and tiles. (6) Slow Combustion Heating Stoves, &c.

**596. NEWTON, CHAMBERS, & CO., Limited, Thorncliffe Iron Works, near Sheffield. London Office, 19 Great George Street, Westminster, S.W.**—(1) Patent Cooking Ranges. (2) Improved Yorkshire Range. (3) Hot Closet with Steamers. (4) Steam Boiler, or Jacketed Pans, for soups, &c. (5) Economist Cooking Range.

**597. WALLER, THOMAS, 43 Fish Street Hill, & The Grove, Southwark, S.E.**—(1) One Improved Cooking Stove, fitted with steam and hot water boilers. (2) Pastry Oven and Roaster, with sliding shelves on brass rollers; also Smoke-Consuming Door. (3) One Steam Chest with five compartments. (4) One Cooking Stove with Oven and Boiler, adapted to burn coal or gas. (5) Smokeless Grill Stove; silver fittings.

**598. NEILSON, WALTER, & CO., Park Foundry, Paisley Road, Glasgow.**—(1) Ranges with Tiles and Mouldings: Villa Range, Workmen's Cottage Range and Gem Stoves. (2) Carving Table and Hot Closet combined.

**599. ROSSER & RUSSELL, 22 Charing Cross, S.W.**—(1) Steam Boiling Pans. (2) Gas Oven. (3) Cooking Range. (4) Hot Closet. (5) Warm-water Apparatus. (6) Small Pipe Heating Apparatus. (7) Boilers.

**600. COLBRAN, JAMES B., & CO., 247 High Holborn, W.C.**—Dow's Patent Close and Open Fire Cooking Ranges, act separately and simultaneously—a sure cure for smoky chimneys, and ventilator of kitchen shown in action.

**601. THOMPSON, HENRY, 29 Marquis Road, Canonbury, N.**—Smokeless Stoves and Grates.

**602. CRITTALL, RICHARD, 34 North Street, Manchester Square, W.**—Steam Cooking Apparatus for public and private institutions, Gas Cooking Stoves, Hot Water Boiler.

**603. DEAN & SON, Blenheim Foundry, Oxford.**—(1) Oxford Smoke Consuming Ranges. (2) Gas Ranges with no gas inside the ovens. (3) Register Stove fitted with the Oxford Heat Utilizers. (4) The Oxford Open Fire Range, self-fixing and without flues.

**604. WILSON ENGINEERING CO., Limited (THE), 227 High Holborn, W.C.**—(1) Wilson's Patent Cooking Ranges, fitted with Copper or Bessemer Steel Boilers and jacketed with slag wool or Asbestos, thus preventing any loss of heat. Specialities:—(2) The Wilson combined patent smoke-consuming hot water and steaming range for hotels, restaurants, &c., also patent hot closet and cutting dishes combined, also an assortment of cooking utensils.

**605. WEST, A. J., & CO., 49 Lisle Street, Leicester Square, London, W.** (late of 27 Little Windmill Street)—(1) No. 7. The "Safety" Gas Range, fitted with the Hon. J. W. Plunkett's Patent Safety Gas Tap. (2) No. 6. Family Cooking Stove, fitted with Patent Safety Tap. (3) No. 62. New Hot Plate Table. (4) No. 50. The Recuperative Gas Fire, in polished brass. (5) Southby's Patent Cooking Stove, polished.

**606. GENERAL GAS HEATING & LIGHTING APPARATUS CO., Limited (THE), 54 to 70 St. Paul's Street, New North Road, N.**—(1) Various systems of cooking apparatus. (2) Boilers for kitchens, baths, public institutions, &c. (3) Heating and Ventilating Apparatus for private houses, conservatories, greenhouses, churches, schools, &c.

**607. WORTLEY, COLONEL H. STUART, Rosslyn House, Grove End Road, N.W.**—(1) Hot Air Stoves for warming, ventilating and cooking. (2) Transparent Photographs on Glass. (3) Permanent Photographs in Carbon.

**608. DOULTON & CO., Lambeth, S.E.**—Exhibition of Stoves in Action in the Arcade. Patent Open Fire Grates, entirely of pottery. Open Portable Fire Stoves, in pottery. Close Portable Fire Stoves, in pottery. Pottery Gas Stoves. Pottery Oil Stoves. Combined Smoke and Air Flues.

**609. POTTER, THOMAS, & SONS, 44 South Molton Street, W.**—Hot Water Heating Stoves and Boilers, and Smoke Consuming Grate.

**610. NORMAN, JOHN JAMES, 37 Walbrook, E.C.**—Norman's patent self-generating gas or vapour burners for general heating purposes.

**611. CLEMENTS, JEAKES, & CO., 51 Great Russell Street, W.C.**—A very large Roasting Range in the old style, and Roasting Jack in action, carrying four vertical dangles or revolving hangers for joints with motions right and left for four horizontal spits upon which a whole sheep or baron of beef could easily be cooked. The Chimney Piece and Jack is a portion of the one erected by them at the Pembroke College, Cambridge, under G. Gilbert Scott, Esq., architect. Also



models of two large Central Independent Cooking Apparatus, one of which was erected at the Midland Grand Hotel, St. Pancras, and the other at the New Conservative Club, Liverpool, with some fine specimens of fire dogs and grates.

**612. CRABTREE BROTHERS, Old Union Foundry, Leeds.**—(1) Patent Kitchener, with two low ovens, boiler, gas hob, &c. (2) Patent Kitchener, with one low oven, side boiler, and tap.

**614. FARNWORTH, JOHN K., 24 St. James' Square, Bath.**—Domestic Water Purifier, Self-Acting, &c.

**615. CHAPPELL, H., & CO., 34-61 Fulham Road, S.W.**—(1) Smokeless Close-fire Kitcheners (for burning coke with or without the assistance of Gas) on Dr. Siemens' principle. (2) Portable Cooking Stoves.

**617. SIDDAWAY, E., & SONS, George Street, West Bromwich.**—Gas Heating and Cooking Stoves.

**618. WHYTE & BRADFORD, Victoria Foundry, Boness, N.B.**—(1) "Hotspur" Patent Smokeless Cooking Range. (2) "Hotspur" Patent Smokeless Heating Stove.

**619. SMITH & CO., Osborne Works, Blackheath, S.E.**—Blackheath Kitchener.

**620. WRIGHT, JOHN, & CO., Broad Street, Birmingham.**—(1) Various "Eureka" Gas Cookers. (2) Gas Cookers in Work. (3) Laundry and Tailors' Stoves. (4) Cosey Gas Fires. (5) Hot-Water Apparatus for heating greenhouses. (6) Kyrle Warming Stoves.

**621. PETTER, JAMES B., Yeovil**—Nautilus Grates, showing the different ways in which they may be fixed. In sectional form they resemble a nautilus shell, they radiate a delightful warmth, have an open fire, burn ordinary coal, and with tastefully selected tile surroundings are most artistic and elegant; they may be removed in summer and the fireplace filled with flowering plants.

**622. BINGHAM, EDWARD, 101-103 Fulham Road, S.W.**—(1) Marble and Wood Chimney Pieces with Over Mantels. (2) Dog Stoves, Slow-combustion Stoves, Ventilating and Warm-air Chamber Stoves. (3) Art Tile Panels and Hand-painted Tiles for sides and hearths. (4) Close Fire Ranges with Patent Ventilators. (5) Improved Open Fire Ranges.

**623. EDWARDS, F., & SON, 54 Great Marlborough Street, W.**—(1) Economic Slow Combustion Tile Kitchener, with loose ash-plate for stopping supply of air to under-grating, and with plate to close front of fire, so that the fire could be kept in continuously if required. (2) Improved Slow Combustion and Smoke Abatement Grates with tiles.

**624. CONSTANTINE, T. J., 61 Fleet Street, E.C.**—(1) Constantine's Patent Improved Prize Medal Smoke-Consuming "Treasure" Cooking Range, with both open and closed fires. (2) Constantine's Patent Self-Acting Cooking Pots and other Vessels.

**627. BENHAM & SONS, 50 Wigmore Street, Cavendish Square, W.**—(1) Smokeless Grates. (2) Kitcheners. (3) Ventilating Globe Light Pendants. (4) Hospital Pendant Light. (5) Ventilating Globe Light Brackets. (6) Pipes and Fittings, Regulating Cocks, Hot Air Valves.

**628. DAVIS, H. & C., & CO., Metropolitan Gas Stove Works, 198 & 200 Camberwell Road; & 22 Deansgate, Manchester.**—(1) The Metropolitan Series of Ventilated Family Gas Kitcheners. (2) Tinned Copper Boilers in Cast Iron Case heated by gas. (3) Metropolitan Roaster. (4) Combination Kitchener. (5) Bath Heater. (6) Hot Closet and Cutting Table, &c. (7) Davis' Patent Thermo-Hygienic Ventilating Gas Heating Stoves. (8) Patent Fireproof-Lava Cement.

**629. KEITH, JAMES, Gas, Hydraulic, Ventilating and Heating Engineer, London, Edinburgh, & Arbroath—57 Holborn Viaduct, E.C.**—(1) One of Keith's Large Self-Acting Hydraulic Rams, E size. (2) Keith's Hydraulic Ram Pump, an entirely new adaptation of Keith's Hydraulic Ram, self-acting, for raising clean water by the action of impure water. (3) Keith's Patent Challenge Boiler (No. 4 B, full size) for hot water heating. This is the largest and most powerful hot water boiler in the world, it being capable of heating 10,000 feet of 4-inch pipe. (4) Section, showing Fire Box and form of construction of No. 2 B size Challenge Boiler. (5) Keith's Patent No. 1 B size Hot Water Boiler, 7 sections. (6) Keith's Patent No. 1 B size Hot Water Boiler, 5 sections. (7) Keith's Patent No. 2 C Hot Water Boiler. (8) Section of No. 2 C Boiler, showing form of construction. (9) Keith's Patent No. 1 C size Hot Water Boiler. (10) Keith's Patent No. 0 C size Hot Water Boiler. (11) Section of No. 0 C Boiler showing form of construction. Note.—Keith's boilers require no brick setting or building work round them. (12) Keith's Patent Open Fire Hot Water Apparatus, L size, shown working, a complete ornamental and powerful hot water heating apparatus in itself. (13) Framed Drawing, showing other styles of Keith's Patent Open Fire Hot Water Apparatus. (14) Keith's Patent Coil Tables, ornamental, for hot water and steam, various sizes assorted. (15) One of Keith's No. 1 B size Challenge Boilers, shown working, heating two of the large coil tables with ornamental vase cisterns on top. (16) Keith's Steam Glue and Paste Heaters, Hot Water and other Thermometers. (17) Keith's Steam Nozzles for heating or boiling water noiselessly. (18) Keith's Small Fittings, assorted, for steam and hot



water heating. (19) Circular and Square and Ceiling Ornamental Air Flap Register Inlets and Outlets. (20) Model (one-fourth real size) of Keith's Patent Mineral Oil Gas Works, for lighting mansions, &c., and as used at Langness Lighthouse, Isle of Man, and as now adopted by the Commissioners of Northern Lights for illumination and fog signal power purposes, and as being presently erected for the Commissioners on Ailsa Craig rock, for the safer navigation of the Firth of Clyde.—Note.—Though this gas work model is capable of being worked it will not be shown working.

**630. YATES, CHARLES DAMON,** (Victory Water-Heater Co.), Tunstall Road, Brixton, S.W.—Patent Water Boiler and Vegetable Steamer heated by gas, adapted for licensed victuallers, coffee palaces, restaurants, and for general domestic purposes. Will give 600 gallons of boiling water per day. Generation of steam 10 lbs. per minute. Nominal cost.

**631. BROWN & GREEN, Limited,** Windsor Street, Luton; and Finsbury Pavement, E.C.—(1) Improved Smoke Consuming Grates, Stoves, Kitcheners. (2) Cooking Utensils.

**632. MARTINEAU & SMITH, Hol-**loway Head, Birmingham.—(1) Portable Hand Fire Pumps, Hose Unions for connecting fire-hose, Jets and Branch Pipes for attaching fire-hose, Hydrant Cocks and other fire-extinguishing appliances. (2) Safety Valves for preventing boiler explosions. (3) Taps, Valves and Fittings for range boilers. (4) Water Fittings, including Bath, Lavatory and Cistern Taps and Valves. (5) Taps for Preventing Waste of Water.

**633. DEARDS, W. & S., Harlow,** Essex.—(1) The "Princess Louise" Coil Grate, for warming and heating halls, staircases, passages and spare rooms from ordinary fire grates. (2) The "Champion" Coil Boiler, for heating churches, chapels, public buildings, schools, &c. (3) The "Wonder" Boiler. (4) Diagrams, Drawings and Plans showing arrangements of heating. (5) Model of arrangement of workshop, as arranged and warmed by hot-water system for prevention of fires and conducive to health.

**634. DEANE & CO., 46 King Wil-**liam Street, London Bridge.—(1) Fletcher's Patent Gas Heating and Cooking Stoves. (2) Gas and Petroleum Laboratory Apparatus. (3) Ventilated Hot-Air Ovens. (4) Ranges. (5) Radial and other Burners. (6) Hot Plates. (7) Instantaneous Water and Bath Heaters. (8) Heating Stoves. (9) Asbestos Fires. (10) Fletcher's Patent Furnaces, Forges, Blow-pipes, High-power Burners, &c.

**636. BELL, JOHN, 118 Southwark** Street, S.E.—(1) Asbestos as applied to filtration. (2) Asbestos gas fires, non-conducting

covering for economising and transmitting heat. (3) Asbestos Fire-Proof Plaster (4) Asbestos Fire-Proof and Sanitary Paints, Fire-Proof Flooring, Felt Wall Covering, &c. (5) Asbestos Fire Escapes.

**637. HELLIER, WILLIAM, 16 Duke** Street, Grosvenor Square.—(1) Apparatus for heating water with gas for baths and general domestic purposes, also for warming by the circulation of hot water. (2) Appliance for warming with steam generated by gas.

**638. JAFFREY'S PATENT GRATE** CO., 6 Charing Cross, London.—Jaffrey's Patent Open Fire Grate is constructed to burn ordinary coal by an arrangement for consuming its own smoke; the fire is also fed with oxygen, producing a bright fire, radiating great heat with small consumption of fuel, the gases and air being superheated before entering the flues, smoky chimneys and down draughts are rendered impossible; the whole effected by strict adherence to natural laws.

**638a. MARLOW, HENRY & CO.,** 127 Regent Street, W.—Patent Chimney and Ventilating Cowl, invented by Frederick Leslie, M. Inst. C.E.

**639. NELSON, JAMES, & SONS,** 47 Briggate, Leeds.—(1) Economiser Stove, with tile sides and "Nelson's" registered rifle back; splayed front. (2) Economiser Stove, with tile sides and "Nelson's" registered rifle back, flat front. (3) Economiser Stove, with tile front and "Nelson's" registered rifle back. (4) Economiser Stove, diaper pattern, all iron, and "Nelson's" registered rifle back. (5) Teale Economisers for a register stove, a sham stove, and a kitchen range. (6) Disc Pokers, improved pattern.

**640. KAY BROTHERS, Stockport.** (1) Thermone, Patented. An instrument devised to utilize the waste heat of an illuminating flame for warming rooms. (2) Solidified Linseed Tea (in powder lozenges or cake). (3) Genuine Fruit Essences and Syrups. (4) Lava, a fusible cement. (5) Chemical Disinfecting Powder (an antiseptic deodorizer for all sanitary purposes of house, farm or hospital).

**641. TOOPE'S ASBESTOS COVER-**ING CO., Limited, 1 Ben Jonson's Road, Stepney, E.—(1) Toope's Patent Fire-Proof Removable Covering for Electric Light Gas Engines, heating pipes of buildings, &c. (2) Fire-Proof Slabs for flooring, lining for walls or hot closets, &c. (3) Toope's Patent Non-Conducting Removable Covering for steam pipes, gas and cold water pipes, &c. (4) Toope's Papier-Mâché Plastic Composition for coating steam boilers, pipes, &c.

**645. ALLEN, THOMAS, 3 Unity** Street, Bristol.—A Kitchenier.



**646. MILAN & SHAW, Albert Works, Lockwood, Huddersfield.**—(1) Milan & Shaw's Patent Mercurial Indicator, for the prevention of household boiler explosions, and indicating the condition of the water supply. (2) Patent Hydro-Pneumatic Coil for heating and ventilating purposes.

**647. HEWETT, GEORGE, 1 Iron-gate Wharf, Paddington Basin, W.**—(1) Enamelled Slate and Marble Chimney Pieces, Stoves and Tiles. (2) Pedestals for Busts, engraved and gilt. (3) Hand-Painted Flowers and Decorations, Hand Painted Improved Dining Filter.

**648. PATENT GAS FUMES NEUTRALIZER CO., Limited (THE), 7 Bothwell Circus, Glasgow.**—Patent Gas Fumes Neutralizer, Heating, Cooking, Tailors', Laundry, and Bar Stoves.

**650. MOERATH, JOHN N., 23 Great Saint Helen's, E.C.**—Appliances in connection with domestic and other fire-places, stoves and furnaces.

**651. SUGG, WILLIAM, & CO., Limited, Vincent Works, Westminster; 1 & 2 Grand Hotel Buildings, Strand.**—(1) Charing Cross Gas Fire. (2) Charing Cross Gas Fire fitted to Dog Grate. (3) Patent Charing Cross Gas Kitchen. (4) Harcourt's Patent Therma. (5) Ironing Stove. (6) Instantaneous Water Boiling.

**653. DAVIS & SONS, 12 & 36 Walcot Street, Bath.**—Gas Cooking Stoves, made on the most approved principles,—for roasting, baking, grilling, boiling, and frying,—lined throughout with the best non-conducting material, and working with the smallest possible consumption of gas, and are made of the best and most durable materials.

**654. STEPHENSON, W. H., M.D., 67 Ainsworth Street, Blackburn.**—(1) Portable Gas-Heating Water Coils for dwellings or greenhouses. (2) Automatic Heat-regulator. (3) Tubular Gas Stoves.

**655. PUGH BROTHERS, 97 & 99 Holloway Road, N.**—(1) Gas Fire for Private Houses, Offices, Institutions, &c. A new appliance, can be fitted to any fire grate without alteration; more perfect combustion of air and gas, giving the comfortable appearance of a coal fire, without smoke or dust. (2) Gas Cooking Stoves and utensils. (3) Gas Boiler and Circulating Pipes, &c.

**656. COX, ROBERT E., 330 High Holborn, W.C.**—Register Stoves, fitted with Cox's patent improvements in grates, whereby a great saving is effected, and a smokeless fire obtained. The "Improvement" consists of a small addition which can be fixed to an ordinary stove in an hour at little cost. The noxious gases from coke, anthracite, &c., are burnt up by this system of combustion.

**657. HAZARD, HENRY H., 5 Park Side, Knightsbridge, S.W.**—(1) A Patent Gas Fire, having no chimney, the whole of the heat being retained products of combustion condensed and absorbed. (2) Hot-water circulation upon same principle. (3) Steam Boiler ditto. (4) Improved Gas Cooking Apparatus.

**658. HEPBURN, R. H., Palace Chambers, Victoria Street, S.W.**—Model of Steam Boiler Grate for the promotion of the combustion of carbonaceous fuel, and the prevention of smoke from bituminous fuel (R. H. Hepburn's patent).

**659. BOTTING, FRANCIS, 6 Baker Street, Portman Square.**—(1) An Improved Atmospheric Gas Stewing and Broiling Stove. (2) Kitchen Fat-Trap Cover, with Air-tight Improved Joints, suitable for many other purposes. (3) Open Balanced Ventilators, for rooms, drains. (4) Durrant's Patent Total Disconnection Valve and Lead Combined for Soil Pipes.

**660. DAVIS, EDWARD, & SON, 97 York Street, Westminster, S.W.**—(1) Gas Cooking Stoves, with two ovens lined with white tiles, for roasting, baking, boiling, grilling, &c. (2) Double Gas Grilling Stoves. (3) Register Stove, fitted with improved asbestos gas fire. (4) Improved Gas Dials and Regulators for regulating supply of gas at main cock of meter.

**661. WILSON, CHARLES, & SONS, Carlton Works, Leeds.**—(1) Gas Cooking Stoves. Interior of stoves constructed of fine cast iron, and packed with a patent non-conductor. (2) Gas-Heating Stoves. Burmantoft's ware; also nickel plated. (3) Wilson's New Patent Gas Fire Grilling Stoves. (4) Gas Baths and Boilers. (5) Hot Plates. (6) Plate Warmers. (7) Utensils for Gas Stoves.

**662. WAGSTAFF, JOSHUA G., Alma Iron Works, Dukinfield.**—(1) Hot-Water Apparatus. (2) Patent Saddle and Cylindrical Boilers, Coils, Coil Cases, &c.

**663. MUSGRAVE & CO., Limited, Ann Street Iron Works, Belfast; and 97 New Bond Street, W.**—Musgrave's Patent Slow-Combustion Ventilating Stoves and Air-Warmers.

**664. MELVILLE, W. S., 18 Frederick Place, Bow, E.**—(1) Ordinary Open and Close Grates, to show the action of "Smoke Abater Shovel." (2) Front Damper acting as a "Tidy Betty" with Cinder-sifter or Save-all attached. (3) New Grate Front, internal form and fittings for underfeeding.

**665. CHURCHMAN, ALFRED CHARLES, 10 Clenston Terrace, Munster Road, Fulham, S.W.**—A New Patent Asbestos Gas Fire Stove, with a special arrangement for the regulation of the amount of heat as required.



**666. NETTLETON, J., & CO.,** Sloane Square, Chelsea.—Stoves, open and close fire, constructed specially to bring all the air into the room or the house pure and warm but unburnt, and thus preventing the possibility of any draughts from doors or windows, and at the lowest expense.

**668. POTTER, THOMAS GREVILLE,** 40, late 17 Oxford Street, London, W.—(1) Mineral Oil Kitcheners, constructed for one or any number of persons, under rapid, cleanly and economical home services, for warming and cooking, bread-baking also thoroughly accomplished. The ovens for these kitcheners are cellated, and thus ensure an equality of heat on every side. (2) Methylated Spirit Kitcheners, for one or any number of persons, render immediate services under any exigencies, night or day. Thoroughly hygienic, and of priceless value in physical suffering, alike in hospital, sick-room, nursery, camp or field hospital. (3) Methylated Spirit Apparatus, for vapour baths and throat and chest affections.

**669. BIRKETT, DANIEL, F.R.I.B.A.,** Carlisle.—Open Fire Grate for ordinary dwelling house, consuming its own smoke.

**670. REYD & CO.,** 5 St. James's Road, New Cross Road, S.E.—Front Fire Bars for Domestic Stoves; made on a new and novel system, to effect improvements for safety, cleanliness, and economy, and preventing waste of cinders and small coal. The bars are set at an angle of about forty-five degrees, which together with the breadth and distance apart of them, produce the objects desired, and are known as Dyer's Patent Safety.

**671. EAGLE RANGE AND FOUNDRY CO.,** 284 Regent Street, W.—Patent Cooking Ranges.

**672. BEYNON & COX,** Torbay Iron Works, Torquay.—(1) Gas Cooking Ranges. (2) Gas Heating and Ventilating Stoves. (3) Gas Regulators.

**673. FLAVEL, SIDNEY & CO.,** Eagle Foundry, Leamington.—(1) Flavel's Prize Kitcheners. (2) Open and Close Fire-grilling Stoves, all with the latest improvements and on improved principles.

**674. ADAMS & SON, Engineers,** 41 & 42 Marshall Street, W.—Captain Warren's Patent Cooking Apparatus, adapted by H. M. War Department.

**675. JAMESON'S PATENT COKING CO.,** 8 Nicholas Chambers, Newcastle-on-Tyne.—(1) Model of Coke-Oven to show modification required for the Jameson process of recovering by-products of coal. (2) Samples of metallurgic coke, smithy char and peat charcoal carbonised in the Jameson Oven, with recovery of oil, ammonia, and gas. (3) Samples of Crude and Rectified Oils. (4) Samples of Sulphate of Ammonia. The Jameson process

of treating coal consists in carbonising it in a coke oven with gentle aspiration from the lower part of the charge during its carbonisation, the resultant fuel is of a very high character. About 12,000 ft. of rich burning gas are extracted (with nearly all the gas-producing material) from each ton of coal. According to quality of coal, oil from 2 to 15 galls. per ton, and ammonia to 2 to 17 lbs. per ton is obtained.

**676. HENDERSON, CHARLES JAMES,** 6, Drumsheugh Gardens, Edinburgh.—The Edinburgh Fire Stove, combining both in one, while giving a cheerful fire, at same time robs the smoke of one-half its heat, by means of a current of fresh outside air.

**677. DYER, FREDERICK,** 66 High Street, Camden Town, N.W.—(1) Dyer's Patent Hot-Water Apparatus. By this patent an explosion cannot take place. (2) Automatic Tidal Valve Traps for the prevention of any back-flow of water or sewage, in case of high tides or floods. (3) Patent Air-tight Man-Hole Covers, simple, effective, and without hinge, with or without lock.

**678. BOYD, DAVID OGILVY,** 19 & 23a Maddox Street & 4 Marlborough Mews, W.—(1) The Fisheries Hygiastic Ventilating School Grate. (2) Improved College Grate. (3) Improved Hygiastic Ventilating Grate. (4) College Grate, specially adapted for burning Welsh smokeless coals. (5) Boyd's Girton-College Grate. (6) Boyd's Hygiastic Ventilating Gas Fire. (7) Boyd's Nursery Grate. (8) Boyd's Open Fire College Grate.

**679. HEARDER & SON,** 195 Union Street, Plymouth.—Devon Ranges and Improved Slow-combustion Smoke-consuming Stoves, for cooking or warming. Invented and made by Exhibitors.

**681. MASTERS, HENRY, Architect,** M.S.I., 18 Meridian Place, Clifton, Bristol.—(1) Evaporating and Condensing Tubular Gas Heater, for economically warming a large body of air. (2) Drawing illustrating the internal construction of the same.

**682. TAGNON, ADOLPHUS,** 137 Gray's Inn Road, W.C.—(1) Designs for Dwelling-Houses. (2) Apparatus for saving fuel, can be fixed to any open fire grate. (3) Wrought-iron Oven for any ordinary stove. (4) Walls built of Belgian T Marble Slabs, requiring no fitting. (5) Marble Chimney Pieces, Stoves, Grates, Steps, Larder, Samples. (6) Drawings of Buildings. (7) Belgian T Marble Pedestals, Columns, Pavements, Fenders.

**683. HUNT, HARRY,** 43 Newington Green, N.—(1) Hygiene Base-Burner Hall Stoves. (2) Fire-Place Heaters. (3) School-room Ventilating Stove. (4) Base-Burner Anthracite Coal Stoves. (5) Stoves for burning smokeless fuel. (6) Cooking Stoves.



**ADAMS, ROBERT**, 17 Blackman Street, Borough, S.E. (See Class 20.)

**BEYNON & COX**, Torbay Iron Works, Torquay. (See Machinery in Motion, Bakeries.)

**BOWER BARFF RUSTLESS IRON CO., Limited (THE)**, 23 Queen Victoria Street, E.C. (See Class 23.)

**BOWER, GEORGE**, St. Neots. (See Class 23.)

**CLEMENTS, JEAKES, & CO.**, 51 Great Russell Street, W.C. (See Class 31.)

**CLIFF, JOSEPH, & SON**, 2 Wharf, King's Cross Goods Depôt, N. (See Class 20.)

**DOWSON ECONOMIC GAS CO., Limited (THE)**, 3 Great Queen Street, S.W. (See Class 26.)

**GROOM & CO.**, Liquorpond Street, E.C. (See Class 12.)

**INGHAM, WILLIAM, & SON**, Wortley Fire Clay and Glazed Brick Works, Wortley, near Leeds; and 35 Bucklersbury, E.C. (See Class 28.)

**JENNINGS, GEORGE**, Palace Wharf, London, S.E. (See Class 31.)

**LOCH BROS. & CO.**, 35 Queen Victoria Street, E.C. (See Machinery in Motion, Western Gallery.)

**PERKINS, B., & SON**, Bermondsey Street, S.E. (See Class 31.)

**RECK, A. B.**, 3 Thuresengade, Copenhagen. (Agents, **PUGGARD & GALSCHIOTT**, 34 Eastcheap, E.C.) (See Class 35.)

**SANITARY REFORM & ENGINEERING CO. (THE)**, 292 Brockley Road, S.E. (**C. R. STEVENS**, Manager). (See Class 21.)

**SUGG, WILLIAM, & CO., Limited**, Vincent Works, Westminster S.W. (See Class 26.)

## CLASS XXV.

(Central Annexe.)

Ventilators, Air Inlets and Outlets, Cubic Space of Rooms, Cowls, Air Straining and Cleansing.

**687. WRIGHT, G., & CO.**, Billiard Table Makers and Patentees, 162 to 164 Westminster Bridge Road, S.E.—Model of their "Eclipse" Ventilator, specially adapted for billiard and smoking rooms, halls, mansions, &c., &c. The most perfect and complete system of ventilating yet introduced.

**688. SHARP & CO.**, 11 Holborn Circus, E.C.—Ventilators.

**690. RADCLYFFE, DICK, & CO.**, 128 High Holborn, W.C.—Window Ventilator, and Decoration.

**691. FRERE, AUGUSTUS, F.R.I.B.A.**, 34 Essex Street, Strand, W.C.—Model of a Ventilating Window Sash and Frame, suitable for dwellings of the poor.

**692. COOPER, H. W., & CO., Limited**, 28 a Upper George Street, Edgware Road, W.—(1) Glass Revolving, Circular, and Sliding Ventilators. (2) Improved Glass Louvre and Venetian Ventilators, for private and public buildings, churches, halls, and lights of every description. (3) Improved Louvre Ventilator, fitted with an outside weather bar. (4) Improved Hopper Ventilator for lights of every description. (5) Metal Casements for general purposes.

**693. CASE, P. W. PERKINS, Dr.**, Queen's Road, West Croydon.—A Third Sash Regulating Ventilator and ornamental shelf combined.

**694. WEBB, GEORGE W., Architect, A.R.I.B.A.**, 1 Blagrove Street, Reading.—Model of a recently-erected Billiard Room, illustrating a perfected system of automatic ventilation by taking away in the most direct manner the products of combustion, tobacco smoke, vitiated air, &c., and supplying fresh air as desired without down draught. The system can be applied to any office, bank, workshop or any place where an unhealthy state of the atmosphere exists.

**696. HARRINGTON, G. F.**, Northwood House, Ryde.—Ventilating Shaft.

**697. HAINSWORTH, BENJAMIN**, 70 King Cross Street, Halifax.—Double Current Syphon Dormer Ventilator. Double Current Syphon Wall or Low Room Ventilator. Ornamental Single-tube Outlet Ventilator, fitted with valves and over-flow pipe. Plain Single Tube Outlet Ventilator.

**698. LLOYD, FRANCIS**, 40 Mecklenburgh Square, W.C.—Model of a Room to show by experiment, how complete and imperceptible ventilation can be obtained by supplying fresh air solely to the upper part of a room, from a ventilating fire grate, while vitiated air is removed at the chimney-throat.

**699. SMEATON, JOHN**, Imperial Buildings, Ludgate Circus, E.C.—(1) Kosmo's Ventilators. (2) Smeaton's Patent Exhaust Cowls. (3) Ventilating Apparatus for soil pipes, &c. Also ventilating arrangements for dwellings, hospitals, schools, &c.

**700. WOOD EDWARD**, Red Bank Works, Manchester.—A Selection of Tobin's Ventilators for introducing fresh air without draught, and for carrying away heated and vitiated air without down draught.



701. UDAL, W., & CO., 45-46 Bromsgrove Street, Birmingham; & 9 Charterhouse Street, London, E.C.—Bruce's Patent Fanlight Opener, for ventilation in public buildings and dwelling-houses.

702. THORNEYCROFT, LIEUT.-COL., Tettenhall, Wolverhampton.—Model showing system of ventilation by drawing fresh air from above the house through the ventilating pipes along the sewage pipes.

703. NICHOLLS, WILLIAM W., 42 Luard Street, Caledonian Road, N.—Window Frames and Sashes, by which the danger in cleansing outside is obviated.

704. WRIGHT, E. S., 343 Commercial Road, Portsmouth.—Chimney Cowl.

705. DOW, H. BOOTHBY, M.D., North House, Pembroke Square, W.—A Cowl for preventing down draught in chimneys.

706. NEAL, R., M.D., 60 Boundary Road, N.W.—(1) Chemical Punkah to hang against the wall. (2) Two Drawings of Dr. Neal's Purifying Apparatus.

707. THOMASSON & KAY, Worcester.—Thomasson's Improved Corbel Air Inlet, with cone valve regulator for admitting and diffusing the external air in buildings, ships' cabins, &c.

708. SMITH, FREDERICK HENRY, 52 Queen Victoria Street, London, E.C.—F. H. Smith's Patent Automatic Syphonic System of Ventilation. Applicable to enclosed lamps, burners and stoves, also for the ventilation of houses, chambers, kilns, closed vehicles or other places, where it is required to remove warm or vitiated air, and to introduce cold or fresh air in place thereof, without producing injurious or objectionable draughts or currents of air.

709. RAGLAN, WILLIAM, 15 Mornington Road, New Cross.—Full-size Model of Window, showing new means of ventilation. The lower sashes done away with, a fernery can be formed.

710. HAYWARD BROTHERS & ECKSTEIN, 187 Union Street, S.E.—(1) Hayward's Sheringham Ventilator (inlet). (2) Boyle's Mica Flap Ventilators (outlet). (3) Hayward's Venetian or Louvre Ventilators (inlet or outlet). (4) Hayward's Silk Flap Ventilator (outlet). (5) Fresh-air Inlet Valves for drains. (6) Air-tight Inspection Covers. (7) Hayward's Patent "Semi Prism" Pavement and Floor Lights.

711. PRIESTLEY, MRS., 17 Hertford Street, Mayfair.—(1) Floral Ventilator. (2) Small Model of Mayfair Dust Cellar.

712. MOORE, JOSIAH, & SONS, Sekforde Works, St. James' Walk, Clerkenwell, E.C.—(1) Moore's Patent Improved Glass Louvre Ventilators, showing application to ordinary sashes for dwelling-houses, churches, chapels, schools, shops, &c. (2) Improved Circular Glass Ventilators in various forms, both plain and ornamental, including their new "Star" pattern. (3) Moore's Improved Sliding Glass Ventilators, fitted in glass grooves, by which security and appearance is materially improved. (4) Perforated glass.

713. THOMPSON, H., Civil Engineer, Victoria Buildings, Manchester.—Model of House, showing method of ventilation by the exhaustion produced by the ridge tile; also Mercurial Air Valves, and Ventilating Roofing.

714. MEAKIN, W., & CO., 84 Baker Street, W.—Improved Construction of Window Sash, with special facilities for cleaning; also Apparatus for Ventilation, and Improved Pullies. The window presents no unusual appearance, but is capable of swinging forward at the sill, so that a person, while standing in the room, can clean the outside of the glass. Easy access is also afforded to the sash-lines, &c., for repairs.

715. BUCHAN, WILLIAM PATON, Sanitary Engineer, 21 Renfrew Street, Glasgow.—(1) Buchan's Patent Exhaust Induced-Current Fixed Ventilators. (2) Buchan's Patent Ventilating Valve. (3) Buchan's Patent Asbestos and Fibre Disease Germ Air-strainer. (4) Buchan's Patent Hearthstone Fresh-air inlet. (5) Diagrams, showing Buchan's systems of ventilation applied to houses.

716. PITHER, ERNEST E., & CO., 38 Mortimer Street, W.—A Room ventilated on a new system; a room furnished to obtain maximum of comfort with minimum of cost, everything specially designed. Wall papers, casement windows, tiles, stained glass-flooring blocks, fireplace and special hob, dog grate with wood mantle.

717. ELLISON, JAMES EDWARD, Victoria Square, Leeds.—(1) Ellison's Patent Conical Perforated Bricks and Air Grates. (2) Ellison's Patent Radiator Ventilator. (3) Ellison's Patent Vertical Tube with Expanding Mouth. (4) Stevens' Exhaust Ventilators. (5) Stevens' Chimney Tops. (6) Stevens' Soil Pipe Cows. (7) Vyle's Patent (easily tested) Lightning Conductors.

718. LEGGOTT, W. & R., 23 Swaine Street, Bradford (Agent, J. E. ELLISON, Victoria Square, Leeds).—Leggott's Patent Adjustment for opening and closing fanlights, skylights, ventilators, &c.

719. LAMB, J. M., & CO., 119 Finchley Road, South Hampstead, N.W.—(1) Lamb's Patent Ventilators, Collection



of Air-inlets and outlets, Cowls, Air-straining and Cleansing Appliances. (2) Fans for exhausting foul air, dust, or floating refuse, also for supplying fresh air. (3) Apparatus for warming and ventilating schools by fresh hot air, also system of Ordinary Ventilation, Fresh Air Inlets and Outlets with heating and cooling appliances. (4) House Drains, their construction and ventilation fitted up to show their action; Improved Grease Traps, Gulleys, &c.; Sewer Exhaust Ventilators and improved Double Action Air Intakers, &c.

720. **PHILLIPS, W. FLEMING, St Mary Bourne, Andover, Hants.**—(1) Improved Inlet Valve for freshair. (2) Air-inlet for doors; can be easily fitted to any door. (3) A Portable Disinfecting Chest. (4) Protective Casing for shallow dip wells. (5) Drawings and Illustrations.

721. **KITE, C., & CO., Christopher Works, Chalton Street, N.W.**—(1) Ventilators and Smoke-curing Chimney Caps. (2) Model Building, showing Kite's system for ventilating buildings. (3) Kite's Patent Roof Ventilators. (4) Exhaust Drain Ventilators. (5) Inlet Drain Ventilators. (6) Noiseless Chimney Breast Outlet Ventilator. (7) Wall Inlet Ventilator.

722. **ATMOSPHERIC COWL CO. (THE), 2 Short Street, Finsbury Pavement, E.C.**—(1) Patent Atmospheric Chimney Cowls. (2) Atmospheric Ventilators for public buildings, stables, workshops, &c. (3) Patent Atmospheric Soil Pipe Ventilators.

723. **EWART & SON, 346 Euston Road, London.**—(1) "Empress" Ventilators. (2) "Empress" Chimney Pot. (3) "Prince" Chimney Pot. Prince Chimney Pot Inlet Ventilating Tubes.

724. **LORD, WILLIAM, & CO., 14 Marsh Road, Middlesborough; 49 Star Street, Edgware Road; SAMUEL GRATRIS, JUN., & BRO., Manchester.**—(1) Lord's Patent Chimney Cowls. (2) Lord's Patent Ventilators for public buildings, soil pipes, ships, railway carriages, &c.

**ADAMS, ROBERT, 7 Great Dover Street, S.E.; & 7 Blackman Street, Borough, S.E.** (See Class 20.)

**BANNER BROTHERS & CO., 11 Billiter Square, E.C.** (See Class 22.)

**BECK & CO., Limited, 130 Great Suffolk Street, Southwark, S.E.** (See Class 23.)

**BENHAM & SONS, 50 Wigmore Street, Cavendish Square, W.** (See Class 24.)

**BLACKMAN AIR PROPELLER VENTILATING CO., Limited (THE), 57 Fore Street, E.C.** (See Machinery in Motion. Western Gallery.)

**BOLDING, JOHN, & SONS, Grosvenor Works, South Molton Works, W.** (See Class 23.)

**BOTHAMS, JOHN C., M.I.C.E., City Engineer, Salisbury.** (See Class 22.)

**BOWER BARFF RUSTLESS IRON CO., Limited (THE), 23 Queen Victoria Street, E.C.** (See Class 23.)

**BOYLE, ROBERT, 64 Holborn Viaduct, E.C.** (See Machinery in Motion, Western Gallery.)

**CAPPER, SON & CO., Ingram Court, Fenchurch Street, E.C.** (See Class 23.)

**CLEMENTS, JEAKES, & CO., 51 Great Russell Street, W.C.** (See Class 24.)

**CLIFF, JOSEPH, & SON, 2 Wharf, King's Cross Goods Depôt, N.** (See Class 20.)

**DOMESTIC ENGINEERING & SANITARY APPLIANCE CO. (THE), 24 High Holborn, W.C.** (See Class 23.)

**DOULTON & CO., Lambeth, S.E.** (See Class 20.)

**EDGAR, ALDOUS, & SON, Cleveland House, 205 Romford Road, Stratford, E.** (See Outside.)

**HALE, R. W., & CO., 12 Chalton Street, N.W.** (See Machinery in Motion, Western Gallery.)

**HILL & HEY, Halifax.** (See Machinery in Motion, Western Gallery.)

**INGHAM, WILLIAM, & SON, Wortley Fire Clay and Glazed Bricks Works, Wortley, nr. Leeds; and 35 Bucklersbury, E.C.** (See Class 28.)

**KEITH, J., Engineer, 57 Holborn Viaduct; Edinburgh & Arbroath.** (See Class 24.)

**KERSHAW, A. W., Lancaster.** (See Machinery in Motion, Western Gallery.)

**NORTON, F. L., 84 Cannon Street, E.C.** (See Machinery in Motion, Western Arcade.)

**ROSSER & RUSSELL, 22 Charing Cross, W.C.** (See Machinery in Motion, Western Gallery.)

**ROTH, Dr. M., 48 Wimpole Street, Cavendish Square, W.** (See Class 39.)

**SEAGRAVE, G., 103 Wellington Buildings, Chelsea Bridge Road, S.W.** (See Machinery in Motion, Western Gallery.)

**SHARP & CO., 11 Holborn Circus, E.C.** (See Class 21.)

**SHUTTLEWORTH-BROWN, D. H., 5 Huggin Lane, Queen Victoria Street, E.C.** (See Class 11.)

**STIDDER, J. G., 50 Southwark Bridge Road, S.E.** (See Class 23.)



**STIRRAT, B. B.**, 43 Alexander Place, Newcastle-on-Tyne. (See Machinery in Motion, Western Gallery.)

**STOPES, H., & CO.**, 24a Southwark Street, S.E. (See Machinery in Motion, Western Gallery.)

**SUGG, WILLIAM, & CO., Limited**, Vincent Works, Westminster. (See Class 26.)

**UNIVERSAL PERFECT VENTILATION CO. (THE)**, High Street, Southampton. (See Outside.)

## CLASS XXVI.

(West Corridor.)

**Lighting Apparatus.**—(a) Electrical Apparatus for Illumination and Domestic Use, Secondary Batteries, Electroliers, Accumulators, &c.; (b) Apparatus for lighting by Gas, Gas Producers, Gas Meters, Gas Fittings, Chandeliers, &c.; (c) Oil and other Lamps; Mineral Oil, Wax and other Candles, Vegetable and Animal Oils.

**725. MULLER, H. L.**, Mary Ann Street, Birmingham.—(1) Müller's Alpha Gas-making Machine for 60 Lights, for lighting private residences, public buildings and towns where coal-gas cannot be had. (2) Müller's Patent Gas Generator, whereby Gas Engines make and supply themselves automatically with gas.

**726. STOTT, JAMES, & CO.**, 174 Fleet Street, E.C.; 8 Hopwood Avenue, Manchester; & Vernon Works, Oldham.—(1) The Stott Gas Governor for consumers. (2) The Vernon Parlour Fire. (3) Gas Escape Indicators. (4) Stott's application of gas to existing coal ovens. (5) Taylor's Concentrators for electric spark lighting lamps.

**727. DRURY, ROBERT F.**, George Street, Sheffield.—Lyon's Automatic Gas Governor.

**728. HERON, THOMAS**, 23 Holborn Viaduct, London, E.C.—(1) Heron's Patent Duplex Gas Burner, and system of gas-lighting for indoor and outdoor use. (2) Heron's Patent Hot-Air Engine for advertising purposes. (3) Photometer for testing gas burners, all kinds of Gas Lighting Appliances.

**729. PLUNKETT, THE HON. JOHN W.**, Bridge Chambers, 171 Queen Victoria Street, E.C.—Patent Absolute Safety Gas Appliances for rendering utterly impossible explosion, fire, or poisoning by escape of gas from burners whether used for lighting, heating, or cooking.

**730. SAGE, FREDERICK**, 80-84 Gray's Inn Road.—Special Reflecting Lanterns to burn gas for lighting shops, &c., from outside, and avoiding foul gas and heat inside the premises.

**731. PARKINSON, W., & CO.**, Cottage Lane, City Road.—Gas Meters.

**732. OPPERMAN, BROTHERS**, 172 St. John Street, Clerkenwell.—(1) Dynamo Electric Machines. (2) Lamps. (3) Electroliers adapted for domestic, factories, and workshop lighting, &c.

**733. DOWSON ECONOMIC GAS CO., Limited (THE)**, 3 Great Queen Street, Westminster, S.W.—(1) Apparatus in operation making cheap non-luminous heating gas costing 50 per cent. less than coal gas at 3s. per 1000 cubic feet. (2) New type of double cylinder Otto Engine, driven with cheap gas, and working set of Pearn's pumps and Brush Company's dynamo, with incandescence lights. (3) New type of gas-heated boiler. (4) Dowson's new thermo-electric battery.

**734. WEBBER, THOMAS W.**, Kellyville, Athy, Ireland; and 3 St. George's Terrace, S. K., London.—T. Webber's Patent Single Slate and Glass Permanent Roofing, "Hurricane Proof" on shed covering the Dowson Economic Gas Company, Limited.

**735. SENNETT, A. R.**, 62 Hatton Garden, E.C.—(1) Sennett's Patent Electric (arc) Lamps (see also Courts lighted by same). (2) Sennett's Patent Incandescence Electric Lamps. (3) Electrical Accumulators (Frankland's patent). (4) Electroliers (see also "Old London"). (5) Sennett's Patent Fittings for incandescent and arc lighting. (6) Surgical Lamps and Accumulators. (7) Table Lamps. (8) Portable Invalid Lamps. (9) Sennett's Patent Electric Miner's Safety Lamps. (10) Electric Lamps for gunpowder magazines and all dangerous positions. (11) Photometers, Dynamometers.

**736. BROWNE & CO.**, 186 Piccadilly, W.—The "Mitrailleuse" Lamps, in various styles, showing method of lighting rooms by lamps to hang from the ceiling or walls or by Table Lamps. The principle of the Mitrailleuse Burner is to admit a current of heated air between each wick, producing most perfect combustion and a clear brilliant light.

**737. CHESEBROUGH MANUFACTURING CO. (THE)**, 41 Holborn Viaduct, E.C.—Perfumed "Luxor Oil," brilliant light, absolute safety, no smell.

**738. GOODSON, J. & W., & CO.**, 213 Vauxhall Bridge Road.—Self-Acting Gas Governors and Regulating Burners. By preventing waste and smoke they are conducive to economy and health.



**739. ZIMMERMANN & CO.,** 57 Farringdon Street, Holborn Viaduct, London, E.C. (Works at Hanau, Germany).—(1) Reading Lamps. (2) Bronze Lamps with round burners. (3) Bronze Candlesticks.

**740. GREY, SAMUEL,** Geneva Villa, Park Road, Albert Bridge, S.W.—Meters showing old and new style index. (1) Grey's Readable Gas Meter Index. (2) Three-Light Dry Meter, fitted with Grey's Readable Index. (3) Three-Light Wet Meter, fitted with Grey's Readable Index. (4) Indices for meters of different sizes.

**741. PIONEER ELECTRIC CO. (THE),** Whitehall Yard, S.W.—Patent Galvanic Batteries for the production of electricity applicable to domestic lighting and other purposes.

**742. ELECTRIC APPARATUS CO., Limited (THE),** 4 Trafalgar Buildings, Charing Cross, S.W.—(1) Electric Batteries, Lamps, and Apparatus for electric lighting. (2) Dynamo Machines. (3) Electroliers. (4) Apparatus for lighting gas by electricity. (5) Electro Motors for ventilation. (6) Electric Batteries and Induction Coils for medical purposes.

**743. SANDERSON & CO. (RICHARD ANDERSON, Proprietor),** Contractors to the War Department, Faraday Works, Plaistow, E.; Station Street, Huddersfield; and 101 Leadenhall Street, London, E.C.—(1) Inventors of the Solid Copper Tape Lightning Conductor in continuous lengths without joints and of high conductivity. (2) Copper Samples and Model showing application of above for the protection of buildings. (3) Anderson's Galvanometer for testing Lightning Conductors, &c.

**744. BROXBURN OIL CO. (THE), Limited,** 21 St. Helen's Place, London, E.C.—(1) Broxburn Shale and Products therefrom, namely—(2) Sulphate of Ammonia. (3) Naphtha. (4) Illuminating Oils, viz. Petrolene or Crystal Oil, Lighthouse Oil, Marine Spermin, Mineral Colza, &c. (5) Gas-making Oils. (6) Lubricating Oils, various gravities. (7) Paraffin Wax. (8) Paraffin Candles. (9) Coke. (10) Alexinton, or Damp Repeller.

**745. CLARKE, SAMUEL,** Pyramid Night-Light Works, Child's Hill, London, N.W.—Clarke's Patent Pyramid Nursery Lamp Food Warmers and Pyramid Night Lights for heating food for infants and invalids. N.B.—These Lamps to answer the purpose for which they are recommended it is imperative that the Pyramid Night Lights only should be burned in them. The common night lights will not give sufficient heat.

**746. DEE OIL CO. (THE),** 38 Leadenhall Street, London, E.C.—(1) Paraffin Wax Candles (plain and fancy). (2) High Test Burning Oil, flash 140° F., and Marine Colza Oil, flash 240° F. (3) Lubricating Oils of every description.

**747. WOODHOUSE & RAWSON,** Engineers and Electric Light Contractors, 11 Queen Victoria Street, E.C.—(1) Electrical Apparatus for illumination and for domestic use. (2) Incandescent Lamps, &c., for above. Woodhouse & Rawson's new lamps by which a saving of cost in erection and maintenance of 25 per cent is effected, also Medical and Surgical Lamps (Hair Filament). (3) Primary Batteries for the above. (4) Secondary Batteries or Accumulators for above, also for Medical, Laboratory, and Theatrical use. (5) Switches, Woodhouse and Rawson's Patent. (6) Safety Junctions and Fusible Plugs, Cunningham-Woodhouse-Rawson, Magnetic cut-out patent. (7) Measuring Instruments, Ammeters, Volt Meters, &c. Cunningham-Woodhouse-Rawson Patents. (8) Electroliers, Fittings, Shades, &c. (9) Apparatus for lighting gas by electricity, Mollison-Woodhouse-Rawson Patent.

**747a. EDMUNDS, H.,** 2 Victoria Mansions, Victoria Street, S.W.—A Complete System of Fittings, &c., for Domestic Electric Lighting; comprising switches, cut-outs, bracket-backs, ceiling-hooks, connectors, sockets, globe-holders, reflectors, diffusers, swivel-joints, detachable fixings, parachute pendants, rising and falling pendant, street lamps, bedroom fittings, piano arms, billiard lights, portable lamps, locking couplings.

**748. OMEGA GAS LIGHT CO. (THE) (A. K. MACKINNON, Managing Director),** Trafalgar Works, Old Kent Road, London, S.E.—(1) Apparatus for reducing the consumption and increasing the illuminating power of coal-gas. (2) Omega Gas Lamps (Weston's Patent). (3) Sun Light Regulated Burner. (4) Sun Lights. (5) Argand Burners. (6) Brackets. (7) Standards. (8) Street Lamp. (9) Mackinnon's Carboleine for the above.

**749. FROST, ALFRED J.,** Librarian, Society of Telegraph Engineers and Electricians, 4 The Sanctuary, Westminster, S.W.—Electrical Clocks.

**750. SUGG, WILLIAM, & CO., Limited,** Vincent Works, Westminster.—(1) Lighting, Heating, Ventilating, and Cooking by Gas. (2) Sugg's Patent Sun Burners. (3) Sugg's Patent Argand Ventilating Lights and Brackets. (4) Clark's Patent Recuperative Lamp. (5) Sugg's Patent "Vincent" Lamps in polished brass, Doulton Ware, &c. (6) Sugg's Patent Argand Burners with small Governors. (7) Sugg's Patent "Christiania" Burners and Ornamental Globes, &c., &c.



**751. JOHNSON, CHARLES, 87 New Oxford Street, London, W.C.**—Mica or Tale cut for Electrical Apparatus, Insulators, Dynamos, Telegraph, Photograph, Stoves, Sun-lights, Mica Covers, Mica Chimneys, Lamina for Cabinets, C.D.V., Portraits, and all other purposes, Powdered Mica, &c.

**752. BAILEY & CO., Fulham, S.W.**—(1) Stoneware Battery Jars. (2) Glass Battery Jars. (3) Porous Cells. (4) Insulators. (5) Pole Cap. (6) Carbon Plates.

**753. IRISH, SYMONS & CO., Totnes, Devon; & Ratcliffe Cross, London.**—(1) Gas Purifying Compounds for use by gas companies, and also in the "Electric Gas Economiser." (2) Phospho-Ammonia Manure. (3) "Electric Gas Economiser," an apparatus for purifying, carburetting and regulating coal gas-sanit-economic litter (for horses and cattle). Prepared Apple Feeding Meals. Fruit Manure for Orchards and Fruit Gardens.

**754. BICKERDIKE, GEORGE, 7 John Street, Adelphi, W.C.**—Improved, Automatic Self-acting Gas Regulator.

**755. WHITFIELD, CHARLES, Kettering, Northamptonshire.**—Patent Electric Generating Portable Lamp.

**756. JENSEN, WEBB, & JENSEN, 103 New Oxford Street, W.C.**—(1) New Patent Electric Bells. (2) Models of our patent Electric Invalids' Call Bell and Alarm. (3) Models showing the bells in connection with striking clocks. (4) Models of the Bells as musical bells for chiming and bell-ringing by electricity.

**757. MCLENNAN & OWEN, 84 Finsbury Park Road.**—The Gravity Governor, for regulating the supply of gas.

**758. SAX, JULIUS, 108 Great Russell Street, W.C.**—(1) Electric Bells, Burglar and Fire Alarms. (2) Watchmen's Clocks. (3) Water Gauges. (4) Billiard Markers. (5) Lightning Conductors. (6) Gas lighters. (7) Telegraphy and Electric Lights for domestic use, Indicators, and Sax's Muster Call for Firemen.

**759. PORTER, GEORGE, 23 Cullum Street, Fenchurch Street, E.C.**—Electric Bells and Alarms.

**760. DEVINE & CO., 10 Finsbury Square, London, E.C.**—Devine & Co.'s Patent Self-Acting Regulators or Governors for regulating the pressure of gas.

**761. THORP, J. E., Biseley Lodge, Swallowfield, Berks.**—Thomas's Electric Insulators, to be placed under the feet of bedsteads or couches used by persons suffering from dropsy, gout, rheumatism, neuralgia, and cramp, their use being to improve the circulation and strengthen the nerves by arresting the loss of electricity from the body.

**761a. WOOD, T., Blindley Heath, Redhill.**—The "Wood" Gas-maker Lamp, is an improved portable or fixed lamp, for burning "Benzoline, or similar hydrocarbons."

**762. ALUMINIUM METAL CO. (WEBSTER'S PATENT), 34 Leadenhall Street, E.C.**—Lighting Apparatus.

**763. ECONOMIC ELECTRIC LIGHT & ELECTRIC APPLIANCE AND MAINTENANCE CO. (THE), 10 Wilmington Square, W.C.**—(1) Primary Electric Batteries for purpose of house lighting, with proper adjustment fixtures as may be required for such purpose. (2) Electric Bells and Indicators, Annunciators, Switches, &c.

**764. ELECTRO DYNAMIC CO. OF PHILADELPHIA (THE), Archway House, Bush Lane, E.C.**—(1) Griscom's Double-induction Motors for driving sewing machines, fans, lathes, &c. (2) Griscom's Automatic Batteries for driving same. (3) Edco Batteries for driving Griscom's motors, and Incandescent Electric Lamps for household use. (4) Sewing and other Machines, driven by the above.

**765. HAMMOND ELECTRIC LIGHT & POWER SUPPLY CO., Limited (THE), 110 Cannon Street, E.C.**—Electric Generators and Lighting Apparatus.

**766. PRICE, SONS, & CO., 69 Victoria Street, Bristol.**—(1) Stoneware Primary and Secondary Battery Jars, highly glazed with special acid-proof enamel. (2) Porous Pots and Plates of varying resistances. (3) Insulators of high vitrification, great strength, and glazed by a special process, insuring the incorporation of the glaze with the body, and the whole surface being as smooth as glass. (4) Water Filters and Purifiers in various shapes and sizes, and having recent improvement, for Domestic, Ship and Cistern purposes. (5) Fancy Vases for art purposes made in Bristol stoneware.

**767. GLOVER, GEORGE, & CO., Royal Avenue, Chelsea.**—(1) Patent Dry Gas Meters. (2) Improved Indices for gas meters. (3) Cubic Foot Bottle (unit of measure for gas). (4) Standard Model Gasholder (facsimile of those deposited at the Board of Trade). (5) Standard Dry Gas Meter, for testing meters *in situ*. (6) Pneumatometer for measuring the capacity of the lungs.

**768. PRICE'S PATENT CANDLE CO., Limited, Belmont Works, Battersea, S.W.**—(1) Candles, Night Lights, and Tapers. (2) Glycerine and Glycerine Preparations. (3) Toilet, Antiseptic and Household Soaps. (4) Food Warmers.

**769. THE VARLEY PATENTS PROPRIETORY, Mildmay Works, Ball's Pond, N.**—The Varley Patent Carbons, made in wool, plates, sheets, coils, cords and rods, rigid and flexible for use. In arc lamps giving greatly increased light with maximum sub-



division. In filters for water, wines, chemical residues, &c. In electro-chemical filters for extracting metals from their solutions, for separating salts, &c. As resistances with large cooling surfaces. For packing, being proof against both acids and alkalis. For diaphanous compensating bands instead of filaments in incandescent lamps. Primary and secondary batteries. Electric supply meters. A true unipolar continuous current dynamo, without commutator, having its armature rotating in an annular magnetic field.

**770. FIELD, J. C., & J., Upper Marsh, Lambeth, S.E.**—(1) Candle Materials (crude and refined). (2) Candles of Beeswax. (3) Spermaceti. (4) Stearic Acid (Stearine). (5) Ozokerit. (6) Paraffine. (7) Distilled Palmo (Composite). (8) Carriage Candles. (9) Chamber Candles. (10) Ornamental Candles, &c. (11) United Service and other Toilet Soaps, Medicated Dog Soap, and Pure Oil Soap. (11) "Samphire" Soap and Fluids.

**771. NOBEL BROTHERS, Petroleum Productions Gesellschaft, St. Petersburg.**—Mineral Oil of Baku and the various products obtained from it for illuminating purposes, fuel, &c., together with descriptive photographs of the Caucasian oil wells, fountains, and refineries.

**772. ALBO CARBON LIGHT CO., Limited (THE), 132 Horseferry Road, S.W.**—A Variety of Examples of Albo Carbon Gas Lighting Apparatus.

**773. CHRISTIE, J., & C., 453 West Strand, Charing Cross.**—(1) Assortment of Lamps (to burn oil). (2) Spécialité New Patent Duplex Burner, self-lighting and self-extinguishing. (3) Artistic Stoves, Filters, &c.

**774. WILLIAMS & BACH, 92 New Bond Street, W.**—Lamps for household use.

**775. ALBION LAMP CO. (THE), Aston Brook Lamp Works, Birmingham; and 69 Hatton Garden, London.**—(1) A Representative Selection of Lamps for all purposes of domestic use—embracing hand, night, kitchen, table, crystal, china, metal, bronze, wall, bracket, reading, library, hall suspension and other lamps, &c., &c., fitted with various new and improved burners, including the Patent Empire chimneyless burner, the A 1 Duplex burner with patent extinguishing arrangement, the Multitubular burner, &c., &c. (2) An assortment of Rippingille's Patent Oil Cooking Stoves, Kitcheners, Boiling Stoves, &c., and Utensils for use with same. These Stoves are odourless, smokeless, portable, safe, and cleanly; they will roast joints or poultry; boil fish, vegetables, &c.; fry chops, steaks, or bacon; bake bread or pastry; toast; heat flat irons, &c., and in fact do the entire work of a kitchen fire, in a certain, cleanly, and economical manner, while they have the advantage over coal fires in usefulness and economy of being lit or extinguished in a moment. Food cooked

by them is equal in all respects to that cooked by a coal fire or range. They save keeping a fire in hot weather, and for domestic and household use are unsurpassed, always ensuring comfort and economy in summer cooking. (3) A selection of Rippingille's Patent Oil Warming or Heating Stoves. (4) An Assortment of Infants' and Invalids' Food Warmers; specially constructed for burning mineral oil.

**776. ELECTRIC POWER & LIGHT CONTRACT AGENCY (S. J. MAC-KIE, C.E., Engineer), 57 Gracechurch Street, E.C.**—Illustrations of lighting, both electrical and gas; heating and ventilation; and decoration of domestic houses.

**777. MULLER, J. A., C.E., Central Patent Office, 68 St. Paul's Churchyard, London, E.C.**—Model of Apparatus for producing Light and Fuel from Rice husks. In order to procure Gas from Rice husks, it is essential that the husks should be exposed to a very great heat, and to secure this end, the husks are not admitted into the retorts until these have been heated to the required temperature. By means of one or more archimedean screws, the husks are propelled out of their receptacles into the retorts, and the residuum falls into another set of receptacles. The feeding and residuum receptacles are arranged in such manner that fresh husks can be introduced, or the residuum removed, without interrupting the gas production.

**BARRETT, A., & SONS, 63 Piccadilly, W.** (See Class 31.)

**BENHAM & SONS, 50 Wigmore Street, Cavendish Square, W.** (See Class 24.)

**BOWER, GEORGE, St. Neot's.** (See Class 23.)

**COALBROOKDALE CO., Limited, Coalbrookdale, Shropshire; & Holborn Viaduct, E.C.** (See Class 24.)

**CONOLLY, HENRY, 53-55 Hampstead Road.** (See Class 20.)

**DAVIS, EDWARD, & SON, 97 York Street, Westminster, S.W.** (See Class 24.)

**DOULTON & CO., Lambeth, S.E.** (See Class 20.)

**GROOM & CO., Liquorpond Street, Street, E.C.** (See Class 12.)

**HORNE, W. C., 5A Aldermanbury Postern, London.** (See Exhibit in grounds.)

**INGHAM, WILLIAM, & SON, Wortley Fire Clay & Glazed Brick Works, Wortley, nr. Leeds; and 35 Bucklersbury, E.C.** (See Class 28.)

**JENNINGS, GEORGE, Palace Wharf, Stangate, S.E.** (See Class 31.)

**KEITH, JAMES, Hydraulic Engineer, 57 Holborn Viaduct, E.C.; Edinburgh and Arbroath.** (See Class 24.)



**KENT, GEORGE**, 199-201 High Holborn, W.C. (See Class 20.)

**MARTIN & CO.**, 27 Newman Street, Oxford Street, W. (See outside Western Gallery.)

**QUIRK, BARTON & CO.**, 61 Gracechurch Street, E.C. (See Class 21.)

**SALVIATI, BURKE & CO.**, 311a Regent Street, W. (See Class 20.)

**STARKIE, GARDNER & CO.**, 24 Albert Embankment. (See Class 24.)

**WOODHOUSE & RAWSON**, 11 Queen Victoria Street, E.C. (See Class 20.)

## CLASS XXVII.

(East Central Annexe.)

**Fire Prevention Apparatus — Extinguishers, Portable Engines, Domestic Fire Escapes, &c.**

**778. KENNEDY, JAMES**, Strabane, County of Tyrone, Ireland.—Model of Patent Fire Escape and Fire Extinguisher combined.

**779. SCOTT, JOHN**, 22 Newton Road, Bayswater, W.—(1) Domestic Fire Escape. (2) Scott's Family Fire Escape. (3) Indoor Fire Escapes for factories, &c. (4) Fire Engines. (5) Alarms and Smoke Breathers.

**780. DOUGLAS, WILLIAM, & CO.**, 10 St. Mary Axe, E.C.—(1) Patent Portable Fire Annihilators and Garden Engines. (2) Chemical, Hand Fire-Extinguishing Apparatus. (3) Fire Extinguishing Powder.

**781. UNITE, JOHN**, 291-293, Edgware Road, W.—(1) Portable Fire Escapes in canvas ropes, &c. (2) Show Case, containing Models of Tents, &c.

**782. SWANTON, W. G.**, 24 South Parade, Fulham Road.—Working Model of a Fire Escape.

**783. HALE, E. H.**, 16 Cullum Street, Fenchurch Street, E.C.—Fire Escape.

**784. GLASGOW ASBESTOS CO.**, 80 Gordon Street, Glasgow.—(1) Asbestos Yarn. (2) Rope for fire escapes. (3) Mill Boards for covering walls, &c. (4) Screens of Asbestos Cloth. (5) Shutters for dropping against walls and preventing fire taking hold. (6) Fireproof Paints.

**785. SINCLAIR, JAMES**, 104 Leadenhall Street, E.C.—(1) Dicks' Extinguishers. (2) New Express Chemical Fire Engine, mounted on wheels. (3) Large Village Chemical Fire Engine. (4) Combined Manual and Chemical Fire Engine. (5) Smoke Respirators for firemen. (6) Hand Pumps, Corridor Engine, and general fire apparatus.

**786. PIGGOTT BROTHERS**, 59 Bishopsgate Street Without, London (Agent, **T. VINCENT RIORDAN**, 1 Whiteley Road, Upper Norwood, S.E.)—A Domestic Fire Escape.

**787. BAILEY, H. T.**, St. Germans Place, Blackheath.—The Ever-Ready domestic Fire Escape Patent.

**788. ROSE, WILLIAM, & CO.**, Deansgate, Manchester.—(1) The "Simplex" Fire Extinguisher, self-acting and instantaneously recharged, no screw, key or mallet required. (2) Instantaneous Hose Couplings, Instantaneous Stand Pipes, Instantaneous Brand Pipes, Instantaneous Valves, &c.

**789. BAKER, J. M. B.**, 62 Holborn Viaduct, E.C.—(1) The Fire Subduer; an instrument to be attached to the inside of fire or ordinary buckets, for the purpose of impregnating the water contained therein with a chemical solution. (2) A Portable Combined Bedstead and Stretcher, specially adapted for ambulance purposes. (3) An Evaporating Sun Guard for Helmet or other military or civil head covering.

**790. PERRY, WILLIAM**, 66 Bridge Road, West Battersea, S.W.—Models of a Domestic Fire Escape.

**791. CHAMBERS, W. OLDHAM**, F.R.I.B.A., Lowestoft.—Model of Domestic Fire Escape.

**792. SPONG & CO.**, 226 High Holborn, W.C.—The Royal Pneumatic Fire Extinguishers, worked by compressed air and water; the gauge tells if it is charged with air.

**793. SCHAFFER & BUDENBERG**, 1 Southgate, Manchester.—Extinguisher, or portable gas fire-engine.

**795. CHUBB & SONS LOCK AND SAFE CO., Limited**, 128 Queen Victoria Street, E.C.—Chubb's Patent Fire-resisting Wrought-Iron Doors for bankers' strong rooms, to prevent spreading of fire and to keep out burglars; they have been severely tested on several occasions but have never failed.

**796. COMPRESSED AIR FIRE ENGINE CO. (THE)**, 26 Basinghall Street, E.C.; and Birmingham.—(1) Portable Compressed Air Fire Engines or Extinguishers. (2) Hand Fire Pumps and Fire Buckets. (3) Hydrants, Standpipes and Fire Fittings for buildings. (4) General Domestic Fire Apparatus.

**ADAMS, ROBERT**, 7 Great Dover Street; and 17 Blackman Street, Boro', S.E. (See Class 20.)

**BATEMAN, WILLIAM H.**, 90 Cannon Street, E.C.; & Nelson Wharf, Millwall, E. (See Class 28.)



**BECK & CO., Limited, 130 Great Suffolk Street, S.E.** (See Class 23.)

**BELL, JOHN, 118 Southwark Street, S.E.** (See Class 24.)

**BLUNDELL, G. T., & CO., West India Dock Road, Limehouse, E.** (See Class 23.)

**BOLDING, JOHN, & SONS, Grosvenor Works, South Molton Street, W.** (See Class 23.)

**ELLISON, JAMES EDWARD, Victoria Square, Leeds.** (See Class 25.)

**HORNE, W. C., 5A Aldermanbury Postern, London.** (See Exhibit in grounds.)

**JACKSON & GRAHAM, 70-86 Oxford Street, W.** (See Class 20.)

**MARTINEAU & SMITH, Holloway Head, Birmingham.** (See Class 24.)

**PATENT LIQUID CYANITE CO., Limited (THE), 33 Mildmay Chambers, Bishopsgate Street, E.C.** (See Class 17.)

**STIDDER, J. G. & CO., 50 Southwark Bridge Road, S.E.** (See Class 23.)

**UNITED ASBESTOS CO., Limited (THE), 161 Queen Victoria Street, E.C.** (See Class 29.)

## CLASS XXVIII.

(East Central Gallery B.)

**Materials for Sanitary House Construction—Roofs, Walls, Damp Solid Floors, Damp-Proof Wall-Coverings, Cements, &c.**

**797. CHAMBERS, MONNERY & CO., 41 Bishopsgate Street Without, London, E.C.**—(1) Section of Hollow Brick Wall, showing our patent cast and wrought wall-ties, built in position. (2) Bath, metallic enamelled, with fittings. (3) Kitchen Sink, adapted for artisans' dwellings. (4) Kitchen Range, as used in improved artisans' dwellings. (5) Mantel-Register Stove, as used in industrial dwellings. (6) Anglo-American Coal-saving Cooking Range. (7) Portable Copper, as supplied to improved industrial dwellings.

**798. MIDLAND RUSTLESS IRON CO., THE, 35 Dudley Road, Wolverhampton.**—(1) Enamelled Iron decorative coloured Plates. (2) Fireplace and Overmantel, with tile hearth, showing decorative painted panels. (3) Coal Vase (wood) with decorative panels. (4) Sections of Pipes. (5) Small Traps and Gullies. (6) Castings, showing parts of filters, meters, cisterns, baths, lavatory apparatus treated with our patent unfoulable enamel; also Enamelled Sinks. (7) Hygienic enamelled, wrought and cast iron enamelled, Pans, Baths, Dishes, &c.

**799. CRYSTAL PORCELAIN POTTERY CO., Limited (THE), 17 St. Bride Street, Ludgate Circus, E.C.**—Vitreous Tiles, white and coloured, glazed and unglazed, for walls and floors.

**800. HELBRONNER, R., 300 Oxford Street, London, W.**—Draughts hermetically excluded by a patent flexible cotton tube and grooved beading. Also a Registered Beading with projecting felt.

**801. CANNON, B., & CO., Gaunt Street, Lincoln.**—Cannon's Concentrated Size and Cannon's Glue Powder.

**802. MATTHEWS, JOHN, Royal Pottery, Weston-super-Mare.**—Poole's Patent Bonding Roll Roofing Tile, extensively used for roofing churches and schools.

**803. DIESPEKER & CO., 40 Holborn Viaduct, London, E.C.**—(1) Specimens of Roman and Venetian Marble Mosaic, both for floors, dados and wall-covering. (2) Specimens of Glass Mosaic, for churches, coats of arms, and wall decoration generally. (3) Fire Cheeks and Hearths of Marble Mosaic. (4) Drawings of a number of works, executed for eminent architects. Mosaic is entirely non-absorbent and damp-resisting, and will last for hundreds of years, even when exposed to rough usage.

**804. DRAKE, CHARLES, & CO., Railway Wharf, Battersea Park, S.W.**—(1) Polished Mosaic Facing Bricks. (2) Red Concrete Window-heads, &c. (3) Fire-resisting Fibrous Plaster Slabs. (4) Fireproof Concrete Floors, Stairs, Doors, &c. (5) Marble Mosaic Concrete Moulding. (6) Concrete Building Apparatus. (7) Photographs and Drawings of concrete buildings. (8) Polished Marble Concrete Baths.

**805. ELLIS, JOSEPH J., Ellistown Collieries, Brick, Pipe, & Fireclay Works, Ellistown, nr. Leicester.**—Ellistown Red Clay and Fireclay Ware, viz.: Ellistown Red Wire Cut Bricks, Hand-pressed Facing Bricks, Ornamented Bricks, Bull-nose Ovolo, Bevel-side Feather Edge, &c., Fire-clay Bricks, Flue Linings, Boiler Seatings, Flue Quarries, and all descriptions of Fire-clay Goods, Crucible and Cement Clays.

**806. FOOT, WILLIAM, South Street, Wellington, Somerset.**—Patent Bricks for damp-proof walls, &c.

**807. STIFF, JAMES, & SONS, Lambeth, S.E.**—(1) Fireproof Terra Cotta Steps. (2) Terra Cotta Smoke-curing Pots and Cows of various designs. (3) Stoneware and Terra Cotta Ventilating Bricks. (4) Damp-proof Courses. (5) Terra Cotta for architectural purposes, &c.

**808. HITCHINS' FIREPROOF PLASTERING CO.; Offices, 1 Gresham Buildings, Basinghall Street, E.C.**—Specimen of Half-timbered Building, illustrating the application and advantages of Hitchins' Patent Improvements in Plastering; for resisting fire and staying the transmission of sound, Hitchins' speciality for damp walls; also casings for the protection of girders and columns from fire.



**809. DAWNAY, ARCHIBALD D.,** King William Street, E.C.—(1) Samples of Solid Floors. (2) Concrete Encased Iron-work. (3) Rolled-iron Joists and Girders, used in the construction of solid floors. (4) Drawings illustrative of Iron-work, architecturally treated for façades of buildings.

**810. NORMAN, R. & N.,** St. John's Brick, Tile & Pottery Works, Burgess Hill, Sussex.—Specimens of Plain and Ornamental Red Bricks and Tiles.

**811. VIGERS BROS.,** 214 Pavilion Road, Sloane Square, Chelsea.—Importers of Swedish Joinery and Parquetry Flooring, as used in London Board Schools.

**812. VAL DE TRAVERS, ASPHALTE PAVING CO.,** Limited (THE) (E. H. BASSETT, Manager), 14-16 Palmerston Buildings, Old Broad Street, E.C.—(1) Asphalte in its raw and manufactured state; also refined Bitumen used in its manufacture. (2) Models showing application of asphalte to various uses on buildings and pavement.

**813. STEELE & WOOD,** Stoke-on-Trent. London Office, Dashwood House, New Broad Street, E.C.—(1) Earthenware Tiles, encaustic-printed, painted, &c. (2) Finger-plates and Decorative Slabs.

**814. EVANS, GEORGE,** 1 Adelaide Street, Charing Cross.—(1) Solid Wood Staircase (full size) with the treads and risers covered, and the soffit plastered. (2) Solid Wood Floor, showing method of forming ventilation. (3) Models of Solid Wood Floors. (4) Models of Solid Wood Staircases.

**815. WILKES METALLIC FLOORING & EUREKA CONCRETE CO.,** Limited, 17 Devonshire Square, Bishopsgate, E.C.—(1) Fireproof Floor. (2) Stable Floor. (3) Basement Floors. (4) Dressings for buildings. (5) Steps. (6) Mantels. (7) Sewers in section, &c.

**816. BIRKS, J. & T.,** Harts Hill Brick Works, Stoke on Trent.—Bricks and Tiles.

**817. WHARAM, THOMAS** (Agents, BURKE & CO.) 17 Newman Street, W.—Specimen of Wharam's patent Wood-block Flooring.

**818. JENNINGS, THOMAS,** 46 York Road, Lambeth, S.E.—(1) Patterns of Flooring specially prepared and adapted for hospitals, sanatoriums, &c. (2) Disinfecting Apparatus.

**819. LANGSTAFF, CHARLES, M.D.,** The Chalet Basset, Southampton.—(1) Model of a Floor prepared with paraffin, which prevents shrinking of the wood and renders it non-absorbent; the floor thus prepared can be cleaned and polished by brushing with a hand-brush; all wet scrubbing is thus avoided. (2) A portion of Floor treated with

paraffin, that has been laid and exposed winter and summer in a south-west bay-window for 10 years. (3) Model of a disinfecting chamber, with bath and lavatory attached, for disinfecting the clothes and person of a nurse after nursing an infectious case. (4) Ventilating Apparatus for cleansing the air of a chamber, and charging it with medicated vapours.

**820. COWLAND & CO.,** 4 Queen's Road, Bayswater, W.—(1) Improved method of Floor-laying without nails. (2) Speciality in Hard Woods and Wood-working.

**821. TOWERS & WILLIAMSON,** Adamantine Clinker Works, Little Bytham, Stamford.—Adamantine Clinkers for a solid sanitary floor, will wear longer than any other, vegetate least, absorb least moisture, therefore dryer than any other paving.

**822. BOULINIKON FELT CO.,** Limited (THE), 24 Paternoster Square, London, E.C.; & Ordsall Lane, Manchester.—(1) Waterproof Felts for laying on damp floors, lining damp walls, &c. (2) Patent Woollen Pads for laying under stair-carpet, landings, &c., to render the tread noiseless, &c.

**823. ENGERT & ROLFE,** Barchester Street, E.C.—(1) Fibrous Asphalte Anti-damp Course. (2) Asphalted Felt for roofing and lining roofs. (3) Inodorous Bitumen Felt for lining roofs, damp walls and iron houses, &c. (4) Hair Felt for lining roofs, deadening sounds, and protecting water-pipes, &c., from frost.

**824. BRIDGEMAN, H. H.,** 42 Poultry, E.C.—(1) Parts of a Solid Floor of fireproof construction, with a floor board surface. (2) Sanitary House-construction, a combination of concrete and wood.

**825. GARRARD, F.,** West Ferry Road, Millwall, E.—Frames of decorative wall-tiling, embossed, impressed, plain colours, and hand-painted.

**826. DREYFUS, A., & CO.,** 19 Edmund Place, Aldersgate Street, E.C.—Ligny's patent process for the immediate Drying of New Houses, Buildings, Stables, &c., &c., by means of radiating heat and strong currents of hot air so that they can at once be painted, decorated, and occupied immediately, without risk to health. Also for drying old buildings and basements where the dampness arises from contact with wet soil, and for drying thin walls exposed to weather, and preventing the rain penetrating.

**827. JONES, FREDERICK & CO.,** Perren Street, Ryland Road, N.W.—(1) "Silicate Cotton," or "Slag Wool," a pure mineral fibre manufactured from blast furnace slag. (2) Models showing application of "Silicate Cotton" for fireproofing and soundproofing, and for preventing the transmission of either heat or cold.



**828. BATEMAN, WILLIAM H., 90 Cannon Street, E.C.**—(1) Specimens of Wood prepared by Sir William Burnett's process. (2) Sir William Burnett's Disinfecting Fluids and Powder. (3) Specimens of Canvas and Fire-hose prepared by Sir William Burnett's process. (4) Specimens of Sir William Burnett's improved system of Wood Brick Flooring. (5) Bakers' Tinning and Soldering Preparation.

**828a. STENT, FRED, 114a Queen Victoria Street, E.C.**—Stanley's Corrugated Wire Foundation for Fireproof Plastering. Designed to take the place of the ordinary Wood Lath for Plastering.

**829. POWELL, GEORGE, 104 Newgate Street, London, E.C.**—(1) Floor Cloth 8 yards wide. (2) Linoleum 4 yards wide.

**830. WHITE, WILLIAM, Great Western Works, Abergavenny.**—(1) The Hygeian Rock Building Composition (White's patent). (2) Specimens of Walling and Water Tanks and Impervious Wall-linings; a permanent cure for damp or wet walls. (3) An improved method of building walls so as to render them damp-proof, and to increase their strength.

**831. FRANCIS & CO., Bridgefoot, Vauxhall, London, S.E.**—Specimens of Portland and Parian Cements, and Plaster of Paris and a Testing Machine.

**832. CARDINAL & HARFORD, 108 & 109 High Holborn, W.C.**—(1) Modern Persian Tiles. (2) Turkish Tiles and Pottery (revival of Anatolian Pottery).

**833. REED LATHING CO., 5 Great Tower Street, E.C.**—(1) Webbing made of reed and used in substitution of fir-lathing. (2) Partitions and Ceiling formed of same, in different stages of preparation. The advantages claimed being durability, material economy, easy and rapid fixing, deadening of sound, freedom from cracks and equalisation of temperature.

**834. PATENT DURABLE ROOFING FELT CO. (THE), 172 Stamford Street, Blackfriars, London, S.E.**—The Patent Durable Roofing Felt shown as follows: (1) Covering houses and sheds of all kinds. (2) A non-conductor of heat or cold. (3) The economical construction of buildings. (4) A preventative against damp walls. (5) Resistance to, or protection against fire. (6) A sanitary disinfectant.

**835. BRINDLEY, I. & CO., 67 King William Street, E.C.**—Enamelled Slate.

**836. MAJOR, H. J. & C., The Patent Tile Works, Bridgewater, Somerset.**—Patent Weather-proof Roofing Tiles.

**837. PRICE, H. A., 1 The Pavement, Clapham, London, Agent for Phillips' Patent Lock-Jaw Tile Co. Head Office, Newport, Monmouth.**—Patent Lock-Jaw Roofing Tiles, subjected to a pressure of about

40 tons, making them practically non-porous. They form, when fixed, a wind- and snow-proof roof, ornamental and economical.

**838. BRACKNELL POTTERY BRICK & TILE CO. (THE), Bourne Valley Wharf, Nine Elms, S.E.; Works, Bracknell, Berkshire.**—(1) Plain and Ornamental Brickwork, to be covered with ornamental roofing tiles, showing the working of angles, hips, and valleys. (2) Specimens of Ornamental Diaper Blocks, &c.

**839. JACKSON, GEORGE, & SONS, 49 Rathbone Place, London, W.**—(1) Specimens of ornamental ceilings in patent Fibrous Plaster. (2) Specimens of ornamental perforated panels for ventilation in patent Fibrous Plaster. (3) Specimens of Fireproof Ceilings. (4) Columns in Fibrous Plaster and Fireproof Beams. (5) Chimneypieces and Overmantels.

**840. INGHAM, W., & SONS, 35 Bucklersbury, London, E.C.**—(1) Glazed Bricks (white and in colours). (2) Smoke Consuming Kilns and Furnaces. (3) Terra-Cotta Air Grates and Ventilators, red and buff. (4) Patent machine-made Fireclay Gas Retorts. (5) Glazed Stoneware Sanitary Appliance, Traps, Gullies, Pipes. (6) Vitrified Red Bricks for sewers, capable of resisting the action of sewer gases. (7) Fire Bricks.

**841. TROUTBECK PARK (Westmoreland) GREEN SLATE CO., Limited, Windermere.**—Light and Dark Green Roofing Slates.

**842. WORTLEY FIRE CLAY CO. (THE), Elland Road, Leeds.**—(1) Enamelled Bricks, in a variety of colours. (2) Printed Border Bricks. (3) Salt-glazed Bricks. (4) Majolica Bricks.

**BELL, JOHN, 118 Southwark Street, S.E.** (See Class 24.)

**CANDY & CO., Great Western Potteries, Newton Abbot, Devon; and 11 Queen Victoria Street, E.C.** (See Class 22.)

**CLIFF, JOSEPH, & SON, 2 Wharf, King's Cross Goods Depot, N.** (See Class 20.)

**CRAIG, J. & M., Hillhead & Perceton Fire Clay Works, Kilmar-nock, N.B.** (See Class 21.)

**DOULTON & CO., Lambeth, S.E.** (See Class 20.)

**JENNINGS, GEORGE, Palace Wharf, Stangate, S.E.** (See Class 31.)

**KAY, BROTHERS, Stockport.** (See Class 24.)

**PATENT VICTORIA STONE CO. (THE), 283a Kingsland Road, E.** (See Class 22.)

**PULHAM & SON, The Works, Broxbourne.** (See Outside.)



**QUIRK, BARTON & CO.,** 61 Gracechurch Street, E.C. (See Class 21.)

**SILICATE ZOPISSA COMPOSITION & GRANITIC PAINT CO. (THE),** 45 Fish Street Hill, E.C. (See Class 29.)

**TAGNON, ADOLPHUS,** 137 Gray's Inn Road, W.C. (See Class 24.)

**THOMPSON, H., & CO.,** 95 Merrow Street, Walworth, S.E. (See Class 29.)

**THOMSON & CO.,** 85 Gracechurch Street. (See Outside.)

**WEBBER, THOMAS, W.,** Kellyville, Athy, Ireland. (See Class 26.)

**WHITELEY, WILLIAM,** 157 Queen's Road, Bayswater. (See Class 23.)

### CLASS XXIX.

(East Gallery.)

Materials for Sanitary House Decoration, Non-Poisonous Paints and Wall Papers, Floor Coverings, Washable Decoration, &c.

**843. NAIRN, MICHAEL, & CO.,** Floor Cloth and Linoleum Manufacturers, London, Manchester, Glasgow and Paris. Works, Kirkealdy, Scotland.

**844. CRAVEN, DUNNILL, & CO.,** Limited, Jackfield Works, Ironbridge, Shropshire.—(1) Ceramic, Mosaic, Encaustic, and Geometrical Tiles. (2) Glazed and Decorated Tiles. (3) Embossed and Indented Tiles, enamelled. (4) Artistic Tiles, richly enamelled.

**845. MAW & CO.,** Benthall Works, Jackfield, near Ironbridge, R. S. O.—Mosaic and Encaustic Tiles for pavements, and Glazed Tiles for wall linings, bath-rooms, lavatories, fireplaces, hearths, &c.

**846. SCARBORO' MOSAIC FLOOR-CLOTH CO. (THE),** Agents—**MESSRS. HUTCHINSON & CO.,** 51 Fann Street, Aldersgate St., E.C.—A new Pavement Floor Cloth, an almost perfect imitation of marble. The colours of the design are all solid through to the canvas, thus no pattern can be worn off.

**848. YATES & CO.,** The Royal Carpet Factory, (under Special Charter, 1701), Wilton, Wilts.—(1) Real Axminster Fine Quality Carpet, made without seam, each tuft knotted through by hand. (2) Saxony Pile Carpet, handwoven. Both qualities can be sheared and scoured.

**849. HARE, JOHN, & CO.,** Bath Bridge and Temple Gate, Bristol; and 23 Fenchurch Street, London, E.C.—(1) Octagon Silver Stove Polish and Black-leads. (2) Pure Colours, Paints, Varnishes, of all kinds. (3) Non-poisonous Distemper Paints, &c. (4) Floor Oil-cloths, Table-baizes, Stair Oil-Cloths, &c.

**850. JEFFREYS, S., & CO.,** 92 Falcon Road, Battersea.—(1) Rees's Patent Glass Tiles with Stone Backs for sanitary and decorative purposes. (2) Rees's Patent Metal Tiles (enamelled).

**851. EMBOSSED TAPESTRY CO. (THE),** 123 Milkwood Road, S.E.—Various examples of a New Patent Wall Decoration, sanitary and indestructible.

**852. CARR, HENRY,** 21 Cedars Road, Clapham, S.W.—(1) Arsenical Wall Papers, with Sample Papers of similar colours, non-arsenical. (2) Apparatus for testing for arsenic. (3) Results of tests of Various Articles, pure and impure re-agents. (4) Samples of Materials which have produced injurious effects.

**853. HALL, THOMAS,** 8 George Street, Edinburgh.—Corrovellum Wall Decoration. Corrovellum is not affected by vapours of gas. The colours are not rendered volatile by the temperature of heated rooms. All pigments employed are made to unite intimately with the fibre of the ground, and the whole coated with Perseine enamel, rendering it impervious to damp or atmospheric influences, and making the surface washable.

**854. WARDLE & CO.,** 71 New Bond Street, W.; and Leek, Staffordshire.—(1) Wall Papers (non-poisonous). (2) Silk, Wool, and Cotton Hangings, pure vegetable dye. (3) Plush, pure vegetable dye. (4) Furniture and Fittings for internal house decorations.

**855. ROTTMANN, STROME, & CO.,** 49-51, St. Mary Axe, E.C.; and Yokohama, Japan.—Japanese Wall Papers made of a wood fibre (washable and non-poisonous sanitary house decoration), and general Japanese decorative objects.

**856. HEYWOOD, HIGGINBOTTOM, SMITH, & CO.,** Limited, Hyde Road Works, Manchester; and 62 Watling Street, London, E.C.—Sanitary Washable Paper-hangings, printed in non-arsenical fast colours, guaranteed to resist the action of cold or tepid water.

**857. ALLAN, JOHN, & SON,** Wick Lane Works, Old Ford Road, E.—Paper-hangings, manufactured by steam machinery only.

**858. SCOTT, CUTHBERTSON, & CO.,** Whitelands Works, Chelsea, S.W.—Artistic Wall Papers of various kinds, viz.:—Raised Flocks, painted, washable; Raised Flocks, varnished, washable; Silk Damasks, Tapestries.

**859. JEFFREY & CO.,** 64 Essex Road, Islington, N.—Non-poisonous Artistic Wall Papers, from designs by leading artists, printed by hand and by machine, including their new "Patent Hygienic Wall Papers," Stamped Leather Papers, Painted Flocks, Lacquered Gold Papers, Bath-room and Nursery Papers. All of these are washable and free from arsenic, and may be obtained of any of



the leading decorators. Also Specimens of Blocks and Rollers used in the manufacture of above.

**860. WOOLLAMS, WILLIAM, & CO.,** 110 High Street, near Manchester Square, W.—Non-arsenical Paper Hangings. Artistic wall and ceiling papers, Dado Decorations, chintz and damask papers on mica grounds, raised flock papers, and patent embossed flock papers varnished without painting over, embossed leather papers, lacquered and varnished papers, all guaranteed free from arsenic. Pigments, for decorative work, free from arsenic.

**861. CORTICINE FLOOR COVERING COMPANY (THE),** 112 Queen Victoria Street, London, E.C.; Works, Ponders End, Middlesex.—Corticine Floor Covering (a patented improvement in Linoleum).

**862. TRELOAR & SONS,** 68 Ludgate Hill, London, E.C.—Cocoa Nut Fibre, Door Mats, Matting, Shetland Carpets, Linoleum, and other Floor Coverings.

**863. LINOLEUM MANUFACTURING CO., Limited,** 144 Queen Victoria Street, E.C.—Linoleum Floor Cloth.

**864. UNITED ASBESTOS CO., Limited (THE),** 161 Queen Victoria Street, E.C.—(1) Non-Poisonous and Sanitary Asbestos Paints, for house, infirmary, and general decoration. (2) Fine specimen of raw Italian Asbestos, Ropes for fire escapes. (3) Cloth, for firemen's clothes, blankets, &c. (4) Millboard, for fire-proofing floors, and wooden partitions.

**865. THOMPSON, H., & CO.,** 95 Merrow Street, Walworth, S.E.—Magnetic and Non-poisonous Oxide of Iron, Damp Wall Paint, &c. Enamel Paints, for sanitary house decoration.

**866. EBNER, JOSEPH F.,** 51 Clerkenwell Road, E.C.—Parquet Floors, Marble Mosaic Floors, Mosaic Decorations.

**867. ENDOLITHIC CO., Limited (THE) (JOHN F. HASKINS, M.E.,** Managing Director), 114a Queen Victoria Street, E.C.—Coloured and Imperishably Decorated Marbles, in Floors, Dadoes, Mantels, Columns, Rails, &c.

**868. FARMER & BRINDLEY,** 67 Westminster Road.—Polished Marbles in Slabs, for wall decoration, and Furniture, and various Specimens of Marble Pavements.

**869. PLIABLE WOOD DECORATION CO. (THE),** 1 Wenlock Basin, City Road. Dadoes, Ceilings, Cornices, Friezes, Doors, and Mouldings, Panellings decorated with Patent Pliable Veneer of various woods.

**870. INDESTRUCTIBLE PAINT CO., Limited (THE),** 27 Cannon Street; & 42 Bread Street, E.C.—Sample Models, &c., coated with Browning's Patent Preservative and washable Paints for every kind of purpose, indoors or out, to finish "glossy" or "flat," and Browning's Patent Invisible Preservative Solution (colourless) for rendering waterproof and damp-proof stone, marble, brick, cement, plaster, paper, canvass, &c., for all climates.

**871. SILICATE ZOPISSA COMPOSITION & GRANITIC PAINT CO. (THE),** 45 Fish Street Hill, E.C.—(1) Samples of Silicate Zopissa Composition, for damp walls. (2) Bricks, Plaster, Panels, and Textile Fabrics coated with same. (3) Samples of Colourless Silicate Zopissa Liquid, Brick, Stone, and Plaster, indurated with same. (4) Samples of Granitic Paint. Wooden panels, painted and grained in same, and Iron Castings painted with same. (5) Samples of Paint prepared specially for naval, architectural, colliery, and engineering purposes.

**872. SCOLLY, A. J., & CO.,** 27 Mincing Lane, E.C.—Scolly's Patent Joint Mastic for making joints of all kinds (non-poisonous), Anti Red Lead. (2) Heat Resisting Mastic Paint (non-poisonous), specially suitable for tropical climates.

**873. GRIFFITHS, BERDOE, & CO. SANITARY PAINT CO., Limited,** 34 Leadenhall Street, E.C.—(1) Samples and Specimens of Griffiths' Patent Non-Poisonous White, Sanitary, and Silicate Paints. (2) Griffiths' Enamel Paints. (3) Silicate Washable Distemper. (4) Petrifying Liquid, for damp walls. (5) Varnishes. (6) Colours, Wood Staining Oils, &c.

**874. STEVENS, R.,** Horticultural Builder, Bromley, Kent.—A New System of Glazing Skylights in dwelling houses, workshops, &c.

**875. STEPHENS, HENRY CHARLES,** 171 Aldersgate Street, E.C.—Stephens' High Class Chemical Preparations for dyeing pine, deal, and other white woods in exact imitation of the higher and better class woods, as Oak, Mahogany, Walnut, Satin, Rose Wood, Ebony, &c.

**876. WATTS, GEORGE,** 20 West Street, Brighton.—Cramer, Watts & Co.'s French Polish Reviver for cleansing, restoring and repolishing furniture, pianos, pictures, and leather of all descriptions.

**877. WHITAKER, JOSEPH BIRKETT,** Chemical Works, Kendal.—Wood Stains and Quick-Drying Coloured Varnishes.

**878. TURNER, CHARLES, & SON,** Broad Street, Bloomsbury; and George Yard, Whitechapel, London.—Manufacturers of Varnishes, Japans, Wood Stains, dry and liquid. Non-Poisonous Paints, and Colors for Decorators and Carriage Builders.



879. **PULFORD, GEORGE C.**, 77 Cannon Street, London.—Pulford's Damp Wall Paint made from pure iron, for preventing dampness inside or outside of walls (non-poisonous).

881. **TORBAY & DART PAINT CO.**, Limited (THE), 23 Great George Street, Westminster; & Dartmouth, Devon.—Samples of Sanitary and Non-poisonous Paints, for decorative and other purposes, also specimens of work done therewith. These paints are guaranteed to be quite pure and unadulterated.

882. **FREEMAN, JOS. B., & CO.**, Grove Works, Battersea.—Non-poisonous White Lead, Paints, Colors, and Varnish.

883. **BLANE, LIEUTENANT-GENERAL SIR SEYMOUR**, Bart., C.B., 34 Duke Street, St. James's, S.W.—(1) Sample Cans of Non-inflammable, Non-poisonous, and Inodorous Paint. (2) Specimens of Wood and other substances covered with the Paint in various colours. (3) Sample tins and packets of a Pure Peat Plate Powder.

884. **BILLING & CO.**, 7 New Oxford Street, W.C.—An Assortment of Polished Repoussé Brass, and Plush and Brass Goods, suitable for Wall, Table, and other Decorations, including Convex and Bevelled Mirrors, Candle and Gas Sconces with Ornamental Brass Backs, Jardinières, Coal Vases, Bellows, Panels for Grates, Lamps, Thermometers. Waiters, Tea Trays, Jewel Cases, Stationery Set, Photo-Frames, &c.

885. **LEETE, A., & CO.**, 129 London Road, Southwark, London, S.E.—Paints, Non-poisonous, specially prepared for interior decorations, also Paints specially prepared for outdoor work on Iron, Wood, Stone, Stucco or Cement.

886. **GAY, R., & CO.**, York Works, York Road, City Road, London, E.C.—Samples of "Impenetrable" Paint, in various colours and on various materials.

**BELHAM, S. & CO.**, Britannia Works, 155 Buckingham Palace Road, (See Class 24.)

**BELL, JOHN**, 118 Southwark Street, S.E. (See Class 24.)

**CLIFF, JOSEPH, & SONS**, 2 Wharf, King's Cross Goods Depot, N. (See Class 20.)

**CRYSTAL PORCELAIN CO.** Limited (THE), 17 St. Bride's Street, Ludgate Circus, E.C. (See Class 27.)

**DOULTON & CO.**, Lambeth, S.E. (See Class 20.)

**GARRARD, F.**, Westferry Road, Millwall, E. (See Class 28.)

**HAYWARD, BROTHERS, & ECKSTEIN**, 187-193 Union Street, Boro', S.E. (See Class 25.)

**HORNE, W. C.**, 5A Aldermanbury Postern, London. (See Exhibit in grounds.)

**JENKS & WOOD**, 65 High Holborn Viaduct, E.C. (See Class 20.)

**MARTIN & CO.**, 27 Newman Street, Oxford Street, W. (See outside Western Gallery.)

**MIDLAND RUSTLESS IRON CO.**, 35 Dudley Road, Wolverhampton. (See Class 27.)

**POWELL, GEORGE**, 104 Newgate Street, London, E.C. (See Class 28.)

**WILLESSEN WATERPROOF PAPER & CANVAS CO.**, Limited, Willesden Junction, N.W. (See Class 30.)

**QUIRK, BARTON & CO.**, 61 Gracechurch Street, E.C. (See Class 21.)

**STEELE & WOOD**, Stoke-on-Trent; and Dashwood House, New Broad Street, E.C. (See Class 28.)

**WALTON, F., & CO.**, Limited, Sunbury-on-Thames. (See Outside.)

**WILCOCK & CO.**, Burmantofts. (See Class 20.)

### CLASS XXX.

(East Gallery.)

Objects for Internal Decoration and use in the Dwelling. Fittings and Furniture.

887. **MOORE, A. L. & CO.**, 89 Southampton Row, Russell Square, W.—Specimens of Painted Glass.

888. **GARDNER, A. & SON**, 36 Jamaica Street, Glasgow (Agent, R. EVERED & CO., Limited, 50 Holborn Viaduct, E.C.)—Patent Spring Mattress. Consists of parallel spring laths of oval shape, on coppered springs; free from all rust and damp absorbing materials; put together simply with four leather straps and buckles, and when rolled up measures about two cubic feet and weighs only thirty-six pounds. Individual freedom of movement is secured and all tendency to hollowness in the middle impossible.

889. **HEMBRY, B., & CO.**, 16 Newgate Street, E.C.; 37 North John Street, Liverpool; 10 St. Mary's Gate, Manchester.—Model of Stairs fitted with Hembry's Patent India-rubber Stair Clips in combination with linoleum, and a Model fitted with Hembry's Patent Stair Treads, either form preventing accidents from slipping.

890. **TURPIN, M. F. C.**, 22 Queen's Road, Bayswater, W.—Carved Wood Chimney-pieces, Dado Panelling, Armchairs, Parquet Flooring, Wall Decorations.

891. **CHORLTON AND DUGDALE**, 19 Blackfriars Street, Manchester.—(1) "Excelsior" Patent Spring Mattress. (2) Hospital Bed. (3) Invalid Bed, with appliance for raising an invalid to any angle. (4) Spring Couch. (5) Spring Chair. (6) Bed-rest. (7) The New Woven Wire Mattress. (8) Couch with woven wire seating. (9) Chair with woven wire seating. (10) Bed-rest with woven wire back.



892. **HEAL & SON, 195, 196, 197, 198 Tottenham Court Road.**—Complete Furniture for small bedroom.

893. **CHAPPUIS, PAUL EMILE, 69 Fleet Street, E.C.**—(1) Patent Daylight Reflectors to supersede Gas in day time. (2) Reading in Bed and Tell-Tale Reflectors.

894. **PARKER, SMITH, & PARKER, 117 Curtain Road, E.C.**—(1) The "Ambidexter" Patent Box Ottoman Couch. (2) Ditto, with adjustable scroll. (3) Box Ottoman Couch with back, the seat or lid with patent hinges, allowing it to be opened independently of the back. (4) Samples of the Patent Cork Carpet Lining and Stair Pads. (5) Patent Solid Wood Panelling, for decorating Walls, &c.

895. **WEBB & CO., H. C., Patent Wood Works, Shrub Hill, Worcester.**—Assortment of Furniture and Articles for Internal Decoration, intended to illustrate the application of Webb's Patent System of Diachromatizing wood, leather, paper, fabrics, end-grain wood pavements, &c.

896. **BURKE & CO., Rue St. Luc, Paris; & 17 Newman Street, W.**—Specimens of Marble Mosaic Work, as applied to wall and floor decorations; also of Marble for dadoes and wall linings.

897. **VERNON'S PATENT CHINA & GLASS CO., Limited, 59 New Bond Street, London, W.**—Vernon's Patent China for bedrooms, toilet-rooms, bath-rooms, and kitchens. This ware is suitable for all household purposes. Indispensable for bed and bath-rooms, hospitals, steamers, and yachts.

898. **TIDCOMBE, G., & SON, Engineers, Watford, Herts.**—“The Gravel-Walk” Metal Scraper-Mats. They give a clean, neat, and finished appearance to entrances, and are suitable for all kinds of gravel-walk entrances, in all weathers, either to remove the loose grit after summer showers, or the dirt or snow of winter. Their texture gives a firm hold to the feet in whatever direction you step.

899. **TOOTH & AULT, Church Gresley, near Burton on Trent.**—A Selection of Artistic Pottery called Bretby Ware.

900. **OLLEY, THOMAS GEORGE, 98 Bolsover Street, W.**—Specimens of Oval, Round, and Spiral Wood Turning, for building, cabinet, and general purposes.

901. **EXCELSIOR WINDOW APPLIANCES CO., (THE), Temporary Head Office, 73 Bath Street, Glasgow.**—An ordinary sashed window fitted with the Excelsior Patent Window Appliance. All outside work dispensed with, and both sashes turned inwards for cleaning and other purposes.

902. **WALLACE, WILLIAM, & CO., Wholesale House Furnishers & Art Furniture Manufacturers, 151, 152, & 153 Curtain Road, E.C.**—(1) Solid American Walnut Chippendale Wardrobe and suite. (2) Solid American Walnut Sideboard of Early

English design. (3) Solid Oak Sideboard of Recherche design, with carved panels. (4) Drawing-Room Ornamental Chairs, in all the prevailing styles.

903. **SMITH, A., & STEVENS, Janus Works, Queen's Road, Battersea.**—Complete Door and Independent Frame, fitted with Stevens and Majors' Patent Hydraulic Door Spring and Check.

904. **WOOD, C. S. P., & CO., Crown Works, Green Street, Birmingham.**—Wood's Patent Iron and Steel Bedsteads, enamelled and polished in resemblance of various kinds of woods with inlays, &c., after fine art designs.

905. **WILLIAMS, JAMES, Seymour Works, Jubilee Place, Chelsea.**—Assortment of Blinds.

906. **DIXON, J., 7 Bloom Grove, Lower Norwood.**—(1) Chairs and Settees with seats and backs of Perforated Veneers to supersede Cane and Upholstered Work; Gardner's Patent. (2) Time Globe, a Geographical Clock, giving the time of each place on the earth at every minute and hour for day and night; Juvet's Patent.

906a. **FOX, T. & CO, 77 Bishopsgate Street Within, E.C.**—Bedroom Furniture made of Lacewood, and Satinwood inlay.

907. **ARMSTRONG, JAMES T. & CO., 7 Old Hall Chambers, Old Hall Street, Hanley, Staffordshire.**—Window Cornices or Curtain Poles made of China, and which are or are not ventilators for rooms, halls, &c.

908. **BATTAM & HEYWOOD, 114 Oxford Street, W.**—Section of Room showing Washable Decorations of Tynecastle Tapestry for walls, ceilings, &c., also specimens of Lincrusta Walton Washable Decorations for walls, ceilings, dadoes or washable and sanitary paperhangings of various fabrics and system of ventilation.

909. **HORNE, ANDREW, 75 Brewer Street, Woolwich, S.E.**—Improved Window Frame, with sliding sashes and opening arrangement in deal, with brass and other fittings for safety in cleaning sashes from outside.

910. **NORRIS, JAMES P., 86 South Street, Walworth, S.E.**—Chairs, showing how, by an arrangement fitted to the chair, all draughts can be excluded from the sitter.

911. **WETHERILT, A. & J., 10 West Chapel Street, Mayfair, W.**—Models of our patent “Newton” Blinds, which ensure absolute privacy with an open window. Also our new patented arrangement for windows, and a few samples of the Anglo-Arab turned work made by us.

912. **MOON, MRS. WASHINGTON, 164 Regent Street, W. (Sole Wholesale Agents, VYSE, SONS, & CO., 76 Wood Street, E.C.)**—Protecting-Canopy Cots, out of which it is impossible for a child to fall, and



into which it is impossible for a cat or even a mosquito to enter, there being a safety netting in an arched frame which lets down to the edges of the cot, and proves a protecting canopy over it when the nurse is obliged to be absent or asleep.

**913. LINCRUSTA & GENERAL DECORATING CO., Limited (THE),** 184 Oxford Street, London.—Samples of Lincrusta as Wall Decorations, decorated and in self-colours. Mantels, doors, overdoors, screens and various articles of furniture, &c., ornamented with Lincrusta.

**913a. ELLINGTON & SON, 13 Friday Street, E.C.**—Sanitary Ventilated Down Quilt (Pocknell's Patent). By this patent free ventilation for Down Quilts is obtained by the introduction of simple perforated double-eyelleted studs which, without making any perceptible difference in the temperature, allow the exhalations from the body during sleep to escape from the bed, and thus secures a perfectly healthy and comfortable condition of warmth.

**914. WILLEDEN WATERPROOF PAPER & CANVAS WORKS (Limited),** Willesden Junction, N.W.; London Depot & Offices, 34, Cannon Street, E.C.—(1) Examples of Willesden Rotproof for light construction of ambulance and field hospitals, &c. (2) Model Field Hut or Shelter. (3) Partitions in sick rooms, easily fitted without lath and plaster, dirt, &c. (4) Willesden (Rotproof) Canvas Sick Bed and Chair. (5) Models and Examples of Willesden Washable Decorations. (6) Rot-proof Non-poisonous Wall Linings. (7) Underlining Floors in hospitals, barracks, nurseries, domestic offices, &c., for sealing the joints between floor-boards and preventing damp rising, &c.

**915. WALKER, WILLIAM, 119 Newington Green Road, N.**—Chairs with Patent Automatic Seats, suitable for the garden, tramcar, omnibus, steamboat, &c., ensuring a clean and dry seat in all weathers.

**916. HOLDOM, W. M., 73 Scrutton Street, Curtain Road, E.C.**—(1) Children's Nursery Carriage Chairs. (2) The Wolseley Chair, caned seat. (3) The Albany Chair, rush seat. (4) A Dining Room Chair, in the new crocodile skin (dull grain). (5) A New Folding Route Seat. (6) A Sideboard. (7) A Cabinet. (8) An Overmantle Centre Table and Side Table.

**917. KOHN, JACOB & JOSEF, 54 Great Eastern Street, E.C.**—Austrian Bentwood Furniture.

**918. STEWART & CO., Limited, Bedding Manufacturers and Upholsterers,** 124 Newgate Street, E.C.—(1) Howe's Patent Folding Spring Beds, Spring Couches, Spring Mattresses and Folding Cribs. (2) Howe's Patent Household Bedsteads, Brass and Iron Bedsteads, Folding and Rocking Chairs, Mexican Grass Hammocks.

**919. PEARSE, ROBERT, & CO.,** Vine Street, Lambeth, S.E.—Model in wood of a Stone Mullioned Window, fitted with Pearse's wrought-iron casements, as supplied by them to the principal mansions of the nobility, also public works and Government offices, including the new Royal Courts of Justice, Strand.

**920. WARNER & RAMM, 9 Newgate Street, E.C.**—(1) Damasks, Brocatelles, Brocades, Velvets, Tapestries, &c., for wall decoration. (2) Curtains, Furniture, Coverings, and Garments, manufactured of silk of pure dyes.

**921. BODILL, PARKER, & CO.,** Albion Works, Great Hampton Row, & St. George's Mill, Tower Street, Birmingham.—Bells and fittings, cornice poles and fittings, curtain chains, hooks and rings, tassel hooks, locks and lock furniture, door furniture, hat and coat hooks, eyelets, cupboard buttons, picture rod and fittings, sconces, furniture nails, stair rods and eyes, drugget pins, sash fasteners, blind racks, cup and dresser hooks, barometers, thermometers, &c.

**922. CAMPBELL, SMITH, & CO.,** 75 Newman Street, W.—Stained Glass Windows, for domestic use. Staircase window. Air and water drawing-room window (Music). Window blind, "Morning." Smoking-room window (Sir W. Raleigh). Window "Fortune and the Boy at the Well." Two panels (Cavalier and Lady). Small panel, "Labour."

**923. CORSAN, J. R., The London Sand Blast Decorative Glass Works,** 80 Gray's Inn Road, London, W.C.—Permanent and cheap Decorative Glass, suitable for window screens, door panels, fanlights, staircases, vestibule and ceiling lights, conservatories, &c., and for all purposes to which decorative glass can be applied.—Method. The glass is cut or engraved by a stream of sand ejected by steam power at considerable velocity, each grain of sand removing a particle of glass. The parts not required to be cut are protected by a gelatinous composition.

**924. PRICE, R. B., 4 Junction Road, Plaistow.**—Japanese Panel in Bas-relief.

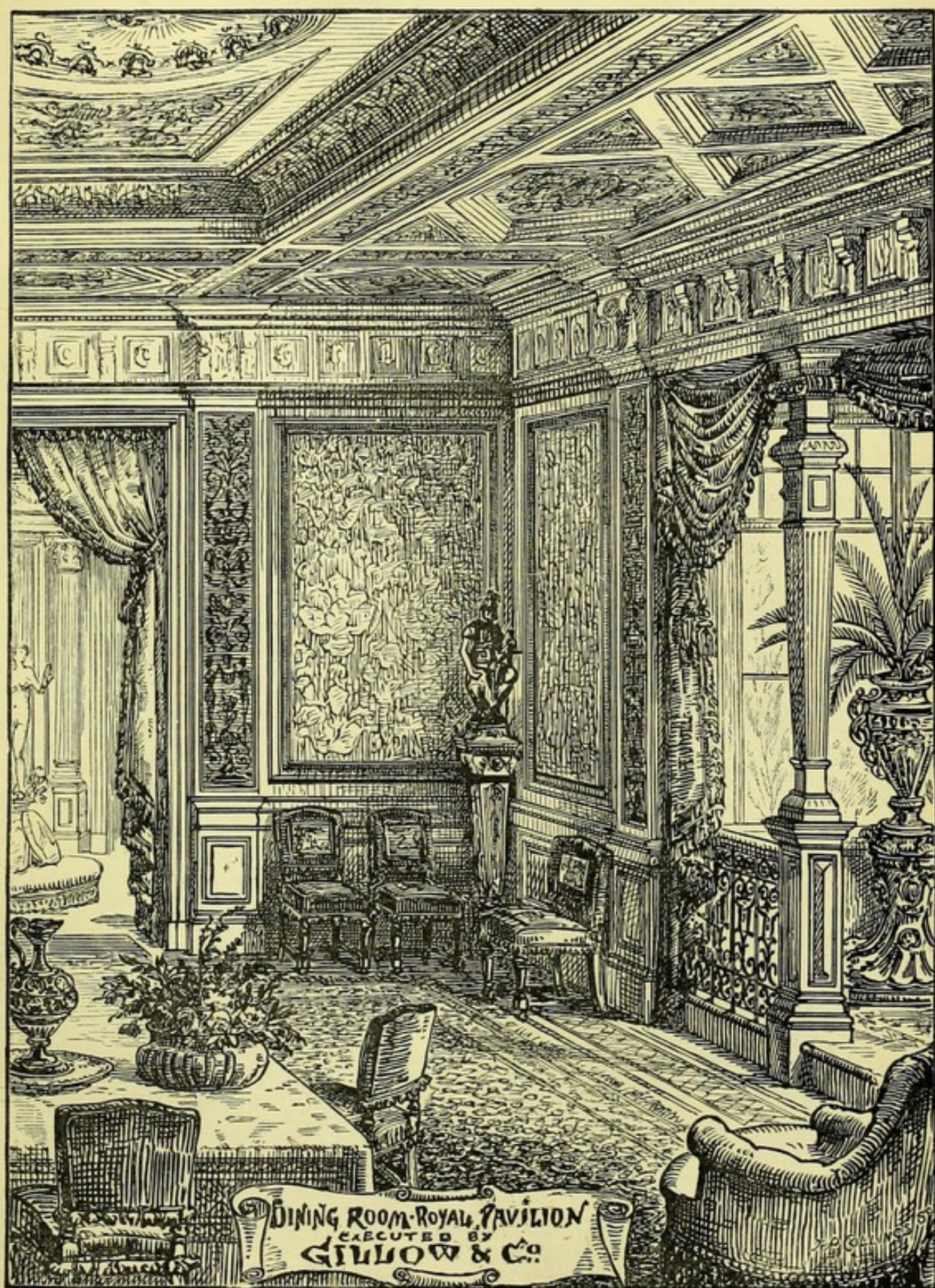
**925. WORTLEY, COL STUART,** Rosslyn House, Grove End Road, N.W.—Transparent Photographs on Glass.

**926. CARDINAL & HARFORD, 108, 109 High Holborn, W.C.**—(1) Oriental Carpets. (2) Indian Prints. (3) Turkish Portières.

**926a. WARREN'S PATENT EMBOSSED GLASS CO., 4 Bishopsgate Street Within, E.C.**—An Embossed Window by the "Warren" process.

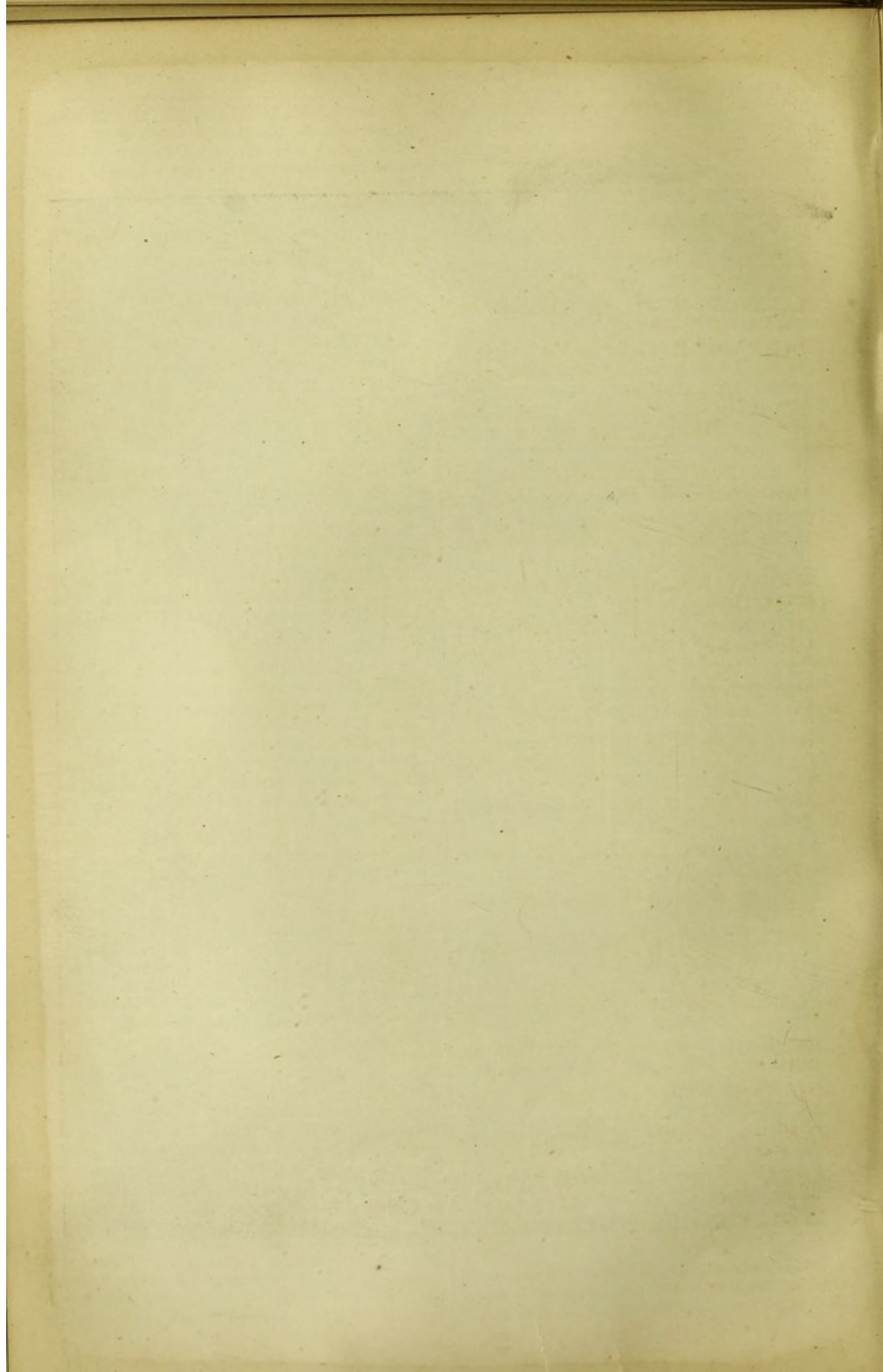
**GILLOW & CO., 406 Oxford Street, London.** Branches, Lancaster; Liverpool; Manchester. Decorators and Furnishers to H.M. the Queen and the Royal





DINING ROOM-ROYAL PAVILION  
EXECUTED BY  
GILLOW & CO.







**Family.**—(1) The Furniture and Appointments of a Vestibule in the Arab Style. (2) A Dining Room in the style of Louis XIV. (early period). The chairs in this apartment are covered in Tapestry from the Royal Windsor Works. (3) An "Adam" Smoking Room. (The whole of the above arranged in The Royal Pavilion, being executed by Gillow & Co.)

**ADAMS, ROBERT,** 17 Blackman Street, Boro', S.E. (See Class 20.)

**BAKER, J. M. B.,** 62 Holborn Viaduct, E.C. (See Class 27.)

**BARNARD, BISHOP & BARNARD,** Norfolk Iron Works, Norwich. (See Class 24.)

**BELHAM, S., & CO.,** Britannia Works, 155 Buckingham Palace Road. (See Class 24.)

**BORN, PHILIP,** 29 Tavistock Road, Westbourne Park, W. (See Class 20.)

**BOWER BARFF RUSTLESS IRON CO. (THE),** 23 Queen Victoria Street, E.C. (See Class 23.)

**BROWN, J. M.,** 33 High Street, Haddington. (See Aquarium.)

**CHUBB & SONS' LOCK & SAFE CO., Limited,** 128 Queen Victoria Street. (See Class 20.)

**CLEMENTS, JEAKES, & CO.,** 51 Great Russell Street, W.C. (See Class 31.)

**COALBROOKDALE CO., Limited,** Shropshire; & Holborn Viaduct, E.C. (See Class 24.)

**COBURN, R. C.,** 73 Holloway Head, Birmingham. (See Class 15.)

**DICK RADCLYFFE & CO.,** 128 & 129 High Holborn, W.C. (See Aquarium.)

**DOULTON & CO.,** Lambeth, S.E. (See Class 20.)

**EDWARDS, GEORGE,** 68 Brompton Road, S.W. (See Class 20.)

**HOVELL, W. B.,** St. Andrew's Basket Works, Bedford Street, Norwich. (See Class 20.)

**JACKSON, GEORGE, & SONS,** 49 Rathbone Place, W. (See Class 28.)

**JENKS & WOOD,** 65 Holborn Viaduct, E.C. (See Class 20.)

**JENSEN, WEBB, & JENSEN,** 103 New Oxford Street. (See Class 26.)

**KAYE, JOSEPH, & SONS,** 93 High Holborn, W.C. (See Class 20.)

**LITCHFIELD, SAMUEL,** 3 Bruton Street, Bond Street, W. (See Class 20.)

**MARTIN & Co.,** 27 Newman Street, Oxford Street, W. (See Outside Western Gallery.)

**MIDLAND RUSTLESS IRON CO.,** 35 Dudley Road, Wolverhampton. (See Class 27.)

**OSLER, F. & C., & CO.,** 100 Oxford Street, W.—(See T. Tayler Smith's exhibit. Outside Western Gallery.)

**PHILLIPS, W., & SON,** 10 Baker Street, Portman Square, W. (See Class 20.)

**PRICE, SON, & CO.,** 69 Victoria Street, Bristol. (See Class 26.)

**SALVIATI, DR., BURKE, & CO.,** 311a Regent Street, W. (See Class 20.)

**SMITH & TURNER,** 50 Bartholomew Close, E.C. (See Class 20.)

**TAGNON, ADOLPHUS,** 137 Gray's Inn Road, W.C. (See Class 24.)

**TUCKER, JAMES DUNNING,** Myrtle House, The Parade, Bromley, Kent. (See Class 20.)

**TURNER, GEO., & CO.,** 181 Choumert Road, S.E. (See Class 31 A & B.)

**WARDLE & CO.,** 71 New Bond Street, W.; & Leek, Staffordshire. (See Class 29.)

### CLASS XXXI.

(East Central Gallery C.)

Baths, Bathing Requisites, Public and Private Wash-houses, Washing Apparatus, Detergents, Appliances for Personal Cleanliness, &c.

**927. JENNINGS, GEORGE,** Palace Wharf, Stangate, S.E.—(1) Jennings' Patent Bonding Bricks for hollow walls. (2) Stoneware Damp-proof Courses. (3) Air Bricks, Sleeper Blocks, &c. (4) Electrical Apparatus for domestic use. (5) Bells, Burglar Alarms, Lightning Conductors. (6) Completely fitted Bath Rooms. (7) Jennings' Improvements in Valves and Water Fittings, Enamelled Copper Baths, &c. (8) Patent Hot and Cold Supply Valves. (9) Improved Patent Tip-up and Lift-out Lavatory Basins. (10) Patent Sinks. (11) Kitchen, Scullery, and Slop Sinks in enamelled slate. (12) Butler's Pantry and Wash-up Sinks. (13) Sinks for Artisans' Dwellings. (14) Jennings' Improved System of Warming and Ventilation by hot Water or Steam. (15) Jennings' Warm Air Ventilating and Smoke Flues. (16) Jennings' Improvements in the Construction, Disconnection, and Ventilation of House Drains and Sewers. (17) Patent Fat-traps, Gully-traps, &c.

**928. TYLOR, J., & SONS,** 2 Newgate Street, London, E.C.—(1) Patent Water Meters, samples of Water Works Fittings and Fire Extinguishing and Water-fittings for Public Buildings. (2) Various improved systems for the prevention of waste of water. (3) Model Bath-rooms, fitted complete. (4) Water Closets and Urinals, &c. &c.



**929. SHANKS & CO., Tubal Foundry, Barrhead, near Glasgow.**—(1) Shanks' Patent "Eureka" Spray and Plunge Bath, fitted with cabinet work complete. (2) Combined Spray and Sitz Bath, with cabinet work complete. (3) Copper Needle Bath, with fittings complete, all nickel plated. (4) Shanks' Patent Imperial Bath in wood enclosure. (5) Shanks' Patent Universal Bath in wood enclosure. (6) Shanks' Patent Rolled Edge Imperial Bath. (7) Copper Sitz Bath in Cabinet Work. (8) An assortment of Shanks' Patent Tip-up and Sanitary Lavatories with cabinet stands. (9) Shanks' Patent Sinks, and one Slate Slop Sink. (10) Shanks' Patent "Tubal" with Patent "Reliable" Syphon Cisterns. (11) Shanks' Patent Valve Closets. (12) New Patent "Reliable" Syphon Cisterns. (13) Shanks' Patent "Crown" enclosed closet. (14) Folding Lavatory.

**930. WEBBER, JOSIAH, Trafalgar Lodge, George Place, Hyde Vale, Greenwich.**—"The Olynthion," a bath by means of which the doctor may secure in the patient's home the best therapeutic effects of a hot or cold air bath, oxygen, medicated vapour, or electric bath, with special facilities for medical observation and control.

**931. RIMMEL, E., 96 Strand, W.C.**—Sanitary Perfumery, comprising: (1) Toilet Vinegar, a tonic lotion for the toilet or bath. (2) Aromatic Ozonizer, a fragrant powder of pine and eucalyptus, to purify the air. (3) Aromatic Ozonized Pocket Cassolette. (4) Ozonized Eau de Cologne. (5) Lavender and Florida Water. (6) Ozonized Toilet Soap. (7) Carbolic Soap. (8) Coal-tar Soap, opaque and transparent. (9) Carbolic Tooth Wash and Disinfectant.

**932. OWEN, SAMUEL, 57 Fann Street, Aldersgate Street, E.C.**—(1) Patent Comfortable Bath, with seat all cast in one. (2) Patent Twin-screw Bath Fittings. (3) Bib and Lavatory Taps. (4) Lavatories. (5) Ball or Cistern Valves. (6) Bath Lavatories and Water Cocks. (7) Valve and other Closets. (8) New English Closet.

**933. CRITTALL, RICHARD, 34 North Street, Manchester Square, London, W.**—A Completely Fitted Bath-room with an Improved Roman Bath. The hot and cold valves, waste pipe, &c., are all connected to bath, and require no separate fixing.

**934. PERKINS, B., & SON, Bermondsey Street, S.E., and Cannon Street Buildings, E.C., London.**—(1) Steel Open Baths, stamped ends, tinned and enamelled, cheap, light, durable, and do not chill the water, thus obviating the great drawback of cast iron. (2) Copper Open Baths, stamped ends, tinned and enamelled. (3) Hecla Instantaneous Water Heaters. (4) Self-heating Gas Baths. (5) Sanitary Seamless Steel

Saucepans and Stewpans, no verdigris or copper contamination, cheaper than wrought iron, and practically indestructible.

**935. WALLER, THOMAS, 43 Fish Street Hill, and The Grove, Southwark.**—(1) Improved Open Bath fitted with spray, &c.; this can be fitted to any kind of bath, hot water cistern, hot linen closet, and towel warmer in action. (2) Patent Detergent Soap.

**936. CLEMENTS, JEAKES, & CO., 51 Great Russell Street, W.C.**—(1) Assortment of Clements' Strong Gun Metal Water Fittings. (2) Bath Stove and Boiler. (3) Hot Water Circulating Cistern. (4) Copper Hot Water Circulating Cylinder. (5) Improved Enamelled Cast Iron Bath. (6) Porcelain Bath. (7) Improved Needle Bath and Douche for Turkish Bath. (8) Shower and Vapour Baths. (9) Assortment of Sinks for all purposes. (10) Washing Troughs.

**937. EWART & SON, 346 Euston Road, London, N.W.**—(1) Spray and Shower Bath. (2) Challenger Bath with Boilers. (3) Gas Bath. (4) Specimens of Portable Baths.

**938. SMEATON, JOHN, Imperial Buildings, Ludgate Circus.**—(1) Smeaton Imperial Spray, Shower, Douche, Rose, and Wave Bath complete. (2) Tip-up Lavatory Apparatus. (3) Handsome Lavatory with pull-out patent arrangement. (4) Batchelor's Bath and Lavatory, combined with wardrobe. (5) Also Hospital Slop Sinks, Closets, &c. (6) Cast Lead Traps ("The Eclipse"). (7) Specimens of Sanitary Plumbing, Drawings of same. (8) Hot Water Apparatus.

**939. WEST CENTRAL SANITARY ENGINEERING COMPANY (THE), 7 Drury Court, Strand, W.C.**—(1) Patent Plunge and Sitting Baths, each combined with douche, shower, wave, electric and other medical appliances. (2) Patent Combined Needle, douche and shower bath with Electric Chair. (3) Patent Electroplated Telescopic, Tubular Bath Arrangement. (4) Patent Combined Chair and Turkish Bath with electric and other appliances.

**940. SQUIRE & SONS, 413 Oxford Street, London, W.**—Antiseptic Soaps.

**940a. BALLARD, F. A., & ROGERS, 1 Crowndale Road, St. Pancras, N.W.**—Ballard's Odontoline Liquid Dentifrice.

**941. STAR BRUSH CO., Limited (THE), North Road, Cattle Market, Holloway, N.**—Patent Solid Back Machine-made Brushes for household use.

**942. KNIGHT, JOHN, & SONS, Silvertown Soap Works & Oil Mills, Victoria Docks, London, E.**—Household, Sanitary, and Toilet Soaps.

**943. ROGERS, ROCK & Co., 56 Friday Street, London, E.C.**—Droitwich Brine Baths.



944. **ROWE & CO., Brentford.**—Soaps for laundry and domestic use.

945. **PATON & CHARLES, Tunnel Soap Works, Wapping, E.**—Case of Soap.

946. **GOSNELL, JOHN, & CO., 93 Upper Thames Street, E.C.**—(1) Sanitary Toilet Preparations and Toilet Brushes for the skin and complexion. (2) Antiseptic Coal Tar Soap. (3) Violet and Millefleur Powder. (4) Violet Vinegar. (5) For the Teeth: Cherry Tooth Paste; The Al Tooth Brush. (6) For the Hair: The Trichosaron Hair Brush.

947. **TILBURY, W. R., & CO., 47 Frampton Park Road, Hackney, E.**—Tooth Brush Manufacturer.

948. **BARRETT, A., & SONS, 63 Piccadilly.**—(1) Improved Toilet Brushes. (2) Hair and Bath Brushes, &c. (3) Improved Candle Reflector Reading Lamps.

949. **CASH, J. & J., Hertford Street, Coventry.**—(1) Gentleman's Rough Bath Towel. (2) Three Spires Towel.

950. **MOUNTAIN, JOSEPH, & Co., Sanitary Engineers, Blonk Street, Sheffield.**—Mountain's new registered Portable or Fixed Lavatory and Children's Bath.

951. **CRESSWELL, R., & CO., 32 Red Lion Square, London, W.C.**—Sponges of all kinds for bathing, toilet, stable, and general cleaning purposes.

952. **CHESBROUGH MANUFACTURING CO. (THE), 41 Holborn Viaduct.**—Vaseline Preparations, for emollient, medicinal, pharmaceutical, and toilet purposes, soaps, &c., as an antiseptic and disinfectant.

953. **HARGREAVES BROTHERS & CO., Cleveland Street, Hull.**—(1) Sanitas' Disinfectant Blue (by Royal Letters Patent), made in the shape of the letters D and B, combined (Registered Shape). This Blue is perfectly pure, and a prevention against fevers and infectious diseases. (2) "Rotunda" Black Lead in round blocks. (3) Hargreaves' Black Lead in blocks. (4) Hargreaves' Square and Ocean Blues.

955. **ALLIANCE MANUFACTURING CO., Leadenhall House, 101 Leadenhall Street, E.C.**—"Latherine"—It cleans carpets perfectly, and does not affect the colours. Blankets or Flannels washed with it become perfectly soft and equal to new. Silver washed with it requires no other cleaning. Lace and Muslin Curtains require no rubbing, simply to be drawn through a solution of the Latherine. It is perfect for kitchen purposes, as it removes grease instantly from anything; no soda required. Latherine softens the skin and prevents chapping of the hands.

956. **MARKS, HENRY, & SONS, 45 Houndsditch, E.; and at Syra and Smyrna.**—Sponges for Baths, Hospitals, &c.

957. **GREENBANK ALKALI WORKS CO., St. Helen's, Lancashire.** (1) Pure Olive Oil Potash Soap. (2) Double Refined Powdered 98 per cent. Caustic Soda. (3) Chloride of Lime. (4) Refined Pearl Ashes. (5) Pure Caustic Potash. (6) Specialties for making soap without boiling and softening waters.

958. **TIDMAN & SON, 21 Wilson Street, Finsbury, E.C.**—Tidman's Sea Salt for producing a real sea bath at home.

959. **ALBERT LAUNDRY BLUE MANUFACTURING CO. (THE), 132 Upper Thames Street, E.C.; and Bristol.**—(1) Ultramarine Blue. (2) Indigo Blue, in ball, square, and thumb. (3) Black Lead for domestic use.

960. **THOMPSON, H. A., & SON, 22 Worship Street, E.C.**—"The Purifier" Laundry Blue (fluid).

961. **LYON, F., 94-96 Harleyford Road, S.E.**—Carbolic Soap Compound, and other washing and cleansing powders, pastes, and fluids, having disinfecting properties.

962. **MAY, H., & CO., Goodinge Road, Cattle Market, N.**—(1) May's Washing Powder. (2) Extract of Soap. (3) Starch Improver, for glazing linen.

963. **SELLERS, JOHN, 9 Farringdon Road, E.C.**—(1) Sellers' Potash and Bath Soaps. (2) Sellers' Oxychlorogene for disinfecting purposes.

964. **CHISWICK SOAP CO. (THE), Chiswick, W.**—Samples of Soft Soaps for cleansing and disinfecting and washing woollen goods.

965. **SALMOND, DAVID, The Soap Works, Valley Road, Bradford, Yorkshire.**—(1) Olive Oil Hard or Marseilles Soap. (2) Best White Curd Soap. (3) Toilet Soaps in tablets. (4) Gallipoli Oil Soft Soap. (5) Olive Oil Soft Soap. (6) Refined Cotton Seed Oil Soft Soap. (7) Soaps for manufacturing and domestic purposes.

966. **SOWERBUTTS, JAS. CHAS., Works, Woking Station. London Office, 13 Spencer Road, New Wandsworth, S.W.**—Gards Sapoline, a pure cream-coloured Soap.

967. **WOOLLEY, JAMES, SON & CO., Manufacturing Pharmaceutical Chemists, Manchester.**—(1) Sanitary Rose Powder. A soluble antiseptic dusting powder for toilet and children's use. A substitute for violet powder Fuller's earth, &c. (2) Phenate of Soda Solution. An antiseptic application for burns, schalds, chilblains, stings of insects, &c. Used in dental surgery as an astringent antiseptic mouth wash for tenderness of the gums after the extraction of teeth.



968. **SINCLAIR, JAMES**, 65 Southwark Street, S.E.—(1) Sinclair Cold-water Soap. A soap for washing linen in cold or tepid water and for all household purposes. (2) Carbolic Disinfectant Soap.

969. **PEARS, A. & F.**, 38 Great Russell Street.—Pears' Soap.

970. **ALLEN, JAMES, & SON**, 21 & 23 Marylebone Lane, London, W.—Portable Turkish Hot Air and Vapour Baths, applied to bed, or used with chair. Bronchitis Kettles, Inhalers, Ventilating Croup Kettles, Invalids' and Nursery Baths, Infants' and Invalids' Food Warmers, Bed-Baths, Bed-Pans, and other sick-room appliances.

971. **NORTH BRITISH PLUMBING CO.**, 4 Upper Baker Street, N.W.—Improved Sanitary Hip Bath.

972. **HALL, JOHN, & CO.**, Stourbridge.—(1) Hall's Patent Enamelled Porcelain Bath, which requires no casing, being enamelled all over; can therefore be thoroughly and easily cleansed outside as well as inside, which is impossible with a cased bath. (2) Porcelain Sinks, Troughs, &c. (3) White and Coloured Glazed Bricks.

973. **MACCALL, THOMAS, M.D.**, 27 Hayter Road, Brixton, S.W.—Turkish Bath for domestic use, called "The Matlock Domestic Portable Turkish Bath," being a complete Turkish Bath on a small scale, suitable for private houses, hotels, hospitals, and hydropathic establishments. Perfectly ventilated and absolutely safe, portable, economical (heating costing only about one halfpenny per bath); does not interfere with house or establishment in any way, and allows of absolute cleanliness and privacy. The temperature is easily regulated to suit any constitution or condition without the slightest risk.

974. **FINCH, BENJAMIN, & CO.**, 181 High Holborn, W.C.—(1) Lavatories for schools, hospitals, and workhouses. Single ditto, for offices and private use, improved jets. Lavatories to prevent the spread of ophthalmia. (2) Porcelain Bath and Sink. (3) Closets, Urinals. (4) Patent Ventilating Window Frame.

975. **BENHAM & SONS**, 50 Wigmore Street, Cavendish Square, W.—(1) Baths with fittings for hot and cold water. (2) Lavatory Basins and fittings. (3) Hospital Bath. (4) Brass Foot Baths and Water Cans. (5) Towel Warmer. (6) Improved Slop Sink.

976. **HENDRIE, ROBERT, & CO.**, Wholesale Perfumers, 12 & 13 Tichborne Street, Haymarket, W.—(1) Detergent and other Toilet Soaps, comprising Patent Petroleum, Petrolin, Cosmetic, Carbolic, Coal Tar. (2) Detergent Liquid Dentifrice. (3) Hygienic Toilet Vinegar for the Bath. (4) Hygienic Milk of Roses for the Skin. (5) Honey Water. (6) Hair and Tooth Brushes. (7) Inexhaustible Smelling Salts.

**ALBION SANITARY SOAP CO.**, 76 New Oxford Street. (See Machinery in Motion, Western Arcade.)

**ASHWORTH BROTHERS**, Moss Brook Works, Manchester. (See Machinery in Motion, Western Gallery.)

**BAKER, J. M. B.**, 62 Holborn Viaduct, E.C. (See Class 23.)

**BENHAM & SONS**, 50 Wigmore Street, Cavendish Square, W. (See Machinery in Motion, Western Gallery.)

**BRADFORD, THOMAS, & CO.**, 140-143 High Holborn, W.C. (See Machinery in Motion, Western Gallery.)

**CALVERT, F. C., & CO.**, Bradford and Manchester. (See Class 23.)

**CLEAVER, F. L., & SONS**, 32-34 Red Lion Street, W.C. (See Machinery in Motion, Western Gallery.)

**CLIFF, JOSEPH & SONS**, King's Cross, London, N. (See Class 20.)

**CONOLLY, H.**, 53-55 Hampstead Road. (See Class 20.)

**DENT & HELLYER**, 21 Newcastle Street, Strand, W.C. (See Class 23.)

**DOULTON & CO.**, Lambeth, S.E. (See Class 20.)

**DRAKE, CHARLES, & CO., Limited**, Railway Wharf, Battersea Park, S.W. (See Class 28.)

**FIELD, J. C. & J.**, Upper Marsh, Lambeth, S.E. (See Class 26.)

**GREENALL, JOHN**, 105 Oxford Street, Manchester. (See Machinery in Motion, Western Arcade.)

**GROOM & CO.**, Liquorpond Street, E.C. (See Class 12.)

**HARPER TWELVETREES**, 8 City Road, Finsbury Square, E.C. (See Machinery in Motion, Western Arcade.)

**HAYWARD BROTHERS & ECHSTEIN**, 187-193 Union Street, Boro', S.E. (See Class 25.)

**HESELWOOD, JAMES**, Excelsior Leather Works, Leeds. (See Machinery in Motion, Western Arcade.)

**HEYES, LLOYD, & SHUTTLEWORTH**, 601 Commercial Road, E. (See Machinery in Motion, Western Gallery.)

**HIGHBURY MACHINE CO. (THE)**, 33 Holloway Road, N. (See Machinery in Motion, Western Gallery.)

**KENWORTHY, E. N., & CO.**, Alpha Works, Oldham. (See Machinery in Motion, Western Gallery.)

**LANGSTAFF, CHARLES, M.D.**, The Chalet, Basset, Southampton. (See Class 28.)



**McDOUGALL BROTHERS**, 10 Mark Lane, E.C. (See Class 23.)

**MAIGNEN, P. A.**, 22 & 23 Great Tower Street, E.C. (See Class 21.)

**MIDLAND RUSTLESS IRON CO.**, 35 Dudley Road, Wolverhampton. (See Class 27.)

**MITCHELL, J., & CO.**, 218 Westgate Road, Newcastle-on-Tyne. (See *Machinery in Motion*, Western Gallery.)

**MUNNERY, J. CHAMBERS**, 41 Bishopsgate Street Without, E.C. (See Class 28.)

**NORMAN, JOHN JAMES**, 37 Walbrook, E.C. (See Class 24.)

**PATENT STEAM WASHER & LAUNDRY CO., Limited (THE)**, 35 Albion Street, Leeds. (See *Machinery in Motion*, Western Arcade.)

**PORTER, J. H.**, 1 Tudor Street, London, E.C. (See *Outside*, Western Gallery.)

**PRICE'S PATENT CANDLE CO., Limited**, Belmont Works, Battersea, S.W. (See Class 26.)

**ROTH, DR. M.**, 48 Wimpole Street, Cavendish Square, W. (See Class 39.)

**STEPHENS & WOODMAN**, The Brixton Engineering Works, Barrington Road, Brixton, S.W. (See *Machinery in Motion*, Western Gallery.)

**STONE, JOHN**, Town Clerk, Bath. (See Class 20.)

**WARNER, JOHN, & SONS**, Crescent Foundry, Cripplegate, E.C. (See Class 23.)

**WHALLEY, SMITH, & PAGET**, Parker Street Iron Works, Keighley, Yorkshire. (See *Machinery in Motion*, Western Arcade.)

**WILLIAMSON, WILLIAM, & CO.**, 133 High Holborn, W.C. (See *Machinery in Motion*, Western Gallery.)

## CLASS XXXII.

(Main Entrance.)

Publications and Literature, Models, Pictures, Diagrams, &c., relating to Group 3.

**977. BAYLY, J. PITT**, 18 Fulham Place, Paddington, W.—(1) Design showing a mansion in section describing the different modes of heating by hot-water or steam from boilers heated by gas, baths, water-fittings, drains, traps, lavatories, ventilation flues, sewers, drinking and flushing cisterns, &c. (2) Proposed Baths and Aquarium at Bournemouth, pen and ink drawing of front elevation, and ground plan showing the different departments for baths.

VOL. XVIII.

**978. BOULNOIS, H. PERCY**, Borough Engineer, Portsmouth.—Diagram showing a simple method of disconnecting a dwelling-house from the main sewer where such dwelling-house is built tight up to the footpath in an urban street.

**979. BRANNON, PHILIP**, Hygeia Lodge, Walton Naze Park, Essex.—Drawings and Illustrations of Philip Brannon's Sanitary Works, Materials and Inventions for purifying water collection; sanitary drainage, latrines, Midhens' sewage treatment, and absolutely sanitary, fire-proof, undecaying Houses and House-building Materials. Tabular arrangement of principles of sanitation—personal, municipal, domal, &c.

**980. BRANNON, THOMAS NAGLE**, Hygeia Lodge, Walton Naze Park, Essex.—Plans.

**981. BYRNE, P. J., & WILMOT**, 32 Park Street, Windsor, Berks.—(1) Plan and Perspective View of the dwellings at old Windsor for the employes of the Royal Tapestry Works. (2) Designs for model lodging houses. (3) Designs for artisans' and labourers' cottages in the country.

**982. ARTIZANS', LABOURERS' AND GENERAL DWELLINGS CO.** (R. PLUMBE, 13 Fitzroy Square, W.)—Drawings.

**983. CLARKE, EDWARD**, 6 Adam Street, Adelphi, W.C.—Drawings of Industrial Dwellings erected in Little Wild Street, White Hart Street, and Stanhope Street, Drury Lane, Leather Lane, Holborn, Turnmill Street, Farringdon Road, Queen Street, Seven Dials, Hanbury Street, and Wellington Street, Whitechapel, and Lambeth Walk, Southwark.

**984. COOKE, CHARLES H., F.S.A.**, Architect, Burlington Chambers, 180 New Bond Street, W.—Architectural Drawings.

**985. CORPORATION OF BOLTON (THE)** (M. ROBINSON, Architect).—Plans of the Bolton Fever Hospital.

**986. CRONK, E. EVANS**, 12 Pall Mall.—Drawings illustrative of domestic architecture and improved dwellings for the poor, and Fever Hospital.

**987. DUNSCOMBE, CLEMENT**, M.A., M.Inst.C.E., City Engineer, Liverpool.—Plans of Artisans' Dwellings, Nash Grove, Liverpool.

**988. DYER, FREDERICK C.**, 93 Gracechurch Street, E.C.—Designs for Artisans' Dwellings.

**989. EDEN, JAMES ISRAEL**, 23 Abingdon Street, S.W.—(1) Drawings showing new combination form of drains to houses in terrace. Automatic Flushing Wheel for utilizing waste water from Baths, Sinks, &c. (2) Drawings showing Plans of Town House with the above appliances in position. (3) Small Model of Drain at half real size.

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990. **FARROW, FREDERIC RICHARD**, 32 Craven Street, Strand, W.—Designs for Suburban Houses.

991. **FRERE, AUGUSTUS, F.R.I.B.A.**, 34 Essex Street, Strand, W.C.—Designs for dwellings for the poor.

992. **HAYES, JOHN, C.E.**, 27 Leadenhall Street, E.C.—Plans illustrating Hayes' system of "Sea Water Supply for London." This project is put forward by the author not as a final solution of the problem of supplying London with a cheap and plentiful supply of sea water, but simply as a means of introducing the article into the metropolis upon an economical basis, and of keeping pace with the demand until the time should arrive when "sea water" becomes an article of daily household use.

993. **HAYWARD, CHARLES FORSTER, F.S.A.**, Architect, 20 Montague Street, Russell Square, W.C.—(1) Drawings of houses, erected chiefly of wood for special purposes as dwellings—viz. (1) A Double-roomed Sleeping Chalet, Lexden Park, Colchester; (2) Coldrenwick, Cornwall; (3) Hahnborg, near Christiania, Norway. (2) Drawings of buildings erected for special school purposes—viz. (1) National Science Schools, Harrow, two views; (2) Sanatorium, Harrow School; (3) A Large and a Small Pupil House at Harrow; (4) A Large House for pupils, cubical system (Charterhouse). (5) Burton Bank, Mill Hill School.

994. **HENMAN, CHARLES**, 64 Cannon street, E.C.—Drawings of various Dwelling Houses.

995. **HOOKER & HEMINGS**, 7 Fenchurch Street, E.C.; & Sevenoaks.—(1) Designs for a Town House and Stables. (2) Country House, with Stables. (3) Labourers' Cottages.

996. **HUGHES, HENRY**, 2 Libra Road, Roman Road, Bow, London, E.—(1) Drawing of Patent Apparatus showing cistern for a full supply of filtered water for drinking and household purposes, also for supplying disinfectants to water-closets and household purposes, non-communicating with the drinking water of cistern. (2) Hughes' Patent Sewer Cistern for deodorising foul gases arising from the main and local sewers.

997. **IMPROVED INDUSTRIAL DWELLINGS CO., Limited (THE)**, 34 Finsbury Circus, E.C.—(1) Plans, Elevations and Models of Buildings erected by Company. (2) Sundry specimens of Sanitary and Domestic Appliances and Building Materials in use in the buildings.

998. **LEES, WILLIAM HEWSON, A.R.I.B.A.**, Architect, 27 Doughty Street, W.C.—Drawing of Workingmen's Homes, just erected in William Street, Blackfriars, for the trustees of Brown's estate.

999. **LORD, H.**, Diocesan Chambers, 42 John Dalton Street, Manchester.—Drawings.

1000. **MAY, E. J.**, 21 Hart Street, Bloomsbury, W.C.—Views and Plans of Houses built on a complete system of ventilation.

1001. **METROPOLITAN ASSOCIATION FOR IMPROVING THE DWELLING OF THE INDUSTRIAL CLASSES**, 19 Coleman Street, E.C.—Two Models and Plans.

1002. **MOERATH, JOHN N.**, 23 Great St. Helens, E.C.—Sanitary Constructions of fire and earthquake-proof dwelling-houses.

1003. **MOYE, JOSEPH S.**, 3 Southwick Street, Hyde Park Square.—(1) Design for country hotel. (2) Birds-eye View of the Mottingham Park Estate, Kent. (3) House recently erected. (4) "Highfield," in course of erection on the Mottingham Park Estate. (5) Semi-detached Villas. (6) Semi-detached Villas.

1004. **NATIONAL MODEL DWELLINGS CO. (THE)**, 49 Cannon Street, E.C.—Drawing of the model dwellings erected upon the site of the old Queen's Bench Prison, Southwark.

1005. **NORTH, C. N. MC INTYRE**, 15 Borough High Street, S.E.—Design for modern detached house at Brockley Park, Forest Hill.

1006. **ODDFELLOWS' CO-OPERATIVE BUILDING & INVESTMENT CO., Limited (THE)**, Market Place, Manchester.—Plans of houses and photographs, built and occupied by purchasers from the Oddfellows' Co-operative Building & Investment Co., Limited.

1007. **BANNISTER & FLETCHER**, 29 New Bridge Street, Ludgate Circus, E.C.—Drawing of movable scullery.

1008. **ROSS, JOHN**, 27a Old Bond Street, W.—A Design for Labourers' or Workmen's Dwellings suitable for rural districts.

1009. **SANITARY APPLIANCE CO. (THE)**, 4 St. Ann's Square, Manchester.—Designs for labourers' dwellings by J. Conyers Morrell. These are two-storied, self-contained dwellings, each house having a living-room, scullery and covered yard, and three bed-rooms, and is fitted with a Morrell's patent cinder-sifting ash closet. Provision is made for through ventilation. Estimated cost (exclusive of land) £75 each house.

1010. **SANITARY ENGINEERING & VENTILATION CO. (THE)**, 115 Victoria Street, S.W.—(1) Diagrams of improved self-cleansing cisterns. (2) Cistern Filters. (3) Aerating Silicated Carbon Filters. (4) Air Cleansing Arrangements in connection with inlet ventilators. (5) Book: "Sanitary Science and Practice."



**1011. SOCIETY FOR IMPROVING THE CONDITION OF THE LABOURING CLASSES**, 9 Bloomsbury Mansions, Hart Street, W.C.—(1) Drawings and Plans for cottages. (2) Drawings of model and renovated dwellings.

**1012. SOUTH LONDON DWELLINGS CO., Limited**, 1st Block, Surrey Lodge, Lambeth Road, S.E.—Plan of dwellings at Surrey Lodge.

**1013. INTERNATIONAL HEALTH & HOUSE DRAINAGE ASSOCIATION (THE)**, Broadway Chambers, Westminster, S.W.—System of drainage and ventilation as carried out by the Association.

**1014. THEOBALDS, WILLIAM**, 48 Watling Street, E.C.—Plans Perspective of Improved Workmen's Dwellings (agricultural). These cottages are designed with a view of showing how the agricultural labourer and artisan can be comfortably and conveniently housed at a small outlay. They consist of living-room, kitchen, wash-house, and other necessary offices, and have this noticeable feature, that they contain three bedrooms, viz. parents', boys', and girls', all of which are ample in size, well lighted, and all are separate. The cost to build would be limited according to local circumstances.

**1015. TILTMAN, A. HESSELL, M.R.I.B.A.**, 7 John Street, Bedford Row, London; & Burneston House, Guildford. (1) Design for Model Public Baths. (2) Design for Model Public Baths and Laundry.

**1016. VERNON, T. HEYGATE**, 21 Abingdon Street, S.W.—(1) Plans of house at Northendere, Streatham Common. (2) Miller's house on the estate of the Rt. Hon. Lord Crewe, Crewe Green, Cheshire. (3) House at Whittlebury, Northamptonshire (Duke of Grafton's). (4) Earlywood, Sunningdale (G. D. Pollock, Esq.). (5) School at Crewe Green, Cheshire. (6) & (7) Board Schools, Bugbrooke, Northamptonshire.

**1017. YOUNG & HALL**, 17 Southampton Street, Holborn, W.C.—Plans of dwelling-houses showing drainage arrangements.

**1018. WALFORD, JAMES THOMAS**, 82 Buckingham Palace Road, S.W.—Plans and Special Designs of a small house illustrating a rational application of economy, comfort and art, with a perfect distribution of the several apartments thoroughly ventilated with a due regard to health.

**1019. WALL, JOSEPH**, 13 Walbrook, E.C.—Drawings showing the present dwellings of the poor, and also showing improved planning and construction of model dwellings with detail drawings and perspective sketches.

**1019a. YOUNG, JOHN**, Superintendent of Cleansing, Glasgow.—Plan of City Refuse Dispatch Works, Glasgow.

**1020. WEAVER, RICHARD, C.E.**, F.C.S., Sanitary Surveyor, 24 High Holborn, W.C.—Drawings and Diagrams.

**1021. WEBSTER, JAMES, A.R.I.B.A.**, 27 Doughty Street, Mecklenburgh Square, W.C.—Artisans' Dwellings, Whitechapel, for Mr. A. L. Dussek.

**1022. WOODARD, JOHN T.**, 11 Southampton Street, Strand.—Design for a Town Residence sanitorily arranged.

**1023. SANITARY ASSURANCE ASSOCIATION**, 5 Argyll Place, Regent Street, W.—(1) Sanitary Certificate, being specimen of Certificates issued by the Sanitary Assurance Association. (2) Plans of sanitary arrangements connected with the efficient drainage of an ordinary town house, showing public sewer house drain, disconnecting chamber, gullies, soil pipes, water closets, sinks, bath, rain water pipes, &c. (3) Specimen of Sanitary Report, as supplied by the Sanitary Assurance Association, being copy of a Report describing the sanitary condition of an ordinary London house.

**'BRITISH TRADE JOURNAL' (THE)**, 113, Cannon Street, London. Copies of 'The British Trade Journal,' with its Supplements. (*See Library.*)

**BUCHAN, WILLIAM PATON**, 21 Renfrew Street, Glasgow. (*See Class 25.*)

**BURDETT, HENRY C.**, 39 Gloucester Road, Regent's Park, N.W.—Help series of cheap popular handbooks on Health Subjects for the Household and the Library, by Henry C. Burdett. (*See Library.*)

**CALVERT, F. C., & CO.**, Bradford & Manchester.—Book on Uses of Carbolic Acid or Phenol for Preventing the Spread of Infectious Diseases. (*See Library.*)

**CASELL & COMPANY, Limited**, La Belle Sauvage Yard, E.C.—Publications relating to the Dwelling House and Health, including 'Our Houses,—How to make them Healthy.' 'The Book of Health.' (*See Library.*)

**CORFIELD, W. H.**, 10 Bolton Row, Mayfair.—Literature. (*See Library.*)

**CROFT, JOHN JAMES**, 'Lancet' Office, 423 Strand.—A Complete Set of the 'Lancet' from its foundation in October, 1823, to the end of the year 1883. (*See Library.*)

**DALE, REYNOLDS, & CO.**, 24 Wellington Street, Strand, W.C.—(1) 'The Plumber and Decorator, and Journal of Gas and Sanitary Engineering.' (2) Diagram of House Drainage. (3) Books on House and Land Sanitation, Water Supply, Lighting and Decoration. (*See Library.*)



**DOBBS, A. E.**, 17 Benson's Chambers, Ludgate Hill, E.C.—'Water,' 'The Sanitary World,' and publications in connection with sanitary matters, public health, food, &c. (See Library.)

**DRAKE, CHAS., & CO., Limited**, Railway Wharf, Battersea Park, S.W. (See Class 28.)

**GUILLAUME, DR.**, Neuchâtel, Switzerland.—(1) School Hygiene. (2) Tracts on Health. (See Library.)

**HEATHMAN, JAMES HENRY**, 63 Long Acre, W.C.—On the Preservation of Life and Property from Fire. (See Library.)

**HEYWOOD, JOHN**, Ridgefield, Manchester.—(1) Health and Science Lectures, and other Educational Works. (2) 'The Health Journal,' Manchester. (See Library.)

**HORNE, W. C.**, 5a, Aldermanbury Postern, E.C.—Literature relating to Foster's patent carbon blast apparatus, and to G. Lewis' patent innocuous process of making white lead. Also literature relating to Balmmain's Luminous Paint for sick rooms. (See Library.)

**HOUGHTON, R., & CO.**, 21 Sloane Terrace, S.W. (See Class 22.)

**JACOBS, JOHN H.**, 87 Caversham Road, N.W.—Pamphlet entitled, "Water a Necessity and a Danger." (See Library.)

**KELSEY, STANLEY W.**, Crown Court, Milton Street, E.C.—'The British Colonial World and Journal of Commerce.' (See Library.)

**KINGZETT, CHARLES T., F.I.C., F.C.S.**, 'Trevena,' Amhurst Park, N.—(1) Animal Chemistry or the relations of Chemistry to Physiology and Pathology. (2) Nature's Hygiene. A series of popular essays on scientific subjects. Pamphlet on Secondary Batteries. (See Library.)

**LARKINS, WILLIAM GEORGE**, 6 York Street, Covent Garden, W.C.—Weekly publication, 'Sanitary Engineering,' with other sanitary publications. (See Library.)

**LATHAM, BALDWIN**, 7 Westminster Chambers, Victoria Street.—Literature. (See Library.)

**LIVERPOOL, CORPORATION OF**. (See Outside.)

**MACNIVEN & WALLACE**, 132 Princes Street, Edinburgh.—The Edinburgh Health Society Publications. (See Library.)

**MANCHESTER CORPORATION (THE)**, Manchester. (See Class 23.)

**MURPHY, SHIRLEY F.**, 158 Camden Road, N.W.—Literature. (See Library.)

**NATIONAL HEALTH SOCIETY**, 44 Berners Street, W.—(1) Publications on the Management of the Household. (2) Publications and Wall Charts. (See Library.)

**PEARSE, ROBERT, & CO.**, Vine Street, Lambeth, S.E. (See Class 30.)

**PHILLIPS, WILLIAM FLEMING**, St. Mary Bourne, Andover, Hants.—Pamphlets and Leaflets on Provident Preventive Medical Attendance as an aid to the preservation of health. (See Library.)

**SANITARY APPLIANCE CO. (THE)**, 4 St. Ann's Square, Manchester.—(1) Pamphlet on the Sanitary Question, by J. C. Morrell. (2) Substance of Paper read before the National Health Society, by J. C. Morrell. (3) Paper read before the Manchester Statistical Society, by J. C. Morrell. (4) The Morrell System vindicated. (5) Particulars of Morrell's Patent Ash Closet System. (6) Diagrams of Morrell's Patent Ash Closet System. (See Library.)

**SANITARY INSTITUTE OF GREAT BRITAIN**, 74a Margaret Street, W.—Transactions and other Publications of the Institute. (See Library.)

**SMITH, ELDER, & CO.**, 15 Waterloo Place, Pall Mall.—'The Sanitary Record,' and 'Sanitary Record Exhibition Supplement.' (See Library.)

**SMITH, GREENWOOD, & CO.**, 19, 21 & 23 Ludgate Hill, London, E.C.—(1) Publications (technical) referring to Sanitary Household Decoration, Wall Papers, Sanitary and other Paints, Wax and other Candles, Vegetable, Animal, and Mineral Oils, Apparel, Sanitary and Domestic Earthenware, Pottery. (2) 'Decorators' Gazette.' 'Plumbers' and Gasfitters' Review.' (3) 'Oil and Colourmans' Journal.' (4) 'Pottery Gazette.' (5) 'Hatter's Gazette.' (See Library.)

**SPON, E. & F. N.**, 16 Charing Cross.—Books relating to sanitary subjects. (See Library.)

**THIMM, FRANZ**, 24 Brook Street, London, W.—Publications (Educational) for the Study of Foreign Languages. (See Library.)

**THOMPSON, H., C.E.**, Victoria Buildings, Deansgate, Manchester. (See Class 25.)

**VAL DE TRAVERS ASPHALTE PAVING CO., Limited (THE)**, 14-16 Palmerston Buildings, Old Broad Street, E.C. (See Class 28.)

**TEALE, T. PRIDGIN**, 302 Cookridge Street, Leeds.—Diagrams—Dangers to Health. (See Library.)

**WARD, MARCUS, & CO.**, 67 Chandos Street, W.C.—Publications. (See Library.)



**WHITCOMBE, ARTHUR, A.R.I.B.A., A.S.A.,** 8 Titchfield Terrace, Regent's Park, N.W.—Drawings illustrating—(1) Country House, unsanitary (1 drawing). (2) The same House, with Improved Drainage System, and Arrangements for Disposal of Slops, &c. (2 drawings). (3) Drawings, Plans, and Sections of large Stables, &c., on sound Sanitary Principles (4 drawings.) (See Library.)

**WHITE, WILLIAM, F.S.A.,** 30a Wimpole Street, W.—Domestic Plumbing. (See Library.)

### GROUP IIIa.—AMBULANCE.

CLASS XXXI. A & B.

(Queen's Gate Annexe.)

**Aid to Sick and Wounded in War. Transport.** (a) By Human Agency; Stretchers, Litters, Dhoolies, Palanquins, Hand-carts, Stretchers on Wheels. (b) By Animal Traction; Mule Litters and Chairs, Camel and Elephant Litters, Wheel Carriages. (c) By Mechanical Means; Railway Ambulances, Ship or Water Carriage. Treatment (with portable appliances and portable drugs). (a) On the Field. (b) In Hut Hospitals. (c) In Tent Hospitals. Naval and Military Hygiene.

**Aid to Sick and Injured in Peace. Transport.** (a) By Human Agency; Stretchers, Litters, Dhoolies, Palanquins, Hand-carts. (b) By Animal Traction; for Accidents and Injuries, for Infectious Diseases, for Ordinary Sickness. (c) By Mechanical Means; Railway Carriages for Sick and Invalids, Water Carriage. Treatment (with appliances). (a) Hut Hospitals for Infectious Fevers and for Epidemic Diseases. (b) Tent Hospitals. (c) Hospital Ships. (d) Furniture and Fittings for Sick Rooms.

**1024. ALEXANDRA CARRIAGE WORKS,** 12 Long Acre, W.C.—Accident Ambulances.

**1025. NORTON, THOMAS STERRY,** Grange Road, Bermondsey.—Brougham Ambulance for infectious cases, as supplied to the London Fever Hospital.

**1026. KENNARD, J. D.,** 19 Grand Parade, St. Leonard's-on-Sea.—Kennard's Patent Adjustable Chair-Table.

**1027. LEVESON & SONS,** 90-92 New Oxford Street, W.C.—(1) Assortment of Invalid's Chairs. (2) Invalids' Couches. (3) Self-Propelling Chairs. (4) Bed and Leg Rests. (5) Bed Tables. (6) Prone Couches. (7) Recumbent Chairs. (8) Fracture Beds. (9) Victoria Invalids' Carriage. (10) Invalids' Pony Carriage. (11) Invalids' Ambulance. (12) Invalids' Furniture.

**1029. CARTER, JOHN,** 6a New Cavendish Street, Portland Place, W.—(1) Invalid Bedstead, with commode arrangement. (2) Metallic Invalid Carriage. (3) Iron Bath Chair, with self-propelling action. (4) Invalid Carrying Chair. (5) Walking Machine. (6) Sick-room Appliances. (7) Invalid's Exercising Chair. (8) Adjustable Revolving Tables. (9) Improved Literary Machine. (10) Mechanical Easy Chair, &c.

**1030. McILROY, T.,** 7 Grafton Street, Fitzroy Square, W.—(1) Portable Stretcher for field of battle. (2) Chair for two or four men to carry. (3) Wheel Chair for field or tent hospital. (4) Portable Carrying Chair. (5) Invalid Fracture Bedstead. (6) Fracture Extension Appliance. (7) Portable Tent Bedstead. (8) Portable Tent or Hospital Table. (9) Portable Surgical Operating Table. (10) Invalid Elevating and Fracture Bedstead. (11) Magic Parlour Bed Couch. (12) New Style of Crank Power of Invalids, Trycical Wheel Chair for in or out doors. (13) Reclining Wheel Chair.

**1031. BACON, MISS CHARLOTTE C.,** Student N. A. T. S., South Kensington, 6 All Saints Road, Westbourne Park.—An improved form of mattress, especially suitable for use in the treatment of the sick. The mattress is constructed in separate parts, so that any one portion soiled or damaged can be at once replaced.

**1032. BILLINGTON BROTHERS,** 18 Upper Duke Street, Liverpool; 11 Dyer Buildings, Holborn, E.C.—(1) Spring Mattress (Liverpool) on French bedstead. (2) Invalids' Bedstead and Mattress, with adjustable headrest complete. (3) Elastic-seated Chair. (4) Bed Rest, &c. (5) Woven-wire Sanitary Mattresses. (6) Invalids' Chair. (7) Elastic Bed Rests.

**1033. SAHL & CO.,** 36 Basinghall Street, E.C.—(1) Various specimens of the Triumph Folding Chair: for use in the Sick-room, Drawing-room, Smoking-room, Garden, Pleasure, Cricket or Tennis-ground, the Camp, at the Sea-side, or on Board Ship. Can be used as an Invalid or Reclining Chair, or a Bed or Hammock, and permits of five different degrees of inclination, packing in an exceedingly small space. (2) Calix Toussaint's Mechanical Rising Chair. An ordinary shaped chair adjustable to any height, for the piano, organ, school-room, or study. Can be manufactured to match any furniture.

**1034. WARD, JOHN,** 246, 247 Tottenham-Court-Road.—(1) Self-propelling Merlin Chair. (2) Self-propelling and Carrying Chair, combined. (3) Self-propelling and Reclining Chair. (4) Carrying Chair, made portable for travelling. (5) Mechanical Invalid's Couch. (6) Round Panel Victoria Chair. (7) Invalid's Sofa (Carriage).



**1035. BATE, J., PATENTED IMPROVEMENTS CO.,** 309 Broad Street, Birmingham. — Hospital or Home Invalids' Bedstead (Patent), for elevating or lowering the patient without pain or disturbance. The lifting frame is removable, and may be used as a litter.

**1036. GAINSFORD & CO.,** 163 Borough, S.E. — (1) Sample Hospital Cot and Mattresses, complete. (2) The Tracheotomy Tent, Cot, and Mattresses, complete, with play board. (3) Models of Flock Bed, Wool Mattress, Hair Mattress, Bolster, and Pillow.

**1037. NASMYTH, T. G.,** Cowdenbeath, Fife. — Ambulance Appliances.

**1038. ROYAL HOSPITAL FOR CHILDREN & WOMEN (THE RICHARD G. KESTIN, Secretary),** Waterloo Bridge Road, S.E. — (1) Cot for Child, in use at the hospital. (2) Table, with furniture and appliances. (3) Hygienic Apparatus.

**1039. HILL, J. S.,** Berkeley Place, Clifton, Bristol. — (1) Hospital Bedstead, with poles and chains, &c. (2) Hospital Cot, with running tray and working sides. (3) Camp Bedstead to fold into box. (4) Improved Reclining Back or Bed Rest. (5) Hospital Table Locker.

**1040. BURROUGHS, WELLCOME & CO.,** 7 Snow Hill, Holborn Viaduct, E.C. — Compressed Drugs and Sponges.

**1041. OFFORD, JOSEPH,** 92 Gloucester Road, South Kensington, W.; and 67 George Street, Portman Square. — Healthy Carriages, especially suitable for medical men and invalids, fitted with electric reading lamp and Offord's patent india-rubber tyres.

**1042. SCOTT, ELIZABETH ANNE,** 1 Edinburgh Terrace, Richmond Road, Shepherd's Bush. — (1) Air Bed and Fixtures. (2) Hammock Bed. (3) Surgical Satchette.

**1043. REED, W. J.,** 19 Wootton Street, Lambeth, S.E. — Model of an Ambulance Carriage

**1044. POCKOCK BROTHERS,** 235 Southwark Bridge Road, S.E. — Patent Universal Tubular Water and Air Bed, highly approved by the medical profession for hospitals and private patients, easily adjusted to the requirements of invalids. Forms an excellent camp bed, guaranteed for all climates.

**1045. ARMY MEDICAL DEPARTMENT, War Office, Whitehall.** — List of Articles of Equipment for Bearer Company, Wheeled and Mountain. (1) One Ambulance Wagon, complete with new pattern stretchers, equirota, lockunder, converted. (2) One Surgery Wagon, complete. (3) Four Pack Saddles. (4) One pair Cacolets. (5) One pair Litters. (6) One pair Water Barrels. (7) One pair Field Medical Panniers. (8)

One Field Companion and Water Bottle. (9) One Haversack.

**1046. ROBINSON, THOMAS, & SONS,** Ilkley, Yorkshire. — (1) Robinson's Patent Invalid Couch, with spring bottom. (2) Invalid Couch, with cane bottom. (3) Self-Propelling Couch Chair. (4) Self-Propelling Caned Merlin Chair. (5) Bed Rests. (6) Double-Action Leg Rest.

**1047. METROPOLITAN ASYLUMS' BOARD (THE),** Offices, 37 Norfolk Street, Strand, W.C. — Appliances provided by Board for removal of infectious cases arising in the metropolis: — (1) Model of Western Ambulance Station. (2) Model of Pier at Long Reach, with steamer attached. (3) Model of Ambulance Steamer "Red Cross." (4) Model of Hospital Ship "Castalia." (5) Model of Camp for convalescent and small-pox cases, Darenth. (6) Ambulance for removal of severe cases with nurse. (7) Photographs, Maps, &c., illustrating ambulance system.

**1048. EDGINGTON, BENJAMIN,** 2 Duke Street, London Bridge, S.E. — (1) Portable Bedsteads and Cot. (2) Hammock. (3) Child's Cot. (4) The Patent Trestle, Cot and Litter for Invalids. (5) Portable Reclining Chair and Couch. (6) Ambulance Stretchers.

**1049. ATKINSON & PHILIPSON,** Northumberland Carriage & Harness Manufactory, 27 Pilgrim Street, Newcastle-on-Tyne. — Ambulance Stretcher.

**1050. ALLEN, THOMAS,** 3 Unity Street, Bristol. — (1) Patent Hospital Bedstead, with invalid table and rest. (2) Patent Child's Cot. (3) New Patent Bedstead, with woven wire bottom. (4) Camp Bedstead, in case. (5) Models. (6) Asylum Bedstead. (7) Hospital Bedstead, for fracture cases. (8) New Hospital Bedstead, with canvas bottom. (9) Locker.

**1051. CARTER, A.,** 47 Holborn Viaduct, E.C. — (1) Patent Surgical Couch, for gynaecological and obstetric examinations and general operations. (2) Ambulance Bath Chair. (3) Bed Lift. (4) Reading Machines. (5) Invalid Tables, Chairs, &c.

**1052. NIXON, N. H.,** University College Hospital, Gower Street, W.C. — (1) Bed Rest, with foot support. (2) Bed Rest, with sliding arms. (3) Bed Table. (4) Excretora or Bed Pan Cage. (5) Bronchitis or Tracheotomy Kettle.

**1053. WATSON, W. W.,** 1 Temple Gardens, Temple, E.C. — Improved Combined Bedstead Chair and Commode for invalids.

**1054. DICKINSON, WILLIAM,** 69 Boundary Street, Chorlton-upon-Medlock, Manchester. — Dickinson's Patent Invalid Bedstead and Bed.



**1055. DALTON, HENRY JAMES,** 92 Bishopsgate Street Without, London, E.C.—(1) Dalton's Patent Self-adjusting Invalid Bedstead, fitted with air mattress, water bed, &c. (2) Dalton's Patent Self-adjusting Invalid Bedstead, specially adapted to the relief of patients suffering from fractures, &c.

**1056. TIBSHELF COLLIERY CENTRE OF THE ST. JOHN AMBULANCE ASSOCIATION (THE).**—Coal-Tub, for conveyance of injured men underground to surface, fitted with folding stretcher (Furley pattern, telescope handle), and back rest, &c., to be used when stretcher is not required. Photograph of above showing company of Colliers, Members of St. John Ambulance Association, Tibshelf Centre, on stretcher drill.

**1057. MONK, W., & CO.,** 103 Gt. Russell Street, W.C.; & 3 & 4 Broad Street, Bath.—(1) New design Commode Couch. (2) Hospital Wheel Chair. (3) New Combined Invalid Chair and Table. (4) An Original Bath Chair. (5) New Perambulator for Invalid Children, and general samples of Invalid Furniture.

**1058. WINDOVER & CO.,** 154 Piccadilly, W.—The Crook Ambulance.

**1059. ALDERMAN, J.,** 16 Soho Square.—Assortment of Mechanical Chairs, Couches, and Tables, and Invalid Chair Carriage.

**1060. MAYER & MELTZER,** 71 Great Portland Street, W.—Mayer's Patent Invalids' Combined Chair and Couch. The invalid may sit, stand, recline, lie down, or can, without any exertion, place himself in any position he desires: may stand with ease to paint, and may form a desk for writing or taking meals. No assistant required; invalid has entire control over movements. May be used as a sanatorium.

**1061. TURNER, GEORGE, & CO.,** 181 Choumert Road, London, S.E.—(1) Hammocks and Cots as Beds and Couches for adults and infants. (2) Portable Furniture for invalids and travelling. (3) Mosquito Nets. (4) Hammocks and Cots as Ambulance Litters for transport of sick and injured persons, with and without wheeled vehicles, and in boats and ships by human agency, animal traction, and mechanical means. (5) Oven and Canteen for Mountain Campaigning. (6) Hammocks for School Dormitories. (7) Photographs, Models, and Drawings.

**1062. SEYDEL & CO.,** 7½ St. Mary's Row, Birmingham; and 1 Cousin Lane, London, E.C. (Telephone No. 1574.)—(1) Assortment of Seydel's Registered Ashantee Hammocks, comprising Patent Rot-proofed and Coloured specimens. (2) Patent Rustless Screwhooks. (3) Seydel's Patent Hammock Awnings, comprising also Rotproofed

specimens. (4) Seydel's Patent Sliding Apparatus. (5) Seydel's Special Hammock Air Pillow.

**1063. FURLEY, JOHN,** Ashford, Kent.—(1) One-horse Ambulance Carriage, fitted with three stretchers and seats for attendants. (2) Village Ambulance Carriage, for the conveyance of an invalid on a stretcher, or seated, in either case with one attendant. (3) Omnibus, adapted for the ordinary use of a private establishment, which, by means of patent suspension apparatus, can be immediately converted into an invalid carriage. (4) Invalid Chair, for use with either of the above carriages.

**1064. ST. JOHN AMBULANCE ASSOCIATION,** St. John's Gate, Clerkenwell, E.C.—(1) Patent Folding Stretcher, with Automatic Pillow (Furley pattern). (2) Ditto, with telescopic handles for use in carriages, mines, and limited spaces. (3) Hand Litter, adapted to the army regulation stretcher. (4) Hand Litter, adapted to the navy sick-berth cot. (5) Military Folding Stretcher. (6) Patent Folding Stretcher, with Lowmoor Jacket attached, designed by Mr. J. Furley, to enable injured persons to be brought out of mines, sewers, and other confined spaces in an almost perpendicular position, when no other way is practicable. (7) Strong Folding Police Stretcher. (8) Support Elastique, packed. (9) Chair on small wheels and folded. (10) Patent "Ashford" Litter. (11) Articulated Stretcher. (12) Stretchers. (13) Ambulance Hamper. (14) Ice Ball. (15) Pocket Grapnel. (16) Cover for Military Stretcher.

**HORNE, W. C.,** 5a Aldermanbury Postern, London.—(See Exhibit in Grounds.)

**JENKS & WOOD,** 65 Holborn Viaduct, E.C. (See Class 20.)

**JENNINGS, THOMAS,** 46 York Road, Lambeth, S.E. (See Class 28.)

**MAIGNEN P. A.,** 22 & 23 Great Gower Street, E. C. (See Class 21.)

**WILLESSEN WATERPROOF PAPER & CANVAS CO., Limited (THE),** Willesden Junction, N.W. (See Class 30.)

### CLASS XXXIII.

#### Machinery and Appliances relating to Group 3.

**ANDERSON & HUNTING,** Bath Lane, Newcastle-on-Tyne. (See Machinery in Motion, Western Arcade.)

**BRADFORD, T., & CO.,** 140-143 High Holborn, W.C. (See Machinery in Motion, Western Gallery.)

**CLEMENTS, JEAKES, & CO.,** 51 Great Russell Street, W.C. (See Outside, Western Gallery.)



**DAVEY, PAXMAN, & CO.,** Colchester. (*See Machinery in Electric Light Shed.*)

**DEVERILL, JOHN, JUN.,** High Street, Slough. (*See Outside.*)

**DRAKE, CHARLES, & CO., Limited,** Railway Wharf, Battersea, S.W. (*See Class 25.*)

**FABRAN BROTHERS,** Dashwood House, 9 New Broad Street, E.C. (*See Machinery in Motion, Western Gallery.*)

**GENERAL PRINTING BLOCK CO., Limited (THE)** (P. W. WILLIAMSON, Manager), 63 Fleet Street, E.C. (*See Class 31.*)

**GREENBANK ALKALI WORKS CO., Limited,** St. Helens, Lancashire (Agent, J. HARVEY & CO., 2 Long Lane; and 89 Wandsworth Road, S.W.). (*See Class 31.*)

**HINDLEY, E. S.,** 11 Queen Victoria Street, E.C. (*See Machinery in Motion, Western Arcade.*)

**HUGHES & LANCASTER,** City Road, Chester. (*See Machinery in Motion, Western Annex.*)

**INGHAM, W., & SONS,** Wortley Fire Clay & Glazed Brick Works, Wortley, near Leeds; & 35 Bucklersbury, E.C. (*See Class 28.*)

**KUHLMANN, A. H.,** 23 Great St. Helens, E.C. (*See Machinery in Motion, Western Gallery.*)

**LEVERSON BROTHERS & CO.,** 48 Lime Street, E.C. (*See Machinery in Motion, Western Gallery.*)

**LYON, WASHINGTON,** Leo Street, Old Kent Road, S.E. (*See Machinery in Motion, Western Gallery.*)

**NEWMAN, ALFRED,** 19 Maddox Street. (*See outside.*)

**PODGER, H., & SONS,** Steam Drying & Laundry Works, Bromley, Kent. (*See Machinery in Motion, Western Gallery.*)

**PORTER, J. H.,** 1 Tudor Street, London, E.C. (*See Outside, Western Gallery.*)

**PRICE'S PATENT CANDLE CO., Limited,** Belmont Works, Battersea, S.W. (*See Machinery in Motion, Western Annex.*)

**SAVILLE STREET FOUNDRY & ENGINEERING CO., Limited (THE),** Saville Street East, Sheffield. (*See Machinery in Motion, Western Gallery.*)

**STIRRAT, B. B.,** 43 Alexander Place, Newcastle-on-Tyne. (*See Machinery in Motion, Western Gallery.*)

**STONES, JOHN,** Ure Mills, Ulverstone. (*See Machinery in Motion, Western Gallery.*)

**WAYGOOD, R., & CO.,** Falmouth Road, Great Dover Street, S.E. (*See Machinery in Motion, Western Gallery.*)

## EXHIBITED IN THE GROUNDS.

**1070. ALDOUS, EDGAR, & SON,** Cleveland House, 205 Romford Road, Stratford; & 14a George Street, Camberwell.—(1) A House, with every room ventilated by their trunk system, by means of only one exhaust and other sanitary arrangements. (2) Exhaust for houses, churches, railway carriages, ships, &c. (3) Ventiduct, to bring in fresh air without dust or fog. (4) Exhaust for Sewer and Soil Pipe.

**1071. ALLEN, EDWARD ELLIS,** 111 Cheyne Walk, Chelsea.—(1) Six-room Cottage, improved construction in corrugated iron and wood, thoroughly air and watertight. (2) Street Fire Station, of same construction as supplied to Metropolitan Fire Brigade. (3) Portable Gas House and Gasoline Stove, of same construction as supplied to Messrs. Müller, of Birmingham.

**1073. CHRISTOPH & UNMACK,** The Portable House Factory, Copenhagen, Denmark.—(1) Wooden Portable

Houses. (2) Different Stoves of New Patent, renewing air in hospitals twice during one hour.

**1074. DUFFIELD, JOSEPH WILLIAM,** Queen's Gate Works, Kensington Gore; & 49 Kensington High Street, W.—Improved intercepting chamber for house drains, fitted with self-acting fresh-air inlet, and self-sealing air-tight manhole cover.

**1075. CORPORATION OF LIVERPOOL.**—(1) Scavenging Spring Cart. (2) Scavenging Spring Waggon. (3) Watering Cart. (4) Hand Watering Cart. (5) Night Soil Barrow. (6) Plans of Artisans' Dwellings.

**1076. DEVERILL, JOHN, JUN.,** High Street, Slough.—Deverill's Patent Irrigator,—a labour-saving and self-acting apparatus for watering lawns, &c., excellent for conservatories, vineries, wall trees, and blight washing. Exhibited in action, by permission, on the Lawn near Conservatory.



**1077. ETZENSBERGER, R., & CO.,** Midland Grand Hotel, St. Pancras; & 13 St. Andrew's Street, Shoe Lane, E.C.—Patent Tea and Coffee Making Machinery and Still-room Fittings, in operation at the Model Coffee-house near the Eastern Arcade.

**1078. FARNLEY IRON CO., Limited (THE),** Farnley Iron Works, near Leeds.—(1) Glazed Bricks in various colours and patterns, built in the form of an arch. (2) Hayen's Patent Trap and Cleanser.

**1079. HORNE, W. C.,** 5a Aldermanbury Postern, E.C.—(1) Balmain's Luminous Paint as a lighting apparatus. (2) Foster's Carbon Blast, fire extinguishing by air instead of water. (3) Lewis's White Lead and Balmain's Luminous Sanitary Paints. (4) Luminous Ambulance Fittings. (5) Carbon Blast for disinfecting schools. (6) Improvement in Factories for making White Lead.

**1080. HUMPHREYS, J. C.,** Albert Gate, Knightsbridge, Hyde Park, S.W.—School-room, Living-room and Bedroom, furnished ready for use, including all necessities, the whole to be erected complete in any part of the United Kingdom for the sum of £250. It is to show an economical way, and how cheaply children and school master can be comfortably housed. The Iron Building will also be useful for coastguard station, chapel, church, or warehouse, cottage, or shop; it can be erected complete in any part of the United Kingdom in one month, or packed and sent abroad for re-erection.

**1081. MANUFACTURERS' AND MILLOWNERS' MUTUAL AID ASSOCIATION,** Incorporated by Special Act of Parliament (44 & 45 Vict. Cap. 203), 5 The Sanctuary, Westminster, S.W.—Models and Plans of Processes (machinery in action where practicable) for Purifying Rivers and Streams; with samples of the waters before and after purification, and also of certain valuable products recoverable therefrom.

**1082. NATIVE GUANO COMPANY, Limited (THE),** 29 New Bridge Street, E.C.; and Sewage Works, Aylesbury.—(1) Purification of Sewage by the Company's processes. (2) Plans and Models of Works and automatic apparatus for preventing river pollution. (3) Native Guano, the resulting manure. (4) Agricultural and Horticultural Specimens. (5) Microscopic Illustrations.

**1084. PULHAM & SON, The Works,** Broxbourne.—Portions of a Damp and Fire-proof, Durable, Healthy Dwelling-Houses, &c., showing what can be done in the proper use of concretes, terra-cotta, &c., including some accessories to the comfort and enjoyment of our homes, as a Fernery, Fountain, Jardinière, contributing as they do, with plant life, to our mental and physical health. Also Vases, Flower Baskets and Boxes, decorating various piers, &c., about the buildings and gardens.

**1085. SCHWEPPE, J., & CO.,** 51 Berners Street, W.; Liverpool, Bristol, Derby, Glasgow, Malvern, and Sidney, N.S.W.—Mineral Waters.

**1086. SOLMS, H. S. H. PRINCE GEORGE FREDERICK DE,** Braunfels, Nassau.—(1) Natural Mineral Table-water from the "Gertrudis Spring" at Biskirchen, near Wetzlar. (2) Tables of Analyses of the water by eminent German chemists and physicians. Attendant in the costume of a girl of the district of Biskirchen. [ *Pavilion in Central Avenue.*]

**1087. SMITH, T. TAYLER,** Bush Hill, Enfield.—Fittings and Accessories for dwelling houses, including (1) Model of Cottage Ornée at Bush Hill Park, one-twelfth size, showing system of drainage. Also Electrical Fittings. (2) Electrical Skirting, Wall, and Architrave Connecting Shoes. (3) Ceiling Connectors. (4) Movable Lamps, Brackets, and Electrolabra. (5) Reel for hall and workshops. (6) Combination Bracket and Piano or Table Lamp. (7) Bedroom Lamp Stand. (8) Spring-drop Electrolier. (9) Pulley-drop Electroliers. (10) Stand Surgical. (11) Miners' or Deep Water Lamp. The Dynamos high speed steam engine and the Plasié accumulator by the Wolverhampton Electric Light Storage and Engineering Co. (Elwell & Parker). Glass fitting by Messrs. Osler, 100 Oxford Street, W.; nailless flooring by Messrs. Putney, Battle Wharf, Harrow Road, Farringdon, W.; decorations by Messrs. Sanderson, 52 Berners Street, W.; furniture, hangings and accessories by Jenks and Wood, 65 Holborn Viaduct and Ray Street, Farringdon Road.

**1088. THOMSON & CO.,** 85 Gracechurch Street, London; Works, Derby.—A Building covered by their Patent Indestructible Vitrified Iron Roofing in brilliant colours, easily washed and taken to pieces.

**1089. UNDERHILL & CO.,** 170-173 Upper Thames Street, E.C.—(1) A new kind of Sink Trap or Gulley in cast-iron, invented by Isaac Henry, of Gibraltar. (2) A new Mantel Register, with an oven to be heated by ordinary coal fire in winter and gas in summer. (3) A Close-fire Kitchen range (an economiser of fuel and a minimiser of smoke). (4) Henry's Patent Calpean Smoke-consuming and Soot-purifying Register Grate.

**1090. UNIVERSAL PERFECT VENTILATION CO. (THE),** Insurance Chambers, High Street, Southampton.—House, to show Wintour's system of general ventilation, as adapted to all buildings (large or small), railway carriages (where it also acts as means of communication), steamer or yacht saloons, kitchen ranges, stoves, &c.

**1091. WALBOURN, JOB,** Strode Road, Fulham.—Gardening as applied to back yards of town houses.



**1092. WALTON, F., & CO., Limited,** Sunbury-on-Thames; & 9 Berners Street, W.—Lincrusta-Walton is in ornamental relief like wood-carving. It is impermeable to moisture or damp.

**1093. SANITARY AND INSANITARY HOUSES.**

*Special Sub-Committee.*

H. H. COLLINS, F.R.I.B.A.  
Prof. W. H. CORFIELD, M.D.  
ROGERS FIELD, M. Inst. C.E.  
Capt. DOUGLAS GALTON, C.B.  
ERNEST TURNER, F.R.I.B.A.

These structures have been erected under the supervision of a special Sub-Committee of Experts—the one to show, as far as can be done on the limited scale, a house with good sanitary arrangements—while the other will show the usual defects. In the latter case, no attempt will be made to exaggerate the ordinary conditions; but the object will be to reproduce accurately a state of things unfortunately but

too common. For detailed description see official pamphlet.

NOTE.—The Committee gratefully acknowledge the services of Mr. S. R. Roberts, Builder, of Harrington Gardens, Kensington, who has carried out the work for them in a very rapid and efficient manner.

**1094. ROYAL METEOROLOGICAL SOCIETY,** 30 Great George Street, S.W. (WILLIAM MARRIOTT, Assistant Secretary).—(1) Typical Climatological Station of the Royal Meteorological Society.

**1095. DISS, ALFRED,** West Bergholt, Colchester.—“The Rescue,” a patent fire-escape. This simple and reliable apparatus is especially adapted for lowering any person or articles of value from the upper parts of a house during a fire, and the last person using it may safely let himself down by it. It can be seen at work on the top of the Eastern Arcade at 2 and 4 P.M.

**1096. GILLINGS, JAMES,** 71 King's Road, Chelsea.—Improved Method of Smoking Meat.

## MACHINERY IN MOTION.

### WESTERN GALLERY.

**1120. PODGER, H., & SONS,** Steam Dyeing and Laundry Works, Bromley, Kent.—Machine, for ironing collars, cuffs, fronts, and other small articles, at a saving of 50 per cent., free from danger either to the article or the operator, quite noiseless, driven by power very nominal. (Class 33.)

**1121. REYNOLDS, F. W., & CO.,** Acorn Works, Edward Street, Blackfriars, S.E.—Patent Water Raiser for raising water for domestic and other purposes by steam pressure. Equally applicable for all liquids, tar, treacle, pulp or semi-fluids. (Class 21.)

**1122. LYON, WASHINGTON,** Leo Street, Old Kent Road, S.E.—Working Model of a Patent High-pressure Steam Disinfecter. The principle involved in this invention is the destruction of the germs of disease and all forms of insect life by the introduction of steam under regulated pressure, by which moist heat of 260 degrees is obtained without any risk of burning the article operated upon. (Class 33.)

**1123. BRADFORD, T., & CO.,** 143 High Holborn, London.—(1) Complete Laundry Arrangement for hand-power, suitable for private families and small institutions. (2) Complete Laundry Arrangement for steam-power, for asylums, workhouses, hospitals, schools, hotels, and public institutions. (3) New Patent Disinfecting Apparatus, made portable or fixed.

It is so arranged that sufficient heat for the entire destruction of germs is obtained without possibility of damage to fabric operated upon. (Class 31.)

**1124. WILLIAMSON, W., & CO.,** 133 High Holborn, London.—(1) Williamson's Patent Washing Machine with Wringing Machine attached, for cleansing the coarsest and finest fabrics. (2) A Machine for Nursery use, to wash small articles of children's clothing. (3) Small India-rubber Wringing Machine for working by power. (4) India-rubber Wringing Machine, the frames made of galvanized iron, unbreakable and cannot rust.

**1125. HALE, R. W., & CO.,** 12 Chalton Street, N.W.—Registered Air-Pump Ventilators for the inlet of fresh air and exhaustion of vitiated air applicable to all classes of buildings, schools, hospitals, churches, factories, ships, sewers, &c., &c. (Class 25.)

**1126. BOYLE, ROBERT,** 64 Holborn Viaduct, E.C.—(1) Boyle's Self-Acting Air Pump Ventilator. (2) Boyle's Patent Air Warmer. (3) Boyle's Improved Air Inlet Brackets. (4) Boyle's Patent Drain Ventilator. (5) Boyle's Improved Ventilating Stove. (6) Boyle's Economical System of Ventilation for workmen's Cottages. (7) Different modifications of Boyle's outlet and inlet Ventilators. (8) Boyle's System of Ventilation for Ships. (Class 25.)



**1127. HARVEY, T., & CO., 89 Wandsworth Road, S.W., & 2 Long Lane, E.C., Agents for Greenbank Cold Water Soap. Sole Agents in London for the Pure Double Concentrated 98 per cent. Powdered Caustic Soda of THE GREENBANK ALKALI WORKS CO., St. Helen's, Lancashire.**—The simplicity of soap-making exemplified by the cold or mixing process, no boiling required by using 98 per cent. Caustic Soda and Fat, enabling any one to make their own soap absolutely pure and at little cost. Soap made daily. (Class 33.)

**1128. CLEAVER, F. S., & SONS, 32, 33, 34 Red Lion Street, W.C.**—Disinfecting and Sanitary Toilet Soaps, also Indurated Toilet Soaps and Perfumes. (Class 31.)

**1129. STIRRAT, B. B., 43 Alexander Place, Newcastle-on-Tyne.**—(1) Stirrat Steam Radiator, Steam Heating. (2) Combined Fresh Air Warmer and Ventilator. (3) Indirect Steam-heating Coil. (4) Return Water Boiler Feeder. (5) Plans of Buildings heated by steam. (Class 33.)

**1130. BENHAM & SONS, 50 Wigmore Street, Cavendish Square, W.**—(1) Improved Washing Machine. (2) Improved Wringer. (3) Fumigating Oven. (Class 31.)

**1131. KUHLMANN, A. H., 23 Great St. Helens, E.C.**—1 Double Lever Cement Testing Apparatus, complete, for testing cement on tensile strength. (Class 33.)

**1132. HOWORTH, JAMES, Ventilating Engineer, Victoria Works, Farnworth, near Bolton.**—(1) Lacy's Patent Humidifier and Howorth's Patent Air Heating or Cooling Chest Combined, for weaving sheds, spinning rooms, and other buildings. (2) James Howorth's New Patent Air Inlet, for heating or cooling and moistening air. (3) James Howorth's New Patent Horizontal Exhaust and Blowing Ventilators. (4) James Howorth's New Patent "Radial" Screw Ventilator. (5) James Howorth's New Patent "Radial" Screw Ventilators, for preventing down-draughts and sulphurous smells in chimneys. (6) James Howorth's Patent Revolving Archimedian Screw Ventilator. (7) James Howorth's Patent Revolving Archimedian Screw Ventilator, improved and manufactured by the Exhibitor, for preventing down-draughts and sulphurous smells in chimneys. (8) James Howorth's New Patent Chimney Breast Valve Ventilator, for ventilating rooms of all descriptions by means of the flue from the fireplace. (9) James Howorth's Draughtless Air Inlet, for admitting fresh air with the least possible amount of draught. (10) James Howorth's New Patent Air Inlet and Heater combined, for heating the air before admitting it into buildings.

**1133. SEAGRAVE, GEORGE, 103 Wellington Buildings, Chelsea Bridge Road, S.W.**—(1) Seagrave and Bevington's

Hot Wind Generator, for ventilating houses and hospitals, and heating the same. (2) Disinfecting, Deodorising, Bleaching, Withering, and Drying, with arrangements for illustrating the same. (3) Stewart Pressure Blower. (4) Tully's Tube Expander. (5) Taylor's Laundry Drying Closet. (6) Spiral-Adjusting Door Spring. (Class 25.)

**1134. LEETE, EDWARDS & NORMAN, Engineers, Euston Works, 366 & 368 Euston Road, N.W.**—Rotary Pumps for lifting and forcing semi-fluids, such as molasses in the manufacture of sugar, syrups, oils, soaps, tar, &c., &c.; also Rotary Pumps for continuous circulation, for the manufacture of vinegar, for refrigerators and ice making; also for the circulation and aeration of aquaria, marine and fresh water. (See four Vulcanite Pumps at work in the Aquarium Section of the exhibition.) (Class 12.)

**1135. CONSOLIDATED ELECTRIC CO., Limited (THE)**—Particulars of exhibit to illustrate the B. T. K. system of house to house lighting by electricity—the supply being obtained from a central station through storage batteries placed in different parts of the district to be lighted. The apparatus consists of (1) Secondary Batteries, the plates composed of a continuous tape of thin lead coiled into the required form. (2) The Master Cell, for preventing injury to the plates from overcharging. (3) Rocking Switch, which provides for the use of a high tension current in charging batteries, and consequent economy in leads while delivering a current into the houses of a potential limited to that required by the lamps employed. (4) Automatic Regulator. (5) Motor, supplying power from the secondary batteries for working fountain in Aquarium. (6) Electroliers, Ammeters, Voltmeters, Switches and Incandescent Lamps. (7) The Shunt wound Dynamo Machine, used for charging the secondary batteries at this exhibit, giving 130 Volts, 30 Amperes, is manufactured by the Wolverhampton Electric Light Storage and Engineering Co.

**1136. WAYGOOD, R., & CO., Falmouth Road, Great Dover Street, S.E.; and 101 Leadenhall Street, E.C.**—(1) Patent Hydraulic Balanced Passenger Lift, dispensing with balance weights, chains, and overhead sheaves. (2) Steam Power Lift for passenger or warehouse use, very simple and strong, drives both up and down at a regulated speed, and therefore does not require a skilled attendant to work it. (3) Hand Power Warehouse Lift, fitted with R. Waygood & Co.'s Patent Self-sustaining Brake by which the load is held stationary when the hauling-rope is released, and Patent Safety Apparatus to prevent the cage from falling in case of the lifting rope breaking. (4) Double Dinner Lift for hand power, and Single Lift with Patent Self-sustaining Brake, also Hand Power Dinner Lift, worked from below by means of hand. (5)



Patent Self-feeding Drill and Ratchet-Brace. (Class 33.)

**1137. BACON, J. L., & CO., 34 Upper Gloucester Place, Dorset Square, N.W.**—(1) Steam Heating and Ventilating Apparatus, in action. (2) Hot Water Heating and Ventilating Apparatus, in action. (3) Ventilating Fan. (4) Methods of applying Heating Apparatus to schools. (5) Cast-iron Coil-cases, Gratings, &c. (6) Models of Skirtings, &c. (7) Drawings of buildings heated and ventilated by us. (8) Various Standards, Coils, Pipes, &c., &c. (Class 35.)

**1138. ALLEN, F., & SONS, Canal Road, Mile End, E.**—(1) Confectionery in all its classes, Medicated Lozenges and Jujubes, Pontefract Liquorice Cakes, Rolls, &c.; Granulated Effervescing Citrate of Magnesia, Chocolate and Chocolate Creams, Prepared Cocoas, Bonbons, &c. Cocoonut preserved as a Sweetmeat. (2) Machines for making Comfits. (3) Lozenges. (4) Boiled Sugar. (5) Chocolate. (6) Cocoa. (Class 12.)

**1139. WOOLF & CO., 119, New Bond Street, W.**—(1) Dry Cold Air Refrigerators for the preservation of all kinds of foods, together, without one article influencing the flavour of the other (15 sizes). (2) Improved Ice-making Machine for domestic purposes (4 sizes). (3) Granite Enamel Indestructible Iron Ware in all household utensils. (4) Portable Picnic Table, &c. (5) One Refrigerator and 1 Freezing Machine shown in practical operation. (Class 11.)

**1140. COLMAN, J. & J., 108 Cannon Street, E.C.; & Carrow Works, Norwich.**—A Mill for the manufacture of Mustard, from the seed to flour ready for use. (Class 12.)

**1141. ROYLE, JOHN J., 27 & 29 King Street, West, Manchester; & 13 Red Lion Square, London, W.C.**—(1) Royle's Patent Steam Kettle and Steam Kettle and Oven combined, for supplying boiling water and warming workmen's meals. (2) Royle's Patent Reducing Valve, for reducing high pressure steam and regulating supply of steam to the above at one constant pressure. (3) Royle's Patent Syphonia Steam Trap for taking away water of condensation from the above, and from other vessels containing steam. (4) Royle's Patent Universal Unions for connecting pipes together at any angle, thus doing away with the bending of pipes. (5) Royle's Patent Oleojector for lubricating steam engine cylinders by a perfectly novel system, which ensures perfect and regular lubrication, and by a visible feed. (6) Royle's Patent "Pendul Light," a device for bringing down gaslight from existing bracket or chandelier, requires no fixing. (7) Royle's Pendulous Food-warmers and Kettles, a safe and convenient method of supporting vessels for heating water, food, &c. (8) Royle's Patent Self-fitting Main Supply Filter, containing specially prepared carbon, giving a large supply of thoroughly filtered

water; by means of its convenient attachment and thorough filtration, especially adapted for domestic purposes. (9) Royle's Steam Fittings of first class material and finish. (10) Royle's Patent Tap Union, forming a ready means of connecting hose pipes to ordinary domestic water taps. No preparation on the end of tap is required with these unions. Instantly fixed and removed. (11) Royle's Patent Hose Valve, an improved method of controlling the discharge of water from hose pipes, preventing leakage and sticking of taps. (Class 12.)

**1142. BOYES, EBENEZER, Albert Road, Peckham.**—The Syphon Coffee and Tea Urn (Patent). The object of the patent is to boil in earthenware. For coffee or tea boil the water, stop the ebullition and insert the coffee or tea, the tea leaves to be taken out after they are sufficiently drawn. Is very suitable for making cocoa from the "nibs." The patent applies to saucepans for stews, soups, gravies, stewed fruits, &c. &c. (Class 12.)

**1143. STONES, JOHN, Ure Mills, Ulverston.**—Steam Hoist, suitable for warehouse or factory, 3 stories in height, and with 3 doorways on each landing, fitted with Stones' Patent Automatic Safety Shutters and Doors for closing the openings for the prevention of accidents. (Class 33.)

**1144. PINK, EDWARD, & SONS, Staple Street, Borough, London, S.E.**—(1) Model Steam Jam Boiling Pan, with Patent Revolving Stirrer in action. (2) Model Steam Machine for the separation of stalks from fruit, in action, thus practically illustrating their process of manufacture of Jams. (Class 12.)

**1145. BEARE, GOSNELL & CO., 81 Southwark Street, London.**—Coffee Roasting by machinery, including an exhibit of the best and simplest appliances for roasting, grinding and making pure coffee at home, and also for use in hotels, restaurants, and public institutions. (Class 12.)

**1146. NYE, S., & CO., 143 Oxford Street, London.**—(1) Machines for mincing meat, fish, vegetables, and for making force meat, sausages, and preparing a variety of dishes. (2) Sausage Fillers. (3) Knife Cleaners. (4) Emery Powder for knife cleaners. (5) Mills for coffee, pepper, rice, cocoa, sugar, spices, malt, barley, wheat (with and without Flour Dressing Apparatus). (6) Coffee Roasters. (7) Corn Crushers. (8) Bone Mills. (9) Bread Slicers. (10) Tobacco and Vegetable Slicers. (11) Brawn, Tongue and Lard Pressers. (12) Corn and Flour Bins. (13) Bread Makers. (14) Mixing Machines. (15) Egg Beaters and Poachers. (16) Lemon Squeezers. (17) Salting Machines. (18) Potato Cutter. (19) Portable Fire Engines. (20) Flour Dredger. (21) Prepared Sausage Skins and Seasoning, &c., &c., &c. (Class 12.)



**1147. OVENS, WILLIAM & THOMAS, Engineers, 54, St. John Street, E.C.**—Patent Silent Meat Cutting and Sausage-Making Machines, driven or worked by power; ditto for hand power; Filling Machines.

**1148. GALLOWAY, JAMES, Bolton Brass Works, Bolton, Lancashire.**—Consisting of:—(1) Leviathan No. 2 Soda Water Machine, with double pumps and cylinders, will produce 60,000 bottles per day. (2) Lancashire No. 1 Soda Water Machine, with single pump and cylinder, will produce 20,000 bottles per day. (3) Lancashire No. 2 Machine, single pump and cylinder, to produce 14,000 bottles per day. (4) Lilliputian Machine. (5) Pair of Double Pumps. (6) Filling Machine for every kind of corks and stoppers. (7) Gas Generators. (8) Gas Holders. (9) Gas Purifier. (10) Syrup Boiling, Filtering and Storing Apparatus. (11) Syrup Measuring Apparatus. (12) Bottle Washing, Brushing, and Rinsing Appliances. The whole fitted up complete for manufacturing aerated waters. (Class 12.)

**1149. MOXON, JOHN, 35 Florence Street, Islington, N.**—(1) Sausage Machines. (2) Mincing Machines. (3) Knife Cleaners. (4) Lemon Pressers. (5) Potato Mashers. (6) Cucumber Slicers. (7) Electric Potato Peelers. (8) Refrigerators. (9) Patent Emery for cleaning. (10) Patent Emery for sharpening. (11) Patent Egg Beaters. (12) Polish for cleaning. (13) Patent Graters. (14) Enamelled Cooking Utensils of every description. (15) Gas Stoves, Burners, and Cutlery. (16) Cement. (Class 12.)

**1150. LOCH BROS. & CO., 35 Queen Victoria Street, E.C.**—“Henry’s Instantaneous Bath Heater and Cooker.” This apparatus can be carried from room to room at work; does not require gas, coal, or lamp wick; will warm or boil water instantaneously for baths and general domestic purposes; will cook a dinner and steam provisions without a steamer; will roast, boil, grill, or fry; can be used for producing Turkish or Vapour Baths; will warm rooms and conservatories and not injure the plants; is invaluable in the sick-room or nursery. It is fitted with a patent water-oven, for keeping food hot in, or for warming boots and linen free from danger of scorching. This apparatus is of daily use in the kitchen and scullery, where it will produce an unlimited quantity of hot water either at the sink or elsewhere. (Class 24.)

**1151. KENT, GEORGE, 199, 200, 201 High Holborn, London.**—Various articles used in the preparation of food, and Patent Ventilated Refrigerators, for the preservation in hot or muggy weather of all kinds of perishable provisions. (Class 12.)

**1152. BRITISH SYPHON MANUFACTURING CO. (THE) (EUGSTER & KOERTGEN, Proprietors), 2, Gresham Buildings, Basinghall Street, E.C.**

(1) Seltzogenes; apparatus for the preparation of Aerated Beverages at home. (2) Syphon Bottles for aerated waters, used by mineral water manufacturers. (Class 12.)

**1153. DOWS, CLARK & CO., 46 & 47 Frith Street, Soho Square, W.**—(1) Marble Ice Cream Soda Fountains. (2) Soda Water Machinery. (3) Bar Fittings, such as electro-plate, glass, &c. (4) Aerated Water of all descriptions in bottles. (5) Syrups and Essences used in the manufacture of the same. (Class 12.)

**1155. BLAKE, WILLIAM THOMAS, 175 City Road.**—Process of Manufacture of Purified Clay Tobacco Pipes, Charcoal, Sanitary and others. (Class 12.)

**1156. BARNETT & FOSTER, Niagara Works, 26 Eagle Wharf Road, N.**—(1) Complete Factory or “Workshop,” showing the process of manufacturing all kinds of aerated waters and bottling beers under a new system. (Classes 41, 42, 43 & 45). The exhibit comprises the “Prize Medal” Soda Water Machines and “Niagara” Soda Water Machines, and also Foster’s Patent Beer Aerating Machine, Bottling Machines, Bottle Washing Machines, Filters, Steam Coil, Syrup Making Stage, Sulphuric Acid Cistern, &c., the above fixed in their respective positions and in action. Various sizes of large “Niagara” Soda Water Machines, fitted with glass plungers and electro silvered in all parts, and by the arrangement of dispensing with the mechanical agitator and other improvements preventing the possibility of metallic or other impurities in waters. (Classes 7 & 12.) (2) Fruit Champagnes: specimens of these are shown bottled and “put up” similar to the ordinary style of real champagne. Each contains the full aroma and flavour of the fruit from which it is prepared, thus lemon, orange, pear, pineapple, raspberry, strawberry, ginger. (Class 4.) (3) Counter Fountains, for dispensing Iced Fruit Drinks, these are compact and cheap, and should be on every chemist’s and confectioner’s counter, forming an elegant and remunerative ornament. (Class 6.) (4) English Lager Beer Fountains, the fountain itself is similar in appearance to the ordinary Fountain. The novelty is that any ordinary light English Ale can be used. An iron bottle of compressed carbonic gas is attached by tube to top of barrel, and a slight pressure put on top of ale occasionally; this gives keeping properties to it, besides allowing the ale to be drawn from the fountain. (Class 11.) (5) Bottle Labelling Machine. The labels are not handled after once being put into the holder; a roller revolves, and being charged with paste, passes over the label: the bottle is then pressed on to the pasted label and rolled over it, it then attaches itself to the bottle. (Class 12.) (6) Concentrated Compounds. (Class 2.) Samples of Lemonade, Ginger Beer, Ginger Ale and Orangeade made from the above compounds.



(Class 4.) (7) Samples of Bottled Beer under Foster's Patented System by which alcohol is extracted and fermentation stopped, but it is fully impregnated with carbonic acid gas, making it ready for immediate consumption and giving it lasting properties. (Class 4.) (8) The "London Made" Syphon Bottle (Patented and Registered), the tops are of pure tin and silvered, the glass is of an improved form and colour, the base or foot is made with a groove in it to catch drips from the spout as they run down the side; the working parts are simple and the action in opening easily done by a child. (Class 11.) (9) Foster's Patent Screw Stoppered Bottles—for Beers, Mineral Waters, Pickles, &c.; from the peculiar shape of the joint formed between the Bottle and Stopper, it is easily made by a slight turn against any ordinary pressure; a very small face only is exposed to the liquid of rubber, or cork can as easily be used. (Class 11.)

**1157. PISTON FREEZING MACHINE AND ICE CO., 301 & 303 Oxford Street, W.**—(1) Ash's Patent Self-Feeding Refrigerator. (2) Ash's Patent Self-Filtering Refrigerator. (3) Ordinary Box Refrigerators. (4) Ash's Kaffee-Kannes. (5) Ash's Patent Piston Freezing Machines, Filters, Electroplated Ice Jugs and Butter Coolers. (6) Norwegian Cooking Apparatus. (Class 11.)

**1158. TYLER (HAYWARD) & CO., 84 & 85 Whitecross Street, E.C.**—(1) Complete Working Plant of Machinery for the Manufacture of all kinds of Aërated Waters, with the most recent mechanical improvements and the best appliances for avoiding all forms of contamination. The machines are fitted with Hayward, Tyler, & Co.'s Tubular Saturator for perfect aëration. (2) Macdonell's Patent Automatic Filling and Corking Machine, turning out 60 dozen bottles an hour entirely by mechanical means, without hand labour except for supplying the machine. By this machine a far higher quality of waters are turned out than by the ordinary means, at a very great saving in working expenses and breakage. (3) Howard's Patent Wiring Machine. By this machine the operation of wiring, hitherto the work of highly skilled hands, is brought under perfect mechanical control, and can be performed by a boy or girl. (4) Hayward, Tyler, & Co.'s "Arctic" pattern Gold Medal Aërated Water Machine, capable of turning out over 3,000 dozen bottles of aërated waters daily; with 28-gallon gunmetal condenser lined with pure tin and fitted with tubular saturator and two 3-inch plunger pumps. (5) Plant consisting of double plunger pumps and tin-lined condenser in separate frames, as adopted in the largest aërated water factories in London and elsewhere. (6) Hayward, Tyler, & Co.'s "No. 4 Bramah" Pattern Machine, for small factories, suited for turning out 100 dozen bottles daily; plated with pure silver inside and out. (7) Hayward, Tyler, & Co.'s "A 1 Bramah" Pattern Machine, suited

for turning out over 700 dozen bottles daily; fitted with tubular saturator and glass pump plunger. (8) Hayward, Tyler, & Co.'s Gun Metal Condenser, with tubular saturator. (9) Apparatus for making the carbonic acid gas, with recent improvements, including Hayward, Tyler, & Co.'s chemical gas purifier or washer, whereby the gas is delivered pure to the machine; and Hayward, Tyler, & Co.'s new whitening mixer, effecting a great saving in material and labour; and improved acid tank and syphon. (10) High and Low Pressure Water Filters, for ensuring the purity of the water used in aërated water manufacture. (11) Apparatus for bottling by hand in all forms of bottles, including May Davis' patent filling machine, also applicable to aërated beers and wines; Syphon-filling machine; Barrett's patent stopper machine; Turnover machine for patent ball stoppers (Codd's, &c.); Barrett's patent screw-neck bottle filler, &c. (12) Hayward, Tyler, & Co.'s Syphon Bottles. These syphons are of the highest quality made, the heads being of pure tin, and every bottle tested to 200 lbs. pressure. Barrett's patent screw-neck bottles. Internal stopper bottles of various sorts. (Class 12.)

**1159. NORMANDY'S PATENT MARINE AERATED FRESH WATER CO., Limited, Custom House Station, Victoria Docks.**—Pure Water Distilling Machinery for producing good cold drinking water from sea or other impure water, for use on land, yachts, ships, torpedo boats; and with impure steam from boilers supplying engines of steamers, 1 ton of coal yielding 23 tons, or 5100 gallons of distilled water, with boilers evaporating 9 tons of water per 1 ton of coal. (The water produced will be distributed gratis to the public at a counter.) (Class 12.)

**1161. HANCOCK, F. & C., Engineers, Dudley, Worcestershire.**—(1) Machines for washing butter from the churn, and also for turning salt butter into fresh. (2) Combined Propeller Churn and Egg Whisk for confectioners. (3) Combined Machine for crumbling bread and grinding lump sugar for domestic use. (4) Machines for kneading dough and making bread without being touched by the hand. (5) New Patent Machine for washing and peeling potatoes. (6) Revolving Gas Cooking Stoves. These machines will be in operation during the Exhibition baking bread and roasting meat. The shelves revolve inside the case, and the heat is equalised so as to prevent scorching. (Class 12.)

**1162. UNIVERSAL MIXING AND CHOPPING MACHINE CO., Limited (THE), (H. WESTON GWYN, Secretary), 11 Queen Victoria Street, E.C.**—(1) Sausage-Making and Mincing Machine. (2) Dough Mixing and Kneading Machine. (3) Churns. (4) Pill Massers. (5) Powder Mixers for druggists, &c. (Class 12.)



**1163. SPONG & CO., 228 High Holborn, London, W.C.**—(1) Sausage and General Mincing Machines. (2) The Servant's Friend Knife Cleaner. (3) The NON. X. L. Knife Cleaners. (4) Coffee Mills. (5) Vegetable Slicers. (6) Wringing Machines. (7) Carpet Sweepers. (8) Wheat Mills. (9) Bread Slicers. (10) Perforated Toilet Rolls. (Class 12.)

**1164. ARCHER, G., 9 Essex Road, Islington, N.**—(1) Machine for mincing cooked meat for persons who are unable to masticate their food properly. (2) Machine for making sausages and mincemeat, &c. (3) Mills for grinding coffee, spice, &c. (4) Mills for grinding wheat for brown bread. (5) Lemon Squeezers (iron and porcelain). (6) Whisking Machines for beating eggs, cream, butters, &c., &c. (7) Rotary Knife Cleaning and Polishing Machines on low stands. (8) Rotary Knife Cleaning and Polishing Machines on high stands. (9) Cucumber and Vegetable Slicers and Peelers. (10) Machines for peeling apples. (11) An assortment of Wood Turnery, comprising:—Salad Spoons and Forks, Rolling Pins, Bread and Butter Knives and Platters, &c., &c. (12) An assortment of Egg Beaters, Boilers, Poachers, Timers, &c. (Class 12.)

**1165. CAPELL, Rev. G. M., Passingham Rectory, Stony Stratford (Sole Agents for London District, MESSRS. HOPKINSON & PRINCE, 15 Walbrook, E.C.).**—The Capell High Pressure Exhaust and Blast Fans, and Low Pressure Disc Ventilator, hand and power.

**1166. SIMMONS & TULLIDGE, Pleasant Grove, York Road, King's Cross, N.; Latimer Road, Notting Hill, W.; Station Road, Camberwell; Liverpool; Bristol; & Huddersfield.**—Patent Steam Power Carpet-beating Machine. (Class 45.)

**1167. BATCHELOR, H. & T. C., Engineers, opposite West Kensington Station District Railway, London, S.W.**—(1) Several examples of Batchelor's Patent Motion Drawings, as applied to illustrating the action of steam in engines of largest class. (2) Also Diagrams illustrating various geometrical movements, suitable for science teaching in lecture rooms, colleges, and elsewhere. In the Water Company's Pavilion there is another example of Batchelor's Patent Drawings illustrating the high class modern Pumping Engines erected by Messrs. Simpson & Co., Pimlico, for the West Middlesex Company at Hammer-smith. (Class 51.)

**1168. HILL & HEY, Halifax.**—(1) Models and samples of Patent Excelsior Syphon or Double-current Ventilators, for ventilation of residences, offices, schools, churches, factories, &c., without other means of inlet, also (2) Single-current Excelsior Outlet or Exhaust Ventilators, and Dormer Ventilators, for

roofs. (3) Wall Ventilators, for dining, drawing, or bedrooms. (4) Dr. Wolpert's Air Tester, and Printed Matter in reference to same, and the Ventilators. (Class 25.)

**1169. GIBBS, W. A., Gilwell Park, Chingford, Essex.**—Mod. 1 of the Patent Wheat Dryer, as ordered for Her Majesty's Estate Duchy of Cornwall. Machines on this principle are now widely used by importers and large millers, conditioning from 10,000 to 20,000 bushels per week. Larger sizes for dealing with entire cargoes in six days by special contract. (Class 12.)

**1170. AUBLET, HARRY, & CO., 7, Scrutton Street, Curtain Road, E.C. (formerly 38 Spital Square, Bishopsgate Street.)**—(1) Two Cloth Cutting Machines. (2) One Pressing Machine. (3) One Brazing Machine for endless knives. (4) An Assortment of Endless Knives and Endless Band Saw Knives. (Class 19.)

**1171. ALAND, HENRY, & SON, 46 Commercial Road, Lambeth.**—(1) 3 feet 6 inch diameter Patent Triplicate Mine and Colliery Ventilating Exhauster. (2) One ditto, 18 inches diameter, "H. Aland's Patent." (3) One Single-geared and one Double-geared Hand Ventilating Fan. (4) One 1 foot 8 inch diameter Pressure Exhaust Fan for ventilating with small tubes. (5) One 4 feet diameter Vacuum and Induction Air Propeller. (Class 42.)

**1172. LEVERSON BROTHERS & CO., 48 Lime Street, E.C.**—Patented Band Saws and Knives of E. Mennessier, Paris.

**1173. BLACKMAN AIR PROPELLER VENTILATING CO., Limited (THE), 57 Fore Street, E.C.**—Four Blackman Air Propellers, 48 in., 36 in., 24 in., and 16 in. diameter, manufactured by exhibitors. A new mechanical ventilator constructed on an entirely new principle, for the movement of any quantity of air with a minimum of power adapted for either exhausting from or discharging into any building, and can be placed in any position. The 48-in. propeller will move 35,000 cubic feet of air per minute with 2 H.P.; can be applied for removing dust, steam, smoke, gases, or vapours, &c., and drying or cooling a great variety of manufactures, with or without heat. One apartment ventilated by a 48-in. propeller blowing in, and a 36 in. propeller exhausting, and discharging through a turret fitted with air split. One 16-in. propeller discharging into apartment through distributing apparatus, and driven by Electro-Motor from Current Lighting Exhibition or Galvanic Battery; may be arranged for hand, water, or other power.

**1174. "SUN" KNIFE-CLEANING MACHINE CO. (THE), 6 St. Swithin's Lane, E.C.**—The Patent "Sun" Knife Cleaner. (Class 12.)



**1175. STOPES, H., & CO., 24a, Southwark Street, S.E.**—The Échangeur ("Saladin's") Patent. Invaluable for cooling and moistening the air in breweries, maltings, theatres, concert rooms, schools, steamships, mines, factories, hospitals, barracks, &c., &c. (Class 25.)

**1176. BRUNTON & TRIER, 19 Gt. George Street, Westminster, S.W.**—Trier's patent devices for truing grindstones and emery wheels without dust and with great speed and accuracy; shown in operation.

**1177. HEATH, HENRY, 105, 107, & 109 Oxford Street, W.**—Various kinds of Hats. (See 1197.)

**1178. DAVEY & FABIAN, Dashwood House, 9 New Broad Street, E.C.**—Davey & Fabian's Patent Ironing Machine, for use where ironing, smoothing, or hot-pressing of any fabric is required; the roller revolves, and the heated iron has a short reciprocating motion on top of it; if desired the iron can be raised by means of a treadle. The articles to be ironed are applied to the roller under the lip of the iron, and pass through without further assistance. No skilled labour is required; a young girl works the machine. (Class 33.)

**1179. KENWORTHY, E. N., & CO., Alpha Works, Oldham.**—(1) Patent "Paragon" Washing, Wringing, and Mangling Machine, with new lever arrangement for working piston (first time exhibited). This washer is on an entirely new principle (atmospheric), with up and down motion, the water and soap being forced through every fabric of the clothes by the piston or plunger. (2) Patent "Paragon" Washer, adapted for india-rubber wringer. (3) Patent "Paragon" Washer with Wringer and Mangle, adapted to work either by hand or any small motive power. (4) Ditto, ditto, with rotary motion for working piston. (5) Samples of the Patent "Canadian Washer." India-rubber Wringer. (Class 31.)

**1180. ROSSER & RUSSELL, 22 Charing Cross, S.W.**—(1) Air Inlet Ventilators with Air Straining and Cleaning Apparatus. (2) Extraction Ventilators. (3) Chimney Cowl. (Class 26.)

**1181. KERSHAW, A. W., Lancaster.** (1) Patent Pneumatic Exhaust Ventilators (various sizes, plain, and ornamental) for buildings, ships, railway carriages, &c. (2) Patent Downcast Ventilators for Ships. (3) Patent Inlets and Air Diffusers for Buildings. (4) Patent Pneumatic Soil-pipe Ventilators. (5) Patent Pneumatic Soil-pipe Cowls. (6) Patent Pneumatic Chimney Cowls. (7) Models of Exhaust and Downcast Ventilators and Cowls. (Class 25.)

**1182. LAMB, J. M., & CO., 119 Finchley Road.**—Ventilators for power.

**1183. ASHWORTH BROTHERS, Moss Brook Works, Manchester.**—(1) Patent High Class Domestic Mangle and Wringing Machine. (2) Patent Metallic Bristle and Electro-Hair Brushes, on the patented method for the application of electricity in disease. No. 8 contains 1450 fine tempered steel wires, black japanned. No. 9 contains 1800 fine tempered steel wires, black japanned. No. 9 contains 2100 fine tempered steel wires, black japanned. (Class 31.)

**1184. Highbury Machine Co. (THE) (C. W. GARTON, Manager), 33 Holloway Road, N.**—(1) Patent Steam Washer, with reverse motion for laundries or institutions, in motion. (2) The Treasure Washer, Wringer, and Mangle combined for family use. (3) The Highbury Washer, Wringer and Mangle, for families or laundry use. (4) Patent Wringing and Mangling Machine of new registered design. (Class 31.)

**1185. STEPHENS & WOODMAN, The Brixton Engineering Works, Barrington Road, Brixton, London, S.W.**—One Double Self-action Washing and Boiling Machine combined, for steam-laundry use at hospitals, infirmaries, or other large institutions. It washes all fabrics under steam-pressure, which entirely disinfects any contagion that clothes or other articles may contain. Its performance is very speedy and effectual, the time employed being twenty minutes for each charge of 50 shirts or equivalent bulk of other material. (Class 31.)

**1186. HEYES, LLOYD & SHUTTLEWORTH, 601 Commercial Road, E.; & 169 Walworth Road, S.E.**—(1) Washing Machines, latest improvements and new style. (2) Wringing and Mangling Machines, new principles and registered designs. (Class 31.)

## WESTERN ARCADE.

**1192. LOOG, HERMANN, Limited, 127 & 128 London Wall, E.C.**—(1) Sewing Machines. (2) Knitting Machines. (3) Embroidery Machines, displayed working. In all about 40 machines, half-a-dozen of which will be kept working. (Class 19.)

**1193. PEARSON & CO., 9 Acorn Street, Bishopsgate Street, E.C.**—(1) One Patent Wax Thread Sewing Machine. For leather, waterproof and heavy clothing. (2) One Patent Button-hole Sewing Machine. (3) One Patent Wax Thread Sewing Machine. For leather, canvas, waterproof and military clothing. (4) Seven varieties of Domestic Sewing Machines. (5) One Cutting Press, with special shaped cutters for cutting out leather, cork and waterproof portions of boots, military clothing, accoutrements, &c. (6) Two Machines for punching holes and inserting eyelets in clothing, &c. (7) Two Machines for perforating, ventilating holes in hats, waterproof coats, &c.



(8) One Machine for scolloping or ornamental edge cutting, used for the edges of gloves, gauntlets, mantles, rubber coats, &c. (9) One Machine for splitting skins of leather for leggings, gloves, military accoutrements, &c. (10) One Machine for skyving or paring the edges of leather used in all leather clothing. (11) One Lace Cutting Tool, for cutting laces for boots, leggings, &c. (12) One Gas Heating Apparatus, for heating irons for finishing and burnishing the edges of leather of every class. (Class 19.)

**1195. HARRISON PATENT KNITTING MACHINE CO. (THE), 128 Portland Street, Manchester; and Soho Bazaar, 77 Oxford Street, London.**—(1) The "Harrison" Patent Duplex Knitter knits two stockings at one operation without changing the cams. (2) The Queen Knitting Machine. (3) The Princess Knitting Machine. (4) The Jewel Knitting Machine. (5) Samples of Knitted Goods. (6) Automatic Winder. (Class 19.)

**1196. POCOCK BROTHERS, 235 Southwark Bridge Road, S.E.**—Boots made on the following principles. Principle can be seen on Stand No. 258 in Eastern quadrant. (1) Standard Screw Machine for attaching the soles of boots and shoes with screws instead of rivets. (2) Blake Sole Sewing Machine. (3) Keat's Lock-stitch welt-stitching and Fair-stitching Machine for boots. (4) Magentic Tacking Machine for boots. (5) Turn Shoe Sewing Machine for house boots and shoes. (6) Last Turning Machine for turning wooden lasts. All the above can be seen in motion.

**1197. HEATH, HENRY, 105, 107 & 109 Oxford Street, W.**—Felt Hat manufactory. (1) Fur-forming Machine, with all the latest improvements. (2) Planing Machines. (3) Shaving Machines with Exhausts, minimizing the danger to health. (4) Finishing Machine. (5) Specimens illustrating progressive stages, from the animal's skin to the complete felt or beaver hat. (6) Henry Heath's method of making Soft-fitting Hats, illustrating the manufacture and advantages of the elastic soft-banded felt brim to silk dress hats: shown in course of manufacture. (7) Making Silk Hats. (8) Henry Heath's Patent Head-measuring Band. (Class 19.)

**1198. SALES, POLLARD & CO., Far-rington Road, E.C.**—Manufacture of Tobacco, Cigars and Cigarettes, and specimens of Tobacco of various growths.—(1) A Legg's Miniature Tobacco Cutting Machine for fancy tobaccos; cigar making as generally practised by hand. (2) Choice Specimens of Havana, Virginia, Mexican, Sumatra, and other tobacco leaves framed. (3) A Trophy of Tobacco used in their manufacture of cut tobaccos, comprising all the finest varieties. (4) A Trophy of Tobacco used in their manufacture of cigars, including Havana, Yarez, Mexican, Sumatra and Manilla. (5) A Trophy of Tobacco used in

their manufacture of cigarettes, including the finest Dubec, Basma Latakia, &c. (6) Four cabinets containing each 1000 cigars of various sizes: one made from the finest imported 1881-3 crop Havana tobacco; one made from the fine 1879 crop Manilla tobacco; one made from the fine 1881 crop Mexican tobacco; one made from the fine 1878 crop Sumatra tobacco. (7) Manufactured varieties of Cut and Roll Tobaccos; various sorts. (8) Fine specimens of 1881 crop imported Havanas. (Class 12.)

**1199. ROTHWELL, WILLIAM, 16 Market Street, Bolton, Lancashire.**—The "Rothwell" Knitting Machines. (1) The New Steam-power Flat-web Knitting Machine, with independent self-regulating sectional needle beds, has eight locks and two accessory attachments, and double yarn-carriers to work two rows at the same time. This machine is specially constructed to work the most beautiful fancy Cardigan patterns automatically in one or more colours. Striped lengthways or across the fabric for Cardigan Jackets, Ladies' Skirts, &c., &c. (2) Design Knitting Machine, with three locks and accessory attachment, back-bed dropping and front bed racking; three needles. This machine is used for the manufacture of Fancy Hosiery, and knits two stockings at one time. (3) The New Cardigan Knitting Machine, with accessory attachments for all kinds of large garments, either plain or fancy patterns. (4) One and One Rib Knitting Machine, especially constructed for manufacturing the best ribbed hosiery. (5) Seaming Machine for Hosiery, makes a perfectly flat stitch, applicable to all classes of hosiery. N.B.—Domestic Machines at Stand 1213 opposite. (Class 19.)

**1200. HINDLEY, E. S., 11 Queen Victoria Street, E.C.**—(1) Circular Saw Bench, with Rising and Falling Spindle for grooving floor boards, &c., and fitted with Band Saw and Block for striking mouldings and handrails for staircases, &c., can be fitted with special Tenoning Apparatus for doors and house work. (Class 33.)

**1201. ANDERSON & HUNTING, Bath Lane, Newcastle-on-Tyne.**—(1) Patent Variety Dovetailing and Variety Moulding, &c., Machine in motion. (2) Counter, on which are shown a variety of work done by the Machine, viz., for school and house furnishing, &c. (3) Improved Exhaust Fan for carrying off dust, &c., from machine shops, &c. (in motion.) (Class 33.)

**1202. GRANT, WILLIAM HENRY, Foleshill, Coventry.**—(1) Improved Jacquard Loom, new type (in motion), weaving. (2) New style of Ladies' and Gentlemen's Silk Handkerchiefs. Also miscellaneous Silk Goods for Ladies' and Gentlemen's Dress. (Class 19.)

**1203. MILBOURN, JAMES JOSEPH, Senior, 176 to 180 Columbia Road, Hackney Road, E.**—(1) Machine for cutting the soles, heels and upper por-



tions of boots, shoes, &c. (2) Machine for rolling leather (in place of old lap-stone). (3) Machine for pricking round soles, &c. (4) Cutters or Knives for cutting out soles, heels and upper portions of boots and shoes, saddlery, straps, envelopes, labels, &c. (50 cutters). (5) Men's, Women's, Girls' and Boys' Iron Lasts and Stands for manufacturing machine sewn, pegged and rivetted boots and shoes (50). (6) Glass Case for cutters, and Working Model of Cutting Machine and Model of Rolling Machine. (Class 19.)

**1204. NORTON, F. L., 84 Cannon Street, London, E.C.**—Norton Power and Automatic House and Ship Ventilating Apparatus, to be operated by steam power. (Class 25.)

**1205. SINGER'S SEWING MACHINE CO., 147 Cheapside, E.C.**—(1) Singer's New Family Sewing Machines, both hand and treadle, adapted for all purposes. (2) Improved Family Sewing Machines, with drawers, ornamental cover, locks, &c. (3) Singer's Improved Button-Hole Machine, with automatic feed motion. (4) Sample Bench of Singer's Oscillating Shuttle Machine, with shafting and patent friction attachment complete, driven by  $\frac{1}{2}$  h. p. Otto gas engine. (5) Old Style Treadle Machine, illustrating the great exertion formerly required in driving. (6) New Style Treadle Machine, showing the improvements effected by the Singer Company. (Class 19.)

**1206. FOSTER, JAMES, 41 Friargate, Preston, Lancashire.**—Victoria Knitting Machines. (1) One 8 $\frac{3}{4}$  in. 7-needle with back driving apparatus for Hosiery. (2) One 16 $\frac{1}{2}$  in. 7-needle Machine, for garments or two stockings at one time; pants, undervests, Jersey shirts, &c. (3) One Jacquard Machine 9 $\frac{1}{8}$  inch 8 needle for Fancy two-coloured patterns or stripes. (See also 1216.)

**1207. PATENT STEAM WASHER & LAUNDRY CO., Limited (THE), 35 Albion Street, Leeds.**—(1) Heap's Patent Steam Washer, with 24 in. wrought iron stand, powerful burner. (2) Heap's Patent Steam Washer, with registered gas stand. (3) Heap's Patent Steam Washer, with 24 in. wrought iron gas stand. (4) Heap's Patent Steam Washer, with registered gas stand. (5) Heap's Patent Steam Washer, with 24 in. registered gas stand. (6) Heap's Patent Steam Washer, with registered gas stand. (7) Heap's Patent Steam Washer, with registered gas stand. (8) Mitchell's Patent Steam Washer, with 6 in. stand; 24 in. stand. (9) Mitchell's Patent Steam Washer, with registered gas stand. (10) Mitchell's Patent Steam Washer, with 6 in. stand; 24 in. stand; registered stand. (11) Mitchell's Patent Steam Washer, with registered stand. (12) Mitchell's Patent Steam Washer, with registered stand. (13) Mitchell's Patent Steam Washer, with registered stand. (14) Heap's

Patent Miniature Washer, with registered stand. (15) Mitchell's Patent Miniature Washer, with registered stand. (16) Patent Steam Washing Machines. (17) Registered Gas Stands. (18) 6 in. and 24 in. High Gas Stands. (19) Petroleum Heater. (20) Coal Stove Heaters. (21) Patent Washer, Wringer and necessary appliances for test work to show machine in operation. (Class 31.)

**1208. WHALLEY, SMITH & PAGET, Parker Street Iron Works, Keighley, Yorkshire.**—A Collection of Washing, Wringing and Mangling Machines, for domestic purposes. Also a Box Mangle, and large Steam Wringing and Mangling Machine, for hotels or public institutions. (Class 31.)

**1209. GREENALL, JOHN, 105 Oxford Street, Manchester.** (1) Greenall's Steam Washers. These machines are made of copper throughout, and are heated by gas burners at a cost of  $\frac{1}{2}$ d. per hour, or by a coal stove. (2) A set copper specially adapted for shipment. (3) India-rubber and "Phoenix" Wringers and Rinsing Trough.

**1210. TWELVETREES, HARPER, 8 City Road, Finsbury Square, E.C.; and 393 Edgeware Road, W.**—(1) Villa Washer, Wringer and Mangle combined with brass tap and 20 in. quartered rollers. (2) Villa Washer, Wringer and Mangle combined, with brass tap and 22 in. quartered sycamore rollers. (3) Villa Washer, Wringer and Mangle combined, with brass tap and 24 in. quartered sycamore rollers. (4) Villa Washing Machine, fitted with self-adjusting Clothes Wringer, 10 in. india-rubber rollers. (5) Diamond Washing Machine, with india-rubber lower rollers. (Oak tubs 5s. extra.) (6) Villa Mangle and Wringer combined, 20 in. quartered sycamore rollers, brass capped. (7) Villa Mangle and Wringer combined, 24 in. quartered sycamore rollers, brass capped. (8) Villa Mangle and Wringer combined, 30 in. quartered sycamore rollers, brass capped. (9) Table Mangle and Wringer combined, 20 in. quartered sycamore rollers. (10) Cottage Mangle and Wringer combined, 18 in. quartered sycamore rollers. (11) Cottage Mangle and Wringer combined, 24 in. quartered sycamore rollers. (12) Ives' Patent India-rubber Clothes Wringer, solid india-rubber rollers, 10 in. (13) Ives' Patent India-rubber Clothes Wringer, solid india-rubber rollers, 12 in. (14) Ives' Patent India-rubber Clothes Wringer, solid india-rubber rollers, 14 in. (15) Ives' Patent India-rubber Clothes Wringer, solid india-rubber rollers, 16 in. (16) Imperial Self-Fitting and Self-Adjusting Clothes Wringer, solid india-rubber rollers, 10 in. (17) Imperial Self-Fitting and Self-Adjusting Clothes Wringer, solid india-rubber rollers, 12 in. (18) Imperial Self-Fitting and Self-Adjusting Clothes Wringer, solid india-rubber rollers, 14 in. (Class 31.)



**1211. HESELWOOD, JAMES, Excelsior Leather Works, Leeds.**—(1) Three New Patent Washing Machines, various sizes. (2) One full-size Skeleton Machine, showing interior of washing machine. The object of this machine is to avoid the presence of steam in the room where the washing is done. The hands do not come in contact with hot water. A day's washing can be done in half the usual time. Only one lot of clothes is washed in one supply of water. (3) One dozen new patent various sized Oil Feeders for oiling machinery and for domestic use. (Class 31.)

**1212. SELF-ACTING SEWING MACHINE CO., Limited (THE), 233 Regent Street, London. (R. CARLYLE CHILD, Secretary.)**—Six Self-Acting Sewing Machines, the motive power thereof being solely mechanical, whereby the ordinary hand wheel and treadle are dispensed with, and injury to health by using the treadle is avoided, the worker having both hands free to regulate the materials worked upon. (Class 19.)

**1213. ROTHWELL, WILLIAM, 16 Market Street, Bolton, Lancashire.**—The Rothwell Knitting Machines:—(1) Improved Knitting Machine for Domestic or Manufacturing Purposes, for all sizes of gents, ladies' and children's Socks and Stockings, striped or plain. (2) New Patent Striping Machine for making any stripe, with the change of yarn inside the stocking, and is done automatically. (3) Knitting Machine for fine Merino, Silk, or Cotton, with 13 needles to the inch. (4) Knitting Machine for Ribbed or Plain Hosiery, with adjustable handle and extra cam stops. (5) Knitting Machine with single side only, for fine flat web, in one or four colours. (6) Samples of Fancy Cardigan Jackets, Ladies' Skirts, Vests, and plain and fancy Hosiery of all descriptions, made on the "Rothwell" Knitting Machine. N.B.—Manufacturing Machines at Stand 1199, opposite.

**1214. PATENT AUTOMATIC KNITTING MACHINE CO., Limited (THE), 417 Oxford Street, W.; & 159 Upper Street, Islington, N.; 39 Islington, Liverpool; & at Glasgow.**—Small Hand-knitting Machines (size 8 in. in diameter, to be affixed to ordinary tables) for the manufacture of socks, stockings, fishermen's caps, guernsies, ladies' and children's undershirts, bodices, cosies, mufflers, gloves, rouching or tufted work for muffs, collars, cuffs, children's caps, &c., &c. (Class 19.)

**1215. WANZERSEWING MACHINE CO., Limited (THE) (per H. FRICKER, Secretary), 4 Great Portland Street, Oxford Circus, London, W.**—(1) Lock-stitch Sewing Machine, to work by hand. (2) Specimen Figure. Fancy dress, worked entirely upon "Little Wanzer" hand machine weighing only 9 lbs. (3) Lock-stitch Sewing Machine "Wanzer C," working silently upon steel centres and entirely without cog wheels. (4)

Kilting or Plaiting Machines, for preparation of fancy dress trimmings.

**1216. FOSTER, JAMES, 41 Friar Gate, Preston, Lancashire.**—Victoria Knitting Machines. (1) One 8½ in. 7-needle Machine, for stockings, gloves, &c. (2) One 8½ in. 9-needle Machine, for stockings, &c. (3) One 14½ in. 7-needle Machine, for fancy Cardigan patterns, with automatic rack appliance. (4) One 16½ in. 6-needle Cross Pattern Machine. (5) Foster's Automatic Winder, with garments knit on the above. (Class 19, and see also 1206.)

**1217. WHEELER & WILSON MANUFACTURING CO. (THE), 21 Queen Victoria Street, E.C.**—Twelve Sewing Machines, with attachments for all kinds of work including button holes, three of which are to be run by steam power. The remainder to be shown working by foot and hand power. (Class 19.)

**1218. VERTICAL FEED SEWING MACHINE CO. (THE), 52 Queen Victoria Street, E.C. (F. J. NEWTON, Manager).**—(1) Hand Sewing Machine on the "Vertical Feed" principle. (2) Treadle Sewing Machine on the "Vertical Feed" principle, in eight different styles. (3) Power Sewing Machine on the "Vertical Feed" principle, in eight different styles. (Class 19.)

**1219. GORDON & GOTCH, 15 St. Bride Street, Ludgate Circus, E.C.**—A Collection of nine Patent Lock-Stitch Sewing Machines, Hand and Treadle, containing all the latest modern improvements, and adapted for every description of work either of the family or the manufactory, sewing from the finest to the heaviest fabrics with equal facility. Manufactured by the Domestic Sewing Machine Co., New York, U.S.A. (Class 19.)

**1220. KIRBY, BEARD, & CO., 115 Newgate Street, London, E.C.; and Works at Birmingham and Redditch,** Manufacturers of Pins, Needles, Hair Pins and Fish Hooks.—A Pin-sticking Machine, for sticking pins on paper, worked by hand. Collection of Pins and Needles of all kinds. (Class 19.)

**1221. UNIVERSAL KNITTING MACHINE CO., 95 Humberstone Gate, Leicester.**—Knitting Machines, 3 or 4 in number, of various sizes. Also, in connection, Healthy Underclothing, without dyes or other impurities. (Class 19.)

**1222. WHITE SEWING MACHINE CO. (THE), Cleveland, Ohio, United States of America. European Branches, 19 Queen Victoria Street, London, E.C.; Paris, Brussels, Amsterdam.**—White Lock-stitch Shuttle Sewing Machines. Also the "Peerless" Hand Machines, combining with extraordinary lightness of running (obviating any fatigue) all the most modern appliances invented to lessen the labour and facilitate the operations of the seamstress. (Class 19.)



**1223. ALBION SANATORY SOAP CO.,** 78 New Oxford Street, London, W.C.—The Albion Milk and Sulphur Soap, for smoothing and purifying the skin. (Class 31.)

**1224. LONDON AND LEICESTER HOSIERY CO., Limited (THE),** 41 Charterhouse Square, London, E.C.; and Winifred Street, Leicester. (Sole Licensee, I. L. BERRIDGE, 8 Gallowtree Gate, Leicester.)—(1) Griswold's Improved Patent Stocking Knitter, specially designed for the use of hosiery manufacturers, and also for the knitting of socks and stockings by ladies at their own homes. (2) The New American B. H. O. and over-seaming Company's celebrated Lock-Stitch Sewing Machines for all purposes, and their noted Machines for working button-holes on leather, hosiery, and textile fabrics.

#### OUTSIDE WESTERN GALLERY.

**1228. SIDDELEY & CO., Engineers,** 11-14 Upper William Street, Liverpool.—Direct Acting Ice-making Machine (Siddeley & Mackay's patent), for the manufacture of transparent ice in large solid blocks, and Model of Indian Ice Factory, as erected by the General Ice Factory Co., Limited, 144 Leadenhall Street, London.

**1229. BRADFORD & CO.,** 143 High Holborn, W.C.—A Disinfecting Apparatus.

**1230. MACHINERY AND HARDWARE CO., Limited,** 147 Queen Victoria Street, E.C.—(1) 12-HP. Horizontal High Pressure Steam Engine. (2) 6-HP. Vertical Cross Tube Boiler. (3) Powerful Double-gear'd Gap Lathe, self-acting and screw-cutting. (4) 30-In. Double-gear'd Pillar Drilling Machine. (5) Hand-Drilling Machine. (6) Strong Iron Circular Saw Bench. (7) New and Improved Band Saw. (8) Best English Leather Belting. (9) Patent Pulley Blocks. (10) Wrought Iron Pulleys. (11) Corrugated Disc Pulleys. (12) Hammers, Spanners, Vices. (13) Hodges' Brass Lift, Force, and Deep Well Pumps. (14) Copley's Compound Engine. (15) Rogers' Patent "Koh-i-noor" Gas Apparatus. Pure Gas, 1s. 9d. per 1000 cubic feet, for lighting churches, mansions, mills, mines, buoys, &c. (16) Evan Thomas's Safety Lamps. (17) Apparatus for Testing Lamps. (18) The Lancashire Patent Belting. (19) Wrinch & Sons' Registered Extended Eaves Conservatory, requiring on brick-work. (20) Wrinch & Sons' Registered Span Roof Greenhouse. (21) Scott Bros.' Steam Hammers. (22) Wordsworth Patent  $\frac{1}{2}$  h. p. Gas Engine. (Class 45.)

**1231. PORTER, J. H.,** 1 Tudor Street, London, E.C.—(1) Filtering Apparatus, for 5000 gallons per hour. (2) Porter-Clark Water Purifying Apparatus, worked by motive power. (3) Porter-Clark Water Purifying Apparatus, as employed in private mansions. (Class 21.)

**1232. SCIENTIFIC DRESS-CUTTING ASSOCIATION (THE),** 272 Regent Circus, London, W.—Instruments for teaching how to cut by measure any garment worn by lady or child, so as to fit perfectly without trying on, and which can be successfully used by any child from ten years of age upwards. Specimen patterns cut for ladies while waiting. (Class 49.)

**1233. CLEMENTS, JEAKES & CO.,** 51 Great Russell Street, London, W.C.—(1) Edward Clement's Patent Self-reversing Dash Wheel Washing Machine, 6-feet diameter cage. This machine does not injure the clothes. It has been adopted by the War Department, and is in use at the Herbert Hospital Laundry, Woolwich, where it may be seen in action. (2) A similar Machine, 4-feet diameter cage. An automatic striking gear causes the inner and revolving drum to reverse its direction at every three revolutions, thereby preventing the tendency of rolling or balling of the fabrics undergoing cleaning. (3) One 36-inch over-driven Hydro Extractor or Wringing Machine. (4) One 27-inch open top ditto, fitted with under-friction gear. (Class 33.) Also a drying closet upon an entirely new principle. The whole of this exhibit is contained in a detached House erected of Willesden Waterproof Paper and is put in motion by one of Hindley's Steam Engines contained therein with independent shafting, forming a compact Laundry in full work.

**1234. MARTIN & CO., Carvers and Decorators,** 27 Newman Street, Oxford Street, London, W.—A structure containing rooms fitted up with their Patent Carved Wood Decoration. Specimens of cornices, dados, mantels, over-mantels, and other furniture produced by their patent processes, at so low a rate as to bring ornamental woodwork into general use. The rooms are lit by an entirely new patent, primary battery and appliances. (Class 20.)

**1235. SEAGRAVE, GEORGE,** 103 Wellington Buildings, Chelsea Bridge Road, S.W.—Furnace for heating air in rapid motion. (See Stand 1133 in Western Gallery.)

#### 1236. CINGALESE HUT.

**1237. NEWMAN, A.,** 19 Maddox Street, W.—Old English Forge, Lamps, Lanterns, Brackets, Gates, Grills, Balconies, Weather Vanes, Fittings for electric light or gas, Grates, Fenders and Fire-irons, and Wrought Iron Work for domestic and ecclesiastical purposes.

#### 1238. INDIAN TEA PAVILION.

#### WESTERN ANNEXE.

**1239. GALLOWAY & SONS, Manchester.**—Boilers. (See Complimentary List for full description.)



**1240. BLUNDELL, G. T., & CO.,** West India Road, Limehouse, E.—(1) Blundell's Patent "Waterwitch" Pump, for water supply and sewage disposal. (2) "Waterwitch" Pump, manual power, for general water supply. (3) Blundell's Patent Rotary Duplex Pump for water supply. (4) Small Rotary Pump, steam power, for water supply. (Class 21.)

**1241. CHRISTY, THOMAS, & CO.,** 155 Fenchurch Street, E.C.—(1) A Series of Thermostatic Incubators (patent), for the artificial hatching of eggs. (2) A Drying Box for the reception of the chicks when hatched. (3) A Rearing Mother for the artificial rearing of the chickens. (Class 12.)

**1242. PRICE'S PATENT CANDLE CO.,** Limited, Belmont Works, Battersea, S.W.—(1) Candle Moulding Machines, Melting Pans and other plant employed in the manufacture and packing of paraffin candles. (2) Candle Materials and Candles. (Class 33.)

**1243. SIEBE, GORMAN, & CO.,** 187 Westminster Bridge Road.—Lightfoot's Dry Air Refrigerator and Cold Air Chamber for the preservation of food. (Class 12.)

**1244. WARNER & SONS,** The Crescent Foundry, Cripplegate, E.C.—(1) Latham and Way's Patent Water-Tempering Tubes. (2) Cast-Iron Fountains. (3) Brass and Iron Pumps, on planks, on frames, and for deep wells. (4) Hydraulic Rams, &c. (5) Star Windmill fixed in grounds.

**1245. YEATMAN & CO.,** 119 New Bond Street.—Baking Bread, made with Yeatman's Baking Powder in lieu of yeast.

**1247. GENERAL GAS HEATING & LIGHTING APPARATUS CO.,** Limited (THE), 54 to 70 St. Paul's Street, New North Road, N.—(1) Various systems of cooking apparatus. (2) Boilers for kitchens, baths, public institutions, &c. (3) Heating and Ventilating apparatus for private houses, conservatories, greenhouses, churches, schools, &c.

**1248. HASLAM FOUNDRY & ENGINEERING CO.,** Limited (THE), Derby.—A Patent Dry Air Refrigerator to discharge 18,000 feet of air per hour, at 60° below zero, to cool provisions on board ships, and making ice. Also for cooling rooms in hot climates. The machine is connected to freezing and chilling chambers. Frozen meat will be stored in the chambers to illustrate the freezing process on board ship, and in cold stores on shore (Class 25.)

**1249. COMMITTEE OF IMPORTERS OF AUSTRALASIAN FROZEN MUTTON (THE);** Sir FRANCIS D. BELL, Agent-General for New Zealand, Chairman; W. J. ALLSUP, Hon. Secretary, 14 Finsbury Circus, London, E.C.—Freezing Chamber, Thawing Chamber, and Meat Store. (Class 11.)

**1250. WHITELEY, WILLIAM,** Westbourne Grove, W.—Whiteley's Improved Van, for the transit of provisions, fitted with cold air, ventilating fan, working direct from the wheels. (Class 11.)

**1251. LONDON GUELPH PATENT CASK CO.,** Limited, 18 Beer Lane, E.C.—(1) One Guelph Cask Former, worked by Barker's "Universal" Gas Engine, 1 h.p. nominal. (2) One Guillotine used in connection with cask former. (3) A number of "Guelph" Patent Double Staved Dry Cooper Casks for the package of food products (Class 11.)

**1252. FARQUHAR OLDHAM FILTER CO. (BATEMAN & LEVICK),** Cornhill Chambers, White Lion Court, Cornhill, E.C.—For filtering rapidly and continuously water sewage, effluent liquids, and generally all liquid containing large or small quantities of suspended matter. (Class 21.)

**1253. LAWRENCE & CO.,** Limited, 22 St. Mary Axe, E.C.—(1) Collection of Patent Capillary Refrigerators for the cooling, heating, and preserving of milk, &c., and for purification of drinking water, and general condensing and concentrating purposes, such as saccharine matters, apple juice, &c. (2) A patent Lactoleofract for globulating fats and amalgamating the same with milk, used in cheese manufacture and general domestic and other cookery. (Class 11.)

**1254. HUGHES & LANCASTER,** City Road, Chester.—(1) The Shone Drainage, Sewerage and Water Supply System. Automatic apparatus employed in connection with the system shown in actual operation. The system of drainage is applicable to the combined as well as the separate system of drainage. The system is in successful operation at Eastbourne, Winchester, Warrington, &c. (2) Pneumatic Water and Sewerage Ejector and Glass Working Model of same, operated by one of the Westinghouse Brake Compressors. (3) House Sewage Ejector. (4) William Donaldson's (M.I.C.E.) Air Compressor, worked by patent high pressure water engine, specially adapted to utilize the water from the street mains for air compressing, hoisting machinery, electric lighting and general power purposes. (5) William Donaldson's "Poncelet Turbine." (Class 33.)

**1255. HALL, J. & E.,** Dartford Iron Works, Kent; and 23 St. Swithin's Lane, E.C.—(1) Patent Cold Dry Air Machine, "AA" size, delivering 2000 cubic feet of air per hour at 30° below zero Fahr. (2) Patent cold dry air machine 13 size delivering 5000 cubic feet of air per hour at 35° below zero Fahr., for preserving food, &c., on board ship and on land. (3) A Cold Storage Chamber, stored with New Zealand Mutton, &c (Class 11.)



## BAKERIES.

(East Corridor.)

**1256. BAKER, JOSEPH, & SONS, Engineers, 58 City Road, E.C.**—(1) Bread-making Machinery, complete plant with Oven. (2) Cake and Confectionery Machinery, complete Plant, Moulds and Confectioner's Utensils. (3) Biscuit-making Machinery, complete plant and oven. (4) Machines in full size. (5) A Model of Combined Bread, Biscuit, and Cake Bakery, with Travelling Oven, and the Bailey Patent Continuous Baking Oven, one-twelfth of full size. (6) Patent Fruit Cleaning and Drying Machines. (7) Patent Sifting and Mixing Machines, for flour, baking-powder, and all powder mixtures. (8) Patent Whisks and Mixers. (9) Peel Cutters and Slicers. (10) Patent Sugar Mills and Sifter. (11) Almond Mill and Blancher. (12) Meat Cutting and Mincing Machines. (13) Patent Ice-Cream Freezing Machines. The "Rapid" and "Per-raults." (14) Confectioners' Drop Rollers. (15) Shafting, Hangers, Pullies, Belting, &c., for driving baking machinery, driven by Otto silent gas engine. (Class 12.)

**1257. WATT, T., & SONS, 6 Gledhow Terrace, S.W.**—Bread, Biscuits, Cakes, Pastry and Confectionery and Ices, all manufactured by machinery in the Working Bakeries at Stand No. 1256. (Class 2.)

**1258. CROSSLEY, BROS., Limited, 24 Poultry, E.C.**—Gas Engines and Shafting for Bakeries.

**1259. RICHMOND & CHANDLER, Southall Street, Manchester.**—(1) Patent Kneading Machine, for family use, capable of kneading from 6 to 14 lbs. of flour. (2) Patent Kneading Machine, for schools, hotels and institutions. Two men can knead with this machine 60 lbs. of flour in two minutes. (Class 12.) (3) Patent Kneading Machine, capable of thoroughly mixing 1 sack of flour in 8 minutes by two men, and, if worked by power, in a much shorter time. When adapted for hand power, the machine is fitted so as to be worked at two different speeds at pleasure. (4) Patent Kneading Machine, on improved principles, capable of kneading 2 sacks of flour at a time. (Class 12.)

**1260. MUSTO, J. J., & CO., Engineers, 21 Clinton Road, Mile End, E.**—(1) Stevens' Patent Dough Machine, with movable trough, so that one machine can have as many movable troughs as required, each extra trough being equal to another machine. (2) An Improved Square Yeast Press, consisting of a series of dished iron plates (to which filtering cloths are attached), mounted in a strong iron frame and held firmly together by means of a centre screw, so as to form a series of chambers. The Yeast is pumped into the filter under pressure. The liquor passes through the cloths and escapes from the bottom of the plates, leaving the Yeast in a solid condition behind. The press can be emptied in a few minutes by running back the screw and removing the dry Yeast from between the plates. (Class 12.)

**1261. GLOBE MILL CO., Limited (THE) (Thompson's Patent), 68, 71 Chiswell Street, E.C.; and 58 Lombard Street, E.C.**—Pulverizing Mills, utilising centrifugal force in a novel, simple, and effective manner, for the rapid and economical reduction of wheat, maize, and other cereals; also mineral, animal, and other substances, used by man for purposes affecting both his health and comfort. (Class 12.)

**1262. PERKINS, A. M., & SON, Sea-ford Street, Gray's Inn Road, W.C.**—(1) Three Patent Steam Ovens, with space for bakers for continuous baking by stationary brick oven. (2) Ship Oven and Military Portable Oven. (3) Their Patent Apparatus for ventilating and warming buildings, of which they are the inventors. (Class 12.)

**1263. MASON, WILLIAM FREDERICK, Engineer & Patentee, Long-sight, Manchester.**—(1) Mason's Patent Hot-Air Continuous Baking Two Decker Oven. (2) Mason's Patent Hot-Air Continuous Baking Oven, with Travelling Baking Plate. (Class 6.)

**1264. PFLEIDERER, PAUL, 86 Upper Ground Street, Blackfriars Road, London, S.E.**—(1) Bread Making Machines for private use. (2) Machines for making biscuits, lozenges, vermicelli, &c.; also sundry Apparatuses used in the manufacture of bread, biscuits, lozenges, vermicelli, &c. (3) A Complete Model-Machine Bakery, fitted with Pfeleiderer's patent machinery, worked by Messrs. W. Hill & Son. (Class 6.)

**1265. HUGHES, J., & SONS, Mill-stone Builders & General Mill Furnishers, 217 Great Dover Street, S.E.**—(1) A 3 ft. Mill, showing the manner in which the wheat is ground into meal for flour. (2) A 4 ft. Mahogany Cylinder, with wire and brushes, to illustrate the treatment of the meal, viz., separating the bran and pollard from the flour. (Class 12.)

**1266. MARSHALL, J., Baker, &c., 442 West Strand; and 162 Earl's Court Road, Kensington.**—(1) A Model Bakery, fitted with the latest improvements in ovens and machinery, all in operation. (2) Gilson & Boer's Patent Gas Furnace, applied to an ordinary ten-bushel baker's oven. (3) Melvin & Co.'s Doughing Machine, Stirring Machine, Dough Brake, Flour Mixer, &c., driven by an Otto gas engine from Messrs. Crossley & Co., and a Patent Viennese Dough Mixer. (Class 6.)

**1267. BEYNON & COX, Torbay Iron Works, Torquay.**—(1) Large Baker's Oven on Cox's patent principle. This oven is heated by a small gas fire, the fumes passing round, not into the oven. There is no smoke, smell or dirt. (2) A Variety of Cox's Patent Cooking Stoves, heated by gas (advantages—economy of gas, no gas fumes come in contact with food cooked), and (3) Cox's Patent Gas Heating and Ventilating Stoves. (Class 24.)



## EDUCATION.

THERE are signs that Education is at last taking that place in the consideration of the people of this country that it has always occupied in the minds of thoughtful men in all ages. It would be difficult to over-estimate the importance of education on the well-being of a people. This is a fact so self-evident as to amount to a truism, and yet the instruction of youth, with a few exceptions, has been considered an office carrying with it neither great honour nor profit. But legislation is now working great changes in the kingdom. A vast educational system, which will modify the whole aspect of our national life, is being organised, and England bids fair soon to take her place beside the great intellectual German nation to which she is so nearly allied.

Whilst laws have been passed ensuring primary education to the masses, private enterprise has not fallen in abeyance. The handsome building recently erected by the City Guilds for the purposes of Technical Education is a fair example of this, and from its influence we may hope that a more highly-skilled class of workmen will arise. The want of an intelligent appreciation of technical details of handicraft is felt in many native industries that are being hardly pressed by the competition of our neighbours, who have a better educated and more frugal working population.

Of the higher branches of Education we shall barely speak, as they will, it would seem, not be largely represented at the Exhibition; although much might be said of the changes wrought at our Universities by recent legislation. Our public schools are institutions especially our own, and are the one great feature of National Education, of which we may be justly proud. They have the traditions of centuries around them; and much that has been done by Englishmen to make their country what it is can be traced to the influence of our Public Schools.

The private schools, in which the great majority of the middle class people of this country have been brought up, can hardly be classed very highly as Educational Establishments. It is true that the half-ignorant pedagogue of the days of our fathers, with his smattering of dog Latin and heavy ferule, is as much a creature of the past as his contemporary the hedge school-master; but the school tutor of the present day is in too many cases but the modern prototype of his more robust predecessor. The higher Education of women is of entirely modern growth. The influence of Girton and Newnham is already being felt, and women have proved themselves capable of filling a high position in at least one profession requiring qualities of intellect hitherto considered exclusively masculine. The High Schools for girls, which have now become a prominent feature in the scheme of female education, are also carrying on good work, and by the success they have achieved prove what can be done by a properly trained staff of instructors who have reduced the art of teaching to a science.

The influence which competitive examination has had on Education has been one of but doubtful benefit. The utmost that can be said of the system is that it is a better way of selecting those who are required to fill Government appointments than the old methods of purchase and patronage.

Returning to the subject that more nearly interests us at present we find that until the year 1833 there was no organised system in this country, but in that year a grant was obtained through the Government for the purpose of erecting schools.

In 1839 the Board of Education was established, with power to spend at first £30,000, and this small beginning may be said to have been the germ of our present vast system of State Assisted Education. In 1850 there were 2613 schools under inspection, twenty years added 8000 to that number, but it was after 1872, when education was made compulsory, that the Board Schools which were built added so greatly to the educational establishments of the kingdom. Nor was this done before the necessity was felt, for so greatly had education been neglected, that in 1876 19·2 per cent. were unable to sign the register of their marriage, Scotland was better in this respect, as ten years previously there were only 10 per cent. of men, and 20 per cent. of women, who could not write: Ireland at this time comparing unfavourably with both England and Scotland.

In 1882, ten years after the passing of the Compulsory Education Act, 18,289 schools in England and Wales were inspected, furnishing accommodation to above 4½ million scholars. The names of more than 4 million children were registered on the books, and above 3½ millions



were present at the official inspection of their various schools. Of these more than 2 million underwent the examination required to entitle their schools to the Government grant. Besides the Public Elementary Schools there are Voluntary Schools, Training Colleges, in which those intended to become teachers continue their studies; Science Schools, numbering in the United Kingdom 1354, and the Schools of Art, of which there are 146. Many consider that the Voluntary Schools conduce more to the welfare of the people than the Board Schools, the fees being higher in the former; and it is proverbial that people value more that for which they have to pay adequately.

National education in France may also be said to date from 1833. Before that year there were many admirable institutions for the instruction of the higher classes, but, as in our own country, the lower orders had been neglected. In the present day the schools are under the direct control of the Government and are classed as primary, secondary, and superior schools. Private schools are encouraged, but teachers in them must pass the same examinations as those in public schools. Primary instruction is now gratuitous in Paris and in most of the large provincial towns; in addition to which, in Paris, elementary and advanced lectures on literature, art, and science, are delivered by men of high reputation. These lectures are free, and are largely attended by the working classes, both men and women. There are also a number of free Art Schools, frequented chiefly by working men. For children too young to attend the primary schools, there are the Shelter Schools (*Salles d'Asile*), in which children are trained according to the Kindergarten method.

In Germany the system of Public education has long been acknowledged to be the most complete yet developed. Its chief features are:—

1. The duty of the State to establish a sufficient number of Elementary Schools.
2. Compulsory attendance of every child between the ages of 7 and 14.
3. The special preparation of teachers.
4. A system of school inspection.

The schools are divided into five classes, Primary, Burgher, *Realschulen*, Gymnasium, and University; besides these there are the normal schools for teachers, and a great number of technical schools.

The course of instruction in the Burgher Schools lasts for eight years, and comprises ordinary elementary studies, religious instruction, drawing, music, and gymnastics.

The *Realschule* is intended more especially to provide a broad education for those intended for commercial pursuits. The course at the Gymnasium is a preparation for the Universities, great prominence being given to the classical studies. The general plan of work is fixed by the State.

Before entering the University every student must be examined. Those that fail to obtain a certificate may yet go to the University and are enabled to attend lectures, but they cannot matriculate or eventually hold public benefice. Teachers have to undergo a special examination. School books are chosen by the masters, but, before use, must be approved by the School Board, and should they be newly published works the Board refers them to the Minister of Education.

In America, the beginning of public education was the establishment of grammar schools about the middle of the seventeenth century: the system of free public schools was first instituted in New England not long after. At the present day in many of the States education is compulsory, and in others it is strongly encouraged. Each State maintains an independent system of gratuitous public instruction. The schools are supported chiefly by taxation, and are controlled entirely by the people, through the masters, who are publicly elected. There is a Board of Education, or a Superintendent of Public Instruction, whose office is in the chief town of the State; and who, by the aid of Inspectors, exercises a general supervision over all matters belonging to the schools.

The Schools are divided into Primary, Grammar, and High Schools. In the Primary, elementary subjects, including vocal music, are taught; to which are added in the Grammar Schools, music, French, German, drawing, natural philosophy, and chemistry.

Many students do not follow their education through the High Schools, where a more intimate knowledge of modern languages, mathematics, &c., is pursued. An examination is necessary before passing from one school to another. Almost every State has a normal school for the instruction of teachers. A most important feature in the system of education in the



United States, and one which is said to give it great advantages over any European system, is the number of meetings held for the discussion of all topics relating to education.

No mention has yet been made of the Kindergarten method of teaching, a most admirable system conceived by Johann Pestalozzi, a Swiss, and brought to its present state of perfection by Fröebel. By it the perceptive faculties of children are called into use in a manner that seems more like play than work. This system is intended chiefly for children under seven years of age. Balls, cubes, and other objects are used: with these games are played, all having an educational basis, and by which the children actually learn by imperceptible degrees the rudimentary elements of art and science.

The education of the blind is a subject in which the public has long been interested, and, comparatively speaking, presents few difficulties. The education of deaf mutes is of more modern growth, and has been attended by a success which may be pronounced truly marvellous. Until recent years it was considered useless to attempt to teach those to speak who were born deaf; but this apparently impossible feat is now successfully accomplished. Not only this, but deaf children can be taught to understand what is said to them by following the movement of the lips and the facial expression. To such great perfection has this special branch of education been carried, that in some cases deaf persons can carry on a conversation with those they know, so that a stranger would not perceive their infirmity.

C. DUNELL.

May 1st, 1884.

## GROUP IV.—THE SCHOOL.

### CLASS XXXIV.

(East Central Gallery A.)

Designs and Models of Improved Buildings for Elementary Schools, Infant Schools and Crèches.

1270. BROCK, E. P. LOFTUS, F.S.A., Architect, 19 Montague Place, Russell Square, W.C.—(1) Plan of the Shaftesbury Home for Boys, Bisley, Surrey, for the National Refuges Society for Homeless and Destitute Children, showing the arrangements of the building in regard to its healthy use. (2) Plans of the German Orphanage, Dalston, for Baron Schröder, showing the arrangements of the building in regard to its healthy use.

1271. CHAMBERS, P. CAMDEN, Lowestoft.—Plans and Designs of Improved Buildings for Elementary Schools.

1272. HENMAN & HARRISON, 64 Cannon Street, E.C.—Drawings, being plans and views of various public elementary and public middle-class schools erected from our designs during the last ten years.

1273. NORTH, C. N. McINTYRE, 15 Boro', High Street, S.E. (1) Design for reconstruction of St. Saviour's Grammar School, Southwark. (2) Design for Boys', Girls', and Infants' Schools to be erected on a restricted site in a Town.

1274. THE MAYOR AND ALDERMEN OF LEYDEN, HOLLAND.—(1) Three designs of building of Elementary School for 372 pupils. (2) Six designs of building for the High Burghal School for Young Ladies for 150 pupils. (3) Designs of School Furniture. (4) Six designs of building for a Gymnasium for 150 pupils.

1275. THE MAYOR & ALDERMEN OF HAARLEM.—Designs for Schools.

1277. CHIAVE, D., Municipio di Torino, Italy.—Album with designs of several of the principal school buildings which are now being finished in Turin.

SIEBREICH CHARLES, 4 Mozartgasse, Vienna, Ariusta.—Designs and Photographs of School Buildings. Technics of Public Health and of Safety of Life. (See Library.)

HUMPHREYS, J. C., Albert Gate, Knightsbridge, Hyde Park, S.W. (See Exhibit in Grounds.)

### CLASS XXXV.

(East Central Gallery A.)

Apparatus and Fittings for Warming Ventilating, and Lighting Schools, School Latrines, Closets, &c.

1279. RECK, A. B., 3 Thuresensgade, Copenhagen. (Agents, PUGGAARD & GALSCHIOTT, 34 Eastcheap, London, E.C.)—(1) Heating and Ventilating Stoves and Hot Air Furnaces for schools, infirmaries, churches, offices and private dwelling-houses, &c. (2) Drawings of schools, infirmaries, private dwellings, &c., heated and ventilated by Exhibitor. (3) Drawings of different systems of the heating of buildings by exhaust steam with the lighting of the buildings by electrical light.

1280. LONDON WARMING & VENTILATING CO. (THE), 32 Henrietta Street, Covent Garden, W.C.—Gurney Stoves, and Woodcock's Improved Gurney Stove.



1281. **WEEKS, J., & CO.**, Warming and Ventilating Engineers, King's Road, Chelsea.—(1) Weeks's Patent Upright Tubular Boilers, various, including their patent Duplex, with hollow furnace bars for utilizing the heat of furnace and transferring it to the water before entering the boiler. (2) Weeks's Tubular Waterbar Open Fire Grate, specially constructed for applying to ordinary register stove fronts. For warming nurseries and school-rooms, first, as an open fire; second, by means of pipes round the room, and also for giving a constant supply of hot water for washing and other purposes. (3) Weeks's Hydro-Caloric Vertical Tubular Coil, for warming and ventilating in one operation. For warming the air of the room, for admitting a constant current of fresh warm air for disinfecting and charging the air with a healthful degree of humidity. (4) Weeks's Horizontal Hot Water Coil.

1282. **HERRING & SON.**—Model of City Schools, Warming and Ventilating Arrangements and Improved Fire Grates of Extra Strength. Extra Strong and Cheap Firebrick Stoves with Tile Fronts for Smoke Abatement and easy removal of wearing parts.

**ADAMS, ROBERT**, 7 Great Dover Street, and 17 Blackman Street, Boro', S.E. (See Class 20.)

**BACON, J. L. & CO.**, 34 Upper Gloucester Place, Dorset Square, N.W. (See Machinery in Motion, Western Gallery.)

**BOWES, SCOTT, & READ**, Broadway Chambers, Westminster. (See Class 23.)

**CLEMENTS, JEAKES, & CO.**, 51 Gt. Russell Street. (See Class 31.)

**DEARDS, W. & S.**, Harlow, Essex. (See Class 24.)

**DOMESTIC ENGINEERING & SANITARY APPLIANCES CO.**, 24 High Holborn, W.C. (See Class 23.)

**FARNWORTH, J. K.**, 24 St. James' Square, Bath. (See Class 24.)

**GENERAL GAS HEATING AND LIGHTING APPARATUS CO.**, Limited (THE), 54-70 St. Paul's Street, New North Road, N. (See Class 24.)

**HAND, HENRY AUGUSTUS**, 118 Camden House, Kensington. (See Machinery in Motion, Western Gallery.)

**HOWORTH, JAMES**, Ventilating Engineer, Victoria Works, Farnworth near Bolton. (See Machinery in Motion, Western Gallery.)

**JENNINGS, GEORGE**, Palace Wharf, Stangate, S.E. (See Class 31.)

**KEITH, J.**, Engineer, 57 Holborn Viaduct, E.C.; Edinburgh and Arbroath. (See Class 24.)

**LAMB, J. M., & CO.**, 119 Finchley Road, South Hampstead, N.W. (See Class 25.)

**ROSSER & RUSSELL**, 22 Charing Cross, S.W. (See Class 24.)

**STIRRAT, B. B.**, 43 Alexander Place, Newcastle-on-Tyne. (See Machinery in Motion, Western Gallery.)

**WALLER, THOMAS**, 43 Fish Street Hill, E.C. (See Class 24.)

**WILCOCK & CO.**, Burmantofts, Leeds. (See Class 23.)

## CLASS XXXVI.

(East Central Gallery A.)

Special School Fittings for Storing and Drying Clothing.

1285. **MAC CARTHY, Rev. E. F. M., M.A.**, King Edward's School, Five Ways, Birmingham.—Model of a School Cloak Room (adapted, with improvements, from the best examples to be found in American Public and Normal Schools), showing Drying Apparatus, Drainage for Umbrellas, &c., now in use in King Edward's Grammar School, Five Ways, Birmingham.

**CLEMENTS, JEAKES & CO.**, 51 Great Russell Street, W.C. (See Class 24.)

## CLASS XXXVII.

(East Central Gallery A.)

School Kitchens and arrangements for School Canteens. Methods of warming Children's Meals, &c.

**CLEMENTS, JEAKES, & CO.**, 51 Great Russell Street, W.C. (See Class 24.)

**GENERAL GAS HEATING AND LIGHTING APPARATUS CO.**, Limited (THE), 54-70 St. Paul's Street, New North Road, N. (See Class 24.)

**LOCH BROS & CO.**, 35 Queen Victoria Street, E.C. (See Machinery in Motion, Western Gallery.)

**NEWTON, CHAMBERS, & CO.**, Limited, 19 Great George Street, Westminster, S.W. (See Class 24.)

## CLASS XXXVIII.

(East Central Gallery A.)

Precaution in Schools for preventing the spread of Infectious Diseases, School Sanatoria, Infirmarys, &c.

1287. **PAGET, CHARLES E.**, Kendal, Westmorland.—Model, &c. Made of wood, and arranged to show the special details of construction which are desirable in all buildings erected for the reception and isolation of infectious sickness.



1288. **WHITE, WILLIAM, F.S.A.**, 30a Wimpole Street, W. — Winchester College Sanatorium. Illustrations of "Isolation Block," and general plan.

**BRADFORD, T., & CO.**, 140-143 High Holborn, W.C. (See Machinery in Motion, Western Gallery.)

**HORNE, W. C.**, 5a Aldermanbury Postern, London. (See Exhibit in grounds.)

**PORTER, J. H.**, 1 Tudor Street, London, E.C. — (See outside Western Gallery.)

**TURNER, GEORGE & CO.**, 181 Choumert Road, London, S.E. (See Class 31 A & B.)

### CLASS XXXIX.

(East Central Gallery A.)

Special Apparatus for Physical Training in Schools, Gymnasias, Apparatus for Exercise, Drill, &c.

1290. **AYLING, EDWARD**, Auckland Street, Vauxhall. — Rowing, applicable to Physical Training at Universities, Schools, &c., illustrated by Oars, Sculls, Paddles, and other objects of interest connected with Rowing; such as the Oars used in the Inter-University (Oxford and Cambridge) Boat-race, 1884; the Sculls used by Edward Hanlan in his match against Elias C. Laycock; also used by Jefferson Lowndes, Esq., in the Diamond Sculls at Henley, and the Amateur Championship on the Thames, Season 1883. Sculls manufactured expressly for the Davis Swivel Rowlock. A Racing Scull of a century ago, &c.

1291. **LILLYWHITE, JAMES, FROWD, & CO.**, 4 & 6 Newington Causeway, S.E. — (1) Cricket Bats, Balls, Stumps, Leg-guards, Gloves, and other Appliances for the Game. (2) Lawn Tennis Bats, Balls, Nets, Poles, &c. (3) Indian Clubs, Dumb-bells, Quoits, Foils, Masks, Footballs, Boxing Gloves, &c.

1292. **SCHWENCKE, C.**, St. Aubyn House, Montpelier Crescent, Brighton. — Apparatus for the Technics of the fingers.

1293. **COST, H.**, Baker Street, Portman Square, W. — (1) H. Cost's Patent Calisthenic Chest Expanders. (To be used in graceful exercises for the healthful and symmetrical development of the human form.) (2) Cost's Wall Springs, and Photographs of Cost's Exercising Plane. (The two last-named instruments are more especially for the healthful development of the muscular system and correction of irregularities of the figure, spinal curvature, &c.)

1294. **HORN, T. S.**, Elgin Road, Croydon. — Patent Improved Regulating Digitarium, a mechanical instrument for exercising the fingers.

1295. **HOWARD, PROFESSOR**, 100 Wardour Street, W. — Health-producing Games: — Cricket, Football, Lawn Tennis, Indian Clubs, Horizontal Bars, School Gymnasia, Boxes of Games suitable for Children.

1296. **ROTH, DR.** 48 Wimpole Street, Cavendish Square, W. — (1) A Large Table of Elementary Positions and Exercises according to Ling's System for the development of the various parts of the body. (2) Models and Patterns of hygienic dress, shoes and boots, stays, stockings, &c. (3) Model showing three different School Ventilators. (4) Drawing of a Russian Bath, including the application of steam, cold and warm water in various forms. (5) Diagrams of bad positions during the time of Education causing lateral curvature and other complaints. (6) Diagrams of bad positions while writing. (7) Models of hygienic school benches and chairs, permitting the student to lean comfortably during his occupations in school. (The full-size chairs made according to Dr. Roth's instructions are exhibited by the North of England School Furnishing Co. in the Albert Hall.) (7) Means for the Physical Education of the senses.

1297. **HOLM, JOHN, F.R.C.S.**, (Edin.), 48 Conduit Street, W. — (1) Model of Gymnasium for carrying out Ling's System of Swedish Gymnastics. (2) Diagrams illustrating the Exercises. (3) Literature in reference to the same.

1298. **BACON, GEORGE W.**, F.R.G.S., 127 Strand, W.C. — (1) Bacon's Patent Portable Gymnasium, for home and school use. (2) Bacon's Patent Trapeze and Horizontal Bar. (3) Bacon's Patent Chest Expander. (4) Bacon's Patent Child's Swing, pertaining to above gymnasium.

1299. **PIGGOTT BROTHERS**, 59 Bishopsgate Street Within, E.C. (Agent, T. Vincent Riordan, 1, Whiteley Road, Upper Norwood, S.E.) — (1) The Combination Gymnasium, consisting of 2 spanned planks, climbing ladder, plain plank, climbing rope and pole, trapeze bar, and lady's swing: is adapted for either indoor or outdoor use. (2) Portable Horizontal Bar, for house or garden, with iron core. (3) Nursery Gymnasium, comprising horizontal bar, trapeze bar, hand rings and swing for children, and horizontal bar for adults. (4) Parallel Bars, portable, for military gymnasium or schools. (5) Jumping Stand. (6) Case of Fencing and Boxing Requisites.

1300. **HARVIE, J.**, Stopford House, Rozel Road, Clapham, S.W. — Improved Double Bar Swing.

1301. **SPENCER, GEORGE**, 52 Goswell Road, London. — Combination Gymnastic Apparatus; Portable Steel Core Bar, — ditto, 30s., Iron Core; Parallel Bar, two sizes. Lawn Gymnasium, Chest Machine, Giant



Strides, Nursery Gymnasium, Jumping Stands, Climbing Ropes, Poles, Indian Clubs, Calisthenic Apparatus, and every description of School or Private Gymnasia and Fencing Requisites.

1302. **GARCET et NISIUS, 76 Rue de Rennes, Paris.**—Special Apparatus for Gymnasium and Military Exercises.

1303. **GOY, H., 21 & 22 Leadenhall Street, E.C.**—Gymnastic Apparatus. Specimens of Latest Improvements in Apparatus for the Room or the Open Air, both portable and fixed.

1304. **STEMPEL, ADOLF A., Master of Gymnastics, Fencing, Calisthenics & Drilling, Importer of Gymnastic Apparatus. (Herr STEMPEL'S Gymnasium & School of Arms, Gymnastic Apparatus Dépôt, 75 Albany Street, Regent's Park, N.W.)**—Portable Gymnasium Apparatus, on the German moveable system.

1305. **ZANDER MEDICO - GYM-NASTIC CO., Limited, 7 Soho Square, W.**—(1) Chest - Expanding Machine. (2) Machine for exercising the legs; suitable for elderly persons. (3) Machine for exercising the muscles of the ankle. (4) Machine for strengthening the back and correcting stooping in children. (5) Machine for exercising the muscles of the back and chest.

1306. **NORDENFELT, T., 53 Parliament Street, S.W.**—School Gymnasium, on the Swedish (Ling's) System; manufactured by Mr. Ekstrand in Stockholm.

1307. **KNOFE, OSCAR, 16 Finsbury Park Villas, Green Lanes, London, N.**—

All kinds of Gymnastic Apparatus and Fencing Requisites for Schools, Private, Public, and Military Gymnasia, including Horizontal Bars, Parallel Bars, Vaulting Horses, Vaulting Bucks, Vaulting Tables, Jumping Apparatus, Climbing Scaffolds; Family, Parlour, and Lawn Gymnasia, Swings, &c., for children and adults. All kind of Requisites for outdoor and indoor games, such as Lawn Tennis, Cricket, Football, Croquet, &c.

1308. **CHAMBERS, W. OLDHAM, F.R.I.B.A., Lowestoft.**—Plans and Designs for Swimming Schools, showing improved system for teaching the art of swimming.

1309. **SLAZENGER & SONS, 56 Cannon Street, E.C.**—Cricket Bats, Lawn Tennis Rackets.

## CLASS XL.

(East Central Gallery A.)

Literature, Statistics, Diagrams, &c., relating to Group 4.

**ETZENBERGER, R., Midland Grand Hotel, St. Pancras.** (See Outside.)

**ROTH, DR. M., 48 Wimpole Street, Cavendish Square, W.** (See Class 39.)

**SCHMIDT, KARL AUGUST, 2 Konstantinow'sche Militair-Schule, St. Petersburg.**—Books and Diagrams illustrating correct positions in walking, standing, or sitting. (See Library.)

**WHITE, WILLIAM, F.S.A., 30a Wimpole Street, W.**—Æsthetical Sanitation, showing the Influence of the Healthy Culture of the Body on Beauty and Art. (See Library.)

## THE WORKSHOP.

THE factory, or distinctive workshop, is the result of an advanced state of civilization, for in primitive times such industries as exist are mostly carried on in the dwelling-place of the operatives. In the present day the line of demarcation between the Dwelling and the Workshop is necessarily becoming more defined, owing principally to the extended use of machinery, and to the minute sub-division of labour which renders each operative a specialist capable only of performing work of the most limited range. For this reason a large number of hands must be brought together in order to produce a finished manufactured article if it be of at all a complex nature. The nation gains by the spread of this system, and the more universal it becomes the greater will be the improvement in the health of the workpeople. It can lead to nothing but harm when the labouring classes work, eat, and sleep in the same rooms. Much yet remains to be done in this direction, for the pernicious "garret master," and his kind, is a race by no means extinct, especially in some of the provincial manufacturing towns.

For the present, however, we have alone to deal with the workshop itself, and must leave out of our consideration the more unhealthy plan of combining workshop and dwelling-room. Since the year 1833 various acts of Parliament have been passed in order to provide for the more sanitary condition of factories. Many of the evils arising from the employment of young children, from overcrowding, inefficient ventilation, too long working hours, and matters of this description, have been to a great extent remedied by the working of these beneficial laws. No doubt much yet remains to be done, and perhaps one of the greatest difficulties now encountered



is to get workpeople to protect themselves by using the simple hygienic contrivances placed within their reach.

The operatives employed in some branches of the Sheffield cutlery industries work under exceptionally unwholesome conditions. Of those occupied in dry grinding the fork polishers only enjoy—or we should rather say suffer—an average duration of life of twenty-nine years. The fine dust produced in the process of the manufacture they follow gets into the lungs, so that after death they often have the appearance of india-rubber. The disease is known by the expressive title of “grinders’ rot.” Fork making appears to be the most deadly branch of the trade, but there are other divisions that are but little better.

Statisticians tell us that the miners come next in the list of mortality. According to a report compiled a short time ago, there were 300,000 human beings working underground, and employed in the most arduous and distressing labour. The largest class is that of the coal miners or pitmen. The production of every 70,000 tons of coal costs on an average one life from violent accident, but this is as a drop in the ocean compared to the suffering and misery due to diseases arising from unwholesome atmosphere and coal dust, which, aided in too many cases by seasons of dissolute living, tend to shorten the miner’s life. It has been estimated that pitmen, between the ages of twenty and sixty years, spend 95 weeks in illness, a duration of sickness 67 per cent. above that usual with labourers in other occupations. Few miners, however, reach the age of sixty years. Professor Zeuner says that in the mines of Freiburg the average period at which the men are incapacitated from further work is between the ages of thirty and forty years.

The manufacture of white lead is an industry which lays on our working population a heavy burthen of disease and suffering. During a space of eighteen months, twenty-three cases of lead poisoning were admitted to the infirmary of Shoreditch workhouse. Of this number, three died, and many were expected to remain paupers for life. Poplar Union admitted during twelve months, twenty-nine patients suffering from the same cause. Holborn Union afforded an asylum to fifty-four persons in one year. These numbers only represent the cases seeking parish relief. A medical attendant at two white lead works states that during a period of nine months he treated thirty-four females and thirty males who were suffering directly from lead poisoning. Many of the brighter colours used so plentifully for purposes of interior house decoration a few years ago were of even a more deadly character than white lead, and in fact, with perhaps the exception of the beautiful preparations obtained from cochineal, as a broad rule it may be said that the brighter the colour the more hurtful is it likely to be to those employed in its manufacture. Thus vermilion is a preparation of mercury and sulphur; prussian blue is composed of sulphate of iron, prussiate of potash, and hydrochloric acid which give off in the process of manufacture fumes of a most hurtful nature. Chrome yellow requires for its production that litharge and bichromate of potash should be treated with a powerful acid. But the most deadly preparation of this nature is the beautiful emerald green of which we heard so much a few years since. This is composed of sulphate of copper, which is dissolved in water and on to which is run a boiling liquor of arsenic and common soda, acetic acid being shortly afterwards added to cause the necessary re-action. The whole mass has to be liberally stirred throughout the operation, and the fumes given off are of the most poisonous nature. In the production of any of these compounds, however dangerous the process may be, if proper precautions be not taken, the exercise of due care will ensure comparative immunity from harm. Unfortunately all colours that are used for making into oil paints must be reduced to a dry powder, and it is dust, that most insidious foe to human health, that the workman finds he cannot guard against. The packers, sifters, and dry grinders in chemical works are those who suffer most. These operations require but a low class of intelligence, and those engaged in them, in some of the small, ill-regulated factories—men, women, and boys—are ill-paid, ill-fed, and scantily clothed. One of the lead poisoned patients at the Shoreditch Workhouse, a woman of sixty, worked daily from seven in the morning until seven at night for wages of 12s. a week. She had been told that if she continued at the work it would kill her, but what was she to do? This unfortunate had been eight months in the infirmary—possibly the happiest months of her life.

In many trades the wages are even less than in the white lead works, although the occupations are hardly less hurtful, and naturally no one will engage in them unless unable



to obtain more healthful and better paid labour. These workers form the lowest elements of our industrial population; herding together in dwelling-places which are sinks of misery and iniquity, they form a nucleus from which springs so much of the disease and crime that pollutes our great cities, and renders our material progress, wealth, and culture a reproach in the eyes of all thinking men.

But those we have been considering are exceptional cases, and taking the working population, both urban and rural, as a whole, they are, as far as can be judged, healthier than the leisure classes. Labour is still the main-spring of health, and however much it may be abused by thoughtlessness or avarice, it is the chief source to which we must look for keeping wholesome our national life. Dr. Guy has sought to obtain the duration of life amongst the upper ranks of society, and has succeeded in establishing the fact that with adults, the higher the position, and the more unlimited the means possessed of satisfying the desires, the less probability there is of long life.

In the present Exhibition many objects will be shown that will illustrate the practical application of sanitary science to our physical well-being. The greater number of these will be gathered from fields that have not been here referred to; for the vastness of our subject and the narrow limits of the present space have necessarily rendered these prefatory notes of a fragmentary nature.

G. R. DUNELL.

May 1st, 1884.

## GROUP V.—THE WORKSHOP.

### CLASS XLI.

(*East Central Gallery A*.)

Designs and Models for Improvements in the Arrangements and Construction of Workshops, especially those in which dangerous or unwholesome processes are conducted.

1314. THWAITE, B. H., C.E., F.C.S., St. Neot's, Hants.—Design for Textile Factory, by B. H. Thwaite, C.E., arranged so as to be perfectly healthy and fire resisting, in accordance with the suggestions embodied in the designer's work, 'Our Factories, Workshops, and Warehouses,' their sanitary and fire resisting arrangements.

ADAMS, ROBERT, 17 Blackman Street, Borough, S.E. (*See Class 42.*)

BARNETT & FOSTER, Niagara Works, 26 Eagle Wharf Road, N. (*See Machinery in Motion, Western Gallery.*)

DEARDS, W. & S., Harlow, Essex. (*See Class 24.*)

HORNE, JOHN, 5a Aldermanbury Postern, London. (*See Exhibit in grounds.*)

HUMPHREYS, J. C., Albert Gate, Knightsbridge, Hyde Park, S.W. (*See Outside.*)

### CLASS XLII.

(*East Central Gallery A*.)

Apparatus and Fittings for preventing or minimising the danger to health or life, from carrying on certain trades. Guards, Screens, Fans, Air-jets, Preservative Solutions, Washes, &c.

1316. LAKEMAN, JAMES B., H.M. Inspector of Factories, Home Office.

—Model of Circular Saw Bench with Saw and Guard for prevention of accidents to workers, provided with the means for lateral transverse and vertical adjustment, suitable for a bench carrying saws up to 48 in. diameter.

1317. SCHAFFER & BADENBERG, 1 Southgate, Manchester.—Collection of Steam Pressure Hydraulic and Vacuum Gauges, Counters, Safety Valves, Steam Engine Governors, Steam Engine Indicators, Steam Traps, Safety Plugs for Boilers, Thermometers, Barometers, Safety Lamp for coal mines, Water Meter, &c; all having either a direct or indirect connection with minimising danger to health (and life) from carrying on certain trades.

1318. LINDLEY, C., & CO., 34 Englefield Road, N.—Patent Belt Shippers.

1319. CLAYTON & SHUTTLEWORTH, Lincoln.—Model of Safety Drum Guard.

1320. ADAMS, ROBERT, 7 Great Dover Street, & 17 Blackman Street, Boro', S.E.—(1) R. Adams' Patent Toby Cord Holder, by the use of which any person in workshops or warehouses can remove goods from ground floor to upper floors without assistance, thus avoiding to a great extent accidents which occur through carelessness in leaving hold of the rope before the person at the top receives the goods. (2) Apparatus for opening every description of Ventilator, including fan-lights, lantern lights, circular, square, and every other form of sash. (2) Patent Window, which can be reversed instantly for cleaning without removing sashes from the frame, forming a clear egress in case of fire, and for the removal of goods, &c. Also the new method of making sliding windows reversible, to avoid the prevalent danger of external cleaning; this invention can be applied at a trifling cost.



**1321. GARDNER, E. V., 3 Pall Mall East.**—Gardner's Patent Electric Process of making White Lead, in which female labour is quite unnecessary and manual labour to a great extent replaced by improved machinery, and by which a true amorphous white lead is produced, in two weeks, of great purity of colour, and body as a paint. In this process all wet grinding, washing, drying, and stoving is dispensed with, and all handling of the white lead.

**1322. WARWICK, JAMES, 59 Hilton Street, Manchester.**—Model of James Warwick's "Patent" Oscillating Motion. This motion entirely dispenses with wheel-gearing and other dangerous complications, and is acknowledged by all experts to be a new mechanical movement. This may be used for a variety of purposes.

**1323. JAY, R. C., 89 Cornwall Road, Bayswater, W.**—Working Model of Valveless Air-Blower for smith's fires, ventilation, &c.

**1324. CLARK, WILLIAM, Engineer, 19 Lee Street, Plumstead, Kent; & at R. L. Department Royal Arsenal, Woolwich.**—Model of Apparatus for drawing dust and foul air from grinding machines to any extent or distance, and forcing it through a series of fine sprays of water to purify the atmosphere.

**1325. TAYLOR, R. W., 17 Angel Hill, Bury St. Edmunds.**—Improved Shield or Fence for circular saws; designed to meet the requirements of the Factories Act.

**ALAND, HENRY, & SON, 46 Commercial Road, Lambeth.** (See Machinery in Motion, Western Gallery.)

**BRUNTON & TRIER, 19 Great George Street, S.W.** (See Machinery in Motion, Western Gallery.)

**LAMB, J. M., & CO., 119 Finchley Road, South Hampstead, N.** (See Class 25.)

**MAIGNEN, P. A., 22 & 23 Great Tower Street, E.C.** (See Class 21.)

**NEWTON, CHAMBERS, & CO., Limited, 19 Great George Street, Westminster, S.W.** (See Class 24.)

### CLASS XLIII.

(East Central Gallery A.)

Objects for Personal Use. Mouthpieces, Spectacles, Dresses, Hoods, &c., for use in certain unhealthy and poisonous trades.

**1327. HARRISON, THOMAS H., 40 Hatton Garden, E.C.**—Improved Eye Protectors, Reading Shades, &c.

**1328. JOSEPH, DAVIS & CO., Fitzroy Works, Kennington Park Road, S.E.**—(1) Gauze Wire Eye Guards (Magnetised). (2) Needle Grinders and various other Eye Guards and Protectors, for stone-

masons and others. (3) Spectacles with shades, attached folders, &c. (4) Royal Polytechnic, Standard, and other Mercurial Barometers, in various Early English, Classic, and Modern frames. (5) Aneroid Barometers in oak and metal frames. (6) Aneroid Barometers, watch size, with altitude scale to 10,000 feet. (7) Thermometers—clinical, insulated, domestic, and dairy. (8) Thermometers—for ovens and high temperatures. (9) Graphoscopes—single and compound lens. Microscopes. (10) Rain Gauges. (11) Anemometers registering from 1 to 10,000,000 feet. (12) Anemometers with time glass attached. (13) Moisture meter.

**BARNETT & FOSTER, Niagara Works, 26 Eagle Wharf Road, N.** (See Machinery in Motion Western Gallery.)

**1329. SQUIRE & SON, 413 Oxford Street, W.**—Mouthpiece for unhealthy and poisonous trades.

### CLASS XLIV.

(East Central Gallery A.)

Illustrations of Diseases and Deformities caused by unwholesome Trades and Professions. Methods of combating these diseases. Preservative measures, &c.

**1330. STEELE, J. C., M.D., Guy's Hospital, S.E.**—Eleven Models in Wax, illustrative of skin diseases brought on by unhealthy occupations. Arm of a groom, affected by glanders. Hands showing effect of working with oxalic acid. Effects caused by working with arsenical preparations. Effects caused by pigments used in dyeing. Effects produced by soot; sweep's cancer. Effect of malnutrition; scurvy.

**ROTH, DR. M., 48 Wimpole Street, Cavendish Square, W.** (See Class 39.)

### CLASS XLV.

(East Central Gallery A.)

Sanitary Construction and Inspection of Workshops, Factories, and Mines. (a) New Inventions or Improvements for ameliorating the condition of life of those engaged in unhealthy occupations. (b) Means of economising Human Labour in various Industrial operations.

**1332. PRIMROSE & CO., Church Street, Sheffield.**—Samples of Primrose & Co.'s Patent "Eclipse" Glazing, for mills, workshops, schools, and other buildings.

**1334. RETTIE PATENT SEAT CO., Limited, 10 Bush Lane, Cannon Street, London.**—Rettie's Patent Seat for Banks, Hotels, Ships, Restaurants, Telegraph Offices, Luncheon Bars, Schools, Offices, Theatres, Shops (both sides of counter), and everywhere where room is an object. The only seat extant that occupies so little room, and prevents blocking and crowding of passages.



1335. **LARGE, JOHN**, Lyneham House, Chippenham, Wilts.—(1) Model for the prevention of accidents in going down and coming out from mines, lifts, &c.; also tin Tubes for 9-inch shafts to prevent explosions. (2) Model of Safety Railway Platform.

1336. **HARE, CHARLES**, Calvert Street, Norwich.—An Improved Appliance for Shoemakers, being a last on a stand which will allow of a boot being held in any desired position.

1337. **HALL, J. SPARKES & SON**, 308 & 310 Regent Street.—Upright Shoemakers's Bench.

1338. **FORD, HARRY H.**, 43 Park Green, Macclesfield.—Solid Cylinder Safety Lamps.

1339. **KNOWLES, ANDREW, & SONS**, Limited, Pendlebury Colliery, near Manchester.—Owen's Patent Safety Cage.

1341. **COMPRESSED LIME CARTRIDGE CO.**, Limited (THE) (FRANK M. STILL, Secretary), 3 Queen Street, Cheapside.—(1) Lime Cartridges and Tools for blasting purposes. (2) Drills, Pumps, Tubes, &c., used in connection with the process.

1343. **FITTON, EDWARD B.**, Her Majesty's Inspector of Factories, Malvern.—Movable Seats for Shops or Workroom.

1344. **BICKFORD, SMITH, & CO.**, Tuckingmill, Cornwall.—(1) Patent Safety Fuses. (2) Patent Igniters and Instantaneous Fuses for Mining Purposes.

1345. **DAVIS, JOHN, & SON**, 118 Newgate Street, London, E.C.; All Saints Works, Derby; and Arcade Chambers, Newport, Monmouth, South Wales.—(1) Miners' Safety Lamps. (2) Miners' Dials. (3) Anemometers, for ascertaining the current of air in Mines, Sewers, Furnaces, Ventilating Apparatus, &c. (4) Theodolites and Levels, fitted with the Hoffmann Patent Tripod Head for instantaneously setting up and levelling the instruments. (5) Telephones. (6) Colliery Electric Signals and Bells. (7) Dynamo-Electric Exploder for Blasting. (8) Pit Barometers and Thermometers. (9) Self-Recording Barometer or Barograph. (10) Self-Recording Thermometer or Thermograph, &c.

1346. **ROSEWARNE, W.**, Wheal Sisters, Lelant, Cornwall.—Plan or Section of Dry or Changing House where miners change their clothes.

1347. **WHITE, W. T.**, West Wheel, Peevor, Redruth.—Drawing of Dry House where miners change their clothes.

1348. **MARTEN, EDWARD B.**, Midland Steam Boiler Inspection and Assurance Company, Stourbridge.—Models and Photographs of Exploded Boilers and other vessels.

1349. **ACCIDENTS IN MINES COMMISSION**, Victoria Street, Westminster, S.W.—Collection of Safety Lamps for Mining Purposes.

**ADAMS, ROBERT**, 17 Blackman Street, Borough, S.E. (See Class 42.)

**BARNETT & FOSTER**, Niagara Works, 26 Eagle Wharf Road, N. (See Machinery in Motion, Western Gallery.)

**BATEMAN, W. H.**, 90 Cannon Street, E.C.; & Nelson Wharf, Milwall, E. (See Class 28.)

**MACHINERY AND HARDWARE CO.**, Limited, 147 Queen Victoria Street, E.C. (See Machinery in Motion, outside Western Gallery.)

**SENNETT, A. R.**, 62 Hatton Garden, E.C. (See Class 26.)

**SIMMONS & TULLIDGE**, Pleasant Grove, York Road, King's Cross, N. (See Machinery in Motion, Western Gallery.)

## CLASS XLVI.

(East Central Gallery A.)

Literature, Statistics, Diagrams, &c., relating to Group 5.

**BANCROFT, R. M. & F. J.**, Elm Park Road, Church End, Finchley, N.—Illustrated Book on the Construction of Factory and other large Chimney Shafts. (See Library.)

**THWAITE, B. H., C.E.**, St. Neot's, Hants.—Our Factories, Workshops, and Warehouses; their sanitary and fire-resisting arrangements. (See Library.)

## GROUP V. — METEOROLOGY IN ITS RELATION TO THE STUDY OF PUBLIC HEALTH.

CLASS XLVI. A & B.

(East Corridor Annexe.)

Meteorological Instruments, such as are used in climatological investigations; barometers, aneroids, thermometers, earth thermometers, thermometer stands, hygrometers, anemometers, airmeters, rain gauges, automatic meteorological apparatus, sunshine recorders, evaporation gauges, ozone papers, ozonometers, &c.

Diagrams, Models, and Apparatus illustrative of (a) the climatal conditions prevailing in various parts of the world; (b) the relations between health and disease; (c) rainfall, percolation, evaporation, and flow from ground, and (d) other subjects embraced by the Exhibition.

1354. **WATSON, W., & SONS**, 313 High Holborn, W.C.—Watson's Patent Balanced Thermometer for hospitals, school-



rooms, halls, and general house use. The only pattern that can be read at a distance away. By this Instrument the exact temperature is observed at a glance, and this even if the observer be twenty or thirty yards distant. Standard meteorological instruments for observatories, travellers, &c. Barometers, Thermometers, Wind and Rain Gauges, Vanes, &c., &c.

**1355. DRING & FAGE, 145 Strand, London, W.C.**—(1) Meteorological Instruments. Thermometers, Barometers, Barographs, Thermographs, Dring and Fage's Registered Chart Barometers, New Floating Bath Thermometers, Bath Thermometers, Stuffing-box Thermometers for steam-pipes, &c. Bent Tube Thermometers for pipes, tanks, boilers, &c. (2) Hydrometers and Saccharometers.

**1356. STANLEY, W. F., 13 Railway Approach, London Bridge, S.E.**—(1) Electric Bells, invalid's call bell. (2) Microscopes. (3) Microscope Objects of Disease Germs. (4) Barometers. (5) Anemometers for Registering Air Currents in Mines and Houses. (6) Thermometers and Hygrometers for Hospitals, &c. (7) Clinical Thermometers.

**1357. DENTON, S. G., F.R. Met. Soc., 25a Hatton Garden, E.C.**—"Denton's Unalterable Thermometers." Over fifty improved Health Thermometers and Standard Thermometers for Meteorological purposes, constructed in a special manner, by which the zero is made constant, viz. the mercury will not, through age, alter or read too high. To prove that the thermometers were newly made the enamel stems were sent to the Kew Observatory, and hall-marked previous to having their bulbs blown. They were then constructed into Thermometers, graduated, returned to the Observatory, and tested throughout. See Certificate. Subsequently they were placed under seal by the Superintendent and remained so for over twelve months, and were again tested, the zero being practically constant. The Kew corrections for scale errors are etched at their respective places on the tubes. Eleven of the Health Thermometers are magnifying or Lens-fronted.

**1358. HARTSHORNE, LIEUT.-COL.**—Hygrometer, adapted to show variations of atmospheric pressure. It is constructed on scientific principles of lever action bearing on fine horsehair lines, which are exposed to atmospheric influences through guards of spiral wire. The small thermometer placed by the side of the hygrometrical scale denotes the variations of the temperature, whereby can be readily compared the different occurrences of climate, for when the thermometer rises, the hygrometer needle in the dark scale will fall.

VOL. XVIII.

**1359. KEW COMMITTEE OF THE ROYAL SOCIETY (THE) (WHIPPLE, GEORGE M., Superintendent of the Kew Observatory, Richmond, Surrey, Secretary).**—(1) Specimens of Forms of Certificates of Examination of Clinical Thermometers as issued by the Kew Observatory. (2) Circulars containing particulars and regulations as to the granting of Certificates by the Kew Committee. (3) Diagram showing the number of Clinical Thermometers verified each year at the Kew Observatory since 1870. (4) Diagram showing the Mean Errors of such Thermometers compared in 1872 and in 1884.

**1360. THE METEOROLOGICAL COUNCIL, 116 Victoria Street, S.W.**—(1) Diagrams showing (A) the accumulated Temperature in Day Degrees, above and below the assumed base line (42° F), (B) the Hours of Bright Sunshine, (C) the Amount of Rain-fall for each week of the current year, and also of the year 1881 (for purposes of comparison) for five districts of the United Kingdom. The districts represented are: Scotland, East; England, South; the Midland Counties, Ireland, South; the Channel Islands (Scilly and Jersey). (2) A Map showing the various districts into which the United Kingdom is divided for Agricultural and Sanitary Purposes in the weekly weather report. The Diagrams will be altered weekly so as to show the progress of the present season. (3) Twelve Maps showing the Sea Surface Temperature on the Coasts of the British Islands in each month of the year.

**1361. ROYAL METEOROLOGICAL SOCIETY, 30 Great George Street, S.W. (WILLIAM MARRIOTT, Assistant Secretary).**—(1) Typical Climatological Station of the Royal Meteorological Society. (*In Gardens.*) (2) Instruments as used for Meteorological Purposes. (3) A Series of Large Diagrams illustrative of the climatic conditions prevailing in various parts of the world.

**1362. NEGRETTI & ZAMBRA, Holborn Viaduct, E.C.**—Meteorological Instruments: (1) Observatory Standard Mercurial Barometers. Aneroid Barometers. Negretti and Zambra's Patent Max. and Min. Thermometers for solar and terrestrial radiation, shade and earth temperatures. Hygrometers and Raingauges. Electrical and other Anemometers for indicating velocity and force of wind. Air and Current Meters. Atmidometer, for measuring evaporation. Ozonometer. Sunshine Recorder. (2) Negretti and Zambra's Patent Hourly Recording Theometric Apparatus. Electrical Max. and Min. Alarm. Thermometers. (3) Negretti and Zambra's Patent Marine Thermometers for taking observations in deep and shallow seas at any given depth. (4) A Series of Thermometers for various purposes, such as bath and other rooms, brewing, dairy, hot-bed and self-registering



garden instruments. (5) Chemical and Patent Clinical Thermometers, and Boiling-point Thermometer for determining altitudes.

**1363. CASELLA, LOUIS P.** (1) Anemometer, Large Improved Self-Recording. (2) Anemometer, Robinson's Single and Double Dials. (3) Anemometer, Electrical, Casella's, for indicating at any distance. (4) Anemometer, Electrical, and Wind Vane combined, Casella's. (5) Air Meters for hospitals, mines, and public buildings. (6) Sunshine Recorder, Universal, Whipple-Casella's. (7) Barometers, Standard, Fortin's, Kew principle, Boulean, Marotti, and others. (8) Aneroids, self-recording and others. (9) Hypsometers. (10) Thermometers, Clinical, Casella's Patent Varieties. (11) Thermometers, Clinical, Aitkin's, &c. (12) Thermometers, Mercurial Minimum, Casella's. (13) Thermometers, Maximum and Minimum, vertical and horizontal, Standard, Solar Radiation, &c. (14) Thermometers, Electrical Sixes, Geolden-Casella Patent, for registering and recording at any distance. (15) Thermometer, Deep-Sea, Miller-Casella. (16) Thermometer, Deep-Sea, Miller-Casella, Buchanan's. (17) Piezometer, Buchanan's. (18) Hygrometers, Dine's, both forms. (19) Spirometer, Casella's improved. (20) Warm Stage for the Microscope, Schafer's. (21) Fick's Kymograph or Blood Apparatus.

**1364. TISLEY, S. C., & CO.** 172 Brompton Road.—(1) Barometers, Thermometers, and other Meteorological Instruments. (2) New Ozone Generator.

**1366. LECKY, ROBERT J.,** 3 Lorton Terrace, Ladbroke Road, W.—(1) A Universal Sunshine Recorder and Sun-Dial, fitted with Professor Stokes' Zodiacal Frame as supplied to Government, to the Meteorological Council, &c., and adapted for use in all latitudes. (2) A Sunshine Recorder and Sun-Dial as supplied to the different Meteorological Stations and to private observatories, and made for fixed latitudes of over  $34^{\circ}$ . The instrument exhibited is made for latitude  $52^{\circ} 30'$ , but is applicable for all England. (3) On the Side Screen, next to the Royal Meteorological Society's exhibit, are Three Charts for the years 1881, 1882, and 1883, giving an exact facsimile of the burning on the cards in the Sunshine Recorders fitted with Professor Stokes' Zodiacal Frame. These observations were taken by E. E. Dymond, Esq., Aspley Guise, Woburn, Bedfordshire, and shew at a view the relative amounts of sunshine in each month of each year, in this central locality. The dark lines on these charts are respectively those of Sunrise and Sunset.

**1367. HICKS, J. J.,** 8 Hatton Garden, E.C.—Barometers. Thermometers, Hygrometers, Anemometers, Air Meters, Rain Gauges, Range Finders, Clino-Compasses, &c.

**1368. THE ANTHROPOMETRIC LABORATORY.** Arranged by Francis Galton, F.R.S.—For the determination of Height, Weight, Span, Breathing Power, Strength of Pull and Squeeze, Quickness of Blow, Hearing, Seeing, Colour-sense, and other personal data. The Laboratory is situated in the East Corridor Annexe, entrance from the South Gallery.



## DIVISION II.—EDUCATION.

(See Special Catalogue published.)

## GROUP VI. — EDUCATIONAL WORKS AND APPLIANCES.

## CLASS XLVII.

(Royal Albert Hall.)

Crèches and Infant Schools.—(a) Apparatus and Fittings for Crèches and Infant Schools; (b) Games, Toys, and Kindergarten Amusements; (c) Models and Appliances for teaching; (d) Examples of School Work.

1370. NEWMANN, O., & CO., 40 Cheapside, London, E.C.; 7 Trafalgar Buildings, Charing Cross, W.C.; & at Berlin.—(1) Kindergarten Materials of every description. (2) Instructive and amusing Games. (3) Dr. Richter's Patented Stone-building Bricks, in three colours. (4) Thieben's Patented White Composition Stone Slates.

1371. DRUKKER, MORRIS, 61 Stamford Road, Kingsland, N.—(1) Games of various kinds. (2) Toys (educational and otherwise). (3) Kindergarten amusements. (4) Building Bricks, &c., &c.

1372. FARMER, M., Albert Works, 34 & 36 Britten Street, Chelsea, S.W.—Kindergarten Educational Printing Apparatus.

1373. MILLER, S. A., Orange House, College Park, Lewisham, S.E.—(1) Reading and Writing, a series of cards. (2) Script Copies; slates and Paper to match. (3) Letters and Words, sorted; in boxes, with key. (4) Select Rhymes, for Reading and Recitation. (5) First Sums, on Cards. (6) Bead Strings, varied. (7) Infants' Musical Staff and Notation, with Songs. (8) Children's Work.

1374. VEREIN FÜR VOLKERZIEHUNG UND VOLKSKINDERGARTEN, Potsdamerstrasse, Berlin. (DR. EDMUND FRIEDEMANN).—Collection of Appliances, &c., illustrative of the Pestalozzian System of Kindergarten Teaching.

1375. CREMER, W. H., 210 Regent Street, W.—(1) Games and Recreations of an amusing and intellectual character. (2) Out-door Sports and Pastimes conducive to health. (3) Educational Toys and Kindergarten Appliances in all its branches. (4) Building Bricks of wood and stone, Mosaics, &c. (5) Alphabets and Spelling Games. (6) Dissected Maps, scriptural and secular subjects. (7) Boxes of Tools. (8) Printing Presses with Moveable Types. (9) Colour Boxes and Exer-

cises. (10) Special Toys for Infants and the Nursery. (11) New Patent Soft Stuffed Animals. (12) Model Rag Dolls and Toys of White Wood. (13) Practical Miniature Cooking Stoves. (14) Model Dolls' Houses appropriately furnished. (15) Shops of various kinds with weights, scales, &c.

1376. GUTHRIE, PROF. F., F.R.S.—Collection of objects to illustrate the Exhibitor's First Book of Knowledge.

1378. COOPER, J. RAMSAY, 17 High Street, Canterbury.—Sheets for Teaching Children to Read the English Language, upon a graded method of Phonic Word-building by the ordinary orthography.

1379. MAGNUS, DR. HUGO, AND JEFFRIES, DR. B. JOY.—Colour Chart for the Primary Education of the Colour Sense, published by L. Prang & Co., Boston, U.S.

EDWARDS, H. & G., 84 High Street, Camden Town, N.W. (See Class 48.)

HAMMER, GEORGE M., 370 Strand, W.C. (See Class 48.)

MIDLAND EDUCATIONAL CO. (THE) (Manager, A. TAYLOR), 91-92 New Street, Birmingham. (See Class 48.)

MYERS, A. N., 15 Berners Street, Oxford Street, W. (See Class 48.)

NORTH OF ENGLAND SCHOOL FURNISHING CO., Limited (THE), Darlington, Durham. (See Class 48.)

ROTH, DR., 48 Wimpole Street, Cavendish Square, W. (See Class 39.)

## CLASS XLVIII.

(Royal Albert Hall.)

Primary Schools. (a) Apparatus and Fittings; (b) Models and Appliances for teaching; Text-books, Diagrams and Examples; (c) Specimens of Work in Elementary Schools.

1380. MIDLAND EDUCATIONAL COMPANY (THE) (Manager, A. TAYLOR), 91 & 92 New Street Birmingham; and 7 Market Street, Leicester.—(1) The Reliance Desk. (2) The Paragon Desk. (3) The Birmingham Dual and Single Desk. (4) The Midland Dual and Single Desk. (5) Varieties of Mistresses' Work Tables. (6) Apparatus and Fittings for Infant Schools. (7) School-work Tables.



**1381. TAYLOR & CO.,** Driffield; & 62 St. Martin's-le-Grand, E.C.—Assortment of improved school furniture, apparatus and fittings, including Electric Call Bells, &c.

**1382. ST. JOHN'S INSTITUTE FOR DEAF AND DUMB,** Boston Spa, near Tadcaster, Yorkshire.—(1) Gallery for infant schools. (2) Reversible School Desk. (3) Other School Furniture.

**1383. EDUCATIONAL SUPPLY ASSOCIATION, Limited (THE),** 42a Holborn Viaduct, London, W.C.—(1) School Desks, Masters' and Mistresses' Desks, Easels, Black Boards, Slates on Stands, Forms, Cupboards, Hat Peg and Stands, &c., &c. (2) School Books of all kinds, Globes, Ink-wells, &c. (3) Illustrations of Trades for infant schools, Texts mounted for walls, and Reading Sheets.

**1384. NORTH OF ENGLAND SCHOOL FURNISHING CO., Limited (THE),** Darlington; and Newcastle-on-Tyne.—(1) Desks and Tables for Kindergarten teaching. (2) Kindergarten Amusements. (3) Model Map of England and Wales, designed to give children an idea of the divisions of land and water. (4) Improved Abacus, to illustrate notation. (5) Sundry appliances for infant schools. (6) Desks and Seats for elementary and higher grade schools, designed and constructed with a special view to the comfort and health of students.

**1385. HAMMER, GEORGE M., & CO.,** 370 Strand, W.C.—(1) Infants' School-room, fitted with gallery, Kindergarten table and chairs, forms, desks for 1st Standard, lesson stand, abacus, easel, black board, box of forms and colors, cabinet of objects, Kindergarten toys, mistress's table and chair. (2) Long Desks of various patterns, Osborne and Phoenix patent convertible desks and backed seats for lectures, &c., clock, cupboard, easel, black board, large slate in stand, cap and cloak pegs, master's desk and chair, maps, &c. (3) Patent Dual Desks, and all other fittings and appliances. (4) Single Desks, various patterns (specially adapted to girls' use), mistress's table and work table, easel, black board, large slate, cupboard, clock, hat and cloak pegs, special fittings for hanging, &c. (5) Drawing Desks, with copy rests, stools, camels, easels, &c. (6) Drawing Models. (7) Miller's Class Models in wood and wire, with stand.

**1386. EDWARDS, H. & G.,** 84 High Street, Camden Town, N.W.—(1) Kindergarten Table and Chair. (2) Models of Infants' School Galleries. (3) Form and Colour Box. (4) Clock Face. (5) School Desks (various). (6) School Seats and Forms. (7) Black Board. (8) Easels. (9) Abacia Frames. (10) Drawing Models. (11) Boxes of Bricks, &c., &c.

**1387. WAKE & DEAN,** 40 Borough Road; & Bath Street, S.E.—(1) Children and Teacher's Desk and Chairs. (2) School

Cupboard and Bookcase. (3) Slate Stand. (4) Slate Board on Stand. (5) Easel. (6) Black Board. (7) School Ladder.

**1388. HEYWOOD, JOHN,** Ridgefield, Manchester.—(1) Swiss Desk, with movable sliding top, pitch pine, varnished. (2) Argillite Black Boards. (3) Reversible Back Forms, pitch pine, varnished. (4) Fixed Back Forms, pitch pine, varnished. (5) Kindergarten Desk, top lined in one-inch squares, pitch pine, varnished.

**1389. HAWES, GEORGE E.,** Duke's Place Joinery Works, Norwich.—(1) Infants' Desks and Seats, for Kindergarten use, on galleries. (2) Primary School Desk, including Single, Dual, and Long Desks. (3) High-grade School Desks, single and dual. (4) Pupil Teacher's Desk and Chair. (5) Master's or Mistress's Desks and Tables. (6) Examination Table. (7) Easels. (8) Black Board. (9) Book Closets.

**1390. BORN, PHILIP,** 29 Tavistock Road, Westbourne Park, W.—Improved Portable Desk, with movable seat, for home tuition, will prevent curvature of the spine and round shoulders. The seat and footboard can be fixed to suit any age from 6 to 16.

**1391. CURWEN, J., & SONS,** 8 Warwick Lane, E.C.—Diagrams, Pamphlets, and Books, used in teaching music by the Tonic Sol-fa method and notation, and by the Staff notation.

**1392. GARCET et NISIUS,** 76 Rue de Rennes, Paris (Agents, ÉMILE FOUCARD & CO., 23 & 24 Hop Exchange, Southwark Street, S.E.)—(1) Furniture and Apparatus for infant schools and elementary schools. (2) Apparatus and Appliances for teaching drawing and natural science. (3) Apparatus for handicraft teaching.

**1393. HODKINSON & CLARKE,** Canada Works, Small Heath, Birmingham.—(1) School Fittings. (2) Desks, constructed to facilitate the work of education and to meet in the fullest manner the requirements of the laws of health. (3) Revolving Partitions for the division of school-rooms.

**1394. REDMAYNE, MAY, & CO.,** Triumph Works, London Road, Sheffield.—(1) Assortment of Scholars' Desks. (2) Improved Hallamshire Patent Convertible Desk. (3) The Acme Folding Desk. (4) The Perfect Infant's Desk.

**1395. MALLINGS,** Christiania, Norway.—Educational appliances of various kinds for primary school teaching.

**1396. HAARBURGER & CO.,** 2 Ham-sell Street, S.E.—School Desk and Seat.



**1397. SIMON, H., & CO.,** Haidestrasse, Berlin.—(1) Double-seated School Desk, with movable top and seat for boys and girls. (2) Single-seated Desk for children for home use.

**1398. MYERS, A. N., & CO.,** 15 Berners Street, Oxford Street, W.—(1) Collection of Kindergarten occupations, educational appliances and amusements. (2) Collection of models, appliances, diagrams and examples for primary education. (3) Appliances for the teaching of needlework, embroidery and artificial flower-making. (4) Collection of apparatus and models for the teaching of elementary science. (5) Collection of apparatus, models, copies, &c., for elementary art instruction. (6) Object Pictures for deaf children, by Hill, with handbook of object lessons. (7) Kindergarten occupations for the blind.

**1399. LAURIE, THOMAS,** 31 Paternoster Row, E.C.—(1) School Apparatus and Fittings. (2) Diagrams and Examples. (3) Books and Models.

**1400. CROSTHWAITE, R. W.,** Iron-founder, Paul's Wharf, 24, 26 & 237 Upper Thames Street; & 153 Queen Victoria Street, London, E.C.; & Union Foundry, Stockton-on-Tees.—Improved School Desk.

**1401. SWANZY, H. R., F.R.C.S.,** 23 Merrion Square, Dublin.—School-room Desk and Chair (for one child); capable of being adjusted to suit a child at different ages.

**1402. SCHMARJE, JULIUS,** Bergedorf, Hamburg.—Collection of Apparatus for teaching writing in German elementary schools.

**1403. BACON, G. W., F.R.G.S.,** 127 Strand, W.C.—(1) Excelsior Series of School Maps—England, Scotland, Ireland, Europe, Asia, Africa; others in progress. (2) Natural History Pictures. (3) Picture Lessons in Geography. (4) Physical Maps of England and Europe. (5) Pictorial View of the World. (6) Picture Alphabet. (7) The Grammar Tree. (8) Quarto Atlas of the British Isles—100 maps with letterpress. (9) Quarto Atlas of London. (10) Quarto Atlas of the World—100 maps with letterpress. (11) Health Books. (12) Cosmographical Clock, surmounted with globe, showing day of month, seasons, &c. (13) Cosmographical Globe, showing day and night, day of the month, seasons, &c.

**1404. MACCARTHY, E. F. M., M.A.,** Rev., King Edward's School, Five Ways, Birmingham.—Model of a Classroom, showing a Continuous Black Board, Master's Dais, and Fittings complete.

**1405. KELLETT, JOSEPH,** St. Mary's Road, Laisterdyke, Bradford, Yorks.—(1) Royal Easel (Patent); the board is self-adjusting, reversible, inclined, and admits

of T-square ruling. (2) T-Square Pointer Scale (boldly marked) for class-teaching of "Drawing to Scale."

**1406. WALKINGTON & BROS-COMB,** 19 Cursitor Street, E.C., and 31 Albion Street, Leeds.—(1) Paragon School Slate, Copy Books, and Pencil Holder. (2) Class System of Teaching Writing. (3) Machine-ruled Writing Slates.

**1407. SMITH, C., & SON,** 63 Charing Cross, S.W.—Educational Wall Maps, Diagrams, and Globes.

**1408. CLARKE & SHRAPNELL,** 37 Walbrook, E.C.—Tiles for Educational Purposes, consisting of maps, diagrams, &c.

**1409. TERRY, C., & CO.,** Little Denmark Street, Soho, W.C.—(1) Scripture Cartoons. (2) Educational Pictures for Schools. (3) School Texts and School Decorations. (4) Pictorial Wall Decorations, damp resisting and washable.

**1410. JOHNSTON, J. RUDDIMAN,** Waverley Works, Murrayfield, Edinburgh.—School Wall Maps, Illustrations and Diagrams.

**1411. JOHNSTON, A.,** 6 Paternoster Buildings, E.C.—(1) Diagrams of Physiology, with keys. (2) Map of British Empire. (3) Useful Plants, with description. (4) Forest Trees—trees grown for their wood. (5) Fruit Trees—trees grown for their fruit. (6) Useful Grains, with description. (7) Natural History Plates. (8) Freehand Outlines. (9) Certificates. (10) Mental Arithmetic Cards. (11) Standard Copy Books.

**1412. DEYROLLE, ÉMILE,** 23 Rue de la Monnaie, Paris (Agents ÉMILE FOUCARD & CO., 23 & 24 Hop Exchange, Southwark Street, S.E.)—(1) Models and Appliances for teaching. (2) Apparatus and Models for elementary science teaching in schools (Musée Scolaire).

**1413. RICHARDSON, JOSEPH,** Wesleyan School, Oxford.—(1) Specimens of Geometrical Designs. (2) Maps from memory. (3) Pen and Ink Physiological Diagrams. (4) Drawings.

**1414. RAMAGE, MRS. DAVID,** 22 Gloucester Road, Kew.—A Genealogical Table of the Monarchs of England.

**1415. WOODING, W.,** City of London School.—An Improved Abacus.

**1417. CORSAN, J. R.,** The London Sand Blast Decorative Glass Works, 80 Gray's Inn Road, London, W.C.—Permanent Tablets, being texts and mottoes suitable for schools, hospitals, &c., &c., engraved by the Sand-blast process.



**1418. MUSICAL REFORM PRINTING & PUBLISHING CO., 74 Fann Street, E.C.**—(1) Music Primers, based upon a new and simplified staff notation for teaching, playing, and singing at sight. (2) Modulators for teaching in class both pianoforte and vocal music. (3) Magazine of Music, containing music printed on the keyboard stave.

**1419. SONNENSCHNEIDER, A.**—Apparatus for teaching Metric System.

**1420. DUNHAM, ROBERT CLARK, 55 Cardington Street, Euston Square, N.W.**—Dunham on Decimals.

**1421. ALLMAN & SON, 67 New Oxford Street, W.C.**—(1) Models and Appliances for teaching writing. (2) Text Books. (3) Specimens of Work (writing done in elementary schools using Allman's new code copy books).

**1423. SONNENSCHNEIDER, A., Anerley.**—Apparatus for teaching the Metric System.

**1424. DUPLOYE, ÉMILE, 23 Quai de l'Horloge, Paris.**—Shorthand Method. Sloan Duployé books of English adaptation from above system.

**1425. PITMAN, ISAAC, Bath.**—(1) Charts of the Shorthand and the Printing Alphabets, and specimens of Shorthand and Phonetic Printing, or reformed spelling. (2) First, Second, Third, Fourth, and Fifth Books in Phonetic Reading. And (3) several volumes in Phonetic Spelling and Shorthand.

**1426. PITMAN, FREDERICK, 20 & 21 Paternoster Row, E.C.**—(1) Shorthand Graduated Text Books, Diagrams, and various works entirely in shorthand, appliances, &c. (2) Music: Text Books for the piano, harmonium and other instruments.

**1427. MATTAN, ALBERT O., Sorel, Province of Quebec, Canada.**—Specimens of Penmanship.

**1428. BEMROSE & SONS, 23 Old Bailey, E.C.**—(1) Writing Charts. (2) Picture Spelling Cards. (3) Arithmetical Cards. (4) Copy Books. (5) Registers. (6) Elementary Science Manuals. (7) Works on Food and Clothing, Cookery and Household Work. (8) Miscellaneous Literature and appliances.

**1429. CASSELL & COMPANY, Limited, La Belle Sauvage Yard, Ludgate Hill, E.C.**—Educational Works.

**1430. MARTIN, WM., & CO., 67 Nile Street, Glasgow.**—Solid Alto-Relievo Models or raised maps of continents and countries.

**1431. MATTHEWS, W. R., Board Schools, Chiswick.**—“Chiswick” Black Board: consists of a black board on which is painted in white an outline map. The degrees

of Latitude and Longitude are scratched into the substance of the board in order to render them permanent.

**1432. LEAKE, JOHN W., 14 Crayford Road, Tufnell Park, Holloway.**—Geographical Chart of Belgium, containing pictures in oils of the animal, vegetable and mineral productions, specimens of the manufactures, the imports and exports, &c.

**1433. STANFORD, EDWARD, 55 Charing Cross, London, S.W.** (1) Stanford's Large Series of Wall Maps. (2) Physical Series of Wall Maps. (3) Extra Large Series, two maps as specimens. (4) Geological and Stereographical Maps of the British Isles. (5) Library Map of London, coloured according to School Boards. (6) Specimens of the Intermediate, Smaller, and Outline Series of School Maps, Natural History Diagrams, &c., &c.

**1434. GRIFFITH & FARRAN, St. Paul's Churchyard, E.C.**—(1) School Books and Appliances. (2) Reading Books. (3) Copy Books. (4) Needlework Class Teaching. (5) Needlework Wall Sheets and Demonstration Frames. (6) Needlework Manuals. (7) Exercises in English Cards, &c. (8) School Attendance Tokens.

**1435. SHELMEIRDINE, J., Raunds National School.**—Map of England and Wales, designed in relief. The object of the design is to aid teachers in the instruction of the younger children in elementary schools; the principle of the design is to represent nature in miniature rather than by picture or plan.

**1436. GILL, GEORGE, & SONS, 23 Warwick Lane, Paternoster Row, E.C.**—(1) Text Books. (2) Class Subject Reading Books. (3) Three Series of Geographical Readers in Standard. (4) Two Series of Historical Readers. (5) The Whitehall Series of Standard Copy Books. (6) Gill's Series of School Atlases. (7) Needlework Charts. (8) Gill's Series of Standard Arithmetics and various other books.

**1437. HUGHES, JOSEPH, 4 Pilgrim Street, Ludgate Hill, E.C.**—Educational Publications.

**1438. SOCIETY FOR PROMOTING THE KNOWLEDGE OF FOREIGN LANGUAGES, 13 Paternoster Row, E.C.**—French, German, Spanish, and Italian Educational Books, by Hossfeld's new method.

**COLLINS, WILLIAM, SONS, & CO., Limited, Glasgow.** (See Class 51.)

**EDWARDS, H. & G., 84 High Street, Camden Street, N.W.** (See Class 47.)

**MILLER, S. A., Orange House, College Park, Lewisham, S.E.** (See Class 47.)



## CLASS XLIX.

(Royal Albert Hall.)

**Domestic Economy and other Forms of Technical and Industrial Education for Girls.**—(a) Models and Apparatus for the teaching of Cookery, Housework, Washing and Ironing, Needlework and Embroidery, Dress-making, Artificial Flower-making, Painting on Silk, Pottery, &c.; (b) Specimens of School Work.

**1443. WILSON, CHARLES, & SONS,** Carlton Works, Leeds.—Gas Kitchen complete, as used in board schools for teaching cookery, including Leeds, Birmingham, Sheffield, Bradford, Blackburn, &c.

**1444. SCHILD, MARIE,** Southampton Street, Strand, W.C.—Dolly as a baby, as a girl, as a young lady, as a lady.

**1446. SCHOOL OF COOKERY AND DOMESTIC ECONOMY,** 6 Shandwick Place, Edinburgh. **MISS GUTHRIE WRIGHT** (Hon. Sec.)—Apparatus used for instruction in Cookery and Domestic Economy, and examples of School Work.

**BRADFORD, T., & CO.,** 140-143 High Holborn, W.C. (See *Machinery in Motion, Western Gallery*.)

**GRIFFITH & FARRAN,** St. Paul's Churchyard, E.C. (See *Class 48*.)

**MYERS, A. N., & CO.,** 15 Berners Street, Oxford Street, W. (See *Class 48*.)

**SCIENTIFIC DRESS-CUTTING ASSOCIATION (THE),** 272 Regent Street, W. (See *Western Gallery, Outside*.)

## CLASS L.

(See *Central Institution of the City and Guilds of London, page 309*.)

## CLASS LI.

(Royal Albert Hall.)

**Science Teaching.**—(a) Apparatus and Models for Elementary Science Instruction in Schools; Apparatus for Chemistry, Physics, Mechanics, &c.; (b) Diagrams, Copies, Text-books, &c.; (c) Specimens of the School Work in these subjects.

**1449. ORME, JOHN, & CO.,** 65 Barbican, E.C.—(1) Complete set of Chemical Apparatus for students. (2) Chemical Apparatus in cabinets. (3) Apparatus for experiments in electricity, acoustics, light and heat. (4) General apparatus used in science-teaching in schools.

**1450. GRIFFIN, J. J., & SONS,** 22 Garrick Street, Covent Garden, W.C.—(1) General Apparatus for elementary science instruction. (2) Apparatus for the practical illustration of "Science made Easy."

**1451. CETTI, E.,** 36 Brooke Street, Holborn.—Apparatus for Science Instruction. Philosophical Instruments.

**1452. HARVEY & PEAK,** Beak Street, Regent Street, W.—Heat, Light, Acoustic, Electrical Test and Various Apparatus, including Thermopile, Galvanometers, Prisms, Syrens, Monochord, Organ Pipe, Electro-Magnet, Resistance Coils, Bridge, Rheostat, Keys, Commutator, Vertical Projector, Maxwell's Dynamical and Colour Tops, &c.

**1453. NEWMANN & CO.,** 40 Cheapside, E.C.; and 7 Trafalgar Buildings, Charing Cross, W.C.; and at Berlin.—Apparatus and Instruments for teaching science, physics, dynamos, acoustics, mechanics, and aids in the form of collections and models for teaching Natural Philosophy, and other sciences.

**1454. COTTRELL, JOHN,** 21 Albemarle Street, W.—Apparatus for experimentally illustrating Professor Tyndall's "Lessons in Electricity."

**1455. BECK, R. & J.,** 68 Cornhill, E.C.—(1) Microscopes. (2) Microscopic Apparatus. (3) Staining Fluids for demonstrating bacteria. (4) Microtomes. (5) All requisites for preparing and mounting pathological, physiological, and other kinds of microscopic objects.

**1456. FROST, A. J.,** 6 Westminster Chambers, Victoria Street, S.W.—(1) Clark's Patent Improved Transit Instruments. (2) Clark's Window Transit. (3) Transit Tables, specially designed for, and adapted for use by, those who have no knowledge whatever of Astronomy, for obtaining accurate time.

**1457. BAPTY, S. LEE,** 65 Blackheath Road, Greenwich.—(1) Photographie Enlargements of Microscopic Objects, illustrating the physiology of plants and animals, comprising an assortment of wood sections, transverse, radial, and axial (specially prepared for purposes of comparison), stem and leaf sections, insects, and portions of insects, &c. (2) Transparencies of the above, suitable for use with the optical lantern.

**1458. ATKINSON, LEO,** 121 Greenwich Road, S.E.—Photo-Micrographs and Transparencies for Lantern Projection, illustrating physiology, botany, zoology, &c.

**1459. SWIFT, JAMES, & SON,** 81 Tottenham Court Road.—Microscopes and Microscopical Appliances for the analysis of water, yeast, lactic fluids in process of fermentation, and detection of adulteration in food.



1460. **HOBBS, J. CHARLES J.**, 29 South Street, Thurloe Square.—(1) Cabinet of three Trays, containing rocks, fossils, &c. (2) Box, small collection of minerals.

1461. **RUSSELL, THOMAS D.**, 78 Newgate Street.—(1) Collections to illustrate Dr. Geikie's Science Premier of Geology, and the First Book of Geology by Dr. Davis. (2) Collections of Typical Rocks and Typical Rock Sections.

1462. **GREGORY, JAMES R.**, 88 Charlotte Street, Fitzroy Square, W.—(1) Collections of Minerals, Rocks and Fossils to illustrate Geology, Rutley's Study of the Rocks, Palæontology, Mineralogy. (2) Two Collections to illustrate Geikie's Geology Primer. (3) Specimens of microscopic sections of rocks.

1463. **FRYER, CHARLES EDWARD**, 58 Merton Road, Wimbledon.—Improved Chart of the World, convertible into a globe.

1464. **TOWNSON & MERCER**, 89 Bishopsgate Street Within.—Apparatus for Scientific Instruction in Schools.

1465. **CUSONS, GEORGE**, Cheetam Hill, Manchester.—Apparatus for teaching practical Descriptive geometry. The models are capable of folding up neatly when out of use.

1466. **COLLINS, WILLIAM, SONS, & CO.**, Limited, Glasgow.—(1) Science Text Books: Elementary subjects, 1 to 25; Advanced Subjects, 1 to 22; Diagrams. (2) Science and Art Text Books: Drawing Books, Freehand, Advanced. Practical Geometry; Drawing to scale; Test Examination Papers and Cards.

1467. **MILLIS, CHARLES THOMAS** (Teacher of Practical Geometry and Metal Plate Work at Finsbury Technical College), 4 Northumberland Terrace, Regent's Park Road, N.W.—Models illustrating Projective Geometry: (1) Orthographic Projection. (2) Parallel Projection. (3) Central Projection. (4) Conics as Projections of Circles. (5) Penetration Models and Wire Skeleton and Models of Solids. Diagrams.

1468. **OSTERLOH, PAUL**, Fabrikant von Botanischen und Zoologischen Modellen, Amsterdam.—Models of Food Parasites.

1469. **BROCAS, FREDERICK YORKE**, 4 Mill Street, Hanover Square, W.—(1) Plants, dried and mounted. (2) Seeds and Nuts. (3) Portfolios and Books of illustrations. (4) Apparatus for collecting, &c.

1470. **STRAUBE, J.**, Gitschiner Strasse, 109, Berlin—Astronomical and other Maps.

1471. **ESCLANGON, J. A.**, 33 Howley Place, Maida Hill.—Astronomical Chart of the Universe, prepared by M. Laporte.

1472. **ORMEROD, ELEANOR A.**, Dunster Lodge, near Isleworth.—(1) Coloured Diagrams of insects injurious to farm crops, with short account of habits and methods of prevention. (2) Manual of injurious insects and methods of prevention. (3) Guide to methods of insect life and prevention of ravage.

1473. **MOORE BROTHERS, Osteologists, Disarticulators, &c.**, 36 Newsham Drive, Liverpool.—Class Mammalia: Order Bimana; disarticulated human skull, hand and foot, sectionised limb-bones, &c. Order Quadrumana, disarticulated skull, hand, foot, ribs of chimpanzee, skeleton of baboon. Order Lemuridæ, skeleton of lemur. Order Rodentia, skeleton of porcupine. Order Ungulata, skeleton of gazelle. Order Cheiroptera, skeleton of flying fox. Order Canivora, skeleton of badger and sectionised skeleton of cat. Class Aves: Order Raptores, skeleton of sociable vulture. Class Reptilia: Order Crocodilia, skeleton of crocodile. Order Ophidia, skeleton of Python. Class Crustacea and Arachnida: Order Decapoda, disarticulated exoskeleton of lobster, crab, king crab, &c. Enlarged models of nerve systems of freshwater mussel, cockroach, earthworm, and medicinal leech. All the disarticulated and sectional specimens are lettered and numbered specially for educational purposes.

1474. **GILL, GEORGE, & SONS**, 23 Warwick Lane.—(1) Gill's Anatomical Models for teaching physiology in schools. (2) Jennings' Chart of plans and building construction. (3) Pilley's Elements of Scientific Agriculture. (4) Pilley's Physiology in three stages. (5) Pilley's Hygiene for elementary and advanced students. (6) Dr. Newsholme's Hygiene. (7) Jonson's Agriculture for elementary students. (8) Gill's Albany Series of Science Readers.

1475. **MITCHELL, W. STEPHEN**, Warrat Villas, Putney.—(1) Collection of Apparatus for the experimental teaching of the scientific principles on which our present knowledge of the chemistry and physiology of foods is based. (2) Tables showing the more important practical results arrived at.

1476. **REYNOLDS, JAMES, & SONS**, 174 Strand, W.C.—(1) Educational Diagrams illustrating astronomy, physical geography. (2) Steam Engines, Barometer. (3) Mechanism of a Clock.

**BATCHELOR, H. & T.**, West Kensington, opposite West Kensington Station. (See *Machinery in Motion*, Western Gallery.)



**GARCET et NISIUS**, 76 Rue de Rennes, Paris (Agents, **ÉMILE FOU-CARD & CO.**, 23 & 24 Hop Exchange, Southwark Street, S.E.) (See Class 48.)

**HAMMER, GEORGE M., & CO.**, 370 Strand. (See Class 48.)

**HUGHES, JOSEPH**, 4 Pilgrim Street, Ludgate Hill, E.C. (See Class 48.)

**MYERS, A. N., & CO.**, 15 Berners Street, Oxford Street, W. (See Class 48.)

**NORTH OF ENGLAND SCHOOL FURNISHING CO., Limited (THE)**, Darlington. (See Class 48.)

**SENNETT, A. R.**, 62 Hatton Garden, E.C. (See Class 26.)

## CLASS LII.

(Royal Albert Hall.)

**Art Teaching.**—(a) Apparatus, Models, and Fittings for Elementary Art Instruction in Schools; (b) Diagrams, Copies, Text-books, &c.; (c) Specimens of Art Work, Modelling, &c., in Schools.

1480. **WOOD, GILBERT**, 175 Strand, W.C.—A series of reproductions of works of art by eminent painters, architects, and decorators, published in the 'Architect Journal.'

1481. **BRUCCIANI, D., & CO.**, 40 Russell Street, W.C.—(1) Statues. (2) Ornaments. (3) Fruit. (4) Flowers. (5) Hands. (6) Feet. (7) Statuettes. (8) Plaster Casts as supplied to the Government Schools of Art.

1482. **ABLETT, T. R.**, 36 Wemyss Road, Blackheath, S.E.—Class Teaching of Drawing in Schools:—(1) Coloured Written Drawing. (2) Judgment at Sight. (3) Memory Drawing. (4) Dictated Drawing. (5) Model Drawing. (6) Coloured Freehand. (7) Coloured Geometry. (8) Solid Geometry. (9) Shading. (10) Tone and Painting. (11) Design.

1483. **REEVES & SONS**, 113 Cheap-side, E.C.—Artists' Materials, for oil painting and water-colour drawing, as used by artists, amateurs, and in elementary instruction. Also all requisites for architects and engineers.

1484. **CUSSONS, GEORGE**, Cheet-ham Hill, Manchester.—Art Vases in wood (unbreakable) for drawing classes.

1485. **STANDAGE, H. C.**, Keppel Street Studio, S.W.—(1) The Universal T Square, an instrument for the use of draughtsmen, which enables them to dispense with the employment of the ordinary T square.

(2) Set Squares. (3) Parallel Ruler. (4) Protractor or Scale of Chords. (5) The Dividers and the Ordinary Measuring Rule.

1486. **GUNSTON, WILLIAM**, 30 Tollington Place, Tollington Park, N.—(1) Art Teaching, as applicable to schools. (2) Historical and other designs for frescoes, friezes, &c.

1487. **CHAPMAN & HALL, Limited**, 11 Henrietta Street, W.C.—Diagrams for Elementary Art Instruction as supplied to the Science and Art Department, South Kensington.

**CHUBB & SONS' LOCK & SAFE CO., Limited**, 128 Queen Victoria Street, E.C. (See Class 20.)

**COALBROOKDALE CO., Limited (THE)**, Shropshire; & Holborn Viaduct. (See Class 24.)

**COLLINS, WILLIAM, & CO., Limited**, Glasgow. (See Class 51.)

**GARCET et NISIUS**, 76 Rue de Rennes, Paris (Agent, **ÉMILE FOU-CARD**, 23 & 24 Hop Exchange, Southwark Street, S.E.). (See Class 48.)

**HAMMER, GEORGE M., & CO.**, 370 Strand. (See Class 48.)

**MYERS, A. N., & CO.**, 15 Berners Street, Oxford Street, W. (See Class 48.)

**NORTH OF ENGLAND SCHOOL FURNISHING CO., Limited (THE)**, Darlington. (See Class 48.)

## CLASS LIV.

(Royal Albert Hall.)

**Schools for the Blind and for the Deaf and Dumb.**—(a) Apparatus and Examples for Teaching; (b) Specimens of School Work.

**MYERS, A. N., & CO.**, 15 Berners Street, Oxford Street, W. (See Class 48.)

**ROTH, Dr. M.**, 48 Wimpole Street, Cavendish Square, W. (See Class 39.)

## CLASS LV.

(Royal Albert Hall.)

**Literature, Statistics and Diagrams relating to Group 6 and to the Effects of "Cramming" and Overwork on the Young, &c.**

**FOHRING, DR. H.**, President of the I. Criminal Laws of Hamburg.—Treatise concerning the laws, plans, regulations and conditions of public and private schools



for youthful offenders, and begging, wandering, and destitute children of Hamburg, France, Belgium, Holland, Italy, and Switzerland. (*See Library.*)

MILLER, S. A., Orange House, College Park, Lewisham, S.E.—(1) Some Thoughts on Education. (2) Hints on Method, in Detail. (*See Library.*)

PICK, PROFESSOR ADOLFO, Giardino d' infanzia Rialto, Venice.—Five Volumes of Works on Education. (*See Library.*)

#### CLASS LVI.

(*Royal Albert Hall.*)

Collective Displays of School Work and Appliances. School Museums.

1488. SOCIETY FOR PROMOTING CHRISTIAN KNOWLEDGE (Editorial Secretary, EDMUND McCURE), Northumberland Avenue, Charing Cross.—(1) Manuals of Health, by

the late Professor Parkes, Dr. de Chaumont, Dr. B. W. Richardson, and others. (2) Science Manuals. (3) Health Tracts for working men. (4) Maps. (5) Diagrams, &c.

1489. RELIGIOUS TRACT SOCIETY, 56 Paternoster Row, E.C.—Books and Pictures for schools, and Educational Books.

#### CLASS LVII.

(*Royal Albert Hall.*)

Machinery and Appliances relating to Group 6.

1492. WATERLOW & SONS, Limited, 25-27 Great Winchester Street.—(1) Stylographic Pens. (2) Pencils. (3) Anderson's Patent Copying Apparatus and various other Copying Processes. (4) Waterlow's Patent Autographic Press.

THE EDISON ELECTRIC PEN & WRITING AGENCY, 52 & 53 Great Tower Street, E.C. (*See Machinery in Motion, Western Gallery.*)



# CENTRAL INSTITUTION OF THE CITY AND GUILDS OF LONDON.

## DIVISION II.—EDUCATION.

### GROUP VI. — EDUCATIONAL WORKS AND APPLIANCES.

#### CLASS XLVII.

Crèches and Infant Schools.—(a) Apparatus and Fittings for Crèches and Infant Schools; (b) Games, Toys and Kindergarten Amusements; (c) Models and Appliances for teaching; (d) Examples of School Work.

1500. **BRITISH AND FOREIGN SCHOOL SOCIETY**, Borough Road, S.E.—(1) A Diagrammatic View of the Kindergarten Appliances as used in the various lessons. (2) A Model Kinder Garten Class Room, where there will be lessons on the occupations and games according to a programme. (3) An Exhibition of Kinder Garten Work, showing its relation to school work, and its useful and artistic aim.

**RAGGED SCHOOL UNION** (JOHN KIRK, Secretary), Exeter Hall, W.C. (See Class 56.)

#### CLASS XLVIII.

Primary Schools.—(a) Apparatus and Fittings; (b) Models and Appliances for teaching; Text-books, Diagrams and Examples; (c) Specimens of Work in Elementary Schools.

1501. **NATIONAL SOCIETY'S DEPÔT**, Westminster, S.W.—School Desks, Furniture, Fittings, Apparatus, Maps, Scripture Prints and Texts for School Walls, Natural History Pictures, Reading Books for Schools, Text Books on Grammar, Arithmetic, Geography, History, Euclid, Algebra, School Management, &c. Books for Religious Instruction in Day and Sunday Schools.

1502. **CHURCH OF ENGLAND SUNDAY SCHOOL INSTITUTE** (JOHN PALMER, Secretary), 13 Sergeants' Inn, Fleet Street, E.C.—(1) Text Books and Appliances. (2) Model of a Sunday School Building, showing improved seating arrangements. (3) A Class arranged, with improved seats.

1503. **COMMITTEE OF THE MANCHESTER ART MUSEUM** (THE), Manchester.—Collection of Pictures for Schools, provided with explanatory labels, by

means of which it is sought to lead children to take interest in the objects represented in the pictures, in books describing the objects, in the processes by which the pictures were made, and in art.

1504. **SUNDAY SCHOOL UNION** (GEORGE CAULDWELL, Trade Manager), 56 Old Bailey.—Specimens of Books, Maps, Prints, &c., issued by the Sunday School Union.

#### CLASS L. & LIII.

Handicraft Teaching in Schools for Boys.—(a) Apparatus and Fittings for Elementary Trade Teaching in Schools; (b) Specimens of School Work.

Technical and Apprenticeship Schools.—(a) Apparatus and Examples used in Primary and Secondary Schools for teaching Handicrafts; (b) Models, Plans, and Designs for the Fitting up of Workshop and Industrial Schools; (c) Results of Industrial Work done in such Schools.

1505. **TECHNICAL SCHOOLS SUPPORTED BY THE COMPANY OF COACH AND COACH HARNESS MAKERS OF THE CITY OF LONDON** (G. A. THRUPP, Master), Coach-makers' Hall, Noble Street, E.C.—(1) Drawings of full-sized Carriage. (2) Freehand and Perspective Drawings.

1506. **INSTITUTE OF BRITISH CARRIAGE MANUFACTURERS** (G. N. HOOPER, President), 16a Great Queen Street, W.C.—(1) Drawing to scale of Carriages and Parts of Carriages. (2) Models to illustrate the various joints, bevels, and fastenings in framing carriages. (3) Reports and Balance Sheets.

1507a. **ST. MARK'S TECHNICAL AND DRAWING CLASSES FOR COACH ARTISANS** (THOMAS COWARD, Secretary), 33 George Street, Grosvenor Square.—(1) Drawings of Carriages. (2) Perspective Drawings of Carriages. (3) Problems in Geometry, Plane and Solid. (4) Freehand Drawings. (5) Drawings of Parts of Carriages.

1508. **McNAUGHT & SMITH**, (Technical Class), Worcester.—Scale Drawings of Carriages.



**1509. MANCHESTER TECHNICAL SCHOOL (J. H. REYNOLDS, Secretary).**—(1) Diagrams, Drawings and Models illustrating instruction in building construction. (2) Apparatus illustrating instruction in geometry and botany.

**1510. OLDHAM SCHOOL OF SCIENCE AND ART (J. P. PHYTHIAN & J. ROBERTSON).**—Machine Construction Sketches in coloured chalks, representing metals used in practice; with freehand copies in reduced proportion by the students.

**1511. GILBERT, GILKES, & CO., Kendal.**—Models of Machine, details designed by Professor W. C. Unwin, under the direction of the Science and Art Department.

**1512. CHANNON, JOHN, 18 Newland Street, Pimlico, S.W.**—(1) A Brick Finial of Renaissance Design (2) Working Drawings of the same. This finial is a specimen of work executed from ordinary cutting bricks on geometrical principles.

**1513. FRANKS, L., 1 & 2 Hutchison Street, Aldgate, E.C.**—(1) Various Articles of Fretwork: comprising alphabets, memorials, ten commandments, clocks, baskets, frames for photos, writing utensils, all cut from wood. (2) Designs and Tools for making above.

**1514. SHEFFIELD SCHOOL BOARD CENTRAL SCHOOLS.**—(1) Specimens of School Work, including geometrical models made in iron and brass, models of wood joints, model door, barrow, queen post truss. (2) Drawings of the workshop exercises. (3) Specimens of School Work in mechanical drawing and machine construction. (4) Students' Machine Drawing Notes. (5) Chemistry Notes.

**1515. ALLAN GLEN'S INSTITUTION, Glasgow.**—(1) Models of Machines and Parts of Machines. (2) Examples of Mechanical Drawing and Machine Design. (3) Drawing in Isometric Projection of the chemical laboratory of the Institution.

**1516. RIGG, JAMES, 11 Queen Victoria Street, E.C.**—I. *Practical Plane and Solid Geometry.* II. *Machine Construction*, including many examples from Professor Unwin's Machine Design. III. *Building Construction*, Roof Principals, &c. VI. *Theoretical Mechanics*, Kinematical Apparatus and Apparatus for building up Experimental Machines from Professor Willis's 'Principles of Mechanism' and Professor Ball's 'Experimental Mechanics.' VII. *Applied Mechanics*, and XXII. *Steam*, being Sectional Working Models of various Machines and Steam Engines for class instruction.

**1517. NATIONAL INDUSTRIAL HOME FOR CRIPPLED BOYS (F. J. BOVIS, Resident Secretary), Wright's Lane, Kensington, W.**—Sam-

ples of Finished Handicrafts: carpentering, tailoring, saddlery and harness work; heraldic stamping, and copper-plate printing. Executed by the boys of the Home.

**1518. ST. JOHN'S INDUSTRIAL SCHOOL, Parsonstown, Ireland.**—Specimen of Mosaic, Needlework, &c.

**1519. SCHOOL OF ART WOOD CARVING (MISS ROWE, Manager), Royal Albert Hall, S.W., in connection with the City and Guilds of the London Institute.**—(1) Piano Back. (2) Educational Case of Progressive Lessons. (3) Italian Bracket. (4) Set of Mouldings. (5) Panels. (6) Small Cabinet.

**1520. CLERKENWELL TECHNICAL DRAWING SCHOOL (CHAS. MEYER), 157 Goswell Road, E.C.**—Drawings.

**1522. KENNEDY, A. B. W., University College, London.**—(1) Plan and Photographs of the Engineering Laboratory at University College, London. (2) Diagrammed results of experiments and other illustrations of work done in the laboratory.

**1523. BRITANNIA COMPANY, Colchester.**—(1) Lathes adapted for boys in Technical Schools and for Engineering Colleges. (2) Appliances used, Chuck's Rests, Tools, &c. Special appliance for cutting screws to any pitch on any lathe. Circular saw bench for foot or steam. Fret saws for workshops and for ordinary use. Apparatus for elementary teaching, and Apparatus for mechanics. The above will be shown in use at certain times, to be duly announced.

**1524. MELHUSH & SONS, 85 & 87 Fetter Lane, Holborn Circus, E.C.**—Amateur's Lathe for wood or metal, with adjustable chucks, and turning tools. Screw-cutting Lathe, complete with tools. Boy's Foot-power Machines for fret-work. Joiners' and Cabinet Makers' Tools. Various Tools for Carvers. Engravers' Tools.

**1525. EVANS, JOHN HENRY, 159 Wardour Street, Soho.**—Four Lathes. One self-acting slide and screw-cutting Lathe. One Lathe with fittings for ornamental turning. Two smaller Lathes for ordinary technical school purposes. Tools, &c.

**1526. HOLTZAPFFEL & CO., 64 Charing Cross, S.W.**—Lathes and Tools for plain turning and screw cutting. Lathes for ornamental and decorative fine art turning. Tools employed for accuracy, and various purposes in the constructive arts.

**1527. SYER, THOMAS J., 1 Finsbury Street, Chiswell Street, E.C.**—One College or School Workshop Bench, fitted for four pupils, but capable of working six. Supported on metal standards and fitted with four patent instantaneous grip-irons. Bench-knives, Holdfasts, Mitre Machine, Engineers' Vice Lath, Sundry Tools.



**1528. TECHNICAL SCHOOL UNIVERSITY COLLEGE, Nottingham.**—Examples of Work done by Students in the Workshop.

**1529. HANNIBAL, A.**—Instructor in Class for Boot and Shoe Makers, Polytechnic Institution. Models and Diagrams illustrative of the teaching of boot and shoe making.

**1530. CITY AND GUILDS OF LONDON INSTITUTE TECHNICAL COLLEGE, Finsbury.**—Apparatus and Examples from the Electrical Engineering and Applied Physics, Mechanical Engineering, Chemical, and Applied Art Departments; also Examples and Models illustrative of the principles and methods of teaching of carpentry, and joinery, metal plate work and brickwork.

#### CLASS LI.

**Science Teaching.**—(a) Apparatus and Models for Elementary Science Instruction in Schools; Apparatus for Chemistry, Physics, Mechanics, &c.; (b) Diagrams, Copies, Text-books, &c.; (c) Specimens of the School Work in these subjects; (d) School Museums.

**1531. ROBINS, E. C., F.S.A., 14 John Street, Adelphi.**—Drawings of English and Foreign Science School Buildings, including a series of Detail Drawings for Chemical laboratories. Examples are given of Bayer's Chemical Laboratory, Munich, Physical Laboratory, Japan, University College Laboratory, Dundee, Technical College, Finsbury Trade and Mining School, Bristol. Also of detailed drawings of chemical students' branches at Finsbury, and Owen's College, and at Leipsic. Draught Closets as at Finsbury, Berlin, Gratz and Leipsic. Professor Hunson's Lever-hung and balanced black board.

**ALLAN GLEN'S INSTITUTION, Glasgow.** (See Classes 50 & 53.)

**BRITANNIA COMPANY, Colchester.** (See Classes 50 & 53.)

**OLDHAM SCHOOL OF SCIENCE & ART (J. P. PYTHIAN & JOHN ROBERTSON).** (See Classes 50 & 53.)

**RIGG, JAMES, 11, Queen Victoria Street, E.C.**—Apparatus illustrating theoretical mechanics. (See Classes 50 & 53.)

**SHEFFIELD SCHOOL BOARD CENTRAL SCHOOLS.** (See Classes 50 & 53.)

**TECHNICAL SCHOOL, Manchester (J. H. REYNOLDS, Secretary).** (See Classes 50 & 53.)

#### CLASS LII.

**Art Teaching.**—(a) Apparatus, Models, and Fittings for Elementary Art Instruction in Schools; (b) Diagrams, Copies, Text-books, &c.; (c) Specimens of Art Work, Modelling, &c., in Schools.

**1532. ART FOR SCHOOLS ASSOCIATION (MISS M. E. CHRISTIE, Hon. Sec.), 43 Queen Square, Bloomsbury, W.C.**—Specimen of Groups of Drawings, &c., intended for use in Elementary Schools.

**SCHOOL OF ART WOOD-CARVING, Royal Albert Hall, S.W.**—(See Classes 50 & 53.)

**TECHNICAL SCHOOL, Manchester (J. H. REYNOLDS, Secretary).** (See Classes 50 & 53.)

#### CLASS LIV.

**Schools for the Blind and for the Deaf and Dumb.**—(a) Apparatus and Examples for Teaching; (b) Specimens of School Work.

**1534. SOCIETY FOR TRAINING TEACHERS OF THE DEAF, AND FOR THE DIFFUSION OF THE GERMAN SYSTEM IN THE UNITED KINGDOM (Major-General F. C. COTTON, C.S.I., Chairman), 298 Regent Street.**—(1) Complete Schoolroom where the system may be illustrated by hearing teachers trained at the Society's Training College, Castle Bar Hill, Ealing. (2) Deaf Pupils taught at the Society's School. (3) School Furniture and other School Appliances and Apparatus.

**1535. ASSOCIATION FOR THE ORAL INSTRUCTION OF THE DEAF AND DUMB; TRAINING COLLEGE AND SCHOOL (A. G. KLUGH, Secretary), 11 Fitzroy Square.**—(1) Spelling Books for deaf and dumb children. (2) Papers on the Education of Deaf and Dumb Children. (3) A Season Table, Diagrams, and an Improved Numerical Frame for the use of both deaf and dumb and blind children. (4) Reports and Prospectuses. (5) Time Table and Miscellaneous Papers. The System will be illustrated on certain days by Pupils of the School taught by Teachers trained at the Association's College.

**1536. JEWS' DEAF AND DUMB HOME (S. SCHONTHEIL, Principal), Walmer Road, Notting Hill, W.**—Books, Drawings, Specimens of Kindergarten Work, and Pupils to show the results of the method of teaching pursued.



**1537. DEAF AND DUMB SCHOOLS,** Old Trafford, Manchester (W. S. BESSANT, Secretary).—(1) Specimens of School Work, Language Lessons, Drawing, &c. (2) Specimens of Handicraft by old pupils of the Institution. (3) Time-table Pictures, &c.

**1539. BRITISH ASYLUM FOR DEAF AND DUMB FEMALES** (W. T. HILLYER, Secretary), Asylum at Lower Clapton; Office, 27 Red Lion Square, W.C.—(1) Specimen of School Work. (2) Results of Industrial Work done. (3) School Work and Appliances.

**1540. ASYLUM FOR DEAF AND DUMB** (W. H. WARWICK, Secretary), 93 Cannon Street, E.C.—(1) Specimens of Handwriting, Composition and Working of Sums. (2) Free hand Drawing School Books. (3) Girls' Needlework and Fancy Work. (4) Kindergarten Work. (5) Time Tables. (6) Textile Fabrics.

**1541. HOWARD, JAMES,** Yorkshire Institution for the Deaf and Dumb, Doncaster.—(1) Specimens of School-work. (2) Grasp of Language. (3) Folio of Drawings. (4) Specimens of Needlework; five small bundles. (5) Six Specimens of Wood Carving and Wood Turning. (6) Apparatus-Reflector, Manipulator, Vibrator. (7) Preposition Box and School Books, about twenty.

**1542. STAINER, REV. WILLIAM,** 27 Alexandra Villas, Finsbury Park, N.—(1) Coloured Lithographs, illustrating trades, astronomy, animal and vegetable creation. (2) Object Pictures and Lessons for deaf children. (3) Audiometer for testing the amount of hearing possessed by the deaf.

**1543. WILBERFORCE SCHOOL FOR THE BLIND,** York (A. BUCKLE, Superintendent).—(1) Maps in Relief for the use of the blind. (2) Books printed at the School. (3) Cane Work. (4) Basket and Wicker Work. (5) Brushes. (6) Wool Work. (7) Fancy Knitting.

**1544. INSTITUTION NATIONALE DES JEUNES AVEUGLES,** Paris (ÉMILE MARTIN, Directeur).—View and Plans of the Institution, Books, and Apparatus for teaching; specimens of work done in the Institution.

**1545. ISTITUTO PRINCIPE DI NAPOLI PEI GIOVANNI CIEGHI D'AMBO I SESSI.**—(1) Object of Teaching; Specimens of Collection. (2) Complete Method, "Martuscelli System," of teaching the blind the form of letters and numbers. Apparatus to guide him to write with chalk, "Faldariga" carved. (3) Metallic Pen and Specimens of Writing in freehand without any help of the apparatus. Literary and Medical In-

struction. (4) Books and Geographical Maps printed in the Institute. (5) Productions of Works done in the Institute: Printing and Binding, Blinds and Matting, Baskets of all sorts, Carpentry, Turnery, Bootmaking, and Domestic Utensils.

**1546. MOLDENHAWER, J.,** Koenig, Blindenanstalt, Copenhagen.—Apparatus employed by Blind Shoemakers and Specimens of Work.

**1547. BLIND INSTITUTION (THE),** Amsterdam (J. H. MEYER, Director).—Apparatus for teaching and specimens of work done by the blind, and taught by blind teachers.

**1548. BRITISH AND FOREIGN BLIND ASSOCIATION** (T. R. ARMITAGE, M.D., Hon. Secretary), 33 Cambridge Square.—(1) Embossed Books, printed and written. (2) Relief Maps. (3) Stereo Plates for printing. (4) Frames for embossed writing. (5) Arithmetic Board, Type for Arithmetic Board. (6) Cards for Pencil Writing. (7) Embossed Music.

**1549. ASYLUM FOR THE BLIND,** Glasgow.—Special Work of the Blind.

**1550. ROYAL NORMAL COLLEGE AND ACADEMY OF MUSIC FOR THE BLIND,** Upper Norwood, S.E. (F. J. CAMPBELL, LL.D., Principal).—Clay Models and Specimens of Kindergarten Work, made by the children of the Primary School of the R.N.C.

**1551. ASYLUM FOR THE BLIND,** Düren, Prussia.—Appliances for teaching the Blind.

#### CLASS LVI.

Collective Displays of School Work Appliances.

**1556. SCHOOL BOARD OF EDINBURGH.**—Model, Plans, and Photographs of typical schools. Specimens of work done in pupil-teachers' art class.

**1557. SCHOOL BOARD OF GLASGOW.**—Collective Exhibit of School Work and Appliances, comprising Model, in wood, of new school now being erected on banks of Clyde; Photographs of new schools; Explicit Map of Scotland and Lanarkshire on rollers; Ball Frame on Stand; Lesson Sheets; Specimens of Writing, Drawing, Map-drawing and Industrial Work.

**1558. SCHOOL BOARD OF BIRMINGHAM.**—(1) Model of a School on the class-room system, with central hall. (2) Needlework Specimens, fixed and worked by the children in the Board Schools at the time of the Government inspections, and in the presence of the inspectors of needlework.



(3) Specimens of Special Apparatus used in science teaching. (4) Models made by the scholars, and illustrating science lessons. (5) Drawings prepared by the scholars, and illustrating science lessons. (6) Models of a Revolving Shutter Screen used in the Board Schools, and of a Cupboard with Revolving Shutter Front.

**1559. SCHOOL BOARD FOR LONDON.**—(1) Models of Schools. (2) Map showing schools erected by the Board in the metropolis. (3) Map containing Education Statistics of the metropolis. (4) Collection of Appliances for teaching and examples of school work.

**1560. INSTITUTE OF THE BROTHERS OF THE CHRISTIAN SCHOOLS,** Rue Oudinot 27, Paris.—(1) Text Books. (2) Diagrams. (3) Maps. (4) Specimen of School Work. (5) Methods of Writing and of Drawing. (6) Apparatus and Models for Instruction in Schools, for Deaf and Dumb, for Elementary Trade Teaching, and for teaching Physics, Mechanics, Arts, and Handicraft. (7) Models. (8) Plans. (9) Designs. (10) School Museum, &c.

**1561. HOMES FOR LITTLE BOYS, FARNINGHAM AND SWANLEY** (A. O. CHARLES, Secretary); Offices, Ludgate Circus, E.C.—(1) Models of School and Home Buildings. (2) Examples of School Work. (3) Specimens of work done by boys in

Printing, Upholstering, Carpentering, Tailoring, Needlework (various).

**1562. RAGGED SCHOOL UNION** (JOHN KIRK, Secretary), Exeter Hall, W.C.—(1) Model of a Ragged School and Class-rooms. (2) Ragged School examples of industry. (3) Specimens of Girls' Needlework. (4) Specimens of Artificial Flowers. (5) Diagrams of Ragged School Crèche. (6) Diagrams, Plans, and Pictures of Ragged Schools. (7) Mission Buildings. (8) Appliances for Fretwork. (9) Printing Press. (10) Specimens of Wool-work, Boots, Slippers, Sheepskin Rugs, &c.

**1563. ROYAL ALBERT ASYLUM FOR IDIOTS & IMBECILES OF THE NORTHERN COUNTIES,** Lancaster (per G. E. SHUTTLEWORTH, B.A., M.D., Medical Superintendent).—(1) Appliances for Sense Culture used in the education of imbecile children. (2) Specimens of School Work produced by imbecile children. (3) Specimens of Handicraft Work produced by imbecile children.

**1564. WESLEYAN EDUCATION COMMITTEE** (Secretary, REV. DAVID J. WALLER), Westminster Training College, S.W.—A collective display of Educational Apparatus and School Work from the Westminster and Southlands Wesleyan Training Colleges.

## HYGIENIC LABORATORY.

(Annexe to the City and Guilds Institute.)

Director—PROFESSOR CORFIELD, M.A., M.D., F.R.C.P.

Chief Assistant—CHARLES E. CASSAL, F.I.C., F.C.S.

Assistant—Dr. W. FRASER, San. Sci. Cert., Cambridge.

THIS Laboratory is designed to show, as far as is possible in a temporary building, the arrangements suitable for the examination, from a Public Health point of view, of water, air, foods and drinks, soils, disinfectants, sanitary appliances, and other articles of Hygienic interest. (See also page 167.)

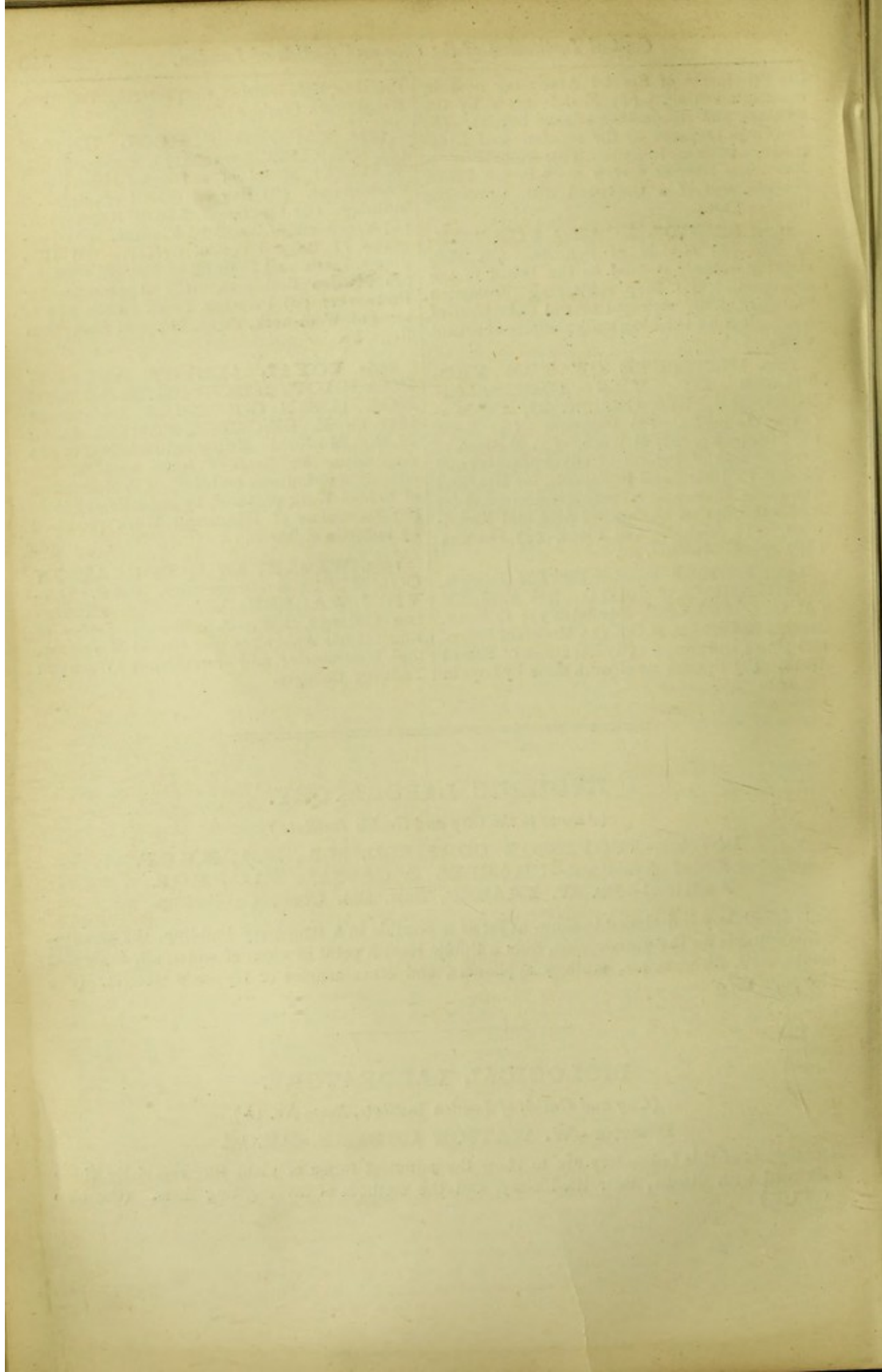
## BIOLOGICAL LABORATORY.

(City and Guilds of London Institute, Room No. 15.)

Director—W. WATSON CHEYNE, F.R.C.S.

THE objects of this Laboratory are to show the minutest forms of plant life, especially those associated with disease, their life-history, and the methods of investigating them. (See also page 168.)







# SPECIAL BUILDINGS FOR FOREIGN COUNTRIES, INCLUDING DEPENDENCIES OF THE BRITISH CROWN.

(West Central Galleries.)

## AMERICA, UNITED STATES OF.

### CLASS II.

1633. **SAN JOSE FRUIT PACKING CO.**, San Jose, California, U.S.A. (Agents, **A. W. LATHAM & CO.**, 17 Philpot Lane, E.C.).—California Fruits, Honey, &c. Bastiani, Joseph.—Pineapples preserved.

### CLASS III.

1634. **LEES, HENDRICKS & CO.**, Chicago, Illinois, U.S.A. (Agents, **A. W. LATHAM & CO.**, 17 Philpot Lane, E.C.).—Compressed Corned Beef, Challenge Brand.

### CLASS XXXII.

1635. **THE SANITARY ENGINEER**, New York (London Offices, 92 & 93 Fleet Street, E.C.).—Plans of (1) Improved Tenement Houses selected from the Sanitary Engineer Architectural Competition of 1879. (2) Model School Buildings selected from the Sanitary Engineer Architectural Competition of 1880. (3) Tenement and Apartment Houses, specimens loaned by the New York Board of Health. (4) Plumbing Plans as filed with the New York Board of Health, and copies of all printed forms used in enforcing the Plumbing and Tenement House Inspection Laws of New York passed since 1879. (5) Buildings erected by Improved Dwellings Association, N.Y.; Vaux and Radford, architects, N.Y. (6) Rogers Memorial School, Fairhaven, Mass.; Warren R. Briggs, architect, Bridgeport, Conn. (7) Moses Taylor Hospital, Scranton, Penn.; Carl Pfeiffer, architect, N.Y. (8) Stables of Mr.

Cornelius Vanderbilt, Mr. Frank Work and Mr. William Pickhardt, N.Y. (9) Boiler Setting in the Tribune Buildings, N.Y.; William J. Baldwin, mechanical engineer. (10) Longitudinal Profile of City of New York, showing effective water service at different elevations; J. J. R. Croes, Mem. Am. Soc. C.E., Mem. Inst. C.E. (11) Heating and Ventilation John Hopkins Hospital, Baltimore; Bridgeport High School; Metropolitan Opera House, New York; Manhattan and Merchants' National Banks; Fifth Avenue Presbyterian Church, N.Y. Also plans of the Metropolitan Opera House, the Produce Exchange, the Mutual Life Insurance Building, and numerous notable apartment houses loaned by the Board of Health, N.Y.

1636. **WAR DEPARTMENT**, Washington.—Specimens of the uniform of officers of all ranks, non-commissioned officers and privates, canteen, bedding, and accoutrements, hospital and campaign tents.

1637. **NAVY DEPARTMENT**, Washington.—Samples of Navy rations. Samples of Food supplied to the Greely Relief Expedition which lately sailed for the Arctic Regions. Samples of Clothing for said Expedition, and samples of uniform for enlisted men of the Navy.

1638. **WARD'S ROTARY SEWING MACHINE TREADLE CO.**, 37 West 14th Street, New York. (Agents—**BRADBURY & CO.**, Limited, Oldham; 14 Newgate Street, London, E.C.).—The Patent Rotary Treadle is specially adapted for dressmakers, tailors, and manufacturers, as a very high rate of speed can be attained with comparatively little exertion. The action of the treadle being rotary there are no dead centres. The machine may be started or stopped instantly without removing the hands from the work.



## AUSTRIA-HUNGARY.

Office of the Commission, No. 125 South Gallery in the Exhibition Buildings.

NOTE.—The Exhibits from Austro-Hungary, where not otherwise indicated, are to be found in the West Central Galleries.

The Decorations of the Austria-Hungarian Section in the West Central Galleries have been carried out by VIKTOR REINHOLD, of Vienna.

### CLASS I.

**"PEST MILLERS & BAKERS"**  
**STEAM FLOUR MILLS CO.**, Budapest (Hungary) (Agent, **CHARLES WAYDELIN**, 26 Borough High Street, S.E.).—Hungarian Wheat (brand M.B.D.) No. 24 South Gallery. (*See Class 2.*)

### CLASS II.

**1640. CABOS, CHARLES**, 55 Gumpendorferstrasse, Mariahilf, Vienna (Agent, **JOSEPH HARTL**, 51 & 52 Herbert Street, Hoxton, N.).—(1) Bread and Biscuits (Viennese, Karlsbad, &c.) (2) Fancy and Dessert Biscuits of various kinds. (3) Wafers. (*See Class 5.*)

**1641. CZÝNSKI, LUDOMIR**, Járósláv, Galicia (Austrian Poland) (Agent, **F. KAROL**, 23 Martin's Lane, Cannon Street, E.C.).—Marchpane and other Galician confectionery flavoured with honey. (*See Class 3.*)

**1642. MARKÓ & WEYDEN**, Budapest (Hungary) (Agents, **TOOVEY, HOND, & CO.**, 28 St. Swithin's Lane, E.C.).—(1) Turkish Prunes. (2) Bosnian Prunes in cases. (3) Macedonian Prunes in Barrels. (4) "Paprika" (*Capsicum annuum*) (a kind of red pepper), a condiment largely used in Hungarian cookery. Dried Pods and the "Paprika" in its ground, prepared state. Various kinds, of different pungency.

**"PEST MILLERS & BAKERS"**  
**STEAM FLOUR MILLS CO.**, Budapest (Hungary) (Agent, **WAYDELIN, CHARLES**, 26 Borough High Street, S.E.).—Hungarian Flour (brand M.B.D.). No. 24 South Gallery. (*See Class 1.*)

**"WEINLAUBE" (ADMINISTRATION OF THE)**, Klosterneuburg, near Vienna; and at Trieste (Austria).—Dried "Marasche," Dalmatian Cherries, from which "Maraschino" liqueur is made; also used for making a kind of jam. No. 125 South Gallery. (*See Class 4.*)

**ZUPPINGER, P. H.**, 55 Mark Lane, E.C.—(1) Hungarian Flour, and Bread, &c. (made of such flour). (2) Hungarian Macaroni, Vermicelli, &c. No. 23 South Gallery.

### CLASS III.

**1643. CZÝNSKI, LUDOMIR**, Járósláv, Galicia (Austrian Poland) (Agent, **F. KAROL**, 23 Martin's Lane, Cannon Street, E.C.).—Marchpane and other cakes and confectionery made with honey (Polish and Podolian). Purveyor to the Imperial and Royal Court.

### CLASS IVa.

**1644. ELBOGEN & BULL, J.**, 39 Circusgasse, Wien, II., Vienna (Austria) and at Amsterdam.—"Nectar," a liqueur made from various herbs and spices.

**1645. MARTISSA-CARBONAJO, GIOVANNI**, Capo d'Istria (Istria, Austria).—Various Istrian Wines.

**1646. MILLICICH, LUCA**, Zara (Dalmatia) (Agent, **OTTO HOCHBRUNN**, 50 Lime Street, E.C.).—"Maraschino," a liqueur produced by filtration from a kind of cherries called "Marasche," which grow in Northern Dalmatia. (Annual production, fifty to sixty thousand bottles.)

**1647. PALUGYAY, J., & SONS**, Pozsony (Pressburg) (Hungary) (Agent, **JOSAPHAT & CO.**, 11 Duke Street, London Bridge, S.E.).—Hungarian Wines (Tokay, &c.).

**"WEINLAUBE" (ADMINISTRATION OF THE)**, Klosterneuburg, near Vienna; and at Trieste, Austria. Principal, **The Baron A. BABO, Junior**. London Offices, 50 Lime Street, E.C.—(1) Austrian and Dalmatian Wines. Samples exhibited in a "Weinlaube" or Arbour, such as are to be found in all Austrian vineyards. Attendant: Peasant girl in Dalmatian national costume. (a) "Austria-Blume" ("Flower of Austria"), White. (b) "Austria-Blume" ("Flower of Austria"), Red. (c) "Stara Kula," Dalmatian, Red. (d) "Strohwein, roth" ("Straw-wine"), Red. (2) Models of latest improved Wine-making Appliances (presses, filters, casks, &c.), as used in the Imperial and Royal Oenological College at Klosterneuburg. (Director, the Baron August Babo.) (3) Wine Map of Austria-Hungary. (4) Photographs of the Vineyards, &c. (5) Series of Coloured Drawings of Grapes, and Drawings illustrating Ravages of the "Phylloxera." (6) Specimens of "Phylloxera Vastatrix" in alcohol. (7) Microscopical preparations of same. (8) Instruments for Analysis of Wine. No. 125 South Gallery. (*See Classes 2, 7, 8, 10 and 12.*)



## CLASS IVb.

1648. KAHL & CO., Kronsdorf, War-da, near Karlsbad, (Bohemia) (Agent, TOOVEY, HOND & CO., 28, St. Swithin's Lane, E.C. — Natural Mineral Water (Table Water) brand, "Crown Princess Stéphanie."

1649. LOJOWSKI, M., János-láv, Gali-cia, (Austrian Poland) (Agent, F. KAROL, 23 Martin's Lane, Cannon Street, E.C.).—Natural "Koumiss," prepared from mares' milk (by the process employed by the Tartar peasants). A drink for invalids, &c.

1650. MATTONI, HEINRICH, Karlsbad, Bohemia (Agent, E. GALLAIS, 27 Margaret Street, Regent Street, W.).—Natural Mineral Waters, "Giesshübler" Natural Table Water.

## CLASS V.

1651. CABOS, CHARLES, 55 Gum-pendorferstrasse, Mariahilf, Vienna (Agent, G. ENZINGER, 8 Wood Street Square, E.C.).—(1) Farinaceous Food for Invalids and for Infants. (2) Food (Bread) for Sufferers from Dyspepsia. (3) Bread for Sufferers from Diabetes. (4) Bread, Biscuits, and Meal for Infants.

## CLASS VII.

"WEINLAUBE" (ADMINISTRA-TION OF THE), Klosterneuburg, near Vienna, and at Trieste (Austria). (Lon-don Offices, 50 Lime Street, E.C.)—(1) Apparatus and Instruments for the Analysis of Wine and the detection of adulteration. (2) Tables and Diagrams of Analysis of Austrian and Dalmatian Wines exhibited. (3) Exhibit illustrating the Work done in the Laboratory and Testing Room of the Imperial and Royal Oenological College at Klosterneuburg (Direc-tor, the Baron August Babo). (No. 125 South Gallery.)

## CLASS VIII.

"WEINLAUBE" (ADMINISTRA-TION OF THE), Klosterneuburg, near Vienna, and at Trieste (Austria). (Lon-don Offices, 50 Lime Street, E.C.)—(1) Drawings illustrating ravages of the "Phyl-loxera." (2) Specimens of "Phylloxera Vasta-trix" in alcohol. (3) Microscopical prepara-tions of same (with microscope). (No. 125 South Gallery.)

## CLASS X.

"WEINLAUBE" (ADMINISTRA-TION OF THE), Klosterneuburg, near Vienna, and at Trieste (Austria). Lon-don Offices, 50 Lime Street, E.C.)—(1)

Wine Map of Austria-Hungary. (2) Photo-graphs of Austrian Vineyards of the Imperial and Royal Oenological College at Klosterneu-burg, the Experimental Vineyard and Model Vineyard belonging to the College, and of the Vineyards of the "Weinlaube." (3) Series of Chromo-lithographs of the principal varieties of grapes. (4) Volumes and current numbers of the "Weinlaube," a weekly review, in German, devoted to viticulture and the making of wine ("Vineyard and Cellar"), published by the Administration of the "Weinlaube." This periodical is illustrated with diagrams and woodcuts; editor, Dr. L. Weigert. Works, in the German language, on Viticulture and Wine-making, by the Baron A. Babo, and on the Chemistry of Wine. (Illustrated.)

## CLASS XII.

"WEINLAUBE" (ADMINISTRA-TION OF THE), Klosterneuburg, near Vienna, and at Trieste (Austria). (Lon-don Offices, 50 Lime Street, E.C.)—(1) Models of latest improved Wine-Making Ap-pliance (Presses, Filters, Casks (oval), &c.), as used at the Imperial and Royal Oenological College at Klosterneuburg. (2) Patent Cork-ing Machine. (3) Patent Wine Pump for pumping wine from the vat into casks in the cellar. (4) Gelatine (Brand "Weinlaube") for "fining" red wines. (No. 125 South Gallery.)

## CLASS XIII.

"WEINLAUBE" (ADMINISTRA-TION OF THE), Klosterneuburg, near Vienna, and at Trieste, Austria). (Lon-don Offices, 50 Lime Street, E.C.)—Dal-matian Costume, from the District of Verlicka, worn by a Peasant Girl (Attendant at the "Weinlaube," No. 125, South Gallery. (See Classes 2 and 4a.)

## CLASS XVIII.

ROTH, Dr. M., of Kassa, Hungary; 48 Wimpole Street, Cavendish Square, W.—(1) Models showing Hygienic Dress for Males and Females, the weight of the trousers or petticoats, supported by a band on, not over, the hip-bones. Model of Hygienic Stays, with-out steels or whalebone, elastic and supporting. Models of naturally-formed feet and of feet (male and female) deformed by tight boots. Casts and drawings illustrating the same. Specimens of irrational fashionable lady's boot (1862) and of rational hygienic boot. Cast of Chinese lady's foot (deformed by ligatures). Hygienic "great-toe" and digitated stockings. (2) Improved dress for Infant in arms, avoiding necessity of turning the child frequently in dressing and undressing. (3) Pamphlets and Diagrams on the above subjects. No. 1296. East Central Gallery, A. (See Classes 39 and 40.)



## CLASS XXIV.

**MOERATH, JOHANN N.**, Civil Engineer, of Vienna, 23 Great Saint Helen's, London, E.C.—Appliances in connection with domestic and other fire-places, stoves and furnaces. No. 650, East Quadrant. (*See Class 32.*)

## CLASS XXIX.

**1652. COUNT HARRACH'S GLASS WORKS**, Neuwelt, Bohemia. Agent, T. Doust, 39 Jewin Street, E.C.—Crystal and Coloured Glass-ware and Fancy Glass Goblets, Table Glass, Lamps, Frosted Glass, &c., hand painted, cut, and engraved.

**1653. EBNER, JOS. F., & CO.**, 51 Clerkenwell Road, E.C.—Hungarian Parquet Flooring (Oak and various). Also Marble Mosaic Floors, Mosaic Decorations. No. 866, East Gallery.

## CLASS XXX.

**KOHN, JACOB & JOSEF**, 54 Great Eastern Street, E.C.—Austrian Bent Wood Furniture. No. 917 East Central Gallery.

**1654. LOBMEYER, J. L.**, Vienna.—Bohemian Glass-ware, cut, decorated, enamelled, &c.

**1655. MOSER, LUDWIG**, Karlsbad, Bohemia.—Assortment of Cut-glass Ware in Gold and Enamel, Candelabra, &c.

**1656. MÜLLER, H.**, Ulrichthal (Bohemia). Agent, **EMMA ROSENTHAL**, Norwood, S.—Engraved Crystal Glass.

**1657. WAGNER, FRANZ**, Meisdorf (Bohemia). Agent, **EMMA ROSENTHAL**, Norwood, S.—Bohemian Glass-ware, bronze-mounted.

**1658. WAHLISS, ERNST**, 17 Kärnthnerstrasse, Vienna.—China and Pottery. (Sundry articles for domestic use and decoration of the dwelling.)

**1659. SANTIFALLER, J. B.**, Gröden Tyrol.—Tyrolese wood-carvings, frames, &c. (*See Class 53c.*)

## CLASS XXXI.

**1660. ADAMEK, A.**, Webgasse 12, Vienna. (Agent, **G. ENZINGER**, 8 Wood Street Square, E.C.)—Fancy Toilet Soap, Hygienic Perfumery, Disinfectant Scent "Sachets."

**1661. BARON VON KAISERSTEIN'S GRAPHITE WORKS**, in Lower Austria, Rothenthurm Strasse 13, Vienna. (Agent, **CHARLES LEHOFER**, 43 Crimscoth Street, Bermondsey, S.E.)—Black Lead for domestic cleaning purposes.

**1662. RUDOLFSTHALER GRAPHITE WORKS**, Rudolfsthal, Lower Austria, Rothenthurm Strasse 13, Vienna. (Agent, **CHARLES LEHOFER**, 43 Crimscoth Street, Bermondsey, S.E.)—Black Lead for domestic cleaning purposes.

## CLASS XXXII.

**1663. FRICK, WILHELM** (Bookseller to the Imperial & Royal Court), 27 Graben, Vienna.—A work entitled "Pläne landwirthschaftlicher Bauten," ("Plans for Agricultural Buildings,") also 13 (separate) Plans for the same.

**MOERATH, JOHANN N.**, of Vienna, Civil Engineer, 23 Great St. Helens, E.C.—Sanitary Constructions of fire and earthquake-proof dwelling-houses. (*See also No. 1002, Main Entrance. See Class 24.*)

**ROTH, DR. M.**, of Kassa, Hungary, 48 Wimpole Street, Cavendish Square, W.—Drawing of a Russian Bath, including the application of steam and cold and warm water in various forms. (No. 1296, East Central Gallery, A. *See Classes 18 & 39.*)

## CLASS XXXV.

**1664.** Model, showing Three Different School Ventilators.

## CLASS XXXIX.

**1665.** (1) A Large Table of Elementary Positions and Exercises according to Ling's System for the development of the various parts of the body. Models of the same. Models adapted for Teaching the Exercises to the Blind. (2) Means for the Physical Education of the Senses.

## CLASS XL.

**1666.** Diagrams, Tables of Statistics and Pamphlets on the Physical Education of Children.

## CLASS XLIII.

**1667. FEIGELSTOK, F.**, Vienna (Agent, **ENNA ROSENTHAL**, Norwood).—Spectacles, Folders, and Lamp Glasses.



## CLASS XLVIII.

(1) Diagrams of bad positions during the time of Education causing lateral curvature and other complaints. (2) Diagrams of bad positions while writing. (3) Models of hygienic school benches and chairs, permitting the student to lean comfortably during his occupations in school. (The full-size chairs made according to Dr. Roth's instructions are exhibited by the North of England School Furnishing Co. in the Albert Hall.) (No. 1296, East Central Gallery A.)

## CLASS XLIXA.

**REYWOGER, JOSEF**, Reitschulgasse 4, Vienna.—(1) Household Economy in Girls' Schools. (2) Models of Monograms and Letters, for sewing and embroidery. (No. 1445, Royal Albert Hall.)

**1668. SEHISCHKA, C.**, 22 Burggasse, Vienna.—Monograms, Initials, and Designs for embroidery and drawing.

**1669. SCHNEIDER, W.**, Graben 27, Prague, Bohemia. (Agent, **G. ENZINGER**, 8 Wood Street Square, E.C.)—(1) Metal Monograms for Embroidery. (2) Needle-threaders for use in elementary Schools.

**1670. STROHMAYER, A.**, Steyrr (Upper Austria). (Agent, **G. ENZINGER**, 8 Wood Street Square, E.C.)—India-rubber Stamps for Embroidery Designs.

## CLASS LIIIC.

**1671. LANG, JOSEF, & CO.**, Vienna.—Carvings in Meerschaum and Amber, executed by workmen who have studied at Apprenticeship and Technical Schools. The Carving of Meerschaum and of Amber into pipes, cigarholders, &c., is an important branch of Viennese Industry, thanks chiefly to the excellent teaching imparted in the Municipal Technical Schools and Classes for Workmen.

**1672. PODANY, F. M.**, 144, Hauptstrasse, Hernals, Vienna. (Agent, **CHARLES LEHOFER**, 215 Long Lane, Bermondsey, S.E.)—(1) Inlaid Wood Work, plain and coloured, veneers in various patterns. Wood Mosaic, all being specimens of work done by artisans educated in municipal technical schools. (2) Purses, with outer casing of wood mosaic, highly polished, so as to prevent the "Bacteria," which are in so many cases the germs of diseases (and which often cling to small silver coins), from adhering to it.

**1673. RAUNEGGER, RAIMUND** (late Leopold Nagle), 28, Siebensterngasse, Vienna.—Carvings in Meerschaum, Amber and Cherry Wood, to illustrate proficiency and good taste of Viennese Workmen taught systematically.

**1674. SANTIFALLER, J. B.**, Groden, Tyrol.—Wood Carvings to illustrate the staple industry of the Tyrol.—The Carving Schools instituted by the Imperial and Royal Government have proved so beneficial that the whole Valley of Groden is, like many others in the Tyrolean Alps, in a very prosperous condition; all the inhabitants, male and female, carving during the long winter months, and selling their wares all over the world.

**1675. KAROL, F. & CO.**, Vienna, London Offices, 23, Martin's Lane, Cannon Street, E.C.—(1) Wood Carvings made by peasants in the Carpathian Mountains, on the slopes of Galicia (Austrian Poland), in the districts of Zakopane, Rymanow, &c. The results of the tuition in carving imparted in the village evening schools during the long winter. (2) Fancy Goods known as "Vienna Goods," in Russia, Calf and Morocco Leather (purses, cigar-cases, writing-cases, pocket-books, &c.), as specimens of a leading Viennese Industry, the workmen receiving instruction at Technical or Apprenticeship Schools.

## CLASS LIV.

**ROTH, Dr. H.**, of Kassa (Hungary), 48 Wimpole Street, Cavendish Square, W.—(1) Collection of Models for Teaching Physical Exercises to the Blind.

(2) Diagrams illustrating the large proportion of preventable blindness, and the causes thereof, with rules for the prevention of blindness in many cases. (No. 1296, East Central Gallery A.) (See Classes 18, &c.)

## BELGIUM.

(Queen's Gate Avenue.)

## SECTION I.

## GROUP 1.—FOOD.

## CLASS I.

Selected Displays of Unprepared Animal and Vegetable Substances used as Food in various countries. Stuffed Specimens of Animals, Birds, &c. Models, Drawings, and Illustrations of the same.

**1. DEKUYPER & CO.**, Antwerp.—Samples of Wheat, Flour, Rye, and Mill Products.

**2. DE RONNE-DELANIER, L.**, Ghent.—Raw and Prepared Chicory.



3. FONTAINE-SOLVAY, Soignies.—Chicory.

4. FROMONT, N. J., Schaerbeek.—Pepper, Chicory, &c.

5. INSTITUT AGRICOLE DE L'ÉTAT, Gembloux.—Samples of Cereals, forming part of the Institute Collections.

## CLASS II.

Prepared Vegetable Substances used as Food, including Tinned, Compressed and Preserved Fruits and Vegetables. Bread, Cakes, and Biscuits of all kinds. Tobacco.

6. BAUNE, C. J. C., Anderlues.—Samples of Malt.

7. CANDEIL, Ch., Brussels.—Chocolate, Almonds, Bonbons, and other Sweetmeats.

8. DETIENNE & CO., Liège.—Salts from Chinchina Alkaloids. New method adopted at this establishment.

9. MEYERS, J., Liège.—(1) Fruit Syrups, composed exclusively of the refined juice of pears and apples. (2) Beetroot Syrup.

## CLASS III.

Prepared Animal Substances used as Food in a preserved form—Tinned, Smoked, Salted, Compressed and Prepared Animal Food of all kinds; Food produced by Insects, such as Honey, &c.

10. VANDE CASSERIE, L., Ghent.—Spiced Bread and Biscuits.

11. SCHMOELE & CO., Antwerp.—(1) Cibil's Liquid Extract of Meat. (2) *Extraits Peptonés*. (3) Preserved Meats.

## CLASS IV.

Beverages of all kinds—(a) Alcoholic (b) Non-alcoholic; (c) Infusions (tea, coffee, cocoa, chocolate, &c.).

12. CORNELIS, L., Diest.—Hops from the Crops of 1879, 1880, 1881 and 1883. (See No. 32.)

13. MADAME DAUR, P., Brussels.—Liqueurs of a special make from a purely vegetable base, with plants, roots and flowers.

14. DE BEUCKELAER, F.-X., Antwerp.—Antwerp Elixir.

15. DEWINTER FRÈRES, Oppuers.—Beer. Hops and products used in brewing.

16. GISQUIÈRE-DECOOREBYTER, Ghent.—Alcohol. Geneva.

17. HENRICOT & CO., Court-St.-Étienne.—Natural Mineral Water.

18. JACOBS, G., Brussels.—Bitters from a Chinchina basis, aperient, digestive and tonic.

19. JOVENEAU, A., Tournai.—(1) Chocolate in Cakes and Powder. (2) Cocoa in Powder. (3) Cocoa Butter. (4) Racabout. (See Nos. 33 & 48.)

20. LEPOURC (M.), Liège-Seraing.—Various Liqueurs of different types.

21. MEEUS (J.), Antwerp.—Geneva, Bitters, Alcohol, Trois-six.

22. NEUJEAN (A.), Liège.—Special Essences for the manufacture of Liqueurs, Cereals, &c., from which these are obtained. Colouring matter not containing poisons. Substitute for hops formed of natural essences and extracts, having analogous properties. (See Nos. 35 & 45.)

23. Vve. PEENE-PAUWELS (et FILS) Elverdinghe.—Samples of Poperinghe Hops, 1883. Brand C.L.P.

24. PONCELET (J.), Gedinne.—Crystallised Soda Acetate, Pure Acetic Acid, Vinegars concentrated, and of the strength for domestic use.

25. SCHMIDT (E.), Schaerbeek.—Schmidt's Belgian Bitters.

26. SCHROUFF-SIMON, Ougrée.—Vegetable Syrup.

27. SENEZ-STURBELLE, Schaerbeek.—Chocolate and Cocoa.

27a. SYSTEMANS FRÈRES, St. Gilles.—Belgian Beers.

28. VANDERBRUGGHEN, St. Gilles.—Various Alcoholic Drinks.

29. VANDERSCHRICK FRÈRES, St. Gilles.—Various Drinks.

## CLASS V.

New Varieties of Food. Food for Infants, Food for Invalids, New Concentrated Foods of all kinds.

30. CORNÉLIS, L., Diest.—Dry Peptone prepared *in vacuo*. (Peptone represents six times its weight of fresh meat.) (See No. 14.)

31. JOVENEAU, A., Tournai.—Biberonine. (See Nos. 21 and 48.)

31a. VERMEULEN, P., Bruxelles.—Anti-Asthmatic Cigars.



## CLASS VI.

Cookery Practically Demonstrated. Economical Cooking, Workmen's and other Kitchens, Cheap Restaurants, Bakeries, Cafés, Foreign Cookery, &c.

32. **SOCIÉTÉ CO-OPÉRATIVE ALIMENTAIRE**, Brussels.—This society is philanthropic in its nature, but does not distribute alms.

## CLASS VII.

The Chemistry and Physiology of Food and Drink. The Detection of Adulteration, Materials used as Adulterants, Analyses, Food Constituents and Equivalents, Tables, Diagrams, &c.

33. **NEUJEAN, A.**, Liége.—Appliances as re-agents for detecting adulteration.

34. **CÉLESTIN SIMON**, Barbençon.—Manufacture of chemical products and manure.

## CLASS VIII.

Diseases due to unwholesome and improper Food. Drawings and Models, of Animal and Vegetable Parasites, &c.

35. **LÉON LEBON**, Ixelles, Brussels.—*De l'alcoolisme en Belgique*. Paper read at the London International Conference, 6th September, 1882.

## CLASS X.

Publications and Literature, Models and Diagrams relating to Group I.

36. **DUBOIS, DR.**, Libin.—Paper on Tobacco and the Diseases arising from its abuse.

37. **DUJARDIN, A.**, Ostend.—Kitchen Arrangements and Various Services at the Hôtel Continental, the Digue, Ostend.

38. **LÉON, LEBON**, Ixelles, Brussels.—Infant Mortality and its Causes. Methods employed for its investigation in Belgium.

39. **LEYDER & PYRO**, Gembloux.—Two Pamphlets on Beef and Horse-flesh.

40. **LIMBOURG, J. B.** (Government Veterinary Surgeon) Brussels.—Pamphlet on the Regulation of the Inspection of Provisions in General, and of Dead Meat and Slaughterhouses.

## CLASS XI.

Apparatus and processes for Conserving, Storing, Conveying, and Distributing Fresh Food of all kinds.

41. **CLOSSET, M.**, Rue d'Artois 5, Liége.—Process having for its Object the Importation of Meat and other Food Products in their Natural Condition by simply preventing Decomposition during the time of their Transport (say from 4 to 6 weeks) in all climates.

42. **LOICQ, CH. E.**, Uccle-Bruxelles.—Sulphurous Acid and Bisulphate of Carbon for the preservation of beer, wine, and the disinfection of barrels, &c. (See No. 49.)

43. **MEUJEAN, A.**, Liége.—Antiseptics: Sulphurous Acid, Bisulphate of Carbon and Soda, Salicylic Acid, Oxygenated Water, pure Phenic Acid, Permanganate of Potash.

## CLASS XII.

Machinery and Appliances for the preparation of Articles under Group I.

44. **JOVENEAU, A.**, Tournai.—Plans and Drawings of Chocolate-making Machines. New systems improved and patented.

45. **LOICQ, CH. E.**, Uccle-Bruxelles.—Plans of manufacturing Butter and Cheese. Fittings for both methods of work—viz., Refrigeration and centrifugal force. (See No. 44.)

46. **SASSERATH Aîné**, Liége.—Dentistry in all methods.

47. **DEPARTMENT OF THE INTERIOR**, Brussels.—Various publications, laws, regulations, instructions, &c., relating to Group I.

## GROUP 2.—CLOTHING.

## CLASS XIII.

Collections illustrating the History of Clothing, National Costumes, &c.

48. **ÉCOLES PROFESSIONNELLES DES TAILLEURS DE BRUXELLES**, Brussels.—Collection of Vestments and various works executed by the pupils.

48a. **THYS, P.**, Brussels.—Lace, Gloves, and Fancy Articles.

48b. **GABRIEL, Z.**, Rue des Longs Chariots 27, Brussels.—Brushes, Shell-work, &c.

48c. **VAN DAMME & CO.**, Ghent.—Silk and other Fabrics.



## CLASS XIV.

**Waterproof Clothing, India-rubber, Gutta Percha, &c.**

49. **MINNAERT-DEPUNT, Ghent.**—Collection of Wooden Shoes, both fancy and ordinary trade articles.

50. **WAR DEPARTMENT, Brussels.**—Garments rendered water-tight by means of a liquid of alumina, and which nevertheless remain penetrable by air: (1) Great Coat and Trowsers of a Carabineer. (2) Cloak of a Horse Artilleryman. (3) Great Coat and Trowsers of a Foot Artilleryman.

## CLASS XV.

**Furs, Skins, and Feathers. Dresses for extreme climates, &c.**

51. **LAVALETTE - WEINKNECHT Brussels.**—Stuffed Animals, representing the furs used commercially in Belgium.

## CLASS XVI.

**Dress for Sport. Hunting Suits, &c.**

52. **ASKER - BÉDROS, Brussels.**—Wrought-iron Plates, for the preservation of shoes and to keep straight heels which have been run over.

53. **DIEUDONNÉ, J., Somme-Vezin.**—Women's Shoes.

54. **RASQUIN, J., Liège.**—(1) Water-tight Leather. (2) Waterproof Boot Tops for sea-side wear and hunting. (3) Military Articles: Cartridge Pouches, Rifle Slings, Belts, Sword and Bayonet Belts.

55. **VAN SLYPE - GRENÉ, Saint-Trond.**—Straight Jacket for Lunatics; seven pieces, closed by padlocks, viz.—Piece to prevent the patient biting his stomach; Large Sleeves, for use when walking; Girdle, for use when walking or during the night; Shackle for slow walking; Shackle for ordinary walking and night use; Bands for holding the knees to the bed.

56. **ŒUVRE DES VIEUX VÊTEMENTS, Brussels.**—Specimens of work distributed by the Society: Dress, Chemise, Apron, Stockings, Goloshes, Girls' Cape, Waistcoat, Shirt, Trowsers, Shoes Goloshes, Boys' Cap. (See Nos. 65 & 70.)

## CLASS XVII.

**Life Saving Dress, Diver's Dress, Fire Proof Dress.**

57. **DOR, FILS, Brussels.**—Various Collections of Models of Gloves and Skins prepared for glove-making.

## CLASS XVIII.

**Publications and Literature, Patterns, Statistics, Diagrams, Models relating to Group II.**

58. **SCHOONJANS, ÉPOUSE, Brussels.**—Speciality for Corsets with Elastics.

59. **ŒUVRES DES VIEUX VÊTEMENTS, Brussels.**—Pamphlets, containing the Rules of the Society, explanation of its mission, and results of its work. (See Nos. 61 and 70.)

## CLASS XIX.

**Machinery and Appliances for the Preparation of articles under Group II.**

60. **ASKER - BÉDROS, Brussels.**—Machines and Tools for the manufacture and putting-on of shoe plates of all kinds.

60a. **COLAS, C., Brussels.**—Ornaments for Millinery, Shell Buttons, &c.

61. **DEBAIVE, J., Mimy.**—(1) Artificial Wools (called Renaissance Wools). (2) Rags cleaned, dyed, and torn to shreds, and afterwards re-employed in manufacture.

62. **D'HAENENS-GATHIER, Ghent.**—D'Haenens' Knitting Machine will knit all articles for which hand-knitting is employed.

63. **HERBER - BARY, Schaerbeek.**—Silk Buttons, speciality in nickel, massive and inoxidizable.

64. **ŒUVRE DES VIEUX VÊTEMENTS, Brussels.**—Design for a Machine to disinfect clothing.

65. **DEPARTMENT OF THE INTERIOR, Brussels.**—Various Publications—laws, regulations instructions, &c., relating to Group II.

## GROUP 3.—THE DWELLING.

## CLASS XX.

**Dwellings, Models and Designs for the same, and Specimens of Buildings erected in the grounds. Fittings and Accessories for Dwelling-houses. Completely-fitted Apartments.**

66. **CLOSSON H., Verviers.**—Design for a Workmen's City.

67. **DUJARDIN, ANT., Ostend.**—Comparative Plans of Ostend in 1874 and 1884. Photographs of Villas on the Digue. Plans of Villas. Internal Decorations.

68. **FUMIÈRE, TH., Brussels.**—(1) Plans for Workmen's Dwellings at Verviers. (2) Construction of a Girls' School at Pecq. (3) Plan for the reconstruction of the town of Tournai. (See Nos. 83 & 86.)



69. **LEBON, Dr., Nivelles.**—Plan of a group of Workmen's Cottages to show the possibility of making the lowliest workmen a peasant proprietor. Explanatory pamphlet.

70. **WAR DEPARTMENT.**—Plan of various Military Buildings constructed in Belgium. Barrack Sanitation. Pamphlet by Lieut.-Colonel P. G. Van den Bogaert.

71. **ROSEL, FR., Brussels.**—Furniture.

72. **SOCIÉTÉ ANONYME: LA CONSTRUCTION INDUSTRIELLE,** Brussels. — Wainscotting, Wood Chimney Pieces and Flooring. (See No. 107.)

73. **VILLE DE BRUXELLES.**—Gas Factory. Portfolio of plans for Workmen's Dwellings. (See Nos. 95 & 127.)

#### CLASS XXI.

Water Supply and Purification.—Meters, Filters, Water-Fittings, Cisterns, &c.

74. **BOUGARD, A., Manage.**—Glass Filters.

75. **NEUJEAN, A., & DELAITE,** Liège.—Sanitation of Houses after Floods. Purification of Sewage Water by phosphated ashes, and their utilisation as manure. (See Nos. 89, 100 & 108.)

#### CLASS XXII.

House Drains, their Construction and Ventilation.—Sewer disconnection; Sinks, Traps, Gullies; the Disposal and Utilization of House Refuse.

76. **DUCOBU, V., Jemmapes.**—Patent Sanitary Pipes in earthenware, to supplant lead pipes in beer engines, &c.

77. **FUMIÈRE, TH.**—Designs and details for Latrines. (See Nos. 74 & 86.)

78. **GIBON, JH., Bouffoulx.**—(1) Drain and Gas Pipes. (2) Funnels for Latrines. New System of Syphons Ventilator adopted in the City of Brussels.

79. **GRANDMAISON, S., St. Gilles.**—Drainage receptacle with self-acting ventilator.

#### CLASS XXIII.

Water and Earth Closets, Ash Closets, Commodes, Urinals, Disinfecting Powders and Fluids, Insect Destroyers.

80. **FUMIÈRE, TH., Brussels.**—Enamelled Iron Appliances for Latrines. (See Nos. 74 & 83.)

81. **HOLLMANN, A., Brussels.**—Closets and Urinals. (See No. 120.)

82. **LECHIEN, C. F., Mons.**—Sanitary Lighting Apparatus. (See Nos. 96, 99 & 104.)

83. **NEUJEAN & DELAITE.**—Disinfectants. (See Nos. 81, 100 & 108.)

84. **ROUSSEAU, Ixelles.**—(1) Latrine Appliances. (2) The Nuctograph, an apparatus for the use of people blind by accident, which may be used to write without a light at night, to preserve the sight and ameliorate defective writing.

85. **VAN HERTUM, L., Brussels.**—Receipt for the destruction of injurious insects.

#### CLASS XXIV.

Grates, Stoves, Kitcheners, Ranges, Boilers, &c., for Domestic Use. Apparatus for Heating and Warming, Smoke Abatement, &c.

86. **BOUGNÉAU, L., Schaerbeek.**—(1) Works in Decorative Marble. (2) Marble Chimney Pieces. *Brèche de Waulsort.*

87. **DEVILLERS & CO., Brussels.**—Rough and Planed Marbles, Block Marble, Fancy and Ordinary Chimney Pieces, Columns, Tables, Monuments, Squares, &c.

88. **EVRARD, L., Laeken.**—Marble Chimney Pieces.

89. **USINE A GAZ DE LA VILLE DE BRUXELLES.**—(1) Plan for an Economic Grate. (2) Plan of an Elevator for Unloading Coal Vessels. (3) Plan of a Gas Heating Apparatus. (4) Plan of an Apparatus for the Instantaneous Heating of Water. (See Nos. 79 & 127.)

#### CLASS XXV.

Ventilators, Air Inlets and Outlets, Cubic Square of Rooms, Cowls, Air Straining and Cleansing.

90. **LECHIEN, C. F., Mons.**—Lighting and Ventilating Appliances. (See Nos. 88, 99 & 104.)

91. **MASSOT, F. H., St. Gilles.**—Appliances for the Ventilation of Railway Carriages.

#### CLASS XXVI.

Lighting Apparatus—(a) Electrical Apparatus for Illumination and Domestic Use, Secondary Batteries, Electroliers, Accumulators, &c.; (b) Apparatus for lighting by Gas, Gas Producers, Gas Meters, Gas Fittings, Chandeliers, &c.; (c) Oil and other lamps; Mineral Oil, Wax and other Candles, Vegetable and Animal Oils.

92. **BOUGARD, A., Manage.**—Chimneys Bulls' Eyes, and Lanterns for Lighting. (See No. 116.)



93. **LECHIEN, C. F., Mons.**—Lighting and Safety Appliances. (See Nos. 88, 96, 104.)

94. **LIBIN, F., Ghent.**—(1) Gas Escape Indicators. (2) Fire Alarms.

95. **NEUJEAN, A., & DELAITE, Liège.**—(1) Electric Light Apparatus. (2) Dynamo-Electric Machines, Piles, Accumulators. (3) Gas Heating Apparatus. (See Nos. 81, 89, 108.)

96. **VAN HUCHTEN, J., Brussels.**—Gas Regulator.

#### CLASS XXVII.

Fire Prevention Apparatus — Extinguishers, Portable Engines, Domestic Fire Escapes, &c.

97. **ABUY, J., Ixelles.**—Detailed plans and sections of safety chimneys destined in case of fire to facilitate escape and aid the firemen's manoeuvres.

98. **CLOSSET, E., Brussels.**—Melsen's Lightning Conductors.

99. **LECHIEN, C. F., Mons.**—Lightning and Safety Appliances. (See Nos. 88, 96, 99.)

100. **RAIKEM, E., Brussels.**—Patent Electric Fire Alarm. (2) Electric Apparatus produced by the contact of mercury with a platinum plate. (See No. 125.)

101. **VALLEZ, L., Brussels.**—Telephonic Alarm, Richez-Vallez's system.

#### CLASS XXVIII.

Materials for Sanitary House Construction — Roofs, Walls, Damp Courses, Solid Floors, Damp-Proof Wall-Coverings, Cements, &c.

102. **SOCIÉTÉ ANONYME: LA CONSTRUCTION INDUSTRIELLE, Brussels.**—Damp Proof Floors, Damman and Cassart's system. (See No. 78.)

103. **NEUJEAN, A., & DELAITE.**—Universal Damp-Proof Plaster, galvanic painting on metallic zinc, preventing rust. (See Nos. 81, 89, 100.)

104. **URBAN & CO., Ath.**—Pitch for preventing damp masonry, oxidation of metals, and for the preservation of wood, pipes, paper, and metal roofwork.

#### CLASS XXIX.

Materials for Sanitary House Decoration, Non-poisonous Paints and Wall Papers, Floor Coverings, Washable Decoration, &c.

105. **BOTELBERGE, G., & CO., Melie.**—Non-poisonous Colours, for papers and decorative purposes.

106. **LEFÈVRE, J., Ghent.**—Gobelins Tapestry. Imitation of Ancient Flemish Tapestries. Patented system.

107. **VERBUECKEN, H., Antwerp.**—Imitation Gobelins.

#### CLASS XXXI.

Baths, Bathing Requisites, Public and Private Wash-houses, Washing Apparatus, Detergents, Appliances or Personal Cleanliness, &c.

108. **ABERLÉ, Brussels.**—(1) Tapestry and Furniture. (2) Easy Chair. (3) Invalid's Bed.

109. **ADMINISTRATION COMMUNALE, Laeken.**—Burying Vaults.

110. **SOCIÉTÉ ANONYME DU BAIN ROYAL DE BRUXELLES, Brussels.**—Plan of a Swimming Bath. *Bain Royal de Bruxelles.*

111. **BOUGARD, A., Manage.**—Glass Drinking Vessels. (See No. 98.)

112. **DE MARBAIX, A., Antwerp.**—*Eau d'Anvers.* Sanitary Perfumery for sick rooms, baths, &c.

113. **FELLENDAEELS, G. H., Molenbeek St. Jean.**—Easy Chair for dental and surgical operations.

114. **HOLLMANN, A., Brussels.**—Hollmann's Antiseptic for private use and ambulances. (See No. 87.)

115. **KEYSER, A., St. Josse ten Noode.**—Hygiene and Nursing the Sick. Model of a *Boite de Secours* adopted by the communes of Schaerbeek and St. Josse ten Noode for their schools and police stations.

116. **LA VALLETTE-WEINKNECHT, Brussels.**—Skins, Furs, and Vestments.

116A. **DEPARTMENT OF THE INTERIOR, Brussels.**—Central State Vaccination Establishment. Regulations and specimen of appliances used.

116B. **DEPARTMENT OF THE INTERIOR, Brussels.**—Various Publications, Plans, &c., relating to Group III.



**GROUP 3a.—THE AMBULANCE.****CLASS XXXIA & XXXIB.**

**Aid to Sick and Wounded in War.** Transport. (a) By Human Agency; Stretchers, Litters, Dhoolies, Palanquins, Handcarts, Stretchers on Wheels. (b) By Animal Traction; Mule Litters and Chairs, Camel and Elephant Litters, Wheel Carriages. (c) By Mechanical Means; Railway Ambulances, Ship or Water Carriage. Treatment (with portable appliances and portable drugs). (a) On the Field. (b) In Hut Hospitals. (c) In Tent Hospitals. Naval and Military Hygiene.

**Aid to Sick and Injured in Peace.** Transport. (a) By Human Agency; Stretchers, Litters, Dhoolies, Palanquins, Hand-Carts. (b) By Animal Traction; for Accidents and Injuries. for Infectious Diseases, for Ordinary Sickness. (c) By Mechanical Means; Railway Carriages for Sick and Invalids, Water Carriage. Treatment (with appliances). (a) Hut Hospitals for Infectious Fevers and for Epidemic Diseases. (b) Tent Hospitals. (c) Hospital Ships. (d) Furniture and Fittings for Sick Rooms.

**117. CITY OF BRUSSELS, Bureau d'Hygiène.**—(1) First aid in cases of accident and sudden injuries. Picture mounted on cloth. (2) Picture, relative to the distribution of ambulance posts and appliances in Brussels. Cloth mounted. (3) Dr. Le Buys' Manual on First Aid. Distributed to all policemen, firemen, watermen, mortuaries, &c. (4) Advice to Mothers: Pamphlet in French and Flemish given to everyone making a déclaration of birth at the *Hôtel de Ville*. The same in Tabular Form. (5) Description and Design for a Mortuary. (6) Photograph of an Ambulance Waggon for persons infected with contagious diseases. (7) Photograph of a Hammock Waggon. (8) Apparatus and Aid Appliances used at Brussels in cases of accident.

**118. WAR DEPARTMENT, Brussels.**—(1) 4-Wheeled Ambulance Waggon, 1883, Model. (2) 4-Wheeled Pharmacy Waggon, 1883, Model. (3) Prof. Chandelon's Apparatus used in the Antwerp School of Pyrotechny, with a view to mitigate the dangers from poisoning in the manufacture of fulminate of mercury. (4) Bags, &c., for infantry and cavalry ambulances, Dr. Hermant's model. (5) Cardboard Splints, for the rapid treatment of fractures, Dr. Merchie's system. (6) Optometer by Dr. Loiseau. (7) School for Army Cadets. Papers, books, &c.

**119. SÈVE, E., Brussels.**—What the Red Cross is.

**120. PERSONNE, F., Brussels.**—Beds and Chairs for invalids and the wounded.

**121. RAIKEM, E., Brussels.**—Electric Indicators for variations of temperature and water level. (See No. 105.)

**122. STAS et MEES, Rupelmonde.**—Forcing Apparatus for Beer Engines.

**123. WAERSEGGERS, J., Anvers.**—(1) Orthopedic Corsets. (2) Ventral Belts. (3) Bandages for Hernia.

**CLASS XXXII.**

**Publications and Literature, Models, Pictures, Diagrams, &c., relating to Group III.**

**124. BOARD OF HEALTH, Province of Liège.**—Annals of the Board, Vols. I–VI. Report on the heating of the soil in the gardens of the Quartier St. Jacques; G. Dewalque. Condensation of sulphurous acid issued from the smelting of minerals; A. Meujean.

**125. DELPLACE, C., Molenbeek-St.-Jean.**—Plans of the Hospital of Molenbeek-St.-Jean, les Bruxelles.

**126. DUMONT, J., Brussels.**—(1) The Electric Light at the Telegraph Station at Brussels. (2) Notes on the financial aspect of the electric light.

**127. LEYDER, Gembloux.**—Researches on natural and artificial ventilation.

**128. SOCIÉTÉ DE SECOURS MÉDICAUX GRATUITS, Brussels.**—Papers explaining the objects and work of the Society.

**129. VALÉRIUS, PROFESSOR H., The University, Ghent.**—The Applications of Heat, with an exposition of the best systems of heating and ventilating.

**CLASS XXXIII.**

**Machinery and Appliances relating to Group III.**

**130. DEPARTMENT OF THE INTERIOR, Brussels.**—Various Publications, Plans, &c., relating to Group III.

**GROUP 4—THE SCHOOL.****CLASS XXXIV.**

**Designs and Models of Improved Buildings for Elementary Schools, Infant Schools and Crèches.**

**151. DEMANY, E., Liège.**—School Plans.



152. DEVIVIER & HANSEN, Spa.—School Plans.

153. FUMIERE, TH., Schaerbeek.—School Plans. (*See Groups III. and VI.*)

154. HOSTE, J., Blankenberghe.—School Plans.

155. HUBERT, J., Mons.—Plans for a Normal Training School for Teachers.

156. DEPARTMENT OF PUBLIC INSTRUCTION, Brussels.—Plans and Photographs of Schools and Class Rooms of all grades, Teachers' Residences, &c.

157. QUÉTIN, E., St.-Gilles-les-Bruxelles.—Plans and Photographs of Schools.

158. SCHÆFFER, F., Antwerp.—Plans for Hot Water Apparatus, Bath Rooms, &c.

159. SERRURE, E. C., Saint-Nicolas.—Designs for Town and Country Schools.

160. VERSTRAETE, CH., Ghent.—Buildings for the Boys' Orphanage at Ghent. Book containing an explanation of the system. (*See Group VI.*)

#### CLASS XXXV.

Apparatus and Fittings for Warming, Ventilating, and Lighting Schools, School Latrines, Closets, &c.

161. DEPARTMENT OF PUBLIC INSTRUCTION, Brussels.—Plans for heating and ventilation, models of stoves, &c.

162. QUÉTIN, E., St. Gilles.—Frame of Plans and Photographs of Schools, Scholastic Materials, &c.

163. RONVAUX, DR. L., Namur.—Ventilating Stove.

164. VALLEZ et DEMAECHT, Brussels.—Hygienic Appliances for Heating and Ventilating (called L. H. Vallez's Stove), used for Schools, Hospitals, &c.

165. VAN HOECKE, F., Ghent.—Hot-water Apparatus, applicable to Schools, Boarding-Houses, Shops, Workrooms, Greenhouses, &c.

#### CLASS XXXVI.

Special School Fittings for Storing and Drying Clothing.

166. DEPARTMENT OF PUBLIC INSTRUCTION, Brussels.—Specimens of Coat Racks, Umbrella Stands, and Wardrobes.

#### CLASS XXXVIII.

Precaution in Schools for preventing the spread of Infectious Diseases, School Sanatoria, Infirmarys, &c.

167. DASTOT (DR. A.), Mons.—Granulous Ophthalmia in Schools, with treatise on the Operation of Cataract.

168. DEPARTMENT OF PUBLIC INSTRUCTION, Brussels.—Documents, *Boîtes de Secours*, &c.

169. DEPARTMENT OF PUBLIC INSTRUCTION, Brussels.—Various Papers and Regulations relating to the Inspection of Schools, and the course to be adopted on the outbreak of infectious diseases.

#### CLASS XXXIX.

Special Apparatus for Physical Training in Schools, Gymnasia, Apparatus for Exercise, Drill, &c.

169. DEPARTMENT OF PUBLIC INSTRUCTION, Brussels.—(1) Gymnastic Appliances and Instruments. (2) Plans and Views of Gymnasia, and Gymnastic Exercises. (3) Collection of Gymnastic Apparatus in use at the Normal State Schools; Official Regulations as to instruction in gymnastics in the various classes of schools, and also of the teachers of this subject. (4) Manual for the Gymnastic instruction of Boys, by Major Docx. (5) Similar Manuals for Girls by the same author.

#### CLASS XL.

Literature, Statistics, Diagrams, &c., relating to Group IV.

170. DU MOULIN (DR. N.), Ghent.—(1) The Epidemics at Nevele, at Landegem. Considerations on the prophylaxis, and (2) Inquiry into the Sanitary Condition of Ghent on the occasion of the Cholera Epidemic in 1866—Ghent, 1879.

171. FERSTRAERTS (DR. A.), Liège.—*Le Scalpel*, a weekly journal, organ of the Scientific and Professional interests of Medicine, Pharmacy, and the Veterinary Art. *Le Médecin de la Famille*, or the Art of Preserving Health, treating of practical hygiene and everything relating to hygiene and domestic economy.

172. HUBERT (J.), Mons.—Treatise on the Normal State School for Elementary Teachers, Mons.

173. DEPARTMENT OF PUBLIC INSTRUCTION, Brussels.—Programmes, Documents, Statistics, &c. Publications relative to Scholastic Hygiene. The list is posted at the side of the collection of works exhibited.



174. **MIRGUET, V.**, Directeur de la Section normale primaire de l'État, Huy.—(1) *L'Observateur*, scholastic review; years 1882, 1883 and 1884. (2) *Cours de pédagogie et de Méthodologie* for pupils in elementary schools. (3) *Notions de Psychologie* for similar pupils.

175. **RENARD H.**, Jambes.—Résumé of a Practical Course of Accounts. Outlines of Industrial Political Economy.

176. **DEPARTMENT OF THE INTERIOR**, Brussels.—Various Publications, Plans, &c., relating to Group IV.

## GROUP 5.—THE WORKSHOP.

### CLASS XLI.

Designs and Models for Improvements in the Arrangements and Construction of Workshops, especially those in which dangerous or unwholesome processes are conducted.

131. **CERFONTAINE, P. M.**, Chênée. Boiler Composition. Perfect security against explosions. Liquid anti-corrosive.

132. **COMPAGNIE LA FORCITE**, Baelen-sur-Nèthe, Antwerp.—Plans of a Factory.

133. **SOCIÉTÉ ANONYME FRANCO-BELGE DES POUDRES ET DYNAMITES D'ARENDONCK**.—Plan in Relief, showing the factories and the ramparts which protect them. Description of the process adopted for the manufacture of nitro-glycerine.

### CLASS XLII.

Apparatus and Fittings for preventing or minimising the danger to health or life, from carrying on certain trades. Guards, Screens, Fans, Air-jets, Preservative Solutions, Washes, &c.

134. **BODY, J. G.**, Lacornette, near Bouillon.—Safety Lamp, Grisometer. Self-acting indicator.

135. **DUBOIS et FRANÇOIS**, Seraing.—“Bosseyeuses” on Dubois and François' system. Apparatus to prevent the use of powder in mines generating fire damp.

136. **HARZÉ, E.**, Brussels.—Mines. Harzé's Ventilator Photographs. Notices on the Ventilation of Mines.

137. **HENRARD**, Antwerp.—Apparatus designed to avoid the danger of poisoning in the manufacture of fulminate of mercury.

138. **LAGAE-CROMBET, P.**, Courtrai.—Ventilating Apparatus. Applicable to industry in general, and especially to works in poisonous metals.

139. **LIBOTTE, N.**, Gilly.—Mining Cages and Waggon.

140. **PLUMAT, P.**, Hornu.—Moveable Floor for the casing and repair of mining shafts employed at the Grand Hornu Oil Mines, Belgium.

141. **SOCIÉTÉ ANONYME DES CHARBONNAGES DE MARIHAYE**, Flémalle-Grande.—“Bosseyeuse” on Dubois and François' Digging Machine, for large works and mining levels, without the use of explosives. Illustrations of sections of earth worked by this machine.

142. **SOCIÉTÉ ANONYME DES POUDRES ET DYNAMITES D'ARENDONCK**, Province of Antwerp.—Facsimile of Paleine or Dynamite manufactured by the Company, and offering a strong resistance to blows. Photographs representing examples of the resistance of paleine to the blows of projectiles.

143. **CITY OF BRUSSELS GAS FACTORY**.—Plan of an Elevator for Unloading Coal Vessels.

### CLASS XLIII.

Objects for Personal Use. Mouth-pieces, Spectacles, Dresses, Hoods, &c., for use in certain unhealthy and poisonous trades.

144. **BOUGARD, A.**, Manage.—Special Crystal or Semi-Crystal Chimneys for safety lamps in mines, known as Museler or Davy chimneys.

### CLASS XLV.

Sanitary Construction and Inspection of Workshops, Factories and Mines. (a) New Inventions or improvements for ameliorating the condition of life of those engaged in unhealthy occupations. (b) Means of economising Human Labour in various Industrial operations.

145. **LECHIEN, C. V.**, Mons.—(1) Air-chamber for re-lighting Safety Lamps in fire-damp mines. (2) Safety Lamp for ditto, with fixed door. (3) Apparatus for lighting gas and oil near shafts suspected of fire-damp. (See Group III.)

146. **MIGNOT, F.**, Brussels.—(1) Machine for Pressing, Ironing, and Folding Stuffs used by tailors. (2) New Churn, working rapidly and economically. (3) Washing Machine, new system, worked without fatigue.

147. **NEUJEAN, A.**, Liège.—(1) Process for the Condensation of Sulphurous acid Fumes arising from the Smelting of Blende, by means of phosphated scoræ and natural phosphates, in order to transform them into superphosphates and then into manure. This process utilizes the sulphurous acid ordinarily lost in the atmosphere. (2) Raw Materials and Products; Superphosphates, Manures.



## CLASS XLVI.

Literature, Statistics, Diagrams, &c. relating to Group V.

148. DEPARTMENT OF THE INTERIOR, Brussels.—Various Publications, Plans, &c., relating to Group V.

## GROUP 5a. — METEOROLOGY, IN ITS RELATION TO STUDY AND PUBLIC HEALTH.

## CLASS XLVIA &amp; XLVIB.

Meteorological Instruments, such as are used in climatological investigations; barometers, aneroids, thermometers, earth thermometers, thermometer stands, hygrometers, anemometers, airmeters, rain gauges, automatic meteorological apparatus, sunshine recorders, evaporation gauges, ozone papers, ozonometers, &c.

Diagrams, Models, and Apparatus illustrative, of (a) the climatal conditions prevailing in various parts of the world; (b) the relations between health and disease; (c) rainfall, percolation, evaporation, and flow from ground; and (d) other subjects embraced by the Exhibition.

149. SOCIÉTÉ ROYALE DE MÉDECINE PUBLIQUE DE BELGIQUE.—(1) Regulations. (2) Composition of the Directorate. (3) Statistical Diagrams. (4) Meteorological Laboratory for Analysis of Food Products. The apparatus is supplied by MM. H. de Bouvier and Co., Brussels.

150. SEMAL, Dr. F., Mons, Secrétaire Général de la Société Royale de Médecine publique de Belgique.—Diagrams designed to represent monthly mortality and disease.

## GROUP 6. — EDUCATIONAL WORKS AND APPLIANCES.

## CLASS XLVII.

Crèches and Infant Schools.—(a) Apparatus and Fittings for Crèches and Infant Schools; (b) Games, Toys and Kindergarten Amusements; (c) Models and Appliances for Teaching; (d) Examples of School Work.

177. SOCIÉTÉ ANONYME: LA CONSTRUCTION INDUSTRIELLE, Brussels.—Patent School Desks.

178. CRÈCHE MARIE-HENRIETTE, Antwerp.—(1) Complete Cradle. (2) Reports, Regulations, Photographs, Utensils, &c.

179. DE MEESTER, A., Bernissart.—(1) Selection of Reading Lessons for Elementary Schools. (2) Elementary Course of the French Language, 3 vols. (3) Useful Knowledge and Calculations, 3 vols. (4) Mental Arithmetic, 3 vols. All these works are remarkable for their practical character.

180. DE TOEKOMST, Antwerp.—Essay on Popular Libraries, mode of working and results obtained. Annual reports for 20 years.

181. GALLET, GUILLAUME, St. Josse-ten-Noode.—Kindergarten, Rue du Moulin 47, à St. Josse-ten-Noode, under the direction of Madame Gallet.

182. DEPARTMENT OF PUBLIC INSTRUCTION, Brussels.—(1) Crèches and Infant Schools. (2) Fröbel and other toys, works of the mistresses and children. (3) Samples of Furniture and School Fittings. (4) Conferences for the teachers, to familiarise Modes of Instruction. (5) The Fröbel Normal Course. (6) Registers. (7) Works.

183. SERESSIA, J., Huy.—“L'École Communale,” scholastic, scientific, and literary review, published by the Société d'Instituteurs at Huy.

184. THYES, E., Ixelles.—Preliminary Exercises in practical linear drawing.

185. WINDELS, D., Brussels.—Gifts and Toys for Kindergarten.

## CLASS XLVIII.

Primary Schools.—(a) Apparatus and Fittings; (b) Models and Appliances for teaching; Text-books, Diagrams and examples; (c) Specimens of Work in Elementary Schools.

186. AERTS, F., Nivelles.—Instruction in Vocal Music. Various Books on this subject.

187. BLONTROCK, H., Laeken.—“Le Moniteur des Instituteurs Primaires,” weekly scholastic review.

188. BOUILLON, A., Brussels.—(1) Practical Choir Singing. (2) Selection of 100 Canons with words. (3) Collection of School Chants. (4) Graduated Exercises.

189. BRAUN, T., Government School Inspector.—(1) Classical and scholastic works. (2) “L'Abeille,” a scholastic review. (3) Miscellaneous Educational Works.

190. CALLEWAERT BROTHERS, Brussels.—(1) Classical Works. (2) School Furniture. (3) Speciality in Maps and Methods of Writing approved by the Council of Improvement.



191. **LA CONSTRUCTION INDUSTRIELLE**, Brussels. — (1) Models for Instruction in Normal and Reformatory Schools. (2) School Desks of various heights.
192. **DENYS-CALLEWAERT, P. P.**, Comines. — *De Volksschool* (School of the People). Monthly Review.
193. **DESMET, L.**, Ghent. — *De Vereeniging*, Teacher's Journal.
194. **DIERCKX, J.**, Schaerbeek. — Works on Teaching and Hygiene.
195. **DOCX, G.**, Inspector of Schools (for Gymnastics). — Official Handbook on Gymnasia Teaching. *La Gymnastique Scolaire*, numbers for six years. Various works on this subject.
196. **THE CHRISTIAN BROTHERS' INSTITUTE**. Alost Establishment. — (The Christian Brothers in Belgium conduct 80 Elementary Schools. 3 Professional Boarding Schools. 2 Normal Schools. 4 Schools for Architecture and Printing. 15 Classes for Arithmetic, Languages, Commerce, Drawing, &c., for adults.) — Collective Exhibit of School Works, Models, and Collections to illustrate natural history and physics.
196. **CHRISTIAN SCHOOLS** (Various Towns). — Collective Exhibit.
197. **ARENS, ANT.**, in religion, F. **MARIANUS**, Provincial. — School Works. A large Arithmometer and a number of School Books.
198. **DE KOSTER, CH.**, in religion, F. **MADIR**, Visitor. — (1) Flemish Reading Book. (2) Four Reading Cards, also in Flemish. (3) Lessons in Flemish, 2 parts (in French).
199. **VAN ACHTER, ACH.**, in religion, F. **ACHILLE**. — Theoretical and practical Treatise on Method. Teacher's *Vade Mecum*.
200. **PIRON, J. J.**, in religion, F. **MÉMOIRE**. — (1) Method for demonstrating projections by movable methods. (2) French Grammar. (3) Books on orthography, syntax, elementary arithmetic. (4) Metrical exercises with solutions.
201. **VAN DEN BROECK, P. L.**, in religion, F. **MARCY**. — Works on Arithmetic, Geometry and Trigonometry (1 in Flemish).
202. **MATHIEU, C. J.**, in religion, F. **MATHIEU**. — (1) Great Events in History, Universal History, Ancient Mediæval and Modern History. (2) History of Belgium. (3) The Province of Luxembourg.
203. **DE PAUW, CH.**, in religion, F. **MARÈS JOSEPH**. — Drawing Books.
204. **LEROY, ALPHONSE**, in religion, F. **MANSUY-JOSEPH**. — (1) Course of Freehand Drawing and drawing with the aid of instruments. (2) Selection of reading Lessons in prose and verse.
205. **GOCHET, J. B.**, in religion, F. **ALEXIS-MARIE**, Carlsbourg. — (1) Complete Course of Geography: six large maps, eight small, four diagrams, one map case. (2) A series of ten manuals for master and pupils (3 in Flemish). (3) 7 Atlases, 14 Exercise Books in Geography, 6 Plaster Models in relief. (4) Submersible hypsometric model. (5) Reliefs of the Provinces of Namur, Liège, and Luxembourg. (5) Course of Botany and Synopsis of the Belgian Flora. (6) Course of Agriculture and Gardening.
206. **ST. JOSEPH'S INSTITUTE**, Rue des Longs Chariots, Brussels. — Adult Drawing Schools. Specimens of work given during the first, second, third, and fourth years of instruction, and of the work done from such specimens.
- 206A. **THE CHRISTIAN BROTHER'S COLLEGE**, Malonne. — A large Collection of Ordinary School Work, Drawings, Models for Projections — and the Training College, Malonne. Specimens of Work done by the Pupil Teachers.
207. **FREE ELEMENTARY SCHOOLS** of Brussels, Tournai, Verviers, Namur, Liège, Tamines, &c. — Collective exhibit of Scholars' Works.
208. **ST. LUKE'S SCHOOL**, Ghent. — Drawing Works. Elementary Work of the first and second years. Works from the Decorative Course, the Building Course, and Architecture Course.
209. **LAVELETTE-WEINKNECHT**, Brussels. — Collection of sample of skins in use by furriers (for a school museum).
210. **MANCEAUX H.**, Mons. — *Le Messager des écoles primaires du Hainaut*. Journal of education and teaching. Numbers from 1846 to 1883. 37 vols.
211. **MARTINOT, A.**, Nismes. — Arithmometer.
212. **DEPARTMENT OF PUBLIC INSTRUCTION**, Brussels. — (1) Elementary and Normal Schools. (2) Regulations, diagrams, samples of furniture, teaching materials. (3) Natural History and Technological Collections, models, prizes. School work. (4) Diagrams for Musical Instruction.
213. **MONITOR, E. A.**, Brussels. — Writing Materials and Copy Books. Explanation of the course.
214. **NOËL, L.**, Frasnes. — *Aide-mémoire* for Adults, containing the outlines of Hygiene, Natural Sciences, Belgian History, Constitutional Law. Geometrical Figures as required by the official code.



215. QUETIN, E., St. Gilles.—School Furniture.

216. RONVAUX, Namur.—Course of Hygiene, adapted to the Belgian Government code for elementary schools.

217. SLEECKX, D., Schaerbeek.—*De Toekomst* (the Future), a Flemish Scholastic Review.

218. SMETS, A., Molenbeek - Saint-Jean.—*L'Avenir*, Scholastic, Scientific, and Literary Review.

219. SOYER, Alost.—School for army candidates. Particulars of the organization with samples of books. Models of furniture and rooms.

220. ÉCOLE COMMUNALE No. 13, Brussels.—(1) Class Books. Register, Programme, Rules, &c. (2) Collections for instruction in geometry and the natural sciences.

221. WINDELS, D., Brussels.—School Furniture and Fittings, Maps, Historical Diagrams, Classical Works, Models of animals.

#### CLASS XLIX.

Domestic Economy and other Forms of Technical and Industrial Education for Girls.—(a) Models and Apparatus for the teaching of Cookery, Housework, Washing and Ironing, Needlework, and Embroidery, Dress-making, Artificial Flower-making, Painting on Silk, Pottery, &c.; (b) Specimens of School Work.

222. ÉCOLE PROFESSIONNELLE DE JEUNES FILLES, Mons.—This school offers the advantages of the half-time system, the morning being devoted to instruction and the afternoon to initiation in the calling proposed to be followed by the scholars.

223. DEPARTMENT OF PUBLIC INSTRUCTION, Brussels.—(1) Various objects for instruction in needlework and domestic economy. (2) Educational Diagrams, pupils' work. (3) Museum of Domestic Economy.

#### CLASS L.

Handicraft Teaching in Schools for Boys.—(a) Apparatus and Fittings for Elementary Trade Teaching in Schools; (b) Specimens of School Work.

224. MINISTRY OF PUBLIC INSTRUCTION, Brussels.—Boys' Manual Work.

225. WINDELS, D., Brussels.—Bench and Joiner's Tool Chest on a reduced scale for instruction in manual labour for boys' schools.

#### CLASS LI.

Science Teaching.—(a) Apparatus and Models for Elementary Science Instruction in Schools; Apparatus for Chemistry, Physics, Mechanics, &c.; (b) Diagrams, Copies, Text-books, &c.; (c) Specimens of the School Work in these subjects.

226. ARMAND, A. F., Mons.—Mechanical Pen or Aërograph.

227. DEVILLEZ, A., Mons.—(1) One volume on the ventilation of mines. (2) Two volumes of a Treatise on Heat.

228. ÉTABLISSEMENT DE CARLSBOURG, Paliseul, Province of Luxembourg.—(1) Plans and views of this establishment and the neighbourhood; also of its fittings and educational collections. (2) Programmes, statistics, &c. (3) Professional course: collection of drawing examples, cartography, works relating to the special courses, herbariums prepared by the scholars. Normal course: similar examples for this course.

229. LA FRATERNELLE BELGE, Brussels.—Papers, documents, and statistics, with diagrams of mortality and diseases.

230. GOSSE, A., & CO., Brussels.—Newspaper Map of the province of Luxembourg, with specimen of papers and various statistics.

231. DEPARTMENT OF PUBLIC INSTRUCTION, Brussels.—Collections relating to physics, chemistry, natural history, and (in cabinets) scholars' works, various documents.

232. NEUJEAN, A., et DELAITE, Liège.—(1) Laboratory Fittings and Apparatus. (2) Appliances for teaching electricity and the industrial arts; photographs, electrotyping, gilding, plating, nickel plating, &c. (3) Glass ware for laboratory use. (4) Mineralogical collection. (5) Products for painting on glass and porcelain.

233. ROBIE, F., Forest, near Brussels.—*Bulletin Scientifique et pédagogique de Bruxelles*, (monthly review).

234. WINDELS, D., Brussels.—(1) Ethnographical Types (5 heads of various races). (2) Ins-ct boxes with the metamorphoses. (3) Physical diagrams.



## CLASS LII.

**Art Teaching.**—(a) Apparatus, Models, and Fittings for Elementary Art Instruction in Schools; (b) Diagrams, Copies, Text-books, &c.; (c) Specimens of Art Work, Modelling, &c., in Schools.

235. **ACADEMY OF DESIGN, Ath.**—Specimens of School Works; shaded drawings modelling.

236. **BEAUJOT, Ch., Liège.**—Works of handwriting, copybooks, &c.

237. **CLUYTENS-SUETENS, Malines.**—Imitation of Wood and Marbles for painters' schools, with specimens of work done from the examples.

238. **DE CLERCQ, P., Ninove.**—Drawing Works.

239. **DE TAEYE, E., Cortenberg.**—Drawing Works.

240. **DIERCKX, J., Schaerbeek.**—Method of teaching Handwriting in Elementary and Normal Schools. Children's work done on this method.

241. **ÉTABLISSEMENT DE CARLSBOURG, Paliseul, Province de Luxembourg.**—Professional Course. (See Class 4.)

242. **FUMIÈRE, Th., Schaerbeek.**—(1) The Decorative Arts at the Belgian Exposition. (2) Exhibitions and their Influence on Decorative Art. (3) A few Words on Dwellings and their Furniture. (4) Amsterdam Exhibition and Belgian at the same. (5) Means of Improving the Working Man's Lot. (6) Louvain Society for the Construction of Cheap Dwellings. (7) Frame of Designs.

243. **DEPARTMENT OF THE INTERIOR ACADEMY OF THE FINE ARTS AND DESIGN.**—Collective Exhibit formed by the Academies of Louvain, Ghent, Soignies, St. Nicolas, Malines, Termonde, Courtrai et Lierre; 1. Elementary Instruction in Drawing; 2. Intermediate Instruction; 3. Technical Instruction. (2) Decorative Painting of Drawings relating to Sculpture, Furniture, Architecture, Masonry and Stone Cutting, Carpentry and Joinery; Architectural Composition.

244. **ROBELUS, P.-C., Ghent.**—Drawing Examples for Elementary and Second Grade Schools.

245. **SOUVENIER, H., Hasselt.**—English Writing Course.

246. **SERRURE, E.-C., St.-Nicolas.**—(1) Design for a Town School for both Sexes. (2) Design for a Village School with Drawing School. (3) Bound Atlas Course of Classical Architecture.

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247. **STROESSER, J. P., Schaerbeek.**—(1) Drawing Examples and Models. (2) Principles of Stereoscopy for elementary schools. (3) Plane and Solid Geometry. (4) Crystallography. (5) Geography and Astronomy. (6) Notice on the Solar System. (7) Planimeter Celestial Mechanism.

## CLASS LIII.

**Technical and Apprenticeship Schools**—(a) Apparatus and Examples used in Primary and Secondary Schools for teaching Handicrafts; (b) Models, Plans, and Designs for the Fitting up of Workshop and Industrial Schools; (c) Results of Industrial work done in such Schools.

248. **ADMINISTRATION COMMUNALE, Antwerp.**—(1) Liège Professional School. (2) Plans and Designs.

249. **ASSOCIATION POUR L'ENSEIGNEMENT PROFESSIONNEL DES FEMMES, Brussels.**—(1) Drawings and Aquarelles. (2) Ceramic and Fans. (3) Artificial Flowers. (4) Account Books. (5) Needlework and Dressmaking.

250. **ÉCOLE PRATIQUE D'HORTICULTURE DE L'ÉTAT, Vilvorde.**—(1) Plan in Relief of the Establishment. (2) Documents relative to the School.

251. **ÉCOLE PROFESSIONNELLE DE JEUNES FILLES, Antwerp.**—(1) Designs for Lace and Embroideries. (2) Artificial Flowers. (3) Ten Diagrams to illustrate the Manufacture of Artificial Flowers.

252. **ÉCOLE MOYENNE PROFESSIONNELLE DE DEMOISELLES, Liège.**—(1) Dresses. (2) Linen. (3) Artificial Flowers. (4) Drawing and Painting.

**APPLICATION COLLECTIVE DES ÉCOLES INDUSTRIELLES ET PROFESSIONNELLES.**—(1) Regulations. (2) Programmes. (3) Time Table. (4) Specimens of Certificates. (5) Library Catalogues. (6) Drawing Examples. (7) Models. (8) Photography. (9) Dyeing. (10) Weaving. *Elementary Instruction.*—(1) Freehand. (2) Geometrical Drawing and Flat Ornament. (3) Instrument Drawing. (4) Projection. (5) Perspective. (6) Mining and Metallurgical Drawing. (7) Building Construction. (8) Furniture. (9) Naval Construction. (10) Lace. (11) Painting. (12) Decorative Painting. (13) Weaving. (14) Dyeing, &c., with examples.

253. **ÉTABLISSEMENT DE CARLSBOURG, Paliseul, Province de Luxembourg.** (See Class 51.)



254. DE PAUW, Ch., in religion, F. MARES-JOSEPH. (See Class 48.)

255. LEROY, ALPHONSE, in religion, F. MANSUY-JOSEPH. (See Class 48.)

256. DEPARTMENT OF THE INTERIOR, Brussels.—(1) Hygiene Library of the principal works on this subject, including official Belgian publications. (2) Regulations for Professional Schools in Belgium.

258. MATHIEU, C. J., in religion, F. MATHIEU. (See Class 48.)

259. PERON, J.-J., in religion, F. MÉMOIRE. (See Class 48.)

260. VAN DEN BROECK, P. L., in religion, F. MARCY. (See Class 48.)

#### CLASS LIV.

Schools for the Blind and for the Deaf and Dumb.—(a) Apparatus and Examples for Teaching; (b) Specimens of School Work.

261. GRÉGOIRE, E., Berchem-St-Agathe.—The Deaf Mute. His infirmity, cure, character, education, past life, and future.

262. ASYLUM FOR THE DEAF, DUMB AND BLIND OF BOTH SEXES, Bruges.—(1) Various Trade Objects used in the instruction of the Deaf and Dumb. (2) Maps in Relief. (3) Books on the Subject. (4) Physical and Intellectual Works for the Deaf and Dumb.

263. VAN DER HAEGHEN, E., Schaerbeek.—Course of Freehand Drawing, with applications to the principles of ornament and drawing from nature.

264. VERSTRAETE, E.-C., Ghent.—System of Instruction for the Deaf and Dumb.

265. WELT, SCHMOELE, & CO., Antwerp.—Chamber Electric Organ.

266. WINDELS, D., Bruxelles.—(1) Desks with Stools for the Deaf and Dumb. (2) Animals in Reduced Model.

#### CLASS LV.

Literature, Statistics and Diagrams relating to Group VI. and to the Effects of "Cramming" and Overwork on the Young, &c.

267. DIERCKX, J., Schaerbeek.—Review of European Literature, from the point of view of practical art and hygiene.

268. EVRARD, L. Brussels.—The Health of the People. (A prize work.)

269. LEBON, LÉON, Ixelles.—(1) Elementary Instruction in Belgium. (2) The War on Ignorance. (3) Social Peace. (4) History of the Education of the People, and other works.

270. LEY, F., Brussels.—Two Books on Teaching.

271. MANCEAUX, H., Mons.—(1) Belgian Library for the Diffusion of Knowledge on Science and Art. (2) Zoology, Palaeontology. (3) Modern Belgium. (4) Collection of Greek, Latin, and French Classics. (5) Elementary Education Manuals. (6) Exercises. (7) Atlases. (8) Course of Mining. (9) Heating, Ventilation, &c.

272. DEPARTMENT OF PUBLIC INSTRUCTION, Brussels.—(1) Literature Statistics. (2) Teachers' Library. (3) Statistical Tables and Diagrams.

#### CLASS LVI.

Collective Displays of School Work and Appliances. School Museums.

273. ÉTABLISSEMENT DE CARLSBOURG, Paliseul, Province de Luxembourg. (See Class 51.)

274. DIERCKX, J., Schaerbeek.—The methods of writing in general use condemned by the doctors of France, England, Germany, and Belgium.

275. MERTENS, A., Brussels.—(1) Frames. (2) Chromos. (3) Specimens of Good Scholastic Work.

276. LE VESTIAIRE LIBÉRAL, Liège.—Object of the Work.

#### VILLE DE LOUVAIN.

CITY OF ANTWERP. (The City of Antwerp possesses 10 Kindergarten, 25 free elementary schools, 5 paying schools.)—(1) Exhibit, illustrating the complete equipment of a Kindergarten. (2) Similar Exhibit (with plans of schools), illustrating ladies' second-grade schools. (3) Similar Exhibit, as to Kindergarten and communal schools. (4) Primary Communal Schools: exhibit illustrating the instruction given in these schools, with books, plans, &c. (5) Elementary Schools (École Primaire): similar exhibit as to these schools.



## SECTION II. SCHOLASTIC HYGIENE.

### GROUP 6.

#### CLASS LV.

Literature, Statistics and Diagrams relating to Group VI. and to the Effects of "Cramming" and Overwork on the Young, &c.

#### I. OFFICIAL DOCUMENTS.

##### CENTRAL ADMINISTRATION DEPARTMENT OF PUBLIC IN- STRUCTION.

(1) Publications of the Department. (2) Condition of Public Instruction, with Statistics. (3) Condition of Elementary Instruction, with Statistics. (4) Laws and Regulations Relating to Elementary Instruction. (5) Various Scholastic Institutions.

#### CLASS XXXIV.

Designs and Models of Improved Buildings for Elementary Schools, Infant Schools and Crèches.

#### II. SCHOOL PLANS.

##### *Elementary Schools.*

(6) Instructions Relating to Elementary Schools, one table. (7) Detailed Plans of Commercial Elementary Schools, selected as types from the different parts of the country. (8) Photographs. (9) Building Instructions. (10) Detailed Plans of sites for normal schools erected or to be erected at Antwerp, Bruges, Ghent, Hasselt, Jodoigne, Liège, Mons, Namur, Tournai, Verviers. (11) Photographs, giving views of schools. (12) Plans for the building and furnishing of Royal and Second Grade Schools.

#### CLASS XXXV.

Apparatus and Fittings for Warming, Ventilating, and Lighting Schools, School Latrines, Closets, &c.

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

##### *Specimens Illustrative of this System.*

(12a) Normal Teachers' School at Ghent. Plans of the System of Heating and Ventilation with Hot Water at low pressure. (13) *Section normale d'instituteurs à Couvin.*—A Similar Plan. (14) Ventilating Stoves in use in certain schools of the province of Antwerp.

#### IV. HYGIENIC AND MEDICAL SERVICE IN SCHOOLS.

(15) Inspection of Schools from a hygienic point of view. Plan of Organisation by M. Devaux. (16) Hygienic and Medical Inspection of Schools. (17) Scholastic Hygiene. (18) Manual on First Aid in case of Accidents.

(19) *Bureau d'Hygiène*, Brussels. Hygienic Inspection and Medical Service of Schools. Specimens of Documents. (20) Specimens of the *boîte de secours* deposited in the elementary communal schools at Brussels. (21) Documents relating to the Sanitary Inspection of Elementary Schools at Antwerp, Ghent, and Liège.

#### V. GYMNASTICS.

(22) Plans of the Gymnasium of the Normal School for Teachers, Bruges. (23) Views of the Same. (24) Views of the Interior of the Gymnasium of the Normal School for Teachers at Lierre. (25) Open Air Gymnastic Exercises at the same school. (26) View of the Interior of a similar school at Liège. (27) Collection of Gymnastic Apparatus in use in Government Normal Schools. (28) Gymnastic Instruments. (29) Official Programme for Gymnastic Instruction. (1 tableau.) (30) Gymnastic Instruction. Special Training of Teaching Staff. (31) Major Docx's Manual of Gymnastic Instruction for Boys. (32) The same for Girls.

#### CLASS XL.

Literature, Statistics, Diagrams, &c., relating to Group IV.

#### VI. PUBLICATIONS RELATING TO SCHOOL HYGIENE.

(33) Belgian Works.

The List is attached to the Collection of Works exhibited.

## SECTION III.

### GROUP 6.—ELEMENTARY EDU- CATION.

#### CLASS XLVII.

Crèches and Infant Schools.—(a) Apparatus and Fittings for Crèches and Infant Schools; (b) Games, Toys and Kindergarten Amusements; (c) Models and Appliances for teaching; (d) Examples of School Work.

#### VII. KINDERGARTEN.

(34) Teaching Organisation of Kindergarten. Preparation of Teachers' Examinations. Conferences, Programme, Time Tables, &c. (35) Documents relating to the Normal Fröbel Course. (36) Belgian Works on the Fröbel System. (37) Furniture. (38) Didactic Examples. (39) Appliances for teaching Piquage and Embroidery by Mlle. Sadzot. (40) Toys by M. Jules Guillaume. (41) Toys for construction by means of the Prism and Cube; Specimen Box of Solids; Guide. (42) Twenty-four Pictures of Animals by Lentemann. (43) Goyer's Figures, Kind Treatment of Animals. (44) Works by Teachers in Kindergarten at Brussels. (45)



Works by children in the Brussels Kindergarten. (47) Collective Exhibit of Works furnished by the Kindergartens in Alost, Binche, Blankenberghe, Bruges, Brussels (rue du Poinçon School), Charleroi, Fosses, Furnes, Ghent, Grammont, Havelange, Heyst-sur-Mer, Hoogstraten, Liège, Malines, Molenbeek-St.-Jean, Péruwelz, Petit-Rechain, Seraing, Ypres, &c.

## VIII. ELEMENTARY AND NORMAL SCHOOLS.

### § 1. SCHOOL FURNITURE.

#### *Elementary Schools.*

(49) Specimens of School Furniture.

#### *Normal Schools.*

(50) Specimens of furniture for normal schools.

### § 2. DIDACTIC APPLIANCES, COLLECTIONS, PREPARED BY TEACHERS AND PUPILS.

A. Calculation.—B. Metric System.—C. Geometric Figures. D. Land Surveying.

(51) Teaching Calculation in Elementary Schools (6 arithmometers). (52) Teaching the Legal System of Weights and Measures. Collection of Weights and Measures. (53) Instruction in Geometrical Figures, Teachers' Work. (54) Instruction in Geometrical Figures, Pupils' Work. (55) Instruction in Land Surveying, Collection of Instruments.

#### E. Geography.

(56) Didactic Appliances for Normal Schools. (57) Collection of Atlases used in Normal Schools. (58) Stroobant's Monuments of Architecture and Sculpture in Belgium. (59) Views of remarkable Monuments in Belgium. (60) Twenty Geographical Tables by Lehmann. (61) Works by Pupils in Normal Schools, Relief Plans, Maps. (62) Didactic Teaching Common to Normal and Elementary Schools. (63) Didactic Appliances for Elementary Schools, Globes. (64) Maps, &c., on L. Genonçaux's System for Second Grade Schools. (65) Local Geography. (66) Collection of Atlases for use in Elementary Schools. (67) Relief Maps. (68) Portfolio of Maps.

#### F. History.

##### *Normal and Elementary Schools.*

(69) Diagram of Belgian History by Buschman. (70) By J. Gerard.

##### *Normal Schools.*

(71) Atlas of Historical Geography.

G. Intuitive, Demonstrative, and Practical Teaching in the Elements of Natural Sciences and Technology.

### FIRST SERIES—ZOOLOGY.

#### *Didactic Appliances—Normal Schools.*

(72) Catalogue of Collections of Zoology for a Normal School. (73) Illustrated Fauna of the Belgian Vertebrata, by A. Dubois.

#### *Elementary Schools.*

(74) Typical Collection for Zoology in Elementary Schools—Skeletons, Stuffed Animals. (75) Collection of Insects for Elementary Schools. (76) Plates representing Natural History. (77) Zoological Diagrams. (78) Five Diagrams of Human Anatomy. (79) Diagrams for teaching Natural History. (80) The National Fisheries of Belgium. (81) Synoptic Table of Insectivorous Birds.

#### *Collections of Zoology.*

(82) Collections prepared by Pupils in Normal Schools. (83) Collections prepared by Teachers. (84) Collections prepared by Pupils in the preparatory course of Normal Schools.

### SECOND SERIES.

(85) Industries employing animal substances—Tanning. (86) Wool. (87) Felt. (88) Silk. (89) Beekeeping.

#### *Third Series—Botany.*

(90) Sixty Herbariums made by pupils in normal schools, &c. (91) Nine Herbariums made by teachers. (92) Thirteen Herbariums made by pupils in elementary schools. (93) Four Botanical Tables. (94) Three Plans of Botanical Gardens.

#### *Fourth Series—Arboriculture and Agriculture.*

(95) Tables made by teachers for instruction in arboriculture. (96) Four Plans for teachers' gardens. (97) Collections of agricultural instruments (reduced size). (98) Collection of grains.

#### *Fifth Series—Industries using Vegetable Substances.*

(99) Collection of various kinds of woods. (100) Hemp industry. (101) Flax industry. (102) Cotton industry. (103) Straw Plaiting. (104) Winnowing. (105) Paper. (106) India Rubber. (107) Tobacco. (108) Brewing. (109) Manufacture of Hollands. (110) Sugar Manufacture.

#### *Sixth Series—Mineralogy. Industries employing Mineral Substances.*

(111) Collection of mineralogy for use in Belgian normal schools by Professors Chalon and Malaise. (112) Collections prepared by pupils in normal schools. (113) Collections prepared by teachers. (114) Collections prepared by pupils in elementary schools.

#### *Seventh Series—Instruction in Elements of Physics and Chemistry.*

(115) Catalogue of collections for instruction in physics and chemistry. (116) Collection of physical instruments for use in elementary schools. (117) Barometer for use in schools. (118) Lead line, mason's level, trowel, pulleys,



&c. (119) Model of lightning conductor. (120) Collection for teaching agricultural chemistry to adults. (121) Collection of appliances and chemical products placed at the disposition of each teacher who has followed the normal course of agriculture organized in 1883 at the State Institute of Agriculture, Gembloux.

#### H.—INSTRUCTION IN DRAWING.

##### *Elementary Schools.*

(122) Black Board for practising freehand. (123) Text Books of Drawing. (124) Slates used for each of the three grades. (125) Drawing Book. (126) Collective Exhibit of Drawing Books.

##### *Normal Schools.*

(127) Black Board. (128) Appliances, with moveable planes, for studying projection. (129) Two steps with eight easels and stools. (130) Pedestal and model. (131) Plan and section of the drawing class-room at Bruges Normal School. (132) Models in iron wire, zinc, and plaster. (133) Collection of scholars' drawings showing gradation of the exercises. (134) Drawing Manuals. (135) Collection of diagrams for teaching the outlines of history of art. (136) Collective Exhibit of Scholars' Works.

#### I.—INSTRUCTION IN MUSIC.

##### *Section normale d'Institutrices de Bruxelles (Rue des Visitandines.)*

(137-140) Diagrams for teaching music. (141) Formation of major and minor scales. (142) Copy Books. (143) Manuals.

#### § 3.—ORGANISATION.

(144-154) Regulations, Programmes, Registers, and papers relating to the organisation of elementary schools.

##### *Normal Schools.*

(155-164) Similar books and papers relating to organization.

#### § 4.—PUPILS WORKS.

##### *Elementary Schools.*

(165) Collection of copy books according to the first three standards of the code of 20th July, 1880. (166 & 167) Similar collections.

##### *Normal Schools.*

(168) Collective Exhibit of the works of male and female pupil teachers.

#### DOMESTIC ECONOMY AND NEEDLEWORK.

#### § 1.—DOMESTIC ECONOMY.

(169) Collective Exhibit from Normal Schools for women teachers. (170) Collections of Students from the preparatory courses and work-rooms of the Normal Schools.—Numbers 145 and 174. (171) Collection from elementary schools.—Numbers 158 and 174.

#### § 2.—NEEDLEWORK.

##### *Governesses' Schools.*

(172) 1st Series. Exhibition from *La Section normale d'Institutrices*, rue des Visitandines, à Bruxelles. (173) 2nd Series. Collective Exhibits from the Normal Schools of Arlon, Bruges, Brussels (rue de Malines), Ghent, Hasselt, Liège, Louvain, Mons et Tournai.

(174) 3rd Series. Collective Exhibit of students from the preparatory courses and work-rooms of the Normal School.

##### *Elementary Schools for Girls.*

(175) 4th Series. Collective Exhibit from various Belgian Schools. (176) Specimens and Appliances for teaching Needlework. (177) Diagrams relating to the same.

#### CLASS L.

Handicraft Teaching in Schools for Boys—(a) Apparatus and Fittings for Elementary Trade Teaching in Schools; (b) Specimens of School Work.

#### X.—INSTRUCTION IN MANUAL LABOUR FOR BOYS.

##### *École Primaire Communale No. 12, Brussels.*

(178) Modelling, Joinery, Turnery, Ironwork, Locksmiths' work.

##### *Section Normale d'Instituteurs, Brussels.*

(179) Woodwork, cardboard boxes.

##### *Normale School, Lierre.*

(180) Wood and wirework: study of projections.

#### MEANS OF IMPROVEMENT.

##### § 1.—QUARTERLY CONFERENCES.

(181-186) Papers, &c., relating to this subject.

##### § 2.—SHORT COURSES FOR TEACHERS.

(Held during the long vacations and lasting about a month.) (187) Instruction in Gymnastics. (188) Instruction in Drawing. (189) Instruction in the elements of the Natural Sciences. (190) Instruction in the elements of Agriculture. (191) Fröbel System. Training of Governesses. (192) Documents relating to Short Course. (193) Collection of Works on Teaching, principally for the use of the instructor.

## BRAZIL.

WAR DEPARTMENT.—Specimens of Military Uniforms.

DEPARTMENT OF THE NAVY.—Specimens of Naval Uniforms.



## THE GENERAL INSPECTOR OF PRIMARY AND SECONDARY EDUCATION.

Third Public School for girls of the parish of the S. S. Sacramento: Needlework.

Third Public School for boys, same parish: Handwriting and Freehand Drawing.

Second Public School for girls, parish of S. José: Needlework, Handwriting, Drawing.

Second Public School of the parish of Sta. Rita (boys): Handwriting and Drawing.

First Public School for girls, same parish: Handwriting and Drawing.

Third Public School for girls, same parish: Handwriting, Drawing and Needlework.

Fourth Public School for girls, parish of Sant' Anna: Handwriting, Freehand Drawing, Needlework.

First Public School for boys, same parish: Handwriting and Freehand Drawing.

First Public School of Espirito Santo (Boys'): Drawing.

Second Public School (Boys'), same parish: Drawing.

First Public School (Boys'), parish of Eugênio Veltio: Needlework.

Third Public School (Girls'), same parish: Needle and Fancy Work, Drawing, Handwriting.

First Public School (Girls'), parish of the Lagôa: Handwriting, Drawing, Needlework.

First Public School (Boys'), same parish: Handwriting.

First Public School (Girls'), parish of Gavea: Handwriting, Fancy Work.

Third Public School (Girls'), parish da Gloríe: Plain and Fancy Needlework.

Third Public School (Boys'), parish of Eugênio Novo: Drawings.

First Public School (Girls'), parish of Santa Rita: Fancy Work.

Third Public School (Girls'), Parish of Santa Rita: Fancy Needlework.

Third Public School (Girls'), Parish of Eugênio Novo: Handwriting, Drawing, Plain and Fancy Needlework.

Third Public School (Boys') parish of Jacaré-paguá: Handwriting, Arithmetic.

**Deaf and Dumb Institute:**—Drawings, Handwriting, Arithmetic, Geography. Copies of the Compendium of the Institute, &c. Shoes, Bookbinding, the work of the inmates. An Album.

**Imperial Institute for Blind Children:** Books, both manuscript and printed, bound in the workshops of the Institute. Various books in embossed characters. Writing and printing machines for the use of the blind. Specimens of embossed geometrical figures, and of music, made in the workshop of the Institute. Chess. Draughts for the use of the blind. Musical compositions of inmates of the Institute: waltzes, a cantata, entitled "Luz e Trevas" = Darkness and Light. Various educational works and essays by pupils of the Institute. Needle and Fancy Work by the same.

Commercial Institute.—Drawings.

Normal School of the Capital: Handwriting, Needlework.

## PRIVATE SCHOOLS.

Collegio D. Castorina (Girls'); Head Mistress, Dona C. Bittencourt: Arithmetic, Handwriting, Fancy Needlework.

Collegio da Imperial Fazenda de Santa Cruz: Head Mistress, Dona J. C. Tinoco: Needle and Fancy Work.

Collegio de N. S. da Conceição Aparecida: Head Mistress, Dona A. E. Diniz: Fancy Work.

Collegio do Sôr Bom Jesus dos Perdões: Head Mistress, Dona M. L. L. Pereira: Needle and Fancy Work.

Collegio Sta. Glyceria: Head Mistress, Dona P. F. Coutinho: Fancy Work.

Collegio de Sta. Rita: Head Mistress, Dona R. F. Soares: Fancy Needlework.

Collegio do Sôr Santo Christo dos Milagres: Head Mistress, Dona J. R. B. Carrão: Fancy Needlework.

Collegio da Immaculada Conceição, conducted by the Sisters of Charity: Flowers painted upon glass, Wall Maps, Needlework, Writing, Drawing.

Collegio de Sta. Antonio (Boys'); Head Master, C. dos Anjos França: Handwriting, Arithmetic.

Collegio Williams (Girls'); Head Mistress, Emily Williams: A Basket of Feather Flowers, and other Fancy Work.

Collegio Melanie Gros: Head Mistress, Melanie Gros: Hand-drawn Map, Handwriting.

Collegio Menezes Vieira, and Kindergarten School annexed: Books, Work of the Pupils, Blank Maps, Album of Kindergarten School Work, &c.

**School Books approved by the General Inspector of Primary and Secondary Education, sent by the following Publishers:—**

Alves & Co., Faro & Lino, J. G. de Azevedo, H. Laemmert & Co., Hilario Riveiro, B. L. Garnier.

Plans of School Buildings (various), and Drawings of School Furniture.

Photographic Views of School Buildings.

**LYCEO DE ARTES E OFFICIOS, Rio de Janeiro.**—Architectural & Mechanical Drawings.

Samples of Extract of Brazilian Coffee exhibited by E. J. Carvalho, 69 Rua da Prinha, Rio de Janeiro.

## CANADA.

### CLASSES I. & II.

**1631. CANADIAN PACIFIC RAILWAY CO.** (per ALEXANDER BEGG), 88 Cannon Street, E.C.—(1) Agricultural Products from Manitoba and the Canadian North-West, used as food. (2) Publications relating to, and descriptive of Canada. (3) Stuffed Specimens of Canadian Animals and Birds.



## CHINA.

It was only in February last that the Chinese Government authorized Sir Robert Hart, the Inspector-General of Imperial Maritime Customs, to arrange for China's participation in the International Health Exhibition, and notwithstanding the shortness of time, an exhibit has been prepared by the Customs Department, which proves eminently attractive.

The Chinese Court has been lengthened by fifty feet to make room for four shops, with beautifully carved fronts, which have arrived from Peking; and, outside the Court, there is a Chinese Restaurant and Tea House, with a large verandah overlooking the ornamental grounds.

Some idea of the Exhibit may be formed from the following extract from Sir Robert Hart's memorandum, but the full details can be found in the Special Catalogue issued by the Chinese Commission.

China's co-operation to be illustrative of some of the more interesting features of Chinese life:—

- (a) Tientsin—to provide an Exhibit of all the grain and pulse in the northern market.
- (b) Hankow—to provide a shop for the sale of tobacco, pipes, &c., &c., &c.
- (c) Kiukiang—to provide a shop for the sale of porcelain, &c., &c., &c.
- (d) Canton—to provide a shop for the sale of miscellaneous articles, and also to supply a set of furniture for a Chinese *salon*, or reception room.
- (e) Ningpo—to supply a bedroom set of furniture, &c., and also patterns or samples of guazes, grass cloth, &c., &c., &c.
- (f) Peking—to supply as follows:—
  - 1. A Chinese restaurant (with all accessories).
  - 2. A Chinese string band (if possible).
  - 3. A shop to sell curios, &c., &c., &c.
  - 4. A set of lay figures, some 30 in all—dressed, to illustrate the dress of various classes of the Chinese in spring, summer, autumn, and winter.
  - 5. Mule cart or cab and harness; saddlery; a sedan chair; a wedding chair (with bride in dress worn day before, day of, and day after marriage); a mule litter; a Peking wheelbarrow; catafalque (model) and coffin; models of dwellings, monuments, &c., &c., &c.
  - 6. A Collection of Bows and Arrows, Swords, and Spears, &c., &c., &c.
  - 7. A Collection of Musical Instruments.
  - 8. A set of Stoves for use in house, in sedan, and in sleeve.
  - 9. Shop Fronts for the four shops.
  - 10. Specimens of Wood Panelling.
  - 11. Samples of Silks, &c.
- (g) Peking and Shanghai—to supply:—
  - 1. Books used by Chinese children.
  - 2. Books used by Chinese students.
  - 3. Books translated from foreign languages into Chinese to teach Western Science to Chinese, &c., &c., &c.
  - 4. Books prepared to enable Europeans to study Chinese.



# DENMARK.

## GROUP 1.—FOOD.

### CLASS II.

1678. **THE "CAFFONIA" CO.**, Copenhagen. (Agents, **HANS PUGGAARD**, 34 Eastcheap, E.C.)—Roasted Coffee and Extract of Coffee in bottles, of improved quality.

### CLASS III.

1679. **HANSEN'S, CHR., LABORATORY**, Copenhagen (Agents, **SORENSEN BROS.**, 33 Great Tower Street, E.C.)—(1) Liquid Butter Colouring. (2) Liquid Annatto Cheese Colouring. (3) Cheese Bennet.

1680. **CHRISTENSEN, CHAS., & CO.**, Copenhagen.—Superior Danish Liquid Butter Colouring, Cheese Rennet.

1681. **HENRIK BRUUN**, Ronde.—Danish Butter, packed for export.

### CLASS IV A.

1682. **PONTOPPIDAN, H., & CO.** (Agents, **SORENSEN BROS.**, 33 Great Tower Street, E.C.)—(1) Danish Ales for exportation and home consumption. (2) Carlsberg Beer. (3) Alliance Pale Ale.

1683. **FABRIKEN "ACTIV,"** Copenhagen.—Bottled Beer, from the Ny Carlsberg Brewery, Copenhagen. Gde. Médaille d'Honneur, Nice, 1884.

1684. **HEERING, PETER F.**, Copenhagen.—Cherry Brandy.

### CLASS IV B.

1685. **FABRIKEN "ACTIV,"** Copenhagen. (Agents, **HANS PUGGAARD**, 34 Eastcheap, E.C.)—Mineral Waters.

## GROUP 2.—DRESS.

### CLASS XIII.

1686. **WAR OFFICE**, Copenhagen.—Uniforms, as used by the Royal Danish Army.

1687. **DEPARTMENT OF THE NAVY**, Copenhagen.—Naval Uniforms and Sundries, as used by the Royal Danish Navy.

1688. **JELSTRUP, E., & CO.**, Copenhagen.—(1) Leather Jackets, made from double-tanned leather. (2) Leather Gloves, in the original Danish style.

### CLASS XV.

1689. **ANDERSEN, FERDINAND**, Copenhagen.—Finest Greenland Quilts and Bearskins.

1690. **SALOMON DAVIDSEN**, Copenhagen.—Greenland Furs.

### CLASS XVII.

1691. **CHRISTENSEN**, Copenhagen.—Life Saving Apparatus.

## GROUP 3.—THE DWELLING HOUSE.

### CLASS XX.

1692. **CHRISTOPH & UNMACK (DET DOECKERSKE TELTBYGGERI)**, Copenhagen (Agents: **PUGGAARD & GALSCHIOT**, 34 Eastcheap, E.C.)—Exhibits next to the Queen's Gate entrance, near the Dairies. (1) Hospital Hut for contagious diseases, belonging to H.R.H. the Prince of Wales, showing the system of ventilation through walls and roofs. (2) Portable Hut for sport and engineering purposes. (3) Portable Hut for soldiers, miners, and emigrants. (4) Wooden Portable Hut for settlers and emigrants.

### CLASS XXIII.

1693. **MÖLLER, L. M.**, Copenhagen.—Self-acting and Disinfecting Closet, exhibited in hospital mentioned above.

### CLASS XXIV.

1694. **CHRISTOPH & UNMACK**, Copenhagen (Agents, **PUGGAARD & GALSCHIOT**, 34 Eastcheap, E.C.)—Air-renewing stoves.

**RECK, A. B.**, 3 Thuresengade, Copenhagen. (Agents, **PUGGAARD & GALSCHIOTT**, 34 Eastcheap, London, E.C.)—(1) Heating and Ventilating Stoves and Hot Air Furnaces for schools, infirmaries, churches, offices and private dwelling-houses, &c. (2) Drawing of schools, infirmaries, private dwellings, &c., heated and ventilated by Exhibitor. (3) Drawings of different systems of the heating of buildings by exhaust steam with the lighting of the buildings by electrical light. [No. 1279 East Central Gallery A.]

### CLASS XXX.

1696. **F. AHRENDSEN & CO.**, Piccadilly.—Danish Porcelain and Biscuit, from the Royal Danish Porcelain Works, Copenhagen; Terra Cotta and Calipasta.

1697. **THE IPSEN TERRA-COTTA AND FINE ART POTTERY**. (Agents, **ARUP BROTHERS**, 120 New Bond Street, London, W.)—Danish Fine Art Pottery, from Ipsens Enke, Copenhagen.

1698. **NEUMANN, C.**, Copenhagen.—"Gibraltar," Oil Painting.



**GROUP 3a.—AMBULANCE.****CLASS XXXIA.**

1699. **CHRISTOPH & UNMACK**, Copenhagen (Agents, **PUGGAARD & GALSCHIOT**, 34 Eastcheap, E.C.).—(1) Field Ambulance on wheels, and different appliances for ambulances. (2) Tent for attendants. (3) Three Types of Summer Houses for sporting purposes.

**CLASS XXXIB.**

1700. **CHRISTOPH & UNMACK**, Copenhagen (Agents, **PUGGAARD & GALSCHIOT**, 34 Eastcheap).—(1) Transport (a) by Human Agency Stretchers as used in the Danish Army. (2) Treatment (a) Hospital (diagrams of) for cholera, &c., as proposed to be built in Denmark.

**GROUP 4.—THE SCHOOL.****CLASS XXXV.**

**RECK, A. B.**, Copenhagen.—*See Class XXXV.—British Section.*

**GROUP 5.—THE WORKSHOP.****CLASS XLI.**

1701. **CHRISTOPH & UNMACK**, Copenhagen (Agents, **PUGGAARD & GALSCHIOT**, 34 Eastcheap, E.C.).—Portable Hut for manufacture of Explosives.

**CLASS LIVB.**

1702. **MOLDENHAVER**.—Works made by the Blind Pupils at the Royal Asylum for the Blind, Copenhagen.

**FRANCE.**

The French Section comprises:—

1. A Gallery situated in the West Central Gallery, with two *Annexes* in the neighbouring Galleries.
2. Three Rooms of the Technical Institute (1st floor) and some space in the rooms belonging to the Institution for the Deaf, Dumb, and Blind (2nd floor).
3. Some space in the open air, behind the Dairies.

**GROUP 1.—FOOD.**

(*West Central Gallery.*)

**CLASS I.**

1. **CADIOT, E. H.**, 3 East India Avenue, E.C.—(1) Fruits. (2) Preserves. (3) Confectionery.

2. **A. CHAPU**, 5 Rue de la Tacherie, Paris, the French Soups of the *Société Générale des Potages Économiques de Paris* (Agent, **ALBERT LEDUC**, 4 Bond Court, Walbrook, E.C.).—French Soups. The basis of the soup is meat extract, but the meat is mixed with vegetables during extraction, and before concentration. The concentrated extract is either sold in the dry state, or is granulated with Semolina, Tapioca, &c., &c. It is only necessary to boil one of these preparations with water for a few minutes, and soup of excellent quality is obtained.

3. **SIMON LEGRAND, J.**, Bercée, near Douai, Nord.—Agricultural Products.

**CLASS II.**

4. **BENOIST**, 10 Wardour Street, W.—French Confectionery and Comestibles.

5. **FOURCADE**, 7 Rue St. Merri, Paris (Agent, **M. FOUCARD**, 24 Hop Exchange, S.E.).—Tapioca and other Comestibles.

6. **JACQUIER, FRÈRES**, 50 Rue St. Croix de la Bretonnerie, Paris.—(1) Table Vinegar. (2) Prepared Mustard. (3) Pickles. (4) Fruits preserved in Vinegar and Oil. (5) Sauces and Condiments.

7. **MARTIN-BREY**, St. Denis, Seine (Agent, **A. MACKIE**, 6a Milverton Street, Kennington Park, S.E.).—(1) Vermicelli. (2) Macaroni. (3) Comestibles.

8. **MARSHALL et CIE.**, 58 Cours d'Herbouvillie, Lyon; & 336 Rue St. Honoré, Paris.—(1) Hygienic Coffee. (2) Prepared Chestnuts. (3) Refined Chestnut Flour.



9. **POTIN (VEUVE FÉLIX)**, 103 Boulevard Sébastopol, Paris.—(1) Chocolate. (2) Chocolate Bonbons. (3) Confectionery. (4) Preserved Vegetables. (5) Fruits in Syrup. (6) Sweetmeats. (7) Wines.

10. **SOCIÉTÉ GÉNÉRALE POUR LA FABRICATION ET LA VENTE DES PÂTES ALIMENTAIRES DE LYON**, 116 Cours Gambetta, Lyons.—(1) Comestibles. (2) Macaroni. (3) Vermicelli. (4) *Pâtes au sel de Vichy*. (5) Soup called Koulao-Thon.

11. **LOMBART**, 75 Avenue de Choisy, Paris.—(1) Chocolate. (2) Bonbons. (3) Cocoa. (4) Cocoa Butter. (5) Tea (*déjeuner parisien*). (6) Coffee.

12. **BILLETTE**, 24 Boulevard de la Liberté, Rennes (Ille-et-Vilaine).—Tubes in cartridge form containing the daily rations of sugar and coffee for one individual member of the army and navy in time of war. These provisions are preserved by a special envelope. Packets in box form containing ground coffee preserved by this process, and adapted for other products, such as tea, meal, &c.

13. **DAY et MITTON**, Châtellerault (Vienne); 69 Oxford Street, London, W.—Preserved Vegetables in tins and glass jars.

**CADIOT, E. H.** (See Class I.)

### CLASS III.

14. **BENOIST, V.**, 19 Wardour Street, W.—(1) Charcuterie Française. Speciality of braized beef, galantine, game pies, "volailles truffées," and all kinds of cold dishes for wedding breakfasts, luncheons, and suppers. (2) Truffles du Périgord when in season.

15. **PETIT-PELLIEUX**, 85 Rue Turbigo, Paris (Agent, **E. FOUCARD & CO.**, 24 Hop Exchange, S.E.).—Provisions: viz., (1) Herrings. (2) Tunny. (3) Mackerel marinated with white wine in tins. (4) Chicken. (5) Game. (6) *Foie Gras Sausages*.

### CLASS IV.

16. **DUPUY et FILS**, Épernay (Agent, **MAURICE MEYER**, 7 Savage Gardens, E.C.).—Champagne.

17. **DOUCET**, Oran, Algeria (Agent, **PAUL MITTON**, 69 Oxford Street, W.).—Mandarin Liqueur.

18. **DAY et MITTON**, Châtellerault, Vienne (Agent, **PAUL MITTON**, 69 Oxford Street, W.).—Preserved Vegetables in tins and glass jars.

19. **GET FRÈRES**, Revel, Haute-Garonne (Agent, **M. FOUCARD**, 24 Hop Exchange, S.E.).—Peppermint Liqueur.

20. **MARCHAND FRÈRES**, Charenton, Seine (Agent, **M. FINCKEN D'ANTE-MARCHE**, 16 Rue Bleue, Paris).—(1) Brandies. (2) Rums. (3) Liqueurs. (4) Syrups.

21. **SCHMIDT et CIE.**, Condom (Agent, **C. KELSO**, 106 Fenchurch Street, E.C.).—Armagnac Brandy.

22. **BARABEAUX PÈRE et FILS**, Périgueux, Dordogne (Agents, **MESSRS. WHITEHOUSE & CO.**, 106 Fenchurch Street, E.C.).—Liqueur de Grande Champagne.

23. **GALLARD & CO.**, Bordeaux Gironde (Agent, **A. MACKIE**, 6a Milverton Street, Kennington Park, London, S.E.).—Wines.

**POTIN.** (See Class II.)

**BILLETTE.** (See Class II.)

### CLASS VI.

24. **CHAPU**, 5 Rue de la Tacherie, Paris (Agent, **A. LEDUC**, 4 Bond Court, Walbrook, E.C.).—Cheap Soups.

**BENOIST.** (See Class II.)

### CLASS VII.

25. **VILLE DE PARIS.—MUNICIPAL LABORATORY FOR CHEMISTRY** (**M. CHARLES GIRARD**, Director).—Apparatus, Instruments, Drawings, Photographs and Documents relating to researches on the adulteration of food.

26. **HOUDART, E.**, 138 Rue de Belleville, Paris.—(1) Ænobarometer for apportioning the dry extract of wines. (2) Appliances for measuring the solid bodies in wine. (3) Appliance for drawing off and bottling wines and other fermentible liquids. (4) Plan of a Self-Acting Heating Apparatus, with the view of preserving them without aging.

27. **MALLIGAND**, 8 Boulevard St. Michel, Paris.—Ebullioscopes.

### CLASS VIII.

28. **PASTEUR, M.**, 45 Rue d'Ulm, Paris.—Instruments employed in M. Pasteur's laboratory for the etiological and prophylactic investigation of contagious diseases. Plan of the fittings of this laboratory. Diagrams and statistics. Applications to chicken cholera, carbuncle, pig disease (*rouget des porcs*), rabies. Applications to silkworm disease, to the heating of wines, vinegar manufacture, &c.

29. **SOCIÉTÉ DES ATELIERS DE NEUILLY** (**O. André**, Directeur), Rue Charles Laffitte, Neuilly-sur-Seine.—Installation of Dog Kennels and Stables for M. Pasteur's laboratory.



30. **COLLIN, M.**, Rue de l'École de Médecine, Paris.—Injection Syringe used in M. Pasteur's laboratory.

#### CLASS IX.

31. **GENESTE et HERSCHER**, 42 Rue du Chemin Vert, Paris.—Oven and Bakery for campaign use, Geneste and Herscher's system, adopted in the French army.

**BILLETTE.** (*See Class II.*)

#### CLASS X.

32. **DR. PETIT**, 14 Avenue Bazin, Royat, Puy-de-Dôme.—Map of the French Baths and Winter Resorts, showing in the order of their importance the principal bathing shores, mineral water establishments, winter resorts, &c. Diagram of the mineral waters of Auvergne.

33. **PARIS SOCIETY OF PUBLIC MEDICINE AND PROFESSIONAL HYGIENE** (President, **DR. PROUST**; General Secretary, **DR. NAPIAS**), 3 Rue de l'Abbaye, Paris.—Works by Members of the Society. Various publications.

34. **FRENCH SOCIETY OF HYGIENE**, 30 Rue du Dragon, Paris. (President **DR. MARIÉ-DAVY**; General Secretary, **DR. DE PIETRA SANTA**).—Works by the Society and its Members. Various publications.

35. **SOCIETY AGAINST THE ABUSE OF TOBACCO**, 38 Rue Jacob, Paris (President, **M. DECROIX**).—Works by Members of the Society. Various publications.

36. **DEPARTMENT OF COMMERCE**.—(1) Works on Mineral Waters. (2) Report by the French Consultative Committee on Public Hygiene.

37. **DEPARTMENT OF PUBLIC WORKS**.—Map of the Mineral Waters of France.

38. **BORDEAUX SOCIETY OF PUBLIC HYGIENE** (**DR. LAYET**, General Secretary), 42 Rue du Palais de Justice, Bordeaux.—Publications.

**PASTEUR'S LABORATORY.** (*See Class VIII.*)

**CITY OF PARIS, MUNICIPAL LABORATORY.** (*See Class VII.*)

#### CLASS XI.

39. **MIGNON & ROUART**, 137 Boulevard Voltaire, Paris.—Apparatus for the congelation of meat and corpses.

40. **PILLIVUYT et CIE.**, Melun and Nevers; Dépôt at Paris, 46 Paradis-Poissonnière (Agent, **M. BRIMEUR**, 15 Hatton Garden, E.C.).—White and Brown Porcelain.

41. **CHEVALLOT**, 14 Rue des Quatre Vents, Paris (Agent **A. LEDUC**, 4 Bond Court, Walbrook, E.C.).—Filter for Oils, Liqueurs, and Druggists' Wines.

42. **MANUFACTORY OF GIEN**, Loiret (Agent, **M. OPPENHEIM**, 150 Leadenhall Street, E.C.).—Porcelain.

43. **FAÏENCERIE DE CHOISY-LE-ROI (SEINE)**. (**M. BOULANGER**, Director; Agents, **M.M. FRANCATI & SANTAMARINA**, 69 Hatton Garden, London, E.C.).—Porcelain.

44. **DURAFORT, M.**, 164 Boulevard Voltaire, Paris.—Syphons and Household Appliances for using Gaseous Drinks.

45. **SOCIÉTÉ NOUVELLE DE CONSTRUCTIONS SYSTÈME TOLLET**, 61 Rue Caumartin, Paris.—Fittings for wine cellars.

**BILLETTE.** (*See Class II.*)

### GROUP 2.—DRESS.

#### CLASSES 13–19.

46. **BRENIER**, 17 Rue Réaumur, Paris.—Brushes.

47. **FARCY et OPPENHEIM**, 35 Boulevard Sébastopol, Paris (Agents, **STAPLEY & SMITH**, London).—Sewn Corsets.

48. **LIBRON et STIEGLER**, 57 Rue Rambuteau, Paris (Agents, **STAPLEY & SMITH**, London).—Corsets without seam.

49. **HUTCHINSON et CIE.**, 1 Rue d'Hauteville, Paris (Agency, 4 Great Winchester Street Buildings, E.C.).—India Rubber Vestments.

50. **MÉLIÈS**, 5 Rue Taylor, Paris.—Assortment of hygienic boots, hand sewn, for men and women. Fancy, court, and dress shoes.

**VILLE DE PARIS**.—Specimens of various costumes used in the Ambulance and Police Services. (*See page 171.*)

### GROUP 3.—THE DWELLING-HOUSE.

#### CLASS XX.

52. **JOUBERT et FILS**, 152 King's Road, Chelsea, S.W.—Small Renaissance Saloon for the French Commission, mosaic pavement, painted ceiling, furniture and hangings. Speciality in restoration of châteaux. Decoration and installation of the French section.

53. **LOMBART**, 75 Avenue de Choisy, Paris.—Specimen of workmen's Dwellings.



54. **CACHEUX**, 25 Quai St. Michel, Paris.—Specimen of Workmen's Dwellings.

55. **SOCIÉTÉ DE CONSTRUCTIONS SYSTÈME TOLLET**, 61 Rue Caumartin, Paris.—Specimen of Workmen's Dwellings.

56. **SOCIÉTÉ DES ATELIERS DE NEUILLY** (M. O. ANDRÉ, Directeur), Rue Charles Laffitte, Neuilly-sur-Seine.—Iron Shed to contain the pumps belonging to the Municipality of Paris. (*In the garden at the back of the Dairies.*)

57. **GRANDS MAGASINS DU PRINTEMPS**, Boulevard Haussmann, Paris.—Installation of Warehouses and Factories.

#### CLASSES XXI., XXII., XXIII.

58. **ROGIER et MOTHES**, 20 Cité Trévisse, Paris.—Appliances for preventing noxious exhalations. Water closets, Urinals, Sinks, Drains.

59. **FLICOTEAUX**, 83 Rue du Bac, Paris.—Models of Wash Stands and Water Vessels for Hospitals.

60. **FISCHER et CIE.**, Chailvet, par Urcel, Aisne (Agent, M. BARBÉ, 22 Rue de l'Échiquier, Paris).—Disinfectants: Alums, Copperas, Persulphate of iron, Coagulated blood, Solid and Liquid Coagulants.

61. **TISSELIN**, 126 Rue Montmartre, Paris.—Tisselin's Gondronine.

62. **CHABANEL et BRABANT**, 19 Boulevard de Sébastopol, Paris (Agents, E. FOUCARD & CO., 24 Hop Exchange, S.E.).—Emptying Appliances on the separating system, which is inodorous and filtering.

63. **DURAND-CLAYE**, 69 Rue de Clichy; et **MASSON**, 22 Avenue Parmentier, Paris.—System of Water Closets for public buildings and drainage of private houses by the system of *All to the Drains*.

64. **MASSON**, Avenue Parmentier, Paris.—Swimming Baths.

65. **VERRINE**, Municipal Engineer of Caen.—Apparatus for Removing Liquid Filth.

66. **DAVID**, 83 Rue du Bac, Paris.—Apparatus for the Filtration of the Paris Water Supply.

67. **CHAMBERLAND, DR.**, 14 Rue Vauquelin, Paris.—Apparatus for the Filtration of Water.

68. **GUINIER**, Rue Jean-Jacques Rousseau, Paris.—Syphon intermittent pour les égouts. (*In the garden at the back of the Dairies.*)

69. **DECAUVILLE, AINÉ**, à Petit-Bourg (Agents, ROBT. VON GLEHN & SONS, 7 Idol Lane, Great Tower Street, E.C.).—(1) Sections of Light Portable Railway, 16-in. and 20-in. gauge, with 9-lb. steel rails and sleepers complete, for laundries, drying and bleaching grounds, dairies, filter-beds, sewage farms and the like. Trucks and waggons to correspond. (2) Drawings of Railway Ambulance used in the late wars in Tunis and Turkestan.

70. **CHAMBERLAND, DR.**, 14 Rue Vauquelin, Paris.—Purifying Filter, used in M. Pasteur's laboratory.

71. **CERTES**, Rue Barbet de Jouy, Paris.—Apparatus for the Micrographic Analysis of Water.

72. **MIGUEL, DR.**, à l'Observatoire de Montsouris, Paris.—(1) Purifying Filter. (2) Appliances and Instruments for the study of atmospheric currents, examination of dust in the atmosphere.

73. **E. DELAUNAY & B. CHEVALLOT**, 14 Rue des Quatre Vents, Paris (Agent, A. LEDUC, 4 Bond Court, Walbrook, E.C.).—Machine for filtering thick liquids (oils, wines, liqueurs). This machine requires the liquids to go through the process only once instead of five or six times.

74. **PERRAULT (ANTHOINE, Successeur)**, 84 Bd. Beaumarchais, Paris (A. LEDUC, Agent, 4 Bond Court, Walbrook, E.C.).—(1) "The Rapide" Ice Freezing Machine. (2) New Patented Machine to make Ices in ten minutes. (3) "Marmite Américaine," to make Extract of Meat, the result of which being a "consommé" without water.

**VILLE DE PARIS.**—(1) The Water Supply of Paris. (2) Illustration and Models of the sewage systems of Paris, with sanitary precautions. (3) Models of Scavenging and other appliances in use on the thoroughfares. *For details, see page 357.*

#### CLASS XXIV.

75. **GODEFROY, DR.**, 10 Rue de la Paroisse, Versailles.—Portable Hot Air Stove.

76. **VEAUX-DUCRUIX**, Beaujon, Rhône.—Ventilating Hot Air Chimney Hearth.

77. **ESPÉRON-MORIN**, Le Puy, Haute-Loire.—Hot Air Grate.

78. **BAYLE**, 37 Rue de Naples, Paris.—Smoke Consuming Lamp-glasses, applicable to petroleum, oil, and gas.



## CLASS XXV.

79. **GENESTE et HERSCHER**, 42 Rue du Chemin Vert, Paris.—Models and Drawings of the fitting up of premises with heating and ventilating apparatus.

80. **PAPIER**, 13 Rue Chandron, Paris.—Ventilating Appliances, injecting and ejecting.

81. **FARCOT, E. & D.**, 221 Rue Lafayette, Paris.—Ventilators and Turbines. (*In the garden at the back of the Dairies.*)

**VILLE DE PARIS**.—Heating and Ventilating Appliances for public buildings. *N.B.*—For details, see page 357.

## CLASS XXVI.

82. **PEIGNIET-CHANGEUR et CIE.**, 3 Boulevard Magenta, Paris (Agent, **G. BRIMEUR**, 15 Hatton Garden, E.C.).—Self-Acting Petroleum Lamp.

83. **BAYLE**, 67 Rue de Naples, Paris.—Smoke Consuming Lamp Glasses, applicable to petroleum, oil, and gas.

**VILLE DE PARIS**.—Lighting Apparatus. *N.B.*—For details, see page 357.

## CLASS XXVII.

84. **ROBERT**, 50 Boulevard de Reuilly, Paris.—Life Saving Appliances at Fires.

85. **TABOUËT et CIE.**, 105 Rue du Faubourg St. Denis, Paris.—Parisian "Extincteurs."

**VILLE DE PARIS**.—Paris Fire Brigade.—Appliances for putting out fires. (*In the garden at the back of the Dairies.*) For details, see page 357.

## CLASS XXVIII.

86. **CIVET, CROUET, GAUTIER et CIE.**, 5 Rue de l'Aqueduc, Paris.—Samples of Stone.

87. **MONTHIERS**, La Croix en Brie, Seine-et-Marne.—Damp Proof Plastering.

88. **GUÉRIN**, 34 Largier, Paris.—Floors placed on screens.

89. **BRÉCY**, Lyon. (Agents: **JOUBERT et FILS**, 152 King's Road, Chelsea.)—Floors.

90. **JOUBERT et FILS**, 152 King's Road, Chelsea.—Floors.

91. **SOCIÉTÉ DE CONSTRUCTION DES ATELIERS DE NEUILLY (M. O.**

**ANDRÉ**, Director), Neuilly-sur-Seine.—Specimens of Floors.

92. **MANUFACTURE DE GIEN (Loiret)**. (Agent, **E. OPPENHEIM**, 150 Leadenhall Street, E.C.).—Persian Tiles, impermeable to air.

## CLASS XXIX.

94. **COLALI**, 9 Rue du Faubourg Poissonnière, Paris.—Eastern Carpets.

**HUTCHINSON**. (*See Class 13.*)

## CLASS XXX.

95. **PIQUÉ et DESSART**, 97 Faubourg St. Antoine, Paris (Agents, **E. FOUCARD & CO.**, 24 Hop Exchange, S.E.).—Chairs and Fauteuils in leather.

96. **GRANDS MAGASINS DU PRINTEMPS**, Boulevard Haussmann, Paris.—Door Hangings for the French section.

97. **COLALI**, Paris.—Carpets.

98. **BOUSSARD**, 31 Rue du Paradis-Poissonnière, Paris.—Artificial Flowers.

99. **MANUFACTURE DE GIEN (Loiret)**.—Faience and Artistic Pottery, Persian Tiles, impermeable to air.

100. **HOURY**, 98 Faubourg Poissonnière, Paris (Agent, **R. HOLT**, Richmond Gardens, Shepherd's Bush, London, W.).—Bronzes and Porcelain.

101. **SABATIER**, 9 Bread Street Hill, London, E.C.—*Crémone et bec de cane*.

**JOUBERT et FILS**. (*See Class 20.*)

**FAÏENCERIE DE CHOISY-LE-ROI**, Seine. (*See Class 11.*)

## CLASS XXXI.

102. **PETITJEAN FILS**, 17 Quai Valency, Paris (Agents, **C. B. PARE & CO.**, 126 London Wall, E.C.).—Bath and Toilet Articles.

103. **DR. ROUGEOT**, 59 Rue de Rivoli, Paris (Agents, **C. B. PARE & CO.**, 126 London Wall, E.C.).—Bath Fauteuil with Accessories.

104. **VERGNE**, 116 Rue de Rivoli, Paris.—India Rubber Goods.

105. **HERBET et CIE.**, 12 Rue Olivier de Serres, Paris (Agents, **M. M. PUGGAARD et GALSCHIOT**, 34 Eastcheap, E.C.).—Elastic Beds with movable cushions. (*For Tollet Ambulance System, behind the Dairies.*)

106. **DRS. BLANC AND BRACHET**, Aix-les-Bains, Savoie (Agent **MR. WITTY**, Queen's Gate Terrace, S.W.).—Appliances used at the Aix-les-Bains Hot-water Springs.



107. SOCIÉTÉ DE CONSTRUCTIONS NOUVELLES DU SYSTÈME TOLLET, 61 Rue Caumartin, Paris.—(1) Mounted Ambulance. (*In the gardens behind the Dairies.*) (2) Numerous Models of Hospitals and Ambulance. (*In the West Central Gallery, French Court.*)

108. GENESTE et HERSCHER, 42 Rue du Chemin Vert, Paris.—Model of a Hospital Ward for Contagious Diseases.

109. SANSON, Architect, 48 Rue d'Anjou St. Honoré, Paris.—The Hertford Hospital, Levallois-Perret, Seine.

110. CHOUËT et CIE., 8 Place de l'Opéra, Paris.—Eau et pâte dentifrices du Dr. Pierre.

111. R. P. BÉNÉDICTINS DE SOULAC (Gironde) (Agent, PEMBO, 11 Queen Victoria Street, London, E.C.).—Eau, poudre, et pâte dentifrices.

112. GELLÉ FRÈRES, 6 Avenue de l'Opéra, Paris, Manufactory at Levallois-Perret, Seine (Agent, A. MACKIE, 6a Milverton Street, Kennington Park, S.E.).—(1) Soaps. (2) Perfumery. (3) Special Hygienic Glycerine Perfumery.

113. PRAT BROTHERS, 12 Avenue de la Gare, Grenoble (Isère.) (Agents, JOUBERT et FILS, 152 King's Road, Chelsea, S.W.).—Mattress Carder.

BRENIER. (*See Class 13.*)

VILLE DE PARIS.—Ambulance Appliances for transporting patients with infectious diseases. (*For details see p. 357.*)

ROGIER et MOTHES. (*See Class 23.*)

## CLASS XXXII.

114. DURAND-CLAYE, Engineer, 69 Rue de Clichy, Paris.—(1) Works on Public Hygiene. (2) Treatise on the mortality from typhoid fever in Paris.

115. COMMISSION ADMINISTRATIVE DES HOSPICES CIVILES DE BORDEAUX.—Tent for Patients with contagious diseases.

116. WAZON, Civil Engineer, 31 Avenue de Neuilly, Neuilly-sur-Seine.—Principles of Sanitation for Towns and Dwelling Houses.

117. DR. OMOUTON, Yvetot, Seine-Inférieure.—Works on Hygiene.

118. DR. LAYET, 42 Rue du Palais de Justice, Bordeaux.—(1) Diagram of the Plague and Cholera Epidemics in both hemispheres. (2) Works on Hygiene, 'Revue Sanitaire de Bordeaux et du Sud-Ouest.'

119. PARIS SOCIETY OF PUBLIC MEDICINE AND PROFESSIONAL HYGIENE.—Publications of the Society and Works by its Members.

120. FRENCH SOCIETY OF HYGIENE.—Publications of the Society and Works by its Members.

121. BORDEAUX SOCIETY OF PUBLIC HYGIENE.—Publications by the Society.

122. HAVRE SOCIETY OF PUBLIC HYGIENE.—Publications by the Society.

123. HAVRE BUREAU D'HYGIENE.—Publications and Works.

124. MONTHIERS, La Croix en Brie, Seine-et-Marne.—System of Heating and Ventilation.

125. BERTILLON JACQUES (DR.).—Chief of the Paris Municipal Statistics Department.—Reports and Year Books, Diagrams showing the course of typhoid fever in Paris, with the year and arrondissements, also the social status, age and sex of the patients.

126. GENESTE, HERSCHER et CIE., 42 Rue du Chemin Vert, Paris.—Models and Drawings of Heating Appliances: (1) Steam, Hot Water, Hot Air Stoves. (2) Spiral and Centrifugal Ventilators. (3) Ventilators moved by Electricity. (4) Hydro-Ventilators. (5) New open Fire-place disinfecting Rooms. (6) Mortuaries.

## GROUP 3a.—THE AMBULANCE.

127. SOCIÉTÉ DE CONSTRUCTION DU SYSTÈME TOLLET, 61 Rue Caumartin, Paris.—Ambulance. (*In the garden at the back of the Dairies.*)

128. SANSON, Architect, 48 Rue d'Anjou St. Honoré, Paris.—The Hertford Hospital, Levallois-Perret, Seine.

129. GENESTE et HERSCHER, 42 Rue du Chemin-Vert, Paris.—Tent for Contagious Diseases. Sweating Room for Disinfecting through Heat.

130. HOSPICES CIVILS DE BORDEAUX (Gironde).—Tent for Contagious Diseases.

131. SOCIÉTÉ DES ATELIERS DE NEUILLY (Seine).—Light and Moveable Floors.

VILLE DE PARIS.—Public Ambulance Awning. Portable Litter. Ambulance Waggon for Infectious Patients. (*For details see p. 357.*)

DECAUVILLE AINÉ, à Petit-Bourg. (*See Class 22.*)



**HERBET et CIE., 12 Rue Olivier de Serres, Paris.** (*See Class 31.*)

**GRANDS MAGASINS DU PRINTEMPS, Boulevard Haussmann, Paris.** (*See Class 20.*)

#### GROUP 4.—THE SCHOOL.

Exhibition of Plans, Diagrams, and Books bearing on School Architecture, School Hygiene and Physical Training organised under the auspices of the French Education Department.

#### CLASS XXXIV.

(*West Central Galleries.*)

Designs and Models of Improved Buildings for Elementary Schools, Infant Schools, and Crèches, &c.

**132. FRENCH EDUCATION DEPARTMENT.** (*Ministère de l'Instruction Publique et des Beaux-Arts. Comité on School Buildings.*)—(1) Plans—Specimens of Schools erected since 1880; 6 plans. (*For plans of the Paris Schools, see Ville de Paris.*) (2) Selection of Plans and Details of Plans, and Photographs of different School Buildings, public or private. (Portfolio.) (3) Regulations. Minute of 17th June, 1880, as to the construction and furnishing of school buildings. Special Circular of 28th July, 1882, as to the construction of elementary schools, I. General conditions. II. Caretaker's apartments. III. Cloak-rooms, passages, staircases. IV. Class-rooms. V. Drawing class-rooms, workshop. Covered court and appurtenance. Gymnasium. VII. Playground, garden. VIII. Privies, urinals, and cesspools. IX. Rooms for masters and teachers. Résumé of instructions as to school buildings. Special Circular dated July 28, 1882, as to the construction of Infant Schools.

**133. EDUCATION AND FINE ARTS DEPARTMENT** (*Fine Arts Section.*)—(1) Plans of the National School of Industrial Arts at Roubaix; Architect, M. Dutert. (2) Plans of the National School of Decorative Arts at Limoges (Haute-Vienne); Architect, M. Jourdain.

**134. SOCIÉTÉ DES CRÈCHES** (*President, M. MARBEAU, 27 Rue de Londres, Paris.*)—Reduced Model of a crèche (one tenth of its real size). 2 Plans of Crèches. Photograph of the Crèche des Ternes, Paris. Publication relative to Crèches by F. Marbeau, "Bulletin des Crèches," 1876-1884. *See also Class 40 and 55.*

**135. SOCIÉTÉ DES ÉCOLES ENFANTINES.** Association for the propagation of the New Methods of Teaching in Primary and Infant Schools. Secretariat, 175 Rue St. Honoré, Paris.—(1) Model of an Infant School. (2) Plan of a

Model Infant School for 50 children. (3) Plan of a Model Infant School for 100 children. *See Cl. 47 in The Central Technical Institute (French Section of Education), 1st Floor.*

**136. INSPECTION DÉPARTEMENTALE DU NORD** (*M. BRUNEL, Inspector, at Lille (Nord).*)—Several Plans of Elementary Schools of the Département du Nord. (*See also Classes 48, 49, 50.*)

**137. INSPECTION DÉPARTEMENTALE DU PAS-DE-CALAIS.**—Plans of Schools. (1) School for Boys, of Marck (Département du Pas-de-Calais). (2) School for Boys, of Mametz (Département du Pas-de-Calais). (3) School for Boys, of St. Martin-au-Laert.

**138. DÉPARTEMENT DE LA GIRONDE.**—(1) Plans of the Training College (*École Normale d'Instituteurs*) of Gironde. M. Valleton, architect. (2) Plans of School-houses of five rural districts of the Gironde Department.

**139. VILLE DE BORDEAUX.**—Plans of several Schools of the town of Bordeaux.

**140. DÉPARTEMENT DU LOT-ET-GARONNE.**—Five Plans of Elementary Schools of the Département du Lot-et-Garonne.

**141. VILLE DE FLERS (DÉPARTEMENT DE L'ORNE).**—Copies of School Plans: architect, M. Hédin. (1) Elementary School, with 8 class-rooms (boys). (2) Groupe scolaire of Flers (primary school for girls, with infant school).

**142. VILLE DE ROUEN** (*Mayor, M. RICARD.*)—Plans of Schools. (1) Higher Primary and Professional School. (2) Elementary Public School for Boys. (3) Private School for Girls (*école libre de filles*). (4) Infant School (*école maternelle*). (5) School for Girls with Infant Schools (*école enfantine*).

**143. M. MACHUEL, Inspecteur d'Académie in residence at Tunis.**—(1) Plan of the Tunis Primary School for Boys. (2) Views of the School.—Photographs of school children. (*See also Class 48.*)

**144. CERNESON, LÉOPOLD CAMILLE, Architect, late President of the Municipal Council of Paris, 23 rue Michel-Ange, Paris.**—Plan of the Higher Primary School of Montbard. (*See also Class 52.*)

**145. BOUVARD, Architect of the City of Paris, 54 rue de Verneuil, Paris.**—Plans of the National Higher Primary School of Voiron (Isère). (1) General plan—ground floor—First floor front. (2) Ground floor of the primary and infant schools. (3) First floor of the same. (4) Higher primary school, elevations, plan of the ground floor. (5) First floor of the same school. (6) Outside buildings, kitchens, refectories.



**146. CITY OF HAVRE; Mayor, M. Sigefried; Chief Architect, M. L. David.**—(1) Detailed Plans of the Technical School (École d'Apprentissage) of Havre. (2) Photographs of the École des Beaux-Arts of Havre. (3) Type of an isolated school desk and seat as used in the Havre municipal schools. (See also Class 57, Central Technical Institute.)

**147. M. LIVET, 4 rue Ste. Marie, Nantes (Loire-Inférieure).**—(1) Plan of the Institut Livet, founded 1846, Technical and Apprenticeship School. (2) Plans of Workshops for the scholars; documents, &c. (See Class 53 in Central Technical Institute, 1st Floor, Room No. 48.)

**148. DÉPARTEMENT DE L' AISNE.**—Training College of Laon. Three plans.

**149. DÉPARTEMENT DU CALVADOS.**—Plans of the Training College for male teachers (École Normale d'Instituteurs) of Caen.

**150. DÉPARTEMENT DES BASSES ALPES.**—Drawings and Plans of the Training College for female teachers at Digne (Basses-Alpes).

**151. DÉPARTEMENT DU LOIR-ET-CHER.**—Plans of the Schools of Bourgeau, near Romorantin, and of the Village School of Berveuse, near Maray. Architect M. Chauvallon. (See Ministère de l'Instr. Publique. 2 (Port folio).)

**152. DÉPARTEMENT DES DEUX-SEVRES.**—3 Plans—types of hamlet schools.

**153. VILLE D'ALENÇON, Orne, Municipal School of Drawing for Night Classes.**—Plan of the Drawing Class Room. (Portfolio.)

**154. FONDATION BISCHOFFS-HEIM.** Professional School for Girls of the Jewish persuasion, 13 Boulevard Bourdon, Paris.—Plans of the School. (See Class 49 in the Central Technical College, 1st Floor, Room No. 48.)

**155. MASSON, 22 Avenue Parmentier, Paris.**—Project for a Group of School Buildings for the Commune of Bondy, Seine.

**155a. SOCIÉTÉ NOUVELLE DE CONSTRUCTION (Système Tollet), 61 Rue Caumartin, Paris.**—Designs and Plans for schools on this system. (See also Group IIIa.)

**156. SOCIÉTÉ DES ATELIERS DE NEUILLY (O. ANDRÉ, Directeur), Rue Charles Lafitte, Neuilly-sur-Seine.**—Scholastic Furniture and Plan of a Portable School. (See also Group III.)

**VILLE DE PARIS.**—Several Plans and Models of Primary Schools. (See Ville de Paris, page 357.)

## CLASS XXXV.

(West Central Gallery.)

**Apparatus and Fittings for Warming, Ventilating, and Lighting Schools, School Latrines, Closets, &c.**

**157. FRENCH EDUCATION DEPARTMENT.**—(1) Specimens of apparatus for the Lighting, Warming, and Ventilating of primary schools. (2) Specimens of disposition and arrangements for the Lighting, Warming, Ventilating of secondary grade schools (Lycées et Collèges). (See plans of new Lycées et Collèges by de Beaudot, Lecœur, Vaudremer, Proust.)

**158. TRELAT, ÉMILE, Directeur de l'École spéciale d'Architecture, Boulevard Mont Parnasse, Paris.**—School lighting (Éclairage scolaire). Two plans.

**159. DE BEAUDOT, Architect, 3 Place de Rennes, Paris.**—Plans of the Lycée Lakanal à Sceaux, near Paris (Seine). 7 Panels. This lycée (National School for secondary instruction constructed for 700 boarders, 50 day boarders, and 100 day scholars) is constructed on a space of 9 hectares. The buildings are surrounded by a park; the site of the buildings is arranged so that the playground should be sheltered against the west and north winds; they are open to the east, and look out on the park. The refectories or dining-halls are near the kitchens, which are isolated from the rest of the buildings. The establishment is warmed by steam. "The system of warming is combined with that of the ventilation necessary in the class-rooms, studies, and dormitories. For this purpose vertical openings are placed in the wall and united with the horizontal shafts placed at the bottom of the rafters, and placed in communication with the ventilating lanterns on the roofs." (Note of the Architect.) The Sanatorium is turned towards the east in a building completely isolated. A special building for contagious diseases is connected to it by an open gallery. The school gymnasium and covered courts (préaux) look towards the park. Great care has been given to the hygienic arrangement of the lavatories and closets. They are supplied with a great abundance of water, and by means of reservoirs de chasse and other appliances marked on the plans the diluted matters are speedily carried away through a special drain which reaches the river Bièvre at the point where it meets the main drain (égout collecteur) of the left bank of the Seine.

**160. LECŒUR, Architecte, 129 Rue de Grenelle, Paris.** (1) Type of a Secondary School in a country town. Plans of the Lycée of Bayonne. Bird's-eye view of the buildings, courts, and gardens. (2) Types of Secondary School in the most populated part of the metropolis. (A) Plans of the Petit Lycée Condorcet, corner of the Rues d'Amsterdam and de Hambourg at Paris. This lycée, an annex to the



largest Paris public school (Lycée Condorcet), situated between the place du Havre and the Rue Caumartin, is specially adapted for the junior boys. Number of scholars 766, of which 230 are day boarders and 536 day scholars (externes). Terms for the year: Grammar division, day boarders, 850 francs; day scholars, 250 francs. Lower division, day boarders, 700 francs; day scholars, 180 francs. Warming, by steam at low pressure (Geneste and Herscher's system). Methodical circulation of steam, heating surfaces direct into the room, the said surfaces placed at the foot of the cold air chambers, emission of pure air moderately hot, evacuation of foul air by opening into the collecting shafts. Direct ventilation all through the year. (B) Plans of the Petit Lycée Louis-le-Grand, in course of erection opposite to the Jardin du Luxembourg, Paris, inaugurated in October, 1883. (C) Lycée de Montluçon (Allier), superficies 20,000 square metres. The playgrounds are open to the south. Underground drains carry all pluvial and other waters to the Cher. Special Taps placed in the drains facilitate their frequent cleansing. Warming by ceramic hot-air stoves, Geneste et Herscher's system. Actual number of pupils 309; boarders, 98. (D) Project of a Normal School with detached boarding houses, Tutorate system.

161. **VAUDREMER**, Architect, 110 Rue de Grenelle, Paris.—(1) Plans of the Lycée at Ajaccio (Corse). (2) Plans of the Lycée de l'Avenue Duquesne à Paris. (3) Plans of the Lycée de Grenoble (Isère).

162. **PROUST**, Architect, Paris.—Photographs and Plans of the Collège Communal at Fontainebleau.—(1) Front Elevation (Photograph). (2) Ground Floor. (3) First Floor.

163. **MARCEL LAMBERT**, Architect, 8 Rue du Havre, Paris.—Plans of a Collège d'Enseignement Secondaire Spécial for day scholars only.

164. **GENESTE et HERSCHER**, Engineers, 42 Rue du Chemin Vert, Paris.—(1) Models of Plans and Drawings of Apparatus and Appliances for the warming and ventilating of schools and various public establishments of education. (2) Album of drawings relative to school ventilation and heating. (See also Group I., III., V.)

For Classes xxxv., xxxvi., and xxxvii., see also Ville de Paris, page 357.

165. **GUÉRIN**, Rue Laugier 34, Paris.—Models of hygienic parquets and movable floors for schools. (See also Group III.)

166. **MONTHIERS**, Civil Engineer, à La Croix en Brie (Seine et Marne).—Wood Plinths any appliances, for heating and ventilating schools. (See also Group III.)

167. **ESPERON - MORIN**, fumiste, Rue du Pont, à Issoire (Puy de Dôme).—Specimen of a Ventilating Calorifère (stove) for class-rooms and public establishments of instruction. This stove has been constructed in

conformity with the rules issued by the French Education Department. The air supply is from the exterior of the building, by means of a flue under the floor. The pure air passes into a double enclosure, whence it acquires a high temperature, then it escapes by the upper portion of the apparatus, after having been saturated with steam. Price of the model No. 3 for warming 300 cubic meters, 180 francs.

### CLASS XXXVIII.

(West Central Gallery.)

168. **Dr. GIBERT**, 4 Rue Séry, 1e Havre, Seine-Inférieure.—Model Dispensary for sick children.

169. **M. CHAIX**, Printer and Publisher, 20, Rue Bergère, Paris.—Plans of a professional school annexed to the printing establishment of M. Chaix.—Hygienic arrangements for protecting and improving the health of the apprentices and scholars of the preparatory school.

### CLASS XXXIX.

(West Central Gallery.)

170. **FRENCH EDUCATION DEPARTMENT** (Ministère de l'Instruction publique et des Beaux-Arts).—(1) Law of January 27, 1880, declaring the teaching of gymnastics obligatory in the establishments of public instruction. (2) Specimen of apparatus and gymnastic appliances conceded to the Training Colleges and primary schools by the French Education Department. The appliances are provided by Messrs. Frété and Co., Corderie Centrale, 12 Boulevard Sébastopol, Paris. (3) Photographs of school gymnasia and groups of children learning drill and gymnastics. (4) Handbooks for teaching gymnastics and drill.

171. **REIBER, ÉMILE**, Architect, 54 Rue Vavin, Paris.—Decorative panel, "La Géométrie en action," gymnastics of the bars and hoops.

172. **N. LAISNÉ**, Inspecteur de l'Enseignement de la Gymnastique dans les Écoles Communales de la Ville de Paris, 264 Rue St. Jacques, Paris.—Works on physical education. (See class 40.)

173. **CARE**, 269 Rue Saint-Denis, Paris.—Apparatus and Specimens of Appliances for teaching gymnastics in schools.

174. **MESSRS. FRÉTÉ et CIE.**, Corderie Centrale, 12 Boulevard Sébastopol, Paris, Fournisseurs du Ministère de l'Instruction Publique.—(1) Specimens of appliances for the teaching of gymnastics in primary schools and training colleges. (2) Games annexed to the teaching of Gymnastics. (3) Appliances for teaching fencing, masks, gloves, foils, plastroons, &c., as supplied to several national and municipal lycées and collèges.



**175. CERCLE PARISIEN DE LA LIGUE DE L'ENSEIGNEMENT**, (Président, M. EMMANUEL VAUCHEZ, 175 Rue St. Honoré, Paris).—Specimen of gymnastic apparatus and rifle with which many schools have been provided at the expense of the Ligue de l'Enseignement. (See also Class 55 in the Central Technical College, Room No. 9.)

**176. UNION FRANÇAISE DE LA JEUNESSE**, 157 Boulevard St. Germain, Paris.—Album of photographs relative to the teaching of gymnastics in schools.

**177. ÉCOLE ALSACIENNE**, 128 Rue d'Assas, Paris (Head-Master, M. RIEDER, Agrégé de l'Université).—(1) Plan of the Gymnasium. (2) Plan of the School. (3) Documents relative to the School. (4) Album of Photographs.

**178. GOUPIL et CIE. (BOUSSOD et CIE. Successors)**, 9 Rue Chaptal, Paris.—La jeune garde, photo-gravure of a picture by E. Grin.

**179. COLLÈGE SAINTE-BARBE**, Place du Panthéon, à Paris (Director, M. DUBIEF).—Photographs and Plans of the school, class-rooms and gymnasium, &c.

**180. ÉCOLE MONGE**, 149 Boulevard Malesherbes, Paris (Head Master, M. RIEDER, agrégé de l'Université).—(1) Plan of the Gymnasium. (2) Plan of the School. (3) Documents relative to the School, &c.

**181. SOCIÉTÉ PATERNELLE et COLONIE AGRICOLE DE METTRAY**, near Tours, Indre-et-Loire.—Album of the School. Plans. Photographs of groups of inmates in the class-room, at field work, &c.

**182. PETIT et DUMOUTIER**, 71 Rue Charlot, Paris.—Special Apparatus for teaching swimming in schools (a reduced model).

**VILLE DE PARIS**.—Plans of the Gymnase Voltaire, Rue Japy. (See *Special Catalogue*, page 357.)

## CLASS XL.

(West Central Gallery.)

**183. FRENCH EDUCATION DEPARTMENT** (Ministère de l'Instruction publique et des Beaux-Arts).—Regulations relative to the Construction of Schools. Various documents, bearing on school buildings and school furniture. Collection of Documents relating to (a) The Hygienic Arrangements in Schools, (b) The Medical Inspections, (c) Physical Training of Children in and out of School. (See also Class 55, the Central Technical College, Room 49; 1st Floor.) DOULIOT (Caravanes scolaires); POULAIN, *L'éducation physique*, (essay on) and H. Sabatier-Plantier, Société pour la propagation des Fêtes d'enfants.

**184. CERCLE DE LA LIBRAIRIE, DE L'IMPRIMERIE, ET DE LA PAPETERIE**, 117 Boulevard St. Germain, Paris (M. PLON, Président).—Collective Exhibition Books, Plans, Diagrams on School Architecture; School Hygiene and Physical Training of Children. (See Class 55, the lists of the adherents to the collectivity. The principle exhibits are in the Technical Institute, 1st Floor, Room 49, and in the opposite corridor.)

*Des Fosse et Cie.* (ancienne maison Morel), rue Bonaparte, Paris.—Designs and Plans of School Architecture.

*Ducher et Cie.*, Publishers, 51 rue des Écoles, Paris.—Works on School Architecture. (1) Salles d'Asile and School Buildings. (2) Designs for Salles d'Asile and School Buildings at the Trocadero Exhibition. (3) Various Plans and Drawings of School Architecture.

**185. SOCIÉTÉ PROTECTRICE DE L'ENFANCE**, 4 Rue des Beaux-Arts, DR. MAJOLIN.—Documents and Notice on the Works of this Society; Statistics.

**186. MATERNAL CHARITY SOCIETY**, 3 rue Méchin, Paris (Secretaries, Mme. E. RAIMBERT & M. F. GILLE).—Notice and Documents on the Society.

**187. NARJOUX, FÉLIX**, Architect, 3 Rue Littré, Paris.—Works on School Architecture. (1) "Écoles publiques en France et en Angleterre," 1 vol. 8°. (2) "Écoles publiques en Belgique et en Hollande," 1 vol. 8°. (3) "Écoles publiques en Suisse," 1 vol. 8°. (4) "Écoles normales primaires en Europe," 1 vol. 8°. (5) "Écoles normales et Salles d'Asiles," 1 vol. 18°. (6) "Construction et installation des écoles primaires," 1 vol. 8°. (7) "Règlement pour la construction et l'ameublement des maisons d'école," 8°. (8) "Écoles publiques en Europe," 1 vol. 18°. (9) "Architecture scolaire, écoles de hameaux," 1 vol. 4°. (10) "Paris, édifices consacrés à instruction publique," 1 vol. fol.

**188. DR. LAYET**, Professeur d'Hygiène à la Faculté de Médecine, 42 Rue du Palais de Justice, Bordeaux.—Report on the Inspection of Commercial Schools at Bordeaux.

**189. BOURDEILLETTE** (Architect), Rue Bourdille, Périgueux.—Memoir on School Architecture.

**190. DR. C. DELVAILLE**, ancien adjoint au Maire de Bayonne.—Documents on School Hygiene.—(1) Règlement et organisation de la Commission Municipale d'Hygiène et de Statistique de Bayonne. (2) Feuilles mensuelles constatant l'État Hygénique de chaque classe. (3) Rapport des Travaux de la Commission d'Hygiène pour 1883, par le Dr. Delville. (4) L'Inspection médicale des Écoles, par le Dr. Delville.



191. **BEAUMONT, TRIGAUT DE**, (au Ministère de l'Intérieur, Paris.—Essays on Crèches and the protection of Infant Life.

192. **DR. A. RIAANT**, Chief Physician of the *École Normale de la Seine*.—Works on Hygiene—(1) *L'Hygiène et l'Éducation dans les internats, lycées, collèges, pensions, et maisons d'éducation*. Paris: *Hachette*. (2) *L'Hygiène Scolaire*. (3) *Leçons d'Hygiène*.

193. **PÉCAUT (DR. ELIE)**, *Cours d'Hygiène Scolaire*. (v. *HACHETTE & CIE.*, Paris.)

194. **N. LAISNÉ**, Inspecteur de l'Enseignement de la *Gymnastique* dans les *Écoles Communales de Paris*, 264 Rue St. Jacques, Paris.—Works on Physical Education.

**VILLE DE PARIS**.—Plans and Models of School. (See *Ville de Paris*, page 357).

## GROUP V.—THE WORKSHOP.

(West Central Gallery.)

### CLASSES XLI. to XLVI.

195. **APPERT FRÈRES**, 5 Rue des Chasses, Clichy, Seine.—(1) Appliance for Glass Blowing with compressed air, Compressor and Cylinder, Regulator and Manometer, Glass Blower's Bench. (2) Various Apparatus and specimens of manufacture.

196. **GENESTE, HERSCHER, et CIE**, 42 Rue du Chemin Vert, Paris.—Designs and Appliances for the ventilation and sanitation of shops and infectious localities, ventilation of mines, ships and casemates.

197. **FARCOT, M.**, 221 Rue Lafayette, Paris.—Ventilators and Turbines for shops and factories. (In the Garden at the back of the *Dairies*.)

198. **LOMBART, M.**, 75 Avenue de Choisy, Paris.—Process for the Refrigeration of Chocolate.

199. **MONGIN et CIE.**, 40 Avenue Philippe-Auguste, Paris.—Hygienic Improvements in Shops.

200. **DOHIS et CIE.**, 10 Rue Eliza Borey, Paris.—Sewing Machine, moved by an Accumulator, without any expense in supervision.

201. **CHAIX, M.**, 20 Rue Bergère, Paris.—Provident Institution for Industrial Hygiene.

202. **PARIS SOCIETY OF PUBLIC MEDICINE AND PROFESSIONAL HYGIENE**.—Special Publications by its Members.

203. **FRENCH SOCIETY OF HYGIENE**.—Special Publications by its Members.

204. **BORDEAUX SOCIETY OF PUBLIC HYGIENE**.—Special Works.

## GROUP Va.

(West Central Gallery.)

**Meteorology in its relation to the Study of Public Health.**

205. **M. PASTEUR**, 45 Rue d'Ulm, Paris.—(1) Apparatus and Instruments used in the pathogenic and prophylactic investigations of epidemic affections. (2) Documents and Papers.

206. **MONTSOURIS OBSERVATORY**, Municipality of Paris (M. Marié-Davy, Director).—(1) Appliances and Instruments for the study of atmospheric currents, meteorological and climatological observations, analysis of air and water, examination of dust in the atmosphere. (2) Documents and Preparations.

207. **PARIS MUNICIPAL LABORATORY OF CHEMISTRY** (M. Charles Girard, Director).—(1) Appliances and Instruments used in Researches on the Adulteration of Food. (2) Documents and Preparations.

208. **RICHARD FRÈRES**, 8 Impasse Fessard, Paris.—(1) Instruments for Meteorological Observations. (2) Deep-sea Registering Thermometer.

209. **VERICK, M.**, Paris.—Microscopes and Microtomes.

210. **NACHET, M.**, Paris.—Microscopes.

211. **WIESNEGGER**, Rue Gay-Lussac, Paris.—(1) Studies on Constant Temperature, &c. (2) Apparatus used in the Laboratories of MM. Pasteur, Marié-Davy, Miquel, and Charles Girard.

212. **ALVERGNIAT, M.**, Rue de la Sorbonne, Paris.—Glass for Laboratory use.

213. **HOUDART, M.**, Paris.—Appliances for the "pasteurisation" of liquids.

## GROUP VI.

(City and Guilds Institute.)

### CLASS XLVII.

**Crèches and Infant Schools**.—(a) Apparatus and Fittings for Crèches and Infant Schools; (b) Games, Toys and Kindergarten Amusements; (c) Models and Appliances for Teaching; (d) Examples of School Work.

214. **DEPARTMENT OF PUBLIC INSTRUCTION AND FINE ARTS**, Paris.—(1) Regulations concerning the organization of normal training for governesses in infant schools (*Ecoles maternelles*). (2) Documents relative to the organization of such Schools. Plans. (See also Classes 35 and 55.) (See also *Ville de Paris*, Western Central Gallery.



**215. CERCLE DE LA LIBRAIRIE.**

—(1) Collective Exhibit of Books, &c. (2) Samples of Didactic Appliances for Maternal Schools. (See Class 48 for List of Members.)

**216. INFANTS' SCHOOLS SOCIETY**

(Société des Écoles enfantines, association for the propagation of the new methods of training in infant schools), office, 179 Rue St. Honoré, Paris.—Plans, Models of infant schools, specimens of infant school furniture, and samples of Froebel toys, &c.

**217. INSPECTION ACADÉMIQUE DE LA GIRONDE.**

—(1) Specimens of the Occupations and Works of the Children of the Infant Schools at Bordeaux. (2) Treatise on the Site of Infant Schools, par Mme. l'inspectrice des Écoles Maternelles.

**218. INSPECTION ACADÉMIQUE DU DÉPARTEMENT DU NORD.**

—Specimens of the works done in the infant schools of the Département du Nord.

**219. MONTERNAULT, MADAME A.**

—French Intuitive Method. (*Hachette*.)

**220. BELLIER, MADAME, 16 Rue Cabirol, Bordeaux.**—'Le Moniteur du Jeune Age,' numbers for 4 years.—Prizes for infants' schools.

**221. LIETOUT, MADAME, 13 Rue de Poissy, Paris.**

—(1) Table of Comparative Measures, Compendium for Maternal Schools. (2) Musical Diagram, teaching simultaneously reading, writing, and singing notes. (3) Disc, showing the formation of compound colours.

**222. RACT et FALQUET, 16 Rue Cas-**

**sette, Paris.**—(1) Map of France, for Maternal Schools, by Mdlle. Veyrières. (2) Globe for similar Schools. (3) Durand's 'Législation des Écoles Maternelles,' 1 vol. (4) 'L'École Maternelle,' a periodical.

**223. GARCET et NISIUS, 76 Rue de Rennes, Paris (Agent, E. FOUCARD & CO., 24 Hop Exchange, S.E.).**—Froebel's Counter and other objects for Kindergarten. (See also Gallery of Royal Albert Hall.)

**224. ANDRÉ, O., Administrator Director of the Société Anonyme des Ateliers de Neuilly, 54 bis Avenue de Neuilly, Paris.**—Various Objects of School Furniture.

**225. D'HENRIET, MONSIEUR, 28 Rue Chabrol, Paris.**—Collection of Easy Models for teaching drawing to young children.

**226. COLLIN, Mlle. LAURE.**—Manuel d'enseignement de la Méthode Chorale Infantine (music and song for infant schools).

**CLASS XLVIII.**

(City and Guilds Institute.)

**Primary School Work.**—(a) Apparatus and Fittings; (b) Models and Appliances for Teaching; Text-books, Diagrams and Examples; (c) Specimens of Work in Elementary Schools.

**227. DEPARTMENT OF PUBLIC INSTRUCTION, Paris.**

—(1) Samples of the Collection of Books granted by the Department to Communes for the formation of an Educational Library. (2) Papers relating to the same. (3) Collection of Works and méthodes of Elementary Instruction, according to the list approved at the Departmental Conferences of public teachers. (4) Synoptic table showing the detailed organisation of primary studies, their objects, methods, and programmes. (5) Note pour servir à l'étude des programmes. (6) Specimens of diplomas (Certificate of Primary Studies), and of merit, awards, and medals granted to teachers.

**228. CERCLE DE LA LIBRAIRIE, DE L'IMPRIMERIE ET DE LA PAPETERIE,\* 117 Boulevard St. Germain, Paris.**

—Vitrine. Collective exhibition of scholastic and educational publications, documents relative to primary, secondary, higher, technical and artistic education, works on school management and administration, and legislation; prize books, school rewards, atlases and maps, works on pedagogy, hygiene and gymnastics, &c.

\* The following firms are members:—

Alcan, Félix (Works on Science and Medicine).  
Baillière, J. B., et fils (Works on Science and Medicine).  
Baschet, L. (Scholastic Publications).  
Belin Veuve et fils (Scholastic Publications).  
Bonasse Lebel (Images and Prints).  
Cerf (Educational Works).  
Charavay frères (Educational Works).  
Claesen (Technical Publications).  
Colin (Armand) et Cie. (Scholastic Publications).  
Delahaye et Lecrosnier (Medical Publications).  
Delagrave (Scholastic Publications).  
Delalain frères (Scholastic Publications).  
Des Fosseux et Cie. (Architectural Publications).  
Ducher et Cie. (Architectural Publications).  
Ducrocq (Educational Publications).  
Dupont, Paul (Educational Publications).  
Firmin, Didot et Cie. (Scholastic and Educational Publications).  
Gedalgé (Scholastic Publications).  
Goupil et Cie. (Artistic Publications).  
Hachette et Cie. (Scholastic and Educational Publications).  
Hennuyer (Educational Works).  
Hetzel et Cie. (Educational Publications).  
Heugel (Musical Publications).  
Jouvet et Cie. (Scholastic Publications).  
Leduc, Alph. (Music).  
Lemoine, Achille (Music).  
Masson, George (Medical and Scientific Publications).  
Plon Nourrit et Cie. (Educational Publications).  
Poussielgue frères (Educational Publications).  
Quatin (Artistic Library).  
Roret (Collection of Books on Technical Education).  
Suzanne (Geographical Material).

**229. ACADEMIC INSPECTORATE OF THE NORD (M. BRUNEL, Inspector and Director of Primary Instruction**



at Lille).—(1) Plans of Schools. (2) Copy Books (Primary Schools). (3) Manual Work executed in schools: A. Boys—Ironwork, Woodwork, Modelling, Bookbinding. B. Girls—Needlework and Embroidery. (4) Similar Works from higher primary schools: A. Boys—Woodwork.

**230. ACADEMIC INSPECTORATE OF GIRONDE.**—Work done by students in training colleges and scholars of the elementary schools.

**231. ACADEMIC INSPECTORATE OF THE DEPARTMENT OF THE PAS-DE-CALAIS.**—Work done in elementary schools. Plans, &c.

**232. REGENCY OF TUNIS SCHOOLS INSPECTORATE (M. MACHUEL, Inspector).**—Works of Scholars in the French and Arab schools at Tunis: (1) College St. Charles. (2) Collège Sadiki. (3) École des Frères. (4) École centrale de Tunis. (5) École Bab Carthagena. (6) Écoles de Bizerte, Monastir, la Goulette. (7) Institut des Sœurs de St. Joseph. (8) Écoles de l'Alliance Israélite universelle. (9) École de Tunis. (10) École de Mehdi. School exercises, albums, plans, photographs, &c.

**233. MARANS SCHOOL, Charente-Inférieure.**—15 Copy Books. School Exercises.

**234. POULAIN, M., École Primaire Supérieure à Illiers, Eure-et-Loir.**—Diagram of Specimens of Manual Work. Course of Drawing, composed with scholars' work. 'L'Éducation physique à l'École primaire.' An Essay by M. Poulain.

**235. MUNICIPALITY OF BAYONNE.**—(1) Specimen of Work done in Schools. (2) Specimens of Orthography and French Composition by children of both sexes.

**236. PREVOT ORPHANAGE, Compiègne, Oise.**—Works by Scholars.

**237. GUIBERT, LOUIS, Schoolmaster, Rocquencourt, near Versailles.**—Works by Scholars, School Exercises, Maps, and Drawings.

**238. DAVID, Schoolmaster, Grosvenore par Novant, Meurthe et Moselle.**—Methods of teaching reading, writing, and geography.

**239. VAQUEZ, Adjoint au Maire, 16 Arrondissement, Paris.**—Synoptic Table of the History of France.

**240. COUPIN, M., 30 Rue du Mirail, Bordeaux.**—Works relating to Elementary Education.

**241. COULET, J., Schoolmaster, Villers la Montagne, Meurthe et Moselle.**—'Carnet de Correspondance' between schools and families, school drawings, exercises, &c. 1883.

**242. ÉCOLE PRIMAIRE SUPÉRIEURE, Gerardmer, Vosges (M. T. MICHEL, Director).**—Register and Monthly Report of the School Debating Society.

**243. HÉMENT, FÉLIX, Inspector General of Public Instruction, Nanterre.**—(1) Geographical Diagrams by Cicéri (*Delagrave, publisher*). (2) Cosmographic Diagrams designed by Fouché (*Delagrave, publisher*). (3) Elementary Works on the Natural and Mathematical Sciences.

**244. VAST, H., PROFESSOR, 9 Rue de Greffuhle, Paris.**—Blank Maps on Slated Cloth (*toile ardoisée*).

**245. ELEMENTARY SCHOOLS OF THE DÉPARTEMENT DE LA CREUSE.**—Specimens of little toys and other works done by young children.

**246. LIETOUT, MADAME, 13 Rue de Poissy, Paris.**—Table of Comparative Measures. (*See also Class 47.*)

**247. D'HENRIET, M., 28 Rue Chabrol, Paris.**—Course of Drawing for Elementary Schools: A. Elementary Course; B. Higher Grade.

**248. SEGUIN et COURCELLE, St. Denis, Seine.**—Numerators.

**249. SEGUIN et SAUVAGEOT, Bourges, Cher.**—Educational Course, *Cours simultané* (reading and spelling), published by Delagrave.

**250. REGRAIN, A., Schoolmaster, Chamblet, near Montluçon, Allier.**—Educational Works. (1) School Museum. (2) Scholars' Exercise Books. (3) Geography of Allier, 52 Object Lessons, &c.

**251. PILLET, M., Schoolmaster, 95 Rue Chevallier, Levallois, Seine.**—La Méthode Parlante, new method for teaching reading.

**252. PICARD, BERNHEIM, et CIE., 1 Rue Soufflot, Paris.**—Educational Works. (*See Room 9.*)

**253. KUHEFF, M., 19 Boulevard Pereire, Paris.**—Scholastic Works for teaching the French and German languages.

**254. HUSTACHE, MDLLES., School Teachers, Allevard, Isère.**—Manuscript Treatise: *L'Éducation à l'École Primaire*.

**255. BONNARD, P., 49 Rue de Grenelle, Paris.**—New System of Teaching Music. (1) Dernière pensée musicale de Weber, notation by dashes on the clavier. (2) The Scales on Transparent Paper. (3) Musical Exercises. (4) Compared Tonality of Musical Instruments, &c.



256. DEPOIN, J. (President of the French Shorthand Society), 3 Quai de l'Horloge, Paris.—Schools Works executed with the aid of Shorthand.

257. DUPLOYE, E., Stenographer, 23 Quai de l'Horloge, Paris.—Method of teaching Reading and Spelling with the aid of Shorthand. (See also the Gallery, Albert Hall.)

258. LABONNE, M.—Stenography.

259. SHORTHAND SOCIETY (Prevost Delaunay System), President, M. FONTAINE, Rue du Quatre Septembre No. 2, Paris.—(1) Course of Shorthand. (2) Pupils' Works. (3) Papers and Documents.

260. SUZANNE, M., 5 Rue Malebranche, Paris.—Scholastic Materials.

261. ROY, PAUL.—Tablets for various coloured inks.

262. DEPARTMENT OF PUBLIC INSTRUCTION.—Scholastic Materials.

263. MALLET, ARMAND, 77 Avenue Bosquet, Paris.—Mallet's Microscopes for Schools.

264. LECOQ, Contre-Maître du Matériel Scolaire de la Ville de Paris.—Scholastic Furniture. (See *Ville de Paris*, page 357.)

265. GARCET et NISIUS, 76 Rue de Rennes, Paris (Agents, E. FOUCARD & Co., 24 Hop Exchange, S.E.).—School Materials and Furniture. (*The Furniture is in the Gallery of the Royal Albert Hall.*)

266. DUPONT, PAUL, 49 Rue J. J. Rousseau, Paris.—Specimen of a School Library (for elementary schools).

267. DAGUERRE, A. B., 14 Rue Dequerry, Paris.—Appliances and Diagrams for instruction by luminous projections.

268. BRUNET, PROFESSOR, Sisteiron College, Basses Alpes.—Iron frames for protecting the edges of school books.

269. LIBRAIRIE AGRICOLE DE LA MAISON RUSTIQUE, 26 Rue Jacob, Paris.—Books for the Teaching of Agriculture.

270. PETIT, PIERRE, Photographer, Place Cadet, Paris.—Translucid photographs, to be used as Window Blinds in Schools.

ACADEMIC INSPECTORATE OF THE DEPARTMENT OF THE CÔTE D'OR. (See Class LVI.)

ANDRÉ (Scholastic Furniture.) (See *Société des Ateliers de Neuilly, Classes XXXIV. and XLVII.*)

VILLE DE PARIS. See *Western Central Gallery*, and *Special Catalogue*, p. 357.

## CLASS XLIX.

(City and Guilds Institute.)

Domestic Economy and other Forms of Technical and Industrial Education for Girls.—(a) Models and Apparatus for the teaching of Cookery, Housework, Washing and Ironing, Needlework, and Embroidery, Dress-making, Artificial Flower-making, Painting on Silk, Pottery, &c. (b) Specimens of School Work.

271. DEPARTMENT OF PUBLIC INSTRUCTION AND THE FINE ARTS.—(1) Regulations concerning the Teaching of Domestic Economy in Primary Schools for Girls and Training Colleges. (2) Papers and other Documents. (3) Various Collections from Primary and Normal Schools bearing on Domestic Economy, Housekeeping, Needlework, Knitting, the teaching of Cookery, Washing, Ironing, &c. (See Class 48.)

272. VILLE DE ROUEN. École Professionnelle Ménagère. (Mme. Lassire, Head-mistress.)—Specimens of Needlework, &c., by pupils.

273. PROFESSIONAL GIRLS' SCHOOL OF MELUN, Seine-et-Marne, Mme. Valet, Head-mistress.—Needlework, Millinery, Artificial Flowers.

274. PROFESSIONAL GIRLS' SCHOOL OF BLÉNEAU, Yonne, Mme. Guillout, Head-mistress.—Works by scholars.

275. BERILLON.—*La Bonne Ménagère Agricole*. 1 vol.

276. LASSIRE ET GODEFROY (Mmes).—Course of cutting out, &c.

277. WEIL, E., & MAURICE, G.—Educational Works: *La Journée de la petite Ménagère* by Mme. Valette: *Instruction morale et civique des Jeunes Filles*, by Mme. Henry Gréville.

278. SCHEFER, MADAME, 60 Rue d'Assas, Paris.—Treatise on Needlework (*coupe et assemblage*).

279. PREVOST ORPHANAGE, Cempuis, Oise.—Boys' Winter and Summer Clothing, cut and sewn by girls belonging to the orphanage.

280. BISCHOFFSHEIM FOUNDATION (Working School for young Jewesses), 13 Boulevard Bourdon, Paris. (M. Maurice Bloch, Director.)—Works by the Scholars; Specimens of Artificial Flowers, Needlework, Embroidery, done in the school, &c.; Plans of the Schools and Workshops.



281. **TECHNICAL SCHOOL FOR GIRLS**, Melun.—(1) Linen. (2) Robes. (3) Hats. (4) Artificial Flowers.

282. **COCHERIS, PAULINE, Mme.**, 53 Boulevard St. Marcel, Paris.—Diagram explanatory of Cutting out and Needlework.

283. **GIROUX, Mme.**—Manuel d'examen pour l'enseignement de la Coupe et de l'Assemblage. 1 vol.

**CERCLE DE LA LIBRAIRIE.**—(1) Collective Exhibit. (2) Works on Domestic Economy, Needlework, &c. (See Class 48.)

**VILLE DE PARIS.** (See *Special Catalogue*, page 357.)

### CLASS L. (See Class LIII.)

(See page 354.)

### CLASS LI.

(City and Guilds Institute.)

Science Teaching.—(a) Apparatus and Models for Elementary Science Instruction in Schools; Apparatus for Chemistry, Physics, Mechanics, &c.; (b) Diagrams, Copies, Text-books, &c.; (c) Specimens of the School Work in these subjects.

284. **DEPARTMENT OF PUBLIC INSTRUCTION AND THE FINE ARTS.**—(1) Law of March 28, 1882, recommending the teaching of elementary physical sciences in the primary schools; Regulations and Collections of Objects for teaching the elements of chemistry and natural philosophy in elementary and higher primary schools. (2) A set of very simple and cheap instruments and models of instruments to be easily fabricated by the students and scholars themselves. (Matériel de la Méthode Leblanc, Collection Rousseau.) (3) Set of Instruments for Teaching Chemistry, and Collection of Artificial Fruits, for instruction in pomology. (Supplied by M. Courtois, 12 Rue Mouton-Duvernét, Paris.) (4) Apparatus for instruction by means of luminous projections in normal and second grade. (5) Projection Examples, by M. Armand Durand, 69 Rue du Cardinal Lemoine, Paris, with Catalogue of Drawings. (6) Shed for teaching Meteorology, with specimens of Instruments used. (7) Reports, Documents, &c.

285. **VESSIOT, Inspecteur d'Académie, à Marseille.**—Notes and Documents on teaching in Marseilles by means of dissolving views.

286. **LUTZ, Optical Instrument Maker, Paris.**—Apparatus for Dissolving Views as a means of teaching in elementary schools.

287. **DEYROLLE, ÉMILE**, 23 Rue de la Monnaie, Paris (Agents, E. FOU-CARD & CO., 24 Hop Exchange, S.E.).—(1) Natural History Diagrams. (2) Typical Collections of Vertebrate and Invertebrate Animals, with appliances used for teaching natural history in training schools. (See also *Gallery, Royal Albert Hall*.)

288. **ROUSSEAU, MESSRS.**, 44 Rue des Écoles, Paris.—Materials for instruction in physics and chemistry (finishing course) in primary, secondary and training schools.

289. **MONTAUDON** (Nephew, and Successor to DR. ANZOUX, 56 Rue de Vaugirard, Paris).—(1) Clastic Anatomy. (2) Man. The Eye, Ear and Larynx. (3) Reproduction of a hen's egg, with the elements composing it. (4) Grain of wheat.

290. **LEMERCIER, MADAME VEUVE**, 7 Rue Vavin, Paris.—Illustrations of Structural Anatomy. Dr. F. G. Lemer-cier.

291. **MENNEGLIER, M.**, Navenne, Haute Saône.—Specimen of Herbal for schools.

292. **TRAMOND, M.**, 9 Rue de l'École de Médecine, Paris.—Objects for teaching Natural History in normal schools.

293. **SOCIÉTÉ ANONYME D'ELECTRICITÉ**, 39 Avenue Marceau, Courbevoie.—(1) Dynamo Electric Machine, with continuous currents. School model. Price 80 francs. (2) Accessories for demonstrating the effects produced by the machine.

294. **BAUDRE, Honoré de St. Florent, Cher.**—Collection of Sonorous Rough Flints found in France from 1852 to 1883 in chalky quarries and forming two chromatic scales. (See *Western Central Gallery*.)

### CLASS LII.

(City and Guilds Institute.)

Art Teachers.—(a) Apparatus, Models and Fittings for Elementary Art Instruction in Schools; (b) Diagrams, Copies, Text-books, &c.; (c) Specimens of Art Work, Modelling, &c., in Schools.

295. **DEPARTMENT OF PUBLIC INSTRUCTION & FINE ARTS.**—(1) Specimens of Casts and Prints to form an art museum for elementary schools, prepared according to the regulations of the Ministerial Commission on school decoration; a. art museum for boys (See Room 7); b. for girls (See Room 9). (2) Types of school reward cards, sanctioned by the *Commission de l'Imagerie Scolaire*. (3) Collection of Casts and Models for teaching drawing. (4) Time work done at the examination for the certificate of art teaching in France.



296. **QUENTIN, A.**, 7 Rue St. Benoit, Paris.—Specimens of school reward cards. (See *Ministry of Public Instruction*.)

297. **BERNARD**, Professor of the College of Digne, Basses Alpes.—A manuscript course of drawing for elementary schools.

298. **REIBER, ÉMILE**, 54 Rue Vavin, Paris.—Panel of school decoration (*Room 7*). Exercises for the hand, the hand and eye, and the hand, eye, and the intelligence. Panel.—Alphabet of forms. A B C of forms, or drawing taught as writing, graduated exercises in tracing for beginners of every age. 12 books for the master and 12 for the pupils. Three Pamphlets on popular instruction in drawing. (See also *Classes 39 & 48*.)

299. **ARMENGAUD, AINÉ**, 45 Rue St. Sébastien, Boulevard Voltaire, Paris.—'School Decoration.'

300. **PRUNAIRE, M.**, 59 Rue de Grenelle, Paris.—(1) Two Series of School Reward Cards. (2) Three Prize Albums. (3) Two Series of the same in Envelopes.

301. **DELAGRAVE, CH.**, 15 Rue Soufflot, Paris.—(1) Collection of Drawing Models. (2) Models of Anatomy. (3) Models from the Antique. (4) Models of Plane and Solid Geometry. (5) Elementary Course of Geometrical Ornament. (6) Pillet and Charvet Drawing Utensils. (7) Orders of Architecture, by M. Avoine.

302. **CERNESSON, L. C.**, 23 Rue Michel-Ange, Paris.—(1) Elementary Grammar of Design. (2) Pupils' Drawing Books.

303. **RAVAISSON, F.**, INSPECTOR-GENERAL FOR HIGHER EDUCATION.—(1) Collection of Models. (2) Reproductions of Masterworks of Art. (3) Diagrams and Portfolios.

304. **D'HENRIET, M.**, 28 Rue Charbrol, Paris.—Rational Drawing Course: (1) Drawing from Copies. (2) Linear Drawing. (3) Drawing from Ornament.

305. **ARMAND-CASSAGNE, M.**, 12 Rue du Bac, Paris.—Armand-Cassagne Course of Drawing.

306. **NORMAL TRAINING SCHOOLS OF AUTEUIL, CAEN, LIMOGES, LE MANS, ORLÉANS, BLOIS, CHALONS-SUR-MARNE, VERSAILLES, AMIENS.**—Drawings and other Works done by the Students.

307. **GIBERT**,—Grande Rue, Fontainebleau.—Results of a two years' course of drawing on the Cassagne method. Time occupied—one hour weekly modelling; direct work of the pupil: (1) Joiner's Mallet. (2) Hedger's

Bill. (3) Wooden Shovel for Grocers. (4) Large Wooden Spoon. (5) Garden Hoe. (6) Woodman's Hatchet. (7) Carved Wooden Frame.

**VILLE DE PARIS.** (See *Special Catalogue*, page 357.)

## CLASSES L. & LIII.

(*City and Guilds Institute*.)

**Handicraft Teaching in Schools for Boys.**—(a) Apparatus and Fittings for Elementary Trade Teaching in Schools; (b) Specimens of School Work.

**Technical and Apprenticeship Schools.** (a) Apparatus and Examples used in Primary and Secondary Schools for teaching Handicrafts; (b) Models, Plans, and Designs for the Fitting up of Workshop and Industrial Schools; (c) Results of Industrial work done in such Schools.

308. **DEPARTMENT OF PUBLIC INSTRUCTION.**—Specimen of the Work of Pupils in Public and Private Schools.

309. **DEPARTMENT OF COMMERCE**, 25 Quai d'Orsay, Paris.—(1) School for Apprentices. (2) Schools of Applied Art. (3) School Work from the École des Arts et Métiers of Aix (Bouches-du-Rhône), specimens from the turning and pattern shop, foundry, smithy, fitting shop various specimens of machinery constructed by the pupils. Theoretical works, albums of drawings.

(*West Central Court*.)

310. **ÉCOLE NORMALE SPÉCIALE DE TRAVAIL MANUEL**, 10 Rue Louis Thuillier, Paris (Director, M. SALICIS).—Works of the Students. Examples showing the order followed in the artistic drawing course.

311. **SCHOOL OF THE RUE TOURNEFORT**, Paris.—Photographs showing the succession of work in every kind of handicraft teaching.

312. **TECHNICAL SCHOOL**, Vierzon (founded 1st April, 1882).—Works of the scholars.

313. **ÉCOLE PRIMAIRE SUPÉRIEURE**, Voiron. (M. BERTHUIIN, Director).—Works from the School Workshops; 1 Crane, 1 Galvanometer, 1 Catch, 1 Electric Bell.

314. **HIGHER PRIMARY AND PROFESSIONAL SCHOOL OF ROUEN** (Director, M. L. DELARUE).—Collection of works by pupils.



**315. PATRONAGE DES ENFANTS DE L'ÉBÉNISTERIE**, Fondé in 1866 (Founder, H. LEMOYNE). (See Room 8.)—A Carved Frame, in beech, done by the pupils of the Patronage.

**316. ÉCOLE DES ATELIERS DE LA MAISON CHRISTOFLE ET CIE.**, 56 Rue de Bondy, Paris.—14 Panels of drawings, done by the young apprentices who spend only four and a half hours weekly in the drawing class.

**317. INSTITUT INDUSTRIEL ET AGRONOMIQUE DU NORD** (Director, M. OLRY).—(1) Drawings by students. (2) Plans. (3) Examples of work done by students in the workshop. (4) Example from the weaving school. (5) Products from the chemical laboratory.

**318. PREVOST ORPHANAGE**, Compiègne, Oise, for 130 coeducated boys and girls, belonging to the Department of Seine (Director, P. ROBIN).—(1) Works by the scholars: cardboard, wood, wire, iron works, printing, models of gun, disks, blackboard. (2) Elementary Scientific Collection, done by the pupils, &c.

**319. TECHNICAL SCHOOL, Évreux.**—Works of the Scholars.

**320. CHAIX, M.**—Documents, &c., relative to the Technical School for Young Printers annexed to the printing establishment of M. Chaix. (See also Class XXXVIII.)

**321. LIVET INSTITUTE, Nantes.**—(1) Plan of the Institution. (2) Documents relating to the school, its progress, and methods of teaching.

**VILLE DE PARIS.** (See page 357.)

#### CLASS LIV.

(City Guilds and Institute.)

**322. DEPARTMENT OF THE INTERIOR, NATIONAL INSTITUTION FOR THE DEAF AND DUMB** (DR. PEYRON, Director), 254 Rue St. Jacques, Paris.—Works executed by the inmates, Books, Views of the Institution, and Specimens of Uniform.

**323. SOCIÉTÉ POUR L'INSTRUCTION ET LA PROTECTION DES SOURDS-MUETS PAR L'ENSEIGNEMENT SIMULTANÉ DES SOURDS-MUETS ET DES ENTENDANTS-PARLANTS.**—Publications relative to the phonomic method, proceeding adopted for the instruction of the deaf and dumb.

**324. DEPARTMENT OF THE INTERIOR, INSTITUTION FOR THE YOUTHFUL BLIND** (Director, Dr. ÉMILE MARTIN), 56 Boulevard Mont Parnasse.—Works by the inmates.

**325. SOCIÉTÉ DES ATELIERS DES AVEUGLES** (President, M. KRANTZ, Senator. Founder, M. F. H. LAVANCHY CLARKE), 1 Rue Jacquier, Paris.—Brushes, Feather Dusters, &c., made by the adult blind.

**326. MAGNAT, M.**, Director of the Peire School.—Works for the Instruction of the Deaf and Dumb. (The same works can be adapted for ordinary schools.)

**327. CHERVIN, DR.**, 10 Avenue Victor Hugo, Paris.—Table showing the geographical distribution of stammering in France.

#### CLASS LV.

(City Guilds and Institute.)

Literature, Statistics and Diagrams relating to Group VI. and to the effects of "Cramming," and Overwork on the Young, &c.

**328. DEPARTMENT OF PUBLIC INSTRUCTION.**—(1) Table giving extracts of the laws rendering elementary education in France free, compulsory, and secular. (2) Documents relative to teaching in France. (3) Reports, Papers, &c., relating to elementary second grade advanced education and learned bodies; also to technical and professional education. (4) Catalogue of Books, published under the sanction of the department.

**328a. DE BEAUCHAMP, A.**, Chef de Bureau, Ministry of Public Instruction.—Collection of Laws and Regulations relating to Advanced Education.

**329. MUSÉE PÉDAGOGIQUE**, 42 Rue Lhomond, Paris.—(1) Documents and Papers relating to the Museum. (2) Collection of the Educational Journals published in France.

**330. CERCLE PARISIEN DE LA LIGUE FRANÇAISE DE L'ENSEIGNEMENT**, 175 Rue St. Honoré, Paris.—Documents and Diagrams: Revue de l'Enseignement Secondaire des filles. Documents on girls' secondary education in France.

**331. SOCIÉTÉ POUR L'INSTRUCTION ÉLÉMENTAIRE**, 14 Rue du Fouarre, Paris.—Synoptic Table of the Works of the Society, &c.

**332. L'UNION FRANÇAISE DE LA JEUNESSE**, 157 Boulevard St. Germain, Paris.—Various Documents. Scholars' Works, &c.



333. **DE SABATIER PLANTIER, H.** Ners, nr. Vezénobres, Gard.—Publications relating to children's entertainments.

334. **SOCIÉTÉ NATIONALE POUR L'ENCOURAGEMENT ET LE DEVELOPPEMENT DE L'ÉDUCATION MORALE, CIVIQUE ET MILITAIRE EN FRANCE.** (*See De Sabatier, above.*)

335. **PICHE, M., 8 Rue Montpensier, Pau.**—(1) Documents relative to the Cantonal Museums. (2) Documents relating to popular education at Lunéville, presented by the Sous-Préfet at Lunéville.

336. **DUJARDIN, LÉON, Juillac, Corrèze.**—(1) Manuscript on the Creation of Cantonal Institutes. (2) Placards.

337. **DOULIOT, M., Principal of the College and Industrial School, Épinal.**—Documents relating to Scholastic Excursions.

338. **SOCIÉTÉ DES FÊTES D'ENFANTS, 8 Ruelle des Santes Martes, Nîmes, Gard; and Ners, near Vezénobres, Gard.**—(1) Statutes of the Society. (2) L'Éducation du Patriotisme.

339. **GROULT, EDMOND, Lisieux, Calvados.**—(1) Five Year Books of the Cantonal Museums. (2) Synoptic Table of a contemplated Cantonal Museum.

340. **DE MALRACE, M. (Secretary to the Congress on Provident Institutions), 68 Rue de Babylone, Paris.**—(1) Scholastic Savings Banks. (2) Documents and Diagrams.

341. **DELVAILLE C. (DR.) formerly Adjoint au Maire, Bayonne.**—Documents, Reports, &c., on the Bayonne Schools.

342. **ROTHSCHILD, M., 13 Rue des Saints Pères, Paris.**—Scientific Works for School Prizes.

343. **RACT et FALQUET, 16 Rue Cassette, Paris.**—Maps and School Books.

344. **DESCOUBES, Directeur de l'École de Morcenx (Landes.)**—Plans and Documents of the School.

345. **REVUE DE L'ENSEIGNEMENT SECONDAIRE DES FILLES.**—A Periodical published in Paris: Collection of the last years' numbers, and other documents.

346. **NARJOUX, M., 3 Rue Littré, Paris.** (*See Group 4 in the Western Central Galleries.*)

347. **'L'ÉCOLE,' Scholastic Journal.**—Office, 9 Galerie Colbert, Paris.

348. **CARDOT, M., 377 Rue des Pyrénées, Paris.**—Historique de la Table-Banc.

**CERCLE DE LA LIBRAIRIE.** (*See Class XLVIII.*)

## CLASS LVI.

(*City and Guilds Institute.*)

**Collective Displays of School Work and Appliances. School Museums.**

349. **DEPARTMENT OF PUBLIC INSTRUCTION & THE FINE ARTS.**

—(1) Portfolio representing interiors of French schools, photographed by M. Pierre Petit, Place Cadet, Paris. (2) Collective display of school work done specially for the London Exhibition, 1884, in the presence of the school inspectors by pupils of several urban and rural schools in each of the 86 departments of France. (*See Rooms 7 and 8.*)

350. **CERCLE DE LA LIBRAIRIE, Paris.**—Collective exhibit.

351. **PAYSANT, M., Préfet de l'Aude, Carcassonne, Aude.**—Scholastic Museum.

352. **DANZIC et CIE., Naujan, near Bordeaux.**—Specimen of a Scholastic Museum.

353. **DORANGEON (CH. DELA-GRAVE, Publisher).**—Scholastic Museum.

**ACADEMIC INSPECTORATE OF THE CÔTE-D'OR (Inspector, M. DES-CHAMPS, Dijon).**—Collective display of School Work, showing the work of children during one month and one year.

**THE BROTHERS OF THE CHRISTIAN SCHOOLS.**—The schools and colleges of this Institute, situated in France, exhibit:—(1) About 400 Albums and Portfolios of ordinary school work and drawing done in primary and high schools. (2) A Collection of Wall Maps, Models in wood and plaster; a Course of Drawing and numerous Text-Books by the Brothers. (3) Specimens of work done in the technical schools of St. Nicolas (Paris), La Salle (Lyons), and the Orphanage (Versailles). (4) A number of School Museums.

**VILLE DE PARIS.**—Models of Scholastic Furniture and School Appliances. (*See page 357.*)



## CITY OF PARIS.—SPECIAL EXHIBITION.

(West Central Gallery.)

## SECTIONS CONTRIBUTING.

## I.—PREFECTURE OF THE SEINE.

- (a) SECRETARIAT.  
Municipal Statistics.
- (b) EDUCATION DEPARTMENT.
- (c) WORKS DEPARTMENT.  
Water Supply.  
Sewerage and Sanitation.  
Highways.  
Sanitation of the Seine, Irrigations with Sewage Water.  
Public Buildings.  
Montsouris Meteorological Observatory.

## II.—PREFECTURE OF POLICE.

- (a) SECRETARIAT.  
Municipal Chemical Laboratory.
- (b) SECOND DIVISION.  
Hygiene, Public Health, Ambulance.
- (c) FIRE BRIGADE.

## I. PREFECTURE OF THE SEINE.

—SECRETARIAT. *Statistics Section.* (M. Jacques Bertillon, Director). —(1) Recapitulative Statistics for the Municipality, 1872-1879 (1 vol.). (2) Weekly Returns of Municipal Statistics (4 vols.). (3) Statistical Directory for 1880 and 1881 (2 vols.). (4) Series of Diagrams of the Movements of Typhoid Fever in Paris, showing also the years, arrondissements, social status, age, and sex of the persons.

EDUCATION DEPARTMENT. (Director, M. Carriot, Inspecteur d'Académie; Assistant-Director, M. DUPLAN, Inspecteur de l'Enseignement primaire.—(1) Class Models. (2) Various Objects and Documents. (3) Primary Schools. (4) Manual Labour. (5) School Materials. (6) Specimens of Pupils' Works.

WORKS DEPARTMENT. — *Water Supply.* — (M. Couche, Engineer-in-chief). — (1) Ivory Pumping Station, interior view (aquarelle), and exterior view (photograph). (2) Villejuif Reservoir, Plan and Section, and Perspective (aquarelle). (3) Laforge (aquarelle). (4) Consumption of Water from 1860 to 1883. (5) Synoptic Table of Pumping Stations and Reservoirs. (6) St. Maur Pumping Station. (7) Hydraulic Machine (aquarelle). (8) Steam

Engine (aquarelle). (9) Boilers (aquarelle). (10) Chaillot Pumping Station, interior view (aquarelle). (11) Austerlitz Pumping Station (oil painting). (12) Statistical Plan of Water for private use. (13) Similar Plan. (14) Table of the Movement of the Water Level from the year 1872. (15) Table of the Movement of Hydraulic Apparatus. (16) Table of the Movements of the Gross Receipts and of the position of the Meters (compteurs). (17) Table of the Depressions observed. (18) Interior of an *atelier de poinçonnage* (photograph). (19) Tracing of the Locks (plan). (20) Tracing of the Sluices (plan). (21) Tracing of the Sluices (profile). (22) Concrete and Accessories (under glass). (23) Specimens of Pipes, Special Tubes, and Plugs in use at Paris. (24) Recorder for steam pump. (25) Manometer mounted on a gaselier and destined to indicate water pressure. (26) Formulæ in use. (27) The Waters of Paris by the late M. Belgrand. (28) Collective Plan of the Manometric Stations.

*Sewerage and Sanitation.* (M. Humblot, Engineer-in-chief). —(1) Asnières Collector containing Model of the *Bateau Vanne*. (2) Sewerage Model, containing Tip Waggon, Truck, and Waggonette. (3) Sewerage Model



of a Sluice Waggon. (4) Berlier's Emptying Apparatus. (5) Collection of Separators. (6) General Plan of the Sewerage by improved system of cleansing basins (plan). (7) Canalization by rarefied air (pneumatic system). (a) General Plan. (b) Installation on an Estate. (8) Canalization by free air (plans and sections). (9) Descriptive account of Berlier's system. Portfolio as to the position of sewers. (10) Collection of Appliances used in sewerage.

*Highways.* (MM. Allard & Barabant, Engineers-in-chief). — (1) Panoply composed of 57 Models of Implements used for cleaning and watering roads. (2) Sweeping Machine (Blot's system). (3) Sweeping Machine (Smith's system). (4) Hydraulic Roller. (5) Steam Roller. (6) Dung Cart. (7) Sewage Cart. (8) Hose. (9) Two Watering Appliances. (10) Crane for markets, with accessories. (11) Trucks. (12) Dung Cart, and (13) Wheelbarrows of various forms.

*Sanitation of the Seine, Irrigations with Sewage Water.* (M. Durand Claye, Engineer-in-Chief). — (1) Pumping Station, interior view. (2) Diagram showing quantity of water raised, 1868-1877. (3) Diagram showing quantity of water raised, 1878-1882. (4) Diagram showing extent of surface irrigated, 1868-1877. (5) Diagram showing extent of surface irrigated, 1878-1882. (6) Plan of the Plain of Gennevilliers. (7) Plan of the Achères District. (8) Plan of Paris showing the estates bordering on the sewage system. (9) Hôtel de Ville, Plan of the Foundations and Ground Floor, Sections, and Details. (10) Model of the Direct Flow. (11) Report by Commission. (12) English Documents. (13) Engineers' Reports. (14) Administrative Reports. (15) Official Papers. (16) Inquiry of 1876. (17) Miscellaneous Papers. (18) Sewage Waters. (19) Agricultural Products of the Plain of Gennevilliers.

*Public Buildings.* (M. Mensat, Director). — Designs for Schools and the Installation of Municipal Edifices from a health point of view. — (1) Aldrophe, Architect, Poste Vigie, Boulevard de Clichy. Drawings (1 frame). (2) Bouvard, Architect, New Barracks for the *Garde Républicaine* in the Rue Schomberg. Designs for Buildings, Sewers, &c. (4 vols.). (3) Beconchy, Architect, High Grade School, Arago. Drawings and Photographs. Primary School, Rue Ordence. Drawings (framed). (4) Ginain, Architect, Steam Pumping Station, Rue Denfert Rochereau. Drawings (1 frame). (5) Herman, Architect. *Maison de Repression de Nanterre* (1 frame). (6) Leroux, Architect, Scholastic Group, Avenue Duquesne. Drawings (3 frames). (7) Roussi, Architect, Firemen's Barracks, Rue de Coligny. Drawings and Photographs (1 frame). (8) Sollerion, Architect, Infant School, Rue de Jourdain. Drawings (2 frames). Girls' and Boys' School, Rue Blanche (1 frame). Normal School, Auteuil. Drawings (1 frame). (9) Heating and Ventilation of the Dépôt of the Prefecture of Police (M. Chifont, Constructor). Pamphlet

and plans. (10) Heating and Ventilation of Clinic and Accouchements. 1 portfolio and plans. (11) Disinfection of the Hospital at Antonne (gas). Plan. Disinfection of the Hospital at St. Louis (steam). Plan. (MM. Gaillard and Haillet, Constructors). (12) Heating and Ventilation of the Hôtel de Ville, of the Maison de Repression at Nanterre, the Rollin College, the Avenue Duquesne, and the Church of St. Germain l'Auxerrois. (MM. Geneste and Herscher, Constructors). (13) Refrigerating Apparatus used at the Morgue. Drawings (framed). Panoply of the principal apparatus used for lightning conductors. (M. Torrians, Constructor).

*Montsouris Meteorological Observatory.* (M. Marié Davy, Director). (1) View of the Observatory and its Instruments. (2) Diagrams of the Daily Weather Charts for 1883. (3) Weekly Diagrams. (4) Diagrams of the number of Microgerms discovered in the air of Paris. (5) Curves furnished by Richard's Registering Thermometers. (6) Hygrometer for dwellings. (7) Portable Box of Objects necessary for the determination of oxygen in water. (8) Self-acting Syphon. (9) Aeroscope, fixed. (10) Weathercock Aeroscope. (11) Aeroscope for aspiration. (12) Registering Aeroscope for constant aspiration. (13) Graduated Lamel for the same. (14) Fixing Liquids for the dust contained in the air. (15) Bulbs for fixing the bacteria in the air. (16) Pasteur's mattress. (17) Bulbs for culture in the baths. (18) Flagons for dust. (19) Bulbs containing sterilized water. (20) Liquor sterilized at 110° (Beef Infusion). (21) Liquor sterilized at 110° (Liebig's Extract). (22) Liquor sterilized by cold (Bullock's Blood). (23) Liquor sterilized by cold (Human Urine). (24) Apparatus with Refrigerator for filtering on plaster. (25) Apparatus for filtration by cold. (26) Water Trumpet. (27) Alvergny's Trumpet. (28) Water Aspirator. (29) Mercurial Aspirator. (30) Steam Lamp Aspirator. (31) Steam Gas Aspirator. (32) Glass Tubes containing Cotton Wool. (33) Registering Apparatus for hourly variations. (34) Nacet's Microscope, large model. (35) Nacet's Microscope, large model, for chemistry. (36) Nacet's Microscope, large model, for photography. (37) Nacet's Dry Objects. (38) Objects for immersion in water and oil. (39) Verick's Microscope. (40) Dry Objects, and (41) Objects for immersion in water and oil. (42) Van Thiëgem's Cellules. (43) Single and Multiple Wet Cellules. (44) Wet Cellules. (45) Montsouris Year-books, 1875 to 1884. (46) Organisms of the Atmosphere, by Mignel. (47) Relative values of the various Antiseptics.

**II. PREFECTURE OF POLICE.** — SECRETARIAT. — *Municipal Laboratory of Chemistry.* (M. Girard, Director). — (1) Electrolytic Apparatus for detecting Copper in provisions. (2) Apparatus for detecting Alcohol in wines, beers, and ciders. (3) Apparatus for the analysis of milk, chocolate, pepper, &c. (4)



Dessication Cages. (5) Tubes. (6) Measuring Glasses. (7) Water Trumpet, with Bell. (8) Mercurial Pump. (9) Dupre's *dyaliseur*. (10) Apparatus for the analysis of carbolic acid. (11) Duboseq's calorimeter. (12) Spectroscope for the electric spark. (13) Photographic Microscope for the electric spark. (14) Photographic Microscope with Electric Lantern. (15) Calcining Furnace. (16) Plan of the Laboratory. (17) Plan of the Heating Arrangements. (18) Microscopic Photographs. (19) Prints used in the Laboratory. (20) Documents on Adulteration.

SECOND DIVISION.—*Public Health and Ambulance*. (M. Bezançon, Chef de Division.)—

(1) Reports on Epidemic Diseases observed in the Department of the Seine. (2) Various Reports. (3) Reports on the application of the Law of 19th May, 1874, during the years 1880, 1881 and 1882. (4) Minutes of Local Commissions on the work of children employed in various industries during the years 1880-1883. (5) Police Regulations and Instructions relative to Hygiene. (6) Reports on the Works of Departmental Commissions on Hygiene, 1878 to 1881. (7) Annual Reports of Departmental Local Commissions, 1881, 1882, 1883. (8) Reports on the Protection of Infant Life, 1880 to 1882. (9) Reports on the Labours of the Council of Hygiene. (10) Regulations concerning the Parisien Theatre. (11) Madmen. (12) Children Aided. (13) Dispensary. (14) Statistical of the Morgue, 1878 to 1883. (15) Tables of Instruction for restoring the apparently drowned, and for aid to the wounded. (16) Ambulance Waggon and Disinfecting Apparatus. (17) Ambulance Awning. (18) Kit for dressing wounds, and for aiding the apparently drowned. (19) Mattress covered with copper. (20) Hand Litter. (21) Wheel Litter.

FIRE BRIGADE. Colonel Conston and Captain Garcin (French Engineers.) *Objects*.—(1) Steam Pump (Thirion's system). (2) Air and Water Pump (Philippe's system). (3) Reel for a watch post. (4) Hydrants. (5) Fire Alarm. (6) Fumat's Safety Lamp. (7) Electric Safety Lamp.

*Drawings and Photographs*.—(1) Plans, with indications of Fire Stations and Firemen's Barracks and Hydrants. (2) Plans of the Telegraph and Fire Alarm Systems. (3) Seven Frames of Drawings and Photographs. (4) Statistics for 1878 to 1882. (5) Regulations relating to Theatres. (6) Statistics for 1883. (7) Specimens of various Costumes worn by the ambulance and police corps.

## GERMANY.

### CLASS IV.

1703. **ACTIEN BIERBRAUEREI**, Luebeck (Agent, W. STROHN, 42a Noble Street, E.C.).—Beer.

1704. **BRAUN & CO.**, Waldeck.—Straw Hats.

1705. **JULIUSHALL ESTATE & MINERAL WATER CO. LIMITED (THE)**, Office, 6 St. Swithin's Lane, E.C.—Mineral Waters.

1706. **MAYER, EMIL**, Weingutsbesitzer, Honnef-am-Rhein.—Still Hock and Moselle.

1708. **REICHENKRON, F. W.**, Charlottenburg, near Berlin (Agent, MAX RHEUR, 59 Mark Lane, E.C.).—"Berliner Weissbier" (beer for exportation, brewed from wheat-malt and hops), non-intoxicating beverage.

1710. **STIBBE, HERMANN**, Cologne.—Liqueurs, Bitters, and Spirits.

**SOLMS, PRINCE GEORGE FREDERICK** de, Braunfels, Nassau.—(1) Natural Mineral Tablewater from the "Gertrudis Spring" at Biskirchen, near Wetzlar. (2) Tables of Analyses of the water by eminent German chemists and physicians. Attendant in the costume of a girl of the district of Biskirchen. (*Pavilion in Central Avenue*.)

### CLASS V.

1712. **BUNAN, DR. MEINERT**, Cornelius Strasse 8, Berlin.—(1) Animal and Vegetable Foods. (2) Soups, Meat, Biscuits, &c. (3) The same, specially prepared for soldiers and workmen.

1713. **LASSEN, JOHANNES**, Kapeln Strasse 18, Hamburg.—Prepared Oatmeal.

1714. **WELLER, JAMES**, Someringstrasse 24, Frankfurt-am-Main.—Concentrated Lager Beer and Milk.

### CLASS VI.

1715. **EGGERS, J. E.**, Hamburg.—Cooking Stoves.

1716. **WEIGHORST, W. A. F., & SON**, 43 Pumasberg, St. Paul's, Hamburg.—(1) Large Patent Steam Baking Oven. (2) Small Patent Steam Baking and Cooking Apparatus. (3) Field Baking Oven on wheels. (4) Dough Mixing Machine, &c.



## CLASS XI.

1717. HEYDEN, DR. F. VON, Dresden (Agents, BURGOYNE, BURBIDGES, CYRIAX, & FARRIES, 16 Coleman Street, E.C.).—Salicylic Acid.

## CLASSES XI. &amp; LI.

1718. KRAKOW, P. G., Peterstrasse 16, Hamburg.—(1) Salt for preserving food. (2) Microscopes and a Paulograph or instrument for reproducing plans and maps, &c.

## CLASS XII.

1719. HANKE, REINHOLD, Hohn, bei Coblenz; and 18 Fourth Avenue, Queen's Park, Harrow Road.—Jars for preserving jams.

## CLASS XVI.

1720. WOLFF, CARL JULIUS, Gross Gerau, near Darmstadt (Agent, ENZINGER, G., 8 Wood St. Square, E.C.).—Respirators.

## CLASS XVIIa.

1721. MÜHLINGHAUS, C., PET JOH. SOHN, Lennep, Rhenish Prussia (Agents, C. ATKINS & NISBET, 1 Water Lane, E.C.).—Undershirts and Drawers of Cotton and Wool.

## CLASS XXIV.

1722. SCHOMBURG, Berlin (Agents, WITTING BROS., 64 Cannon Street, E.C.).—Spark and Soot Arresting Apparatus, with arrangements for sweeping chimneys, so as to prevent the escape of soot.

## CLASS XXV.

1723. TREUTLER & SCHWARTZ, Dresdener Strasse 80, Berlin (Agents, BEAUMONT & CO., 43 Imperial Buildings, Ludgate Circus, E.C.).—The "Aërophor" Patent Screw Ventilator, for Rooms, Hospitals, Factories, Theatres, between Decks, &c., to introduce cleansed fresh air, cool or warm, as circumstances require, and to remove the vitiated.

## CLASS XXVII.

1724. WARMUTH, HEINRICH WILHELM, Dresden.—Patent Hemp and India-rubber Hose.

## CLASS XXVIII.

1725. WEBER, C. F., Leipzig (Agents HERMANN & CO., Eastcheap Buildings, London, E.C.). (1) Model of a Roof, covered after a new method, no slates or tiles being used, but a certain composition. (2) Four Glass Bottles, containing the above composition. (3) Several Rolls of Roof Board.

## CLASS XXX.

1726. SCHOBERT, F., Munich (Agent, C. B. PARE & CO., 126 London Wall, E.C.).—Rolling Chair.

1727. WELLMANN, F., 19 Reichenstrasse, Altona.—Hardware, &c.

## CLASS XXXI.

1728. SANDOW, DR. ERNST, Fruchtaltee, Hamburg.—Preventive Cover for children and suffering persons, with an apparatus for filtering and purifying the air, and a ventilator.

## CLASS XLVIII.

1729. HAARBURGER, C. & CO., 77 Ritter Strasse, Berlin; and 2 Hamsell Street, E.C.—Universal Children's Desk. The seat can be raised or lowered at will. The slab moves backwards and forwards which compels the child to sit upright. Adjustable footboard is provided. The reading stand is moveable, so that the child's head is kept erect. Cupboard for books, &c., is provided.

## HOLLAND.

## CLASSES II., III., IV., AND X.

1732. J. C. VAN MARKEN, yr Delft, Holland (Agents, C. B. PARE & CO., 126 London Wall, E.C.).—(1) Model of the Agneta Park with the cottages for employes and workmen of the Netherlands Yeast and Spirit Manufactory. (2) Specimens of results of teaching practical manual work to the children of the workmen. (3) "The Factory News," and other books and documents about institutions in behalf of the workmen. (4) Fresh Yeast and Imperishable Yeast for bread baking, and Models of Yeast and Bacteries. (5) Pure Alcohol.

1733. MOUTON, DR., The Hague.—Pure Butterine manufactured without a particle of dairy butter.

1734. MAESSEN, H. J., 2 Fowke's Building; and 25 Great Tower Street, E.C.—Dutch Gin and Liqueurs.

## CLASS IV.

1735.—BENS DORP & CO., 144-150 Amstel, Amsterdam (London Agency, 30 & 31 Newgate Street, E.C.).—Royal Pure Soluble Dutch Cocoa Powder.

1736. HULSMAN, J. H., 26-28 Tonkerstraat, Amsterdam.—Liqueurs and Bitters.

## CLASS XIII.

1737. HERKESLEYN, W. VAN, 39 Frans Halsstraat, Amsterdam.—Embroidered Weapons.



## INDIA.

(West End of Central Gallery.)

1600. HEWETT, W., & CO., 14 Fore Street, E.C.—Case of Specimens of Indian Condiments.

1601. INDIAN TEA DISTRICT ASSOCIATION (THE), 14 St. Mary Axe, E.C.—(1) Sirocco Drying Machine. (2) Standard Cross-action Rolling Machine and other Models of Tea Machinery. (3) Drawing of Sifting Machine.

1603. JURADO, M. R., 21 Billiter Street, E.C.—Indian Cigars and Cheroots.

1604. WARDE, J. E., Calcutta.—Indian goods specially imported: Silks, Cloths, Jewellery; Indian Articles for house decoration.

1605. JHOOMUCK, SHAW & CO., Calcutta.—Dinapore Table-cloths, Napkins, and Sheeting.

1606. PERSHAD, SHAW & CO., Calcutta.—Bapta Tussar and Burhampore Silks.

1607. BARR, T. J. & CO., 15 Garden Reach, Calcutta.—Various Indian Specialties.

1608. INMAN, ALFRED, 17 Ebury Street, S.W.—Condiments, Preserves, Currie Powder, Chutnees, Indian Tea, Mangoe, and other Indian Pickles, Pottery or Brazen (Food or Water) Vessels, Lotahs, Surahis, Thalees, Dinner Mats made of split cane by the "Dome" Cast; Objects for internal decoration and use in the dwelling, Benares Toys, &c., Tussah Silk, Corah Silk, Chuddahs, Chogahs, Shawls, Personal Ornaments, &c.

1609. SUTTON & SONS, Reading.—(1) Collection of Indian Models of Indian Vegetables and Fruits (over 100) presented to Messrs. Sutton & Sons by the Indian Government. (2) Collection of Models of English Vegetables suitable for the Indian climate. (3) Collection of Seeds of Vegetables, &c., suitable for growing in India.

1610. BARRY & CO., 5 Lyons Range, Calcutta.—Specimens of Indian Tea, manufactured at the following Estates: In Kachar, Bundookmarra, Appin, Dilkhoosh, Doloo and West Jalinga. In Assam, Debrooghur Combination Co., Mukalbari, Khonikor Dewan, Bolife, Ginyan in Sylhet, Lushkerpore.

1611. HEWETSON, H., & CO., 59 Mark Lane, E.C. (Agents for the Ceylon Company's Teas).—Ceylon Teas, dry and infused.

1612. BONTOR, F. W., & CO., 35 Old Bond Street, W.—Exhibits of Indian Carpets.

1613. CARDINAL & HARFORD, 108 & 109 High Holborn.—Eastern Carpets and Rugs.

1614. PROCTER & CO., 428 Oxford Street, W.—(1) Indian Bangles and Jewellery. (2) Hand-carved Furniture. (3) Art Fabrics. (4) Art Embroideries. (5) Jail-made Rugs. (6) Beaten and Inlaid Metal Work. (7) Wood Work. (8) Decorative Pottery. (9) Native Swords, Daggers, Shields, and Antlers. (10) Indian Gods.

1615. ANDREAS, THEO. H. (Agents, E. LEHZEN & CO., Calcutta.) Exhibit of Indigo dyes.

1616. INDIAN TEA DISTRICTS ASSOCIATION, 14 St. Mary Axe, E.C.—Exhibit, under the direction of Edward F. Langdale, Esq., of Teas forwarded by the under-mentioned firms:—(1) Upper Assam Tea Co., 6 & 7 King William Street, E.C. (2) Lawrie, Alexander, & Co., St. Mary Axe, E.C. (3) Williamson, Magor, & Co., Calcutta & London. (4) Lloyd & Co., London. (5) Begg, Dunlop & Co., Calcutta & London. (6) Land Mortgage Bank of India Co., Limited, 4 East India Avenue, Leadenhall Street, E.C. (7) Thompson, W. & H., Mincing Lane, E.C. (8) French, F. W., Customs Chambers, St. Dunstan's Hill, E.C. (9) Dods, James, 2 Mincing Lane, E.C. (10) Horsfall, C. W. (H. Fatt, Agent). (11) Kangra Valley Tea Co., Limited—Depôt, Princes Hall, Piccadilly; & 3 Brabant Court, E.C. (12) Nassau Tea Co., Limited, Princes Hall, Piccadilly; & 3 Brabant Court, E.C. (13) Kangra Valley Indian Tea Growers' Association, 11 Panton Street, Haymarket; & Palampore Punjaub, India. (Infusions of the above Teas are to be obtained at the Stall of the Association, and in the Indian Pavilion outside.)

1617. BOWDEN, W., 15c Hogarth Road, Earl's Court, S.W.—(1) Various ingredients used in the making of curries. (2) Pulses used by natives of India. (3) Models of Indian Fruit and Vegetables. (4) Indian Condiments and Preserves, varieties of Indian Teas, Metal-work and Jewellery, Benares Toys, Sandal-wood Oil, Trichinopoly Cigars, Indian antiseptic Powders, and Indian Photographs of Costume and Character.

1618. ROBERTS, & CO., Cocoanda, Madras (London Agent, W. BOWDEN, 15c Hogarth Road, Earl's Court, S.W.).—Cocoanda Cigars, Snuffs, and Tobacco.

1619. EATON, C. W., & CO., Madras (London Agents, HENRY S. KING & CO., 65 Cornhill).—Cocoanada Cigars, from the Godavari District, Madras.

1620. GREAT EASTERN HOTEL (THE), WINE AND GENERAL PRESERVING CO., Calcutta (London Agent, WILSON, CALDER, & CO., Mansion House Chambers, 11 Queen Victoria Street, E.C.)—Indian Chutnees, Condiments Pickles, Preserves.



**1621. STEMBRIDGE, C., & CO., 33 Leicester Square, W.C.**—Various Descriptions of Indian Food Products.

**1622. GIBBS, WILLIAM ALFRED, Gillwell Park, Chingford, Essex.**—The "Gibbs" latest Patent Cylinder with Cells, Air-Duct, and Compound Blast and Suction Fan for purifying and conditioning Wheat and all Cereals, Desiccating Vegetables for the Navy, Tea from the rolling-mills, Apple-pulp, Brewer's Grains, Ensillage for Cattle Food, Cocoa, Coffee, Rice, Linseed, Maize, &c. Models of Harvest Savers, already adopted on twenty of the chief estates in the country, and by means of which 2 millions' worth of food can be saved in ordinary seasons, and 20 millions in wet ones.

**1623. HUTCHISON & CO., 4 Guildhall Chambers, 33 Basinghall Street, London, E.C.**—(1) Ceylon Tea and Coffee in the cup. (2) Typical native hut. N.B.—This exhibit is situated outside the Western Gallery.

**1624. KING, ROBERT, 32 Sussex Place, South Kensington; & 5 Bishop's Road, Paddington.**—Teas and Coffees from various gardens and plantations in India and Ceylon.

**1625. EXHIBIT FROM BARODA, forwarded by the courtesy of MAJOR-GENERAL J. WATSON, V.C., C.B., Agent to the Governor-General.**—(1) Samples of Articles of Diet used in Central Jail, Baroda. (2) Samples of Indian Cakes, Passad, Passadi, Kurowdi, Botwa, &c., &c. (3) Samples of Indian Sweetmeats, Badam Ladoos, Amrat Pak, Shrikund Vadi, Halwa, &c., &c. (4) Preserves, Pickles, Bel-tree Fruits, Darkh Choorau, Khapriyoo Bhoora, Kola Pak, &c. (5) Syrups of Rose, Pomegranate, Grewia, &c., &c. (6) Cooking Utensils. (7) Male Dress, Turban, Coat, Dopeta Shoes (Maratha), Shoes (Deccany), &c., &c. (8) Female Dress, Guz-rati Chagaro, Kancholee Patakoo, &c.; Deccany Sadi Cholly, Prukol Glass Bangles, Perfume Powder, &c. (9) Photographs of Streets and Environs of Baroda. (10) Needlework Cushion of Gold and Silver Embroidery, prepared by a Parsi lady of Baroda. (11) Various Attars, extracted and manufactured by Kahn Saheb Sarafaly Alybhai of Baroda.

**NOTE.**—The decoration of the Indian Court was entrusted to the skill of Messrs. Vincent Robinson, & Co., 4 Wigmore St., W.

## ITALY.

**1. DEPARTMENT OF THE ROYAL ITALIAN NAVY.**—(1) Ambulance Bed for wounded, with fixed handles. (2) Ambulance Bed for wounded, with bending handles. (3) Knapsack complete, with all the instruments and medicines for the use of sailors on shore. (4) Rations for the sailors on board and on shore.

**2. DEPARTMENT OF THE INTERIOR.**—Dress for prisoners.

**3. CITY OF ROME.**—(1) Photographic View of a Rescue Station on the Tiber of the Roman Society of Help to the Drowning. (2) Representation of an Asylum of the Roman Society of Help to the Drowning. (3) A Litter invented by the Society. (4) Reservoir, holding 1000 cubic metres, for watering and cleansing the streets and sewers. Elevation—Section—Plan. (5) Discharge Pits (on the system of Roger Field's flushing tank) in the new quarter of Castro Pretorio. (6) Types of Drains and Galleries for the Via Nazionale and minor streets. (7) Gallery for the passage of the Felice aqueduct in a double syphon at the Baths of Diocletian. (8) Gallery for the service of drinking-water in the Via Condotti. Grand artery of the Acqua Vergine, diameter m. 0·80; embranchment of the Marcian Water, diameter m. 0·20. (9) Gallery for the service of drinking-water in Via del Babuino. Embranchment of the Virgin Water, diameter m. 0·60. (10) Main Collector of Water in the high quarters (in construction). (11) Main Collector of Water in the high quarters (at its origin). (12) Main Collector of Water in the high quarters (at its end). (13) Regular discharge of ordinary waters. Collector of Water in the high quarters (at its end). Provisional discharge of surface waters. (14) Plaster Cast of a Praetorian Edict relative to the cleanliness of the Viminal Cemetery. (15) Model in wood and scajola, representing the system used by the ancients for heating their dwellings. Height m. 0·48, length m. 0·72, depth m. 0·26. Proportion of  $\frac{1}{10}$ th to the original. (16) Plaster Model of the Piscina Limaria of the Virgin Water previously existing in the Vicolo des Bottino, near Piazza di Spagna. Height m. 0·36, width m. 0·61, depth m. 0·25. Proportion  $\frac{1}{20}$ th of the original. (17) Plaster Model of an Ancient Strainer, perhaps for oil, existing at the sixth mile of the Appian Way, in the estate of Santa Maria Nuova. Length m. 0·80, width, m. 0·40. In the scale of m. 0·07 to the metre. (18) Frame containing a series of twenty-one models of Ancient Water-pipes. (19) Frame containing some specimens of Brick Materials, used by the ancients in their systems of heating houses, or for the distribution of water, or to prevent the dampness of walls. (20) Terra-cotta Cylinder which supported the hanging vault of hypocausts.



(21) Square and Round Bricks used in the pilasters which supported the hanging vault of the hypocausts. (22) Charcoal found in the furnace of an ancient house on the Esquiline. (23) Topographical Plan of the Roads and Aqueducts of the suburbs of Rome. (24) View of the Elementary School on the Piazza dell' Esquilino. (25) Ground Plan of the proposed National Institute.—Plan of the first floor, plan of the second floor, plan of the basement floor, representation of the sections, representation of the elevations. (26) A collection of accurate reproductions of eatable, doubtful, and poisonous Mushrooms, for the practical instruction of hygienic notions in the suburban and rural schools. (27) Pictures of the natural science, representing the eatable, doubtful, and the poisonous common's plants. (28) A Wooden Litter with linen stretcher. (29) A Model of an Ambulance Cart for conveying sick persons from the sanitary stations in the Roman Campagna to the city hospitals. (30) Plans of the Lazzeretto and of the Roman Campagna divided into nineteen sanitary stations. (31) A complete Drover's Dress, composed of trousers, jacket, and waistcoat of velveteen, shoes, spurs and gaiters, hat, cloak, and goatskin leggings. A leathern waistcoat, sheepskin sleeves, two cloaks and leggings. Leather head-gear and reins. Three halters, two of which are for use and one for gala Saddle and trappings complete. (32) A case containing ancient surgical instruments belonging to Professor Francesco Scalzi.

4. GRASSI, CARLO, 40 Gerrard Street, Soho, W.—Sole Agent for the United Kingdom and British Colonies for A. Alessandri's Genuine Chianti Wine in flasks and in bottles. Also sole importer of the celebrated brand, Extra Cream Brilliant Salad Oil.

5. BELLINI, PAOLO, S. Daniele Ripa Po, Provincia di Cremona.—Red Wines dry and sweet.

6. CINOTTI ANTONIO, Siena.—Red Table Wine. Vermouth and Oil.

7. BRUGNATELLI, DR. ERNESTO, Voghera.—Mineral Water of Monte Alfeo, near Voghera.

8. STRUTT, CAV. ARTURO, Rome.—Red and White Wines of Civita Lavinia, near Rome.

9. SCIARRA, VINCENZO, Rome.—Cheeses of the Campagna di Roma (Cacio Cavallo).

10. CRISCUOLO, MICHELE, General Merchant, 9, Rathbone Place, Oxford Street, W., Coral Fishers and Exporters.—Speciality, Finest Pink Coral.

11. NORCHI & CO., 267, Regent Street, W.—Importers of Italian Marble Sculpture, Pedestals and Italian Majolica, Plats from the Abruzzi and Urbino style.

12. DE GIOVANNI, G., 38 Wellington Street, Camden Town.—Cameos and Coral Fishers.

13. LANCELLOTTI, GIOVANNI, 1 Montpelier Street, Brompton Road, S.W.—Corals and Tortoiseshell Ornaments.

14. GARGIULO BROTHERS, 55 Strada di Chiaja, Naples.—Gloves of Naples.

15. CIRIO, FRANCESCO, Turin, Purveyor to His Majesty the King of Italy (R. GANCIA, 11-13 Southwark Street, Sole Agent for England).—Italian Preserved Vegetables. Wines, Oils, Wermouth, Chianti.

16. MAZZONE, CARLO, 16 Red Cross Street, Borough, S.E., Importer and Shipper of Italian Wines.—Mazzone's Dinner Wine, Savi's Barolo, Savi's Chianti, Cinzano's Vermouth, Cinzano's Moscato Margherita.

17. SCIARRETTA, GIOVANNI, 46 Berners Street, W.—Ancient Furniture.

18. LOVATI, CAV. DANIELE, Milan. (Represented by Mr. G. SALVATI, 311 Regent Street.)—(1) Carved Wood Cabinets. (2) Carved Wood Frames, with subjects in bas relief. (3) Small Carved Boxwood Figures.

19. VITALI, EGIDIO, 5 & 6 Great Winchester Street Buildings, E.C. (Agent to the SOCIETA ENOLOGICA VALTELLINESE, Sondrio; MARTINI & ROSSI, Vino Vermouth, Turin; MANTINI CAV. PASQUALE, Fabriano; ALBIZI, MARQUIS, Chianti Wines.—Trappist Monks' Eucalyptus Liquors at Tre Fontane, Rome.

20. FRANCATI & SANTAMARIA, 65 Hatton Garden, London, and Rome.—Artistic Roman Jewellery and Ornamental Shell Works.

21. DE CARO, ANTONIO, 70 Via Santa Lucia, Naples.—Corals and Tortoise-shell Ornaments.

22. GIACOBINI, CORIOLANO, Fano. (By appointment of the King of Italy, Distiller and Liqueur Manufacturer.)

23. MARCHINI CESARE, Fiesole, (Florence), Speciality Ornamental Straw Manufacturer.—Baskets and Toys in great variety.

24. SAVONA, LEOPOLDO, Crystal Palace, Roman Court.—Corals.

25. MONTINI, Naples.—Corals and Tortoise-shell ornaments.



26. **MONTANI, E.**, 65 Hatton Garden.—Roman Pearls, Cameos.

27. **LABRIOLA, MARITONTA**, Naples.—Corals and Tortoise-shell Ornaments.

28. **BORRELLI & ZOPPO**, 41 Via Calabritto, Naples.—Corals and Tortoise-shell Ornaments.

29. **CIRCOLO ENOFILO ITALIANO DI ROMA (ITALIAN OENOLOGICAL SOCIETY OF ROME)** representing Italian Wine Producers.

Alliata, Edoardo Duca di Salaparuta, Palermo. Corvo Bianco (white wine), 1876-81; Corvo Rosso (red wine), 1878-81; Malaga di Sicilia (red), 1882.

Antonelli, Count Agostino, Rome. Vino rosso (red wine).

Degli Albizi Eredi, Florence. Pomino, 1881; Nipozzano, 1881; Premole, 1883.

Caumont, Enrico, Bologna. Recinto di Felino (white wine), 1880.

Fione e Jacono Brothers, Bitonto. Champagne di Puglia; Vermouth Spumante (sparkling Vermouth); Vino rosso comune (common red wine).

Gancia fratelli, Canelli. Champagne, 1877-1880; moscato spumante dolce e secco (sparkling wine, red, white and sweet); Barbera (red), 1877; Moscato Secco (muscat dry); Vermouth.

Gagna, Cav. e C<sup>o</sup>., Monforte di Alba (Piedmont), Barolo (red), 1880-81.

Landi, Emilio, Florence. Chianti.

Laborel Melini, Luigi, Florence. Chianti Vecchio (old Chianti); Volognano Vecchio (old Volognano).

Ostini, Felice, Rome. Genzano Bianco (white), 1878; Genzano Rosso (red), 1878.

Scala, Giuseppe, Naples. Copri Bianco (white); Falerno (red); Italian Claret.

Zedda, Francesco, Cagliari (Sardinia). Campidano (red wine), 1882.

30. **MALDIFASSI E MASCARINI**, of Milan, Wine and Provision Importers, 5 & 44 Gerrard Street, Soho, W.—(1) Red Italian Wines:—Chianti, Barolo, Barolino, Barbèra, Capri, Inferno, Lacrima Cristi, Mombaruzzo, Sassella, Grignolino, Retorbido. (2) White Italian Wines:—Lacrima Cristi, Capri, Pegli, Retorbido, Marsala, Vermouth, Asti Sparkling. (3) Provisions:—Milan Butter, Parmesan, Gorgonzola, Milan Sausages, Bologna, Rice, Maccaroni, Olives, Capers, Peperoni, Choccolat, Large stock in Preserved Vegetables, Panettoni di Milano.

31. **GIUNINI, GIULIANO**, Tuscan Wine Merchant, 83 Regent Street, W.—(1) Vino di Volognano (red wine). (2) Oil.

32. **PICCIRILLO, CATERINA**, 97 Wigmore Street, Cavendish Square, W., Italian Warehouseman and Confectioner to Her Majesty the Queen of England, the Empress of Austria, and

Crown Prince of Germany.—(1) Red and Italian Wines. (2) Provisions. (3) Preserved Vegetables, Ices, Oil, etc.

33. **BONCINELLI, GIOVANNI, & SONS**, 2 Porta S. Maria, Florence.—(1) Mosaic Cabinet. (2) Mosaic Tables. (3) Mosaic Pictures in Ebony Frame. (4) Small Collection of different Mosaic objects for decoration.

34. **DE CARO, ANTONIO**, 70 Via Santa Lucia, Naples.—Corals and Tortoise-shell Ornaments.

35. **ASSISI, P.**, 28 Jackson Road, Holloway.—Corals and Casamicciola's Straw Works.

36. **SASSONE, SALVATORE**, Genoa.—Coral Stones, Cameo Shells and Tortoise Shells.

37. **LO CICERO, TOMMASO & SONS**, 372 Via Macqueda, Palermo.—Confectures.

38. **GAROFALO (late VO BROTHERS)**, 65, 67 Piazza Ballaro, Palermo.—Italian Pastes, Nastrini, Mezra Lasagna, Vermicelli bucati, Pasta Trecciata, etc.

39. **ROSSI, SENATORE ALESSANDRO**, Schio, Vicenza.—Designs of the Asylums of mothers and children, convents, types of houses.

40. **ASSISI, CAROLINA**, 181 Strada di Chiaja, Naples.—Casamicciola's Straw-works.

41. **CASALI, L.**, 20 Brompton Square, S.W.—Artistic Photographs.

42. **JORIO, ALFONSO**, Nocera Inferiore.—Maccaroni.

43. **CITY OF GENOA**, Municipal Pedagogic and Scholastic Museum in Genoa.—Professor Ghini's Anthropometric Apparatus, measuring the proportions of the several parts of school-benchs, according to the average size of pupils in their various ages.

44. **BIGLIOSCHI, VINCENZO**, 101 Ledbury Road, Bayswater.—Objects of Fine Arts.

45. **CRISCUOLO, GIORGIO**, 11 Exhibition Road, South Kensington.—Corals.

46. **RUFFINO, L.**, 6 Via Nazionale, Florence.—Wine of Montepulciano.

47. **MORABITO, ROCCO**, 32 Strada Santa Caterina a Chiaja, Naples.—Corals. Powder of Corals (Tooth Powder).

48. **CRISCUOLO, PAOLO**, Meta, Sorrento.—Gloves.



49. ROMITI, E. & CO., 1 Rock Street, Finsbury Park, N.—Spirit of Melizza, manufactured in the distillery of the Barefooted Carmelite Fathers of Venice.

50. GREVEN, HENDRIK, Naples.—Hygienic Coal.

51. GULI, LUIGI DI SALVATORE, 17 Via Parlamento, Palermo.—Red Wine 1871.

52. MERCADA, CRISPO CARLO, Confectioner, Palermo.

53. GULI, CAV. SALVATORE DI FILIPPO, Confectioner, Palermo.

54. DI COLA, GIOVANNI, Termini Imerese.—Italian Pastes.

55. GIULLINI, DAGOBERTO ARTURO, Florence.—Water of Felsina.

56. ZUCCHI FAUSTO, Galliciano nel Lazio, Rome.—Wine.

57. GRECO VITALIANO, Catanzaro.—Italian Wine.

58. MINA, AMBROGIO, Pizzighettone.—Hygienic Wine.

59. MASTIANI BRUNACCI, CONTE FRANCESCO, Pisa.—Wine and Oil.

60. PASCOLI, ANTONIO, Rome.—Mosaics of Rome.

## TECHNICAL SECTION.

61. DEPARTMENT OF THE ROYAL ITALIAN NAVY.—(1) Several publications relating to the sanitary and hygienic service of the Royal Italian Navy, and to the rations for the sailors on board and on shore. (2) Ambulance-bed for wounded, with bending handles. (3) Ambulance-bed for wounded, with fixed handles. (4) Knapsack complete, with all the instruments and medicines for the use of sailors on shore.

62. DEPARTMENT OF THE INTERIOR.—Publications—(1) Sanitary State of the Kingdom for 1883. (2) Food for Prisoners. (3) Rules for Hygiene, Doctors, Surgeons, Midwives, and of general arrangement in cases of death of the city of Padova, Modena, Brescia, Torino, Venezia, Vicenza, Verona, Lucca, Cuneo, Pisa, Parma, Sorrento, Seondigliano, Vercelli, Bergamo, Rome, Alexandria, (della Paglia) Novi, Acqui, Tortona, Messina, Leghorn, Catania, Pesaro, Caserta, Ancona. (4) Publications on examination, and other pamphlets on the same subject, by Count Girolamo Comm. Orsi. (5) Meteorological Observatory, October, 1853, by Dr. Francesco De Bosis, Professor, of the Technical Institute of Ancona. (6) On

the Drinkable Water in the City of Osimo, by Signor Edoardo Ippoliti. (7) Designs relating to the Hygiene of Prisons, of Buildings and specimens of clothing for the use of prisoners. (8) Information as to the food supplied to the prisoners in the kingdom.

63. DEPARTMENT OF AGRICULTURE, INDUSTRY AND COMMERCE.—(1) Publications of the General Direction of Statistic Mortality in the Army. (2) Studies of Statistic, Sanitary and Medical Geography, published by Dr. G. Sormanni, Medical Officer to the *Giunta Centrale di Statistica*. (3) Sanitary Condition in Italy and abroad (comparative statistical study by Dr. Enrico Roseri). (4) Demographic Atlas. (5) Antropometric Studies on the Development of the Human Organisation, by Dr. L. Pagliani. (6) Mortality in the Royal Italian Army, compared to those of other States. Study by Dr. Sormanni. (7) On the Sanitary Conditions of Prisoners in Italy by Dr. Enrico Roseri. (8) Reformatory "*La Generala*," in Turin. (9) Antropometrical Inquiry, by Dr. Enrico Roseri. (10) Materials for Italian Ethnology, collected by the Italian Society of Antropology and Entmology, compiled and commented by Dr. Enrico Roseri. (11) Notices about the Mortality and Diseases of Workmen of the Societies of mutual help that took part in the competitions of the "*Cossa di Risparmio*" of Milan. (12) Nosological Geography of Italy, by Prof. G. Sormanni. (13) Statistics of the Causes of Mortality in the city of Rome during 1874-78 (Notices by Prof. G. Sormanni and Dr. E. Rey). (14) "*Malaria*," by Prof. Baccelli. (15) The Illegitimate Children in Italy. (Notices by Dr. Enrico Roseri.) (16) Statistics of the Causes of the Mortalities that took place in Italy (1881-82). (17) Country Doctors in Italy, by Dr. Enrico Roseri. (18) Number of Lunatics in Establishments and Hospitals of Italy, 1880, by Prof. Andrea Verga. (19) Statistics of the Deaf and Dumb and Idiots (Census 1881). (20) Publications and Directory for the "*La pellagra*" in Italy. (21) Work by Women and Children. (22) Notices by the "*Giunta per l'inchiesta agraria*." (23) Law by Minister Berti on the Responsibility of Masters and Contractors, etc., in case of Accident.

64. DEPARTMENT OF PUBLIC INSTRUCTION.—Principal Publications relative to the Order and Progress of Industrial and Professional Studies, and Programmes for teaching in technical and nautical institutes and other schools of Rome.

65. CITY OF ROME.—Roman Society of help to the drowning. (1) Tables of Cases of Rescue, from the foundation, 10th July, 1880, to 15th April, 1884. (2) Photographic view of a Rescue Station on the Tiber. (3) Parchment Diploma, framed. (4) Prize Medals, framed. (5) Representation of an Asylum. (6) The Rules of the Society, and other papers relating to it, in a red portfolio.



(7) A Litter invented by the Society. (8) An Atlas Volume, with types of the Roman Sewers, and Plan; also 40 volumes of Reports on the Sewers. (9) Reservoir holding 1000 cubic metres, for watering and cleansing the streets and sewers. (10) Elevation. Section. Plan. (11) Discharge Pits (on the system of Roger Field's Flushing Tank) in the sewers of the new quarter of *Castro Pretorio*. (12) Types of drains and galleries for the *Via Nazionale* and minor streets. (13) Gallery for the passage of the Felice aqueduct in a double syphon at the Baths of Diocletian. (14) Gallery for the service of drinking water in the *Via Condotti*. Grand artery of the Virgin Water. Diameter m. 0.20. (15) Gallery for the service of drinking water in *Via del Babuino*. Embranchment of the Virgin Water. Diameter m. 0.60. (16) Main collector of water in the high quarter. (17) Ditto, at its origin. (18) Ditto, at its end. (19) Regular discharge of ordinary waters. (20) Collector of water in the high quarters, at its end. (21) Provisional discharge of surface waters. (22) Plaster cast of a Senatorial Edict relative to the cleanliness of the Esquiline Cemetery. (23) Plaster cast of a Pretorian Edict relative to the cleanliness of the Viminal Cemetery. (24) Model in wood and *scajola* representing the system used by the ancients for heating their dwellings. Height m. 0.48, length m. 0.72, Depth m. 0.26. Proportion of  $\frac{1}{10}$ th to the original. (25) Plaster Model of the Piscina Limavia of the Virgin Water previously existing in the *Vicolo del Botino*, near *piazzi di Spagna*. Height m. 0.36, width m. 0.61, Depth m. 0.25. Proportion  $\frac{1}{20}$ th of the original. (26) Plaster Model of an Ancient Strainer, perhaps for oil, existing at the sixth mile of the Appian Way, in the estate of *S. Maria Nuova*. Length m. 0.80, width m. 0.40. In the scale of m. 0.07 to the metre. (27) Frame containing a series of 21 models of ancient water pipes. (28) Frame containing some specimens of brick materials, used by the ancients in their systems of heating houses, or for the distribution of water, or to prevent the dampness of walls. (29) Terracotta Cylinder which supported the hanging vault of hypocausts. (30) Square and Round Bricks used in the pilasters which supported the hanging vault of the hypocausts. (31) Charcoal found in the furnace of an ancient house on the Esquiline. (31) Topographical plan of the roads and aqueducts of the suburbs of Rome. (32) Volume containing 4 pamphlets by Prof. Torelli. (33) Ditto 6 ditto, by Tommatti-Crudeli. (34) Ditto 4 ditto, by G. Ponzi. (35) Ditto 4 ditto, by P. Balestra. (36) Ditto 4 ditto, by G. Terrigi. (37) Ditto 1 ditto, by Laugi and Terrigi. (38) Ditto 1 ditto, by F. Scalzi. (39) View of the Elementary School on the *piazza dell' Esquilino*. (40) Ground plan of the proposed National Institute. (41) Plan of the first floor. (42) Plan of the second floor. (43) Plan of the basement floor. (44) Representation of the sections. (45) Representation of the elevations. (46) Artificial Funguses,

Books, and Reports. (47) A Tin Tube, containing a sheet representing funguses and poisonous plants. (48) A Wooden Litter, with linen stretcher and a goad belonging to the equipment of a *Buttero* (Roman drover). (49) A Model of an Ambulance Cart for conveying sick persons from the sanitary station in the Roman Campagna. (50) Set of Rules referring to the Board of Health. (51) Equipment complete of a *Buttero* (Roman drover).

66. CITY OF TURIN.—Album containing designs of buildings and scholastical benches.

67. CITY OF GENOA.—Report album, designs of schools, benches, and photographs.

68. ROSSI ALESSANDRO DI SCHIO.—Designs of the asylums of mothers and children's schools, convents, types of houses.

69. SANTINI, DR. CAVR. FELICE, ROYAL ITALIAN NAVY, Rome.—(1) A medical and hygienic report about the campaign of circumnavigation in His Italian Majesty's ship *Garibaldi*, 1879, 80, 81, 82, 83. (2) Around the world on board H.I.M.S. *Garibaldi*.

70. FAZIO, PROF., Naples.—Treaty of hygiene.

71. ALBINI, PROF., Naples.—Chemical qualifications on food and analysis.

72. CHARITABLE INSTITUTION OF THE MARINE HOSPITAL FOR POOR, RICKETY, AND SCROFULOUS CHILDREN OF THE CITY AND PROVINCE OF ROME.—(1) Photograph representation of the palace of Villa Albani in Anzio, occupied by the hospital. (2) Engravings representing various buildings of the hospital and of the Villa in Anzio, some newly constructed. (3) General account of the children who have been received in the hospital from 1867 to 1882, according to sex; results of the treatment; death; accounts of the annual expenses; total and medicine. (4) Three volumes containing the reports, statistical tables, and expenses of the charity from the year 1867 to 1882.

73. MARTUSCELLI, Naples.—Institutes for the blind. PRINCIPE DI NAPOLI.—Notices and designs.

74. FRANCO CAV. PROF. DOMENICO, Naples.—La Preventiva Gazzetta di medicina popolare pei sanitari e per le famiglie.

75. MONTECATINI'S MINERAL WATERS CO. (Regie Terme di Montecatini), the property of the State (Agents, ANGELI & CO., 23 Hop Exchange, S.E.).—(1) Acqua della Regina (2) Acqua del Tettuccio. (3) Acqua Savj. (4) Acqua del Rinfresco.



## JAMAICA.

1738. GRANVILL, J. R., Mile Gully, P. O. Jamaica.—Preserved Fruit.

1739. DAVIDSON, JOHN.—(1) Jamaica Coffee. (2) Blue Mountain Jamaica Cocoa.

## \*JAPAN.

Sanitary Bureau, Home Department.

N.B.—The Japanese exhibits are stationed as follows:—Dress, the Dwelling-House, Vital Statistics, &c., in the Conference Hall. Food, Dinner Services, &c., in the South Central Gallery. School Models. Educational Appliances, &c., in the City and Guilds Institute. Japanese Restaurant, in the Upper Floor of the Eastern Arcade. Japanese Tea Room, in the Garden of the London Water Companies' Pavilion.

### GROUP I.—FOOD.

#### CLASS I.

1-51. Specimens of Japanese Cereals, Pulse, Fruits and Roots used as food. Spices and Condiments.

52-175. Specimens of Birds, Fishes, and Reptiles used as Food. Hares. Specimens of Mollusca.

A *Nippon Rioriya*, or Japanese Restaurant, served by native cooks of the first rank, is situated in the Eastern Arcade.

#### CLASS II.

176-250. Prepared Vegetable Substances used as food.

251-260. Cigars and Tobacco.

#### CLASS III.

261-288. Prepared Animal Substances used as Food.

#### CLASS IV.

289-305. Alcoholic Beverages (Wine and Beer).

306. Vinegar.

307-311. Japanese Teas (Giokuriu, Meitokumukashi, Haruyamukashi, Yamamotoyama, Yamamotoyen). Powdered Teas.

316-323. Diagrams of Japanese Poisonous Plants.

\* For a detailed description of the Japanese exhibits see *Special Catalogues of the Japanese Section*.

### GROUP II.—DRESS.

#### CLASS XIII.

1-237 & 254-277. Japanese Dress. Vestments for both sexes, Shoes, Belts, and Headgear. Japanese Naval Uniforms. Regulations for Naval Uniforms. Models of Costume (Dolls). Personal Equipment Purses, Incense Wrappers, Tobacco Pouches, Cigarette Cases, Pipes. Clothing for rainy weather.

238-253. Fans of all kinds.

278-288. Japanese Bedding.

289-292. Mosquito Nets.

293-295. Materials for Clothing.

#### CLASS XIV.

296-299. Oil-Paper Clothing (with specimens of oil).

300-302. Umbrellas.

303-304. Rain Coats.

305-308b. Rain Hats.

#### CLASS XV.

309. Riyotengasa.

310. Higasa.

#### CLASS XVI.

311-313. Falconer's Dress.

#### CLASS XVII.

318-325. Firemen's Dress.

### GROUP III.—THE DWELLING.

#### CLASS XX.

1-6. Models of Japanese Dwellings.

#### CLASS XXII.

7-11. Map illustrating Water Supply of Tokio, Water Pipes, and Wooden Suction Pump Drainage Systems.

#### CLASS XXIII.

12-14. Urinals and Closets.

#### CLASS XXIV.

15-19. Stoves.

20-25. Charcoal (with specimen of a pocket warmer).

26-94. Dinner Sets and Services. Table Equipment. Kitchen Cutlery.



## CLASS XXVI.

99-101a. Night Lights.

102-111. Lanterns.

112-115. Candlesticks.

116-120. Candles.

121-126. Illuminating Oils (Brassica, Bleached Brassica, Whale, Shark and Sardine, &c.).

## CLASS XXVII.

127. Picture of Firemen's Procession (former and present systems).

## CLASS XXVIII.

128-135. Materials for Sanitary House Construction.

## CLASS XXIX.

136-143. Materials for Sanitary House Decoration.

## CLASS XXX.

144-317. Objects for Internal Decoration. Carpets, Mats and Cushions, Pictures, Flower Vases, Card Trays, Shelves, Screens, Curtains, Table Cloths, Letter Paper, Writing and Cigarette Cases, Wooden Trays, Writing-Tables, Chess-Boards, Incense Toss Sticks, Fire Boxes, Tea Pots, Tea Cups, &c. Cake Plates, Tea Trays, &c. Chests of Drawers and sundry articles.

## CLASS XXXI.

318. Baths. Toilet Requisites. Perfumes. Mirrors. Tooth-blackening Materials. Comb Boxes, &c.

## GROUP IIIa.—AMBULANCE.

## CLASS XXXIA.

I-II. Field Lazarette, Bamboo Litters, Knapsacks, Splints. Transport Appliances for wounded persons.

## CLASS XXXIB.

Kago (or Sedan Chair), Jinrikisha, Sedan Chair for cholera patients.

## GROUP Va.

Meteorology in relation to Health.

Tables showing meteorological observations in relation to contagious diseases, Tokio (in English).

Similar Tables for Kioto, Wakayama, Hiroshima.

Charts of the Temperature, Moisture, Rain-fall, and Wind-pressure at Tokio, from 1876 to 1883.

Similar Charts for Nagasaki, Osaka, Kioto, Tokio, Niigata and Hakodate, 1883.

Chart illustrating Moisture and Temperature in Japan, 1883.

Annual Reports of the Tokio Meteorological Observatory, 1876-1880.

Meteorological Reports. Tokio, 1881. Nagasaki, 1880-1882. Wakayama, 1879-1881. Hiroshima, 1879-1882. Kioto, 1880-1881. Nobiru, 1881-1882. Osaka, 1882. Awomori, 1882. Kochi, 1882. Kanagawa, 1882.

Chart illustrating weather in Japan, from March, 1883, to April, 1884.

Chart illustrating pressure of atmosphere in Japan, from March to December, 1883.

## Literature and Publications relating to Groups I. II. and III.

1. Table showing the number of births and deaths in Japan, 1882.

2. Table showing the number of births, marriages, and deaths, in Japan, 1882.

3. Table showing the number of deaths by ages and causes in Japan, 1882.

4. Table showing the number of deaths in Fu and Ken (administrative districts) by causes, 1882.

5. Table showing the number of deaths by occupations and causes, 1882.

6. Table showing the number of deaths by causes, 1877-1882.

7. Coloured Chart illustrating number of deaths in Fu and Ken per thousand of inhabitants, 1882.

8. Table showing the number of cases of infectious or contagious diseases in each month, 1882.

9. Table showing the number of cases of infectious or contagious diseases by occupations, 1882.

10. Table showing the number of cases of Typhus Fever in Fu and Ken by ages, 1882.

11. Table showing the number of cases of Typhoid Fever in Fu and Ken by ages, 1882.

12. Table showing the number of cases of Diphtheria in Fu and Ken by ages, 1882.

13. Table showing the number of cases of Dysentery in Fu and Ken by ages, 1882.

14. Table showing the number of cases of Small-pox in Fu and Ken by ages, 1882.

15. Table showing the number of cases of Cholera in Fu and Ken by ages.

16. Table showing the number of cases of Cholera in Fu and Ken, 1877-1882.

17. Chart illustrating the number of cases of Cholera in each month, 1877-1882.

18. Table showing the number of vaccinations in Japan, 1877-1882. (1-18 in English.)

18A. Map of Japan, with coloured lines, showing the death-rates, 1882. (In English.)

18B. Map of Japan showing the localities of mineral springs. (In English.)

18C. Tables showing the analysis of Japanese food and mineral waters. (In English.)

19. First and second annual reports of Central Sanitary Bureau, July 1875-June 1877. 1 vol.



20. Third annual report of Central Sanitary Bureau, July 1877-June 1878. 1 vol.
21. Fourth annual report of Central Sanitary Bureau, July 1878-June 1879. 1 vol.
22. Fifth annual report of Central Sanitary Bureau, July 1879-June 1880. 1 vol.
23. Bulletin of Central Sanitary Bureau, No. 1-38. 38 vols.
24. Notifications of Central Sanitary Bureau. No. 1-40. 40 vols.
25. Descriptive catalogue of exhibits by Central Sanitary Bureau in second National Industrial Exhibition, Tokio, 1881. 1 vol.
26. Statistical table of births, deaths, and marriages in chief cities of Japan, 1880. 1 vol.
27. Statistical table of births, deaths, and marriages, in chief cities of Japan, 1881. 1 vol.
28. Reports on choleraic diseases in Japan, 1879. 1 vol.
29. Reports on choleraic diseases in Japan, 1879. With appendix. 2 vols.
- 29A. Journals of Japanese Society of Health, No. 1-12.
30. First and second annual report of Central Sanitary Bureau, July 1875-June 1877. 1 vol. (In English.)
31. Third annual report of Central Sanitary Bureau, July 1877-June 1878. 1 vol. (In English.)
32. Fourth annual report of Central Sanitary Bureau, July 1879-June 1880. 1 vol. (In English.)
33. Reports on choleraic diseases in Japan, 1877. 1 vol. (In English.)
34. Tables showing the number of births, marriages, deaths, etc., in Japan, in certain period, prepared for second national industrial exhibition, Tokio, 1881. 1 vol. (In English.)
35. Regulations of Japanese Society of Health. 1 vol. (In English.)
36. Fu-ken-but-su-san-hi-yo. (Principal productions of Fu and Ken). 2 vols.
37. Sho-koku-shi-mei-roku. (Enumerations of Japanese papers). 1 vol.
38. Kai-bara-yō-jō-kun. (Kai-bara's Hygienic Instructions). 4 vols.
39. Sei-yō-yō-jō-ron. (Treatise on European Hygiene). 2 vols.
40. Yei-sei-shin-ron. (Public Health). 2 vols.
41. Yei-sei-han-ron. (Public Health). 2 vols.
42. Yei-sei-gai-ron. (Public Health). 3 vols.
43. Fu-tsou-yei-sei-gaku. (Popular information of Public Health). 2 vols.
44. Yei-sei-gen-kō-ki-soku. (Laws and regulations relating to Public Health in Japan). 1 vol.
45. Yei-sei-gaku. (Public Health). 1 vol.
46. Yu-doku-sō-moku-dzu-setsu. (Illustrated description of poisonous plants). 5 vols.
47. Doku-hin-ben-ran. (Illustrated Handbook of poisonous plants). 2 vols.
48. Kuwa-but-su-tō-zo-hen. (On preservation of fruits). 2 vols.
49. Sho-sai-fu. (Treatise on Vegetables.) 2 vols.
50. Hoku-yetsu-setsu-fu. (Snow seasons of northern provinces in Japan). 7 vols.
51. Cha-setsu-dzu-fu. (Handbook of Tea). 1 vol.
52. Ni-hon-san-kai-mei-san-dzu-ye. (Illustrated description of land and marine products in Japan). 5 vols.
53. Nō-doku-wuo-kagami. (On eatable fishes). 2 vols.
54. Yen-roku. (Treatise on Tobacco). 2 vols.
55. Yen-so-roku. (Treatise on Tobacco in province of Satsuma and Hiuga). 1 vol.
56. Ni-hon-sai-dzi-ki. (Description of Japanese festival days). 4 vols.
57. Oshiye-kusa-ichi-ran. (Popular instruction on Japanese industry). 30 sheets.
58. Shoku-motsu-waka-hon-zō. (Instructive poems on food). 3 vols.
59. Sui-zoku-sha-shin. (Pictures of Fishes). 2 vols.
60. Kishu-kan-kitsu-roku. (Treatise on oranges in province of Kishu). 1 vol.
61. Kō-yeki-koku-san-koh. (Profitable productions of Japan). 8 vols.
62. Nō-giō-zen-sho. (Complete Treatise on Agriculture). 11 vols.
63. Nō-ka-yeki. (Farmers' profits). 7 vols.
64. Koh-yeki-hiji-tai-zen. (Domestic Economy). 5 vols.
65. Noh-mu-tō-kei-hio. (Statistical tables of agricultural products). 2 vols.
66. Haku-rai-koku-sai-moku-roku. (Catalogue of Foreign vegetables). 1 vol.
67. San-kai-mei-but-su-dzu-ye. (Illustrated descriptions of land and marine products in Japan). 5 vols.
68. Kei-zai-yoh-roku. (On Japanese industry). 7 vols.
69. Yenogu-somekusa-yakuhin-riyaku-setsu. (Tabular description of coloring and dyeing stuffs). 1 vol.
70. Ni-hon-sei-hin-dzu-setsu. (Illustrated description of Japanese manufactures). 2 vols.
71. Kakke-hatsu-mei-ron. (New treatment of Kakke).
72. Kakke-ron. (On Kakke, by T. Ishiguro).
73. Kakke-ron. (On Kakke, by K. Hayashi).
74. Kakke-shin-ron. (On Kakke). 1 vol.
75. Cha-setsu-shuh-sei. (On tea). 2 vols.
76. Cha-gio-hitsu-yoh. (Guide to tea manufacturers).
77. Yao-zen-riyo-ri-tsu. (Guide to Yaozen's Cookery). 2 vols.
78. Cha-shiki-kuwa-getsu-shu. (On tea ceremonies). 4 vols.
79. Ni-hon-koh-sen-ron. (Japanese mineral springs). 1 vol.
80. Shuh-ko-ji-shu. (Illustrated description of Antiquities). 85 vols.
81. Shi-ki-gusa. (On tea ceremonies). 7 vols.

## CLASS XXX.

1740. NOBATA, T. (care of MITSUI & CO., 1 Crosby Square, Bishopsgate Street Within, E.C.)—Objects for internal



decorations such as Flower Vases, Incense Burners, Jars for Perfume, Screens, &c., &c.

1741. **TSUBOUCHI, A. B. YA. Y.**, Tokio, Japan; and 10 Gordon Place, High Street, Kensington.—(1) Carved Black Rosewood Cabinet. (2) Screen, inlaid metal, and decorated with gold lacquer. (3) Screens decorated with gold lacquer. (4) Tablet, similar workmanship as No. 2 screen. (5) Tablet decorated with gold lacquer. (6) Cinnabar Cabinet; various decorated specimens of art metal work, lacquer ware, Shilayama work and carvings in ivory and wood, &c. (7) Fire Screen.

*For details of the Japanese Educational Exhibits see Special Catalogue of the Educational Section.*

## NETHERLANDS.

*See HOLLAND.*

## NEWFOUNDLAND.

1742. **JOHN MUNN & CO.**, Harbour Grace.—(1) Dried Shore Cod Fish. (2) Dried Labrador Cod Fish. (3) Smoked Labrador Herrings. (4) Harp Seal, 2 years old. (5) White Throated Divers, male and female.

## PORTUGAL.

1743. **MENDOCA AND CABRITA**, Othao (Agents, **BRUNO, SILVA, & SON**, 35 Crutched Friars, E.C.—Boxes of Dried Figs.

## ROUMANIA.

### CLASS IV.

1745. **NAVILLE, AMANIEUX T., & CO.**, Gara Ulmeni.—Roumanian Cognac in bottle (Champagne).

## RUSSIA.

### CLASS I.

1745a. **ALEXANDROWITCH, PET-SOFF**, Teletg.—Flour, Seeds, and Grains.

**PRGSTANSKI, DR.**, Warsaw. (*See Class IV.*)

**MILCH - MARES, FOALS, AND ENCAMPMENT** from "Dr. Carrick's Koumiss and Condensed Mares' Milk Company," near Orenbourg, Russia.—These mares have been brought from Tartary, a distance of nearly 3000 miles, for the purpose

of introducing real Koumiss or fermented Mares' Milk to the notice of the British public. Everything hitherto sold under the name of Koumiss in Western Europe, was simply fermented Cows' Milk. Condensed Mares' Milk, prepared at the company's factory near Orenbourg and now largely used in Russia for the preparation of real Koumiss, and also as a substitute for human milk in the rearing of infants, is exhibited in the Russian cottage. The mares brought to London, as well as those left in the steppes, are kept by the company solely for milking purposes. The encampment consists of representatives of the chief nomad tribes of South-Eastern Russia, viz. a Tartar, a Khirghiz with his wife and child, and a Bashkir and his wife. They are all dressed in their native costumes, and have been brought over to milk the mares and to prepare Koumiss. There are fifteen mares with their foals; two stallions and a gelding, and also three nomad tents, two of which are inhabited, while the third, made of the finest felt, and richly carpeted, was reserved to show the quality of tent used by a wealthy Khirghiz. The mares are all of the Khirghiz breed, while five of the fifteen foals are by thoroughbred Turcoman sires from Prince Michael Dolgorouky's stud, in the Tourgye district, near Orenbourg. One of the stallions is pure Khirghiz, while the other is by a Khirghiz dam, and a thoroughbred Turcoman sire. The Mares' Milk will be churned and the Koumiss prepared and sold in the portable Russian cottage just erected behind the dairies and within twenty yards of the encampment. The mares will be milked five times daily, viz. at 10 a.m., noon, 2 p.m., 4 p.m., and 6 p.m.

### CLASS II.

1746. **ELESHEJEFF, F.**, Moscow (Agents, **TOOVEY, HOND & CO.**, 28 St. Swithin's Lane, E.C.)—Fancy Sweets and Preserved Fruits.

### CLASS III.

1747. **SIDEROFF, K.**, 2 Siennaia, St. Petersburg.—Preserved Meat, Game, &c.

1747a. **KLECZKOWSKI, W.**, Pirega.—Bouillon.

### CLASS IV.

1748. **LANGE, C., & CO.**, 32 Ligowka, St. Petersburg (**TOOVEY, HOND, & CO.**, 28 St. Swithin's Lane, E.C.)—Wines and Liqueurs.

1748a. **PRGSTANSKI, DR.**, Warsaw.—(1) Koumiss. (2) Samples of Grain.

### CLASS XII.

1748b. **PAVEL ALEXYIEFF**, Bieli Bor, Novgorod, Russia.—Wooden Bowls, Spoons, &c., for kitchen use.



## CLASS XIII.

**1749. DEPARTMENT OF THE NAVY**, St. Petersburg (Captain W. LINDEN, 15 Cambridge Gardens, Nottingham Hill, W.; & Captain N. IVANOFF, 10 North Terrace, Alexander Square, Brompton, S.W.).—A. *Outfit of a Naval Cadet*.—(1) Cap with ribbon. (2) Coat and Trousers. (3) Overcoat. (4) Hood. (5) Flannel (blue) Shirt and Trousers. (6) Tie. (7) Shirt with blue collar. (8) Under Shirt. (9) Working Outfit. (10) Boots of raw leather (white). (11) Boots of black leather. (12) Summer Trousers. (13) Shirt (linen). (14) Drawers. (15) Socks. (16) Handkerchiefs. (17) Towel. (18) Sheet. (19) Pillowcase. (20) Blanket. (21) Pillow. (22) Bedstead. (23) Mattress. (24) Gloves (winter). (25) Ear Protector for winter. (26) Cap Cover (summer). B. *Outfit of a Sailor*.—(27) Cap with ribbon. (28) Cotton Cover for cap. (29) Necktie. (30) Coat and Trousers. (31) Overcoat (cloak). (32) Hood. (33) Overcoat of dark grey cloth. (34) Overcoat of dark green cloth. (35) Ear Protectors for winter. (36) Winter Gloves. (37) Summer Trousers. (38) Drawers. (39) Shirt (linen). (40) Woollen Shirt. (41) Flannel Shirt. (42) Woollen Jacket. (43) Working Outfit (shirt and trousers). (44) Sentinel Cloak. (45) Sheepskin Jacket. (46) Leather Over-boots for Sentinels. (47) Long Boots. (48) Feet Wrappers. (49) Pillowcase. (50) Sheet. (51) Blanket (camel's hair). (52) Sheepskin Cloak. C. *Outfit of a Convict of a Naval Prison*.—(53) Cap with a poke. (54) Jacket and Trousers of grey cloth. (55) Waistcoat. (56) Necktie. (57) Working Outfit. (58) Drawers. (59) Linen Shirt. (60) Set Wrappers for winter. (61) Feet Wrappers for summer. (62) Ear Protector. (63) Pillowcase. (64) Mattress-cover. (65) Blanket. (66) Towel. (67) Sheep-skin Jacket. (68) Gloves (leather). (69) Gloves (woollen). (70) Boots (short). (71) Jacket and Trousers for engine stokers.—D. *General Outfit for Sailor*.—(72) Sailor's Hammock. (73) Pillow filled with hair. (74) Mattress. (75) Apparatus of Dr. Rakovitch for ascertaining the quality of flour and spirits. (76) Three Drawings of the Ventilators and Water-closets of the Naval Barracks, St. Petersburg. (77) Drawing of Bath and Laundry of Naval Prison. (78) Drawing of Bakery of Naval Barrack at Nicolaieff.

**1750. GRUNWALDT MICHAÏLO-VICH, PAUL**, 23gr. Morskoi, St. Petersburg, Russia.—(1) Russian fine Furs, Collars, Muffs, Bonnets, Rugs. (2) Russian and Siberian Sable skins. (3) Silver, Blue, and Black Foxes, Kamchatka Beaver, Seal, Bear, Wolf, &c. (4) Skins. (5) Fur lined Dresses.

**1750a. WAR OFFICE**, St. Petersburg.—Uniforms as used in the Imperial Russian Army.

## CLASS XV.

**1750b. RUSSIAN FUR COMPANY**, St. Petersburg.—Furs and Skins.

## CLASS XVIIa.

**1751. KELDAL, C.**, 34 Grande Dvorianskaia, St. Petersburg.—(1) Anti-Rheumatismal Russian Pine Wool Hosiery. (2) Cheap Cotton, Hempen, and Woollen Hosiery.

## CLASS XXX.

**1752. KROTOFF, E. C.**, Steam Paper Works, Moscow (Agents, TOOVEY, HOND, & CO., 28 St. Swithin's Lane, E.C.).—Paper Hangings.

**1753. LAPCHINE, W. A.**, St. Petersburg (Agents, TOOVEY, HOND & CO., 28 St. Swithin's Lane, E.C.).—Matches.

**1754. WOERFFEL, C. F.**, St. Petersburg.—Ornaments in Bronze and Siberian stones, Malachite, Rhodonite, Jasper, &c.

**1755. WROBLEWSKI, JAN**, Warsaw (Agents, F. KAROL, 23 Martin's Lane, Cannon Street, E.C.).—(1) Polish Honey Cakes, Marchpanes, and Chocolate. (2) Wax Candles. (3) Wax Flowers.

**1756. DJAVAD ALEJEFF**, St. Petersburg.—Turquoises.

**1757. MAHOMED ALI**, St. Petersburg.—Turquoises, Precious Stones, Metal, &c.

## SIAM.

## GROUP I.—FOOD.

## CLASS I.

Rice, Crabs, Turtle, Eels and other Fish. Fruits, Spices, Corn, &c.

## CLASS II.

Preserves, Sweetmeats, Chinese and Siamese Cakes, &c.

## CLASS III.

Preserved Fowl, Preserved Sparrow (Kachap), Eggs, Preserved Pork, Rhinoceros Skin and Preserves, Venison, Dried Sea Slugs, Sea and Freshwater Fish, Salted Squills, Birds' Nests, Birds' Nest Jelly, Bees' Wax.



## CLASS IV.

Tea. Leaves of the Makhamkai, Maka, Chhumhet and Wild Jasmine.

## CLASS XI.

Apparatus and processes for conserving, storing, conveying and distributing food of all kinds.

## GROUP 2.—DRESS.

## CLASSES XIII. &amp; XIV.

Specimens of Dresses worn by the King, noblemen, priests, actors, merchants, gardeners, and ordinary citizens. Specimens of Sarongs.

## GROUP III.—THE DWELLING.

## CLASS XX.

Specimens of Siamese Dwellings, Manufactories and Theatres.

## CLASS XXIV.

Grates, Stoves, Ranges, &c., for Domestic Use.

## CLASS XXVIII.

Specimens of Matting.

## CLASS XXXI.

Palanquins, Howdahs, Cars, Boats, Fans, Umbrellas.

GROUP 6.—EDUCATIONAL  
WORKS & APPLIANCES.

Specimens of Siamese Books and Writing Materials.

## SPAIN.

## CLASS IV.

1758. BUENO, JOSE, & SONS, 14 Plaza de los Moros, Malaga (Agents, WOELLAROTTO & CO., 4 New London Street, E.C.).—Samples of various Malaga Wines.

SWEDEN AND  
NORWAY.

## CLASS II.

1760. CHRISTIANSSON, F., Malmö, Sweden (Agent, J. TALEEN, 158 Dalston Lane, N.).—Tinned Fish and Meat.

1761. FOSNA PRESERVING CO. (THE), Christiansund, Norway (Agent, J. TALEEN, 158 Dalston Lane, N.).—Tinned Fish and Meat.

1762. TENGWALL, A. & T., Helsingborg, Sweden (Agents, SORENSEN BROTHERS, 33 Great Tower Street, E.C.).—(1) Preserved Lingon, a genus of Hurtleberry found in Sweden. (2) Preserved Hurtleberry.

## CLASS III.

1763. FROLICH, FRITZ S., Christiania, Norway (Agents, TOOVEY, HOND, & CO., 28 St. Swithin's Lane, E.C.).—Cod Liver Oil.

1764. LUNDGREN, WILHAM PETER, Stockholm (Agents, TOOVEY, HOND, & CO., 28 St. Swithin's Lane, E.C.).—(1) Sardines in oil and vinegar. (2) Assorted Fish Products.

1765. MYHRVOLD, MRS. CHRISTIANE, Christiania, Norway (Agents, TOOVEY, HOND, & CO., 28 St. Swithin's Lane, E.C.).—Anchovies.

## CLASS IV.

1766. PERSSON & CRONZELL, Helsingborg (Agents, SORENSEN BROS., 33 Great Tower Street, E.C.).—(1) Swedish Punch. (2) Pineapple Punch. (3) "Kneiff" Punch. (4) Arrack Punch.

## CLASS XV.

1767. LARSEN, JOHAN O., Christiania, Norway (Agents, A. FALTING & CO., 134 City Road, E.C.).—The Sanitas Hair Soles.



## SWITZERLAND.

### CLASS II.

1769. **RUSS-SUCHARD & CO.**, Chocolate Manufacturers, Neuchâtel (Agents, **F. RIGGENBACH & CO.**, 36 & 37 Mincing Lane, E.C.).—Plain and Fancy Chocolate, and Model of Bath used by factory hands.

1770. **BALTIS, U.**, Vevey, Switzerland (Agents, **SCOTT & WULFF**, 66 Leadenhall Street).—Mixture of Milk and Flour; and Vegetable Preparation.

### CLASSES III. AND XXX.

1771. **GELATINE MANUFACTORY**, Winterthur; & 73 St. Mary Axe, E.C.—(1) A Gothic Church Window made of coloured gelatine leaves. (2) Gelatine for culinary, medical, scientific, and photographic purposes, &c.

### CLASS IV.

1772. **DISTILLERIE D'EAU DE CERISES DE SCHWYZ**.—Cherry Brandy.

1773. **MAULER, LOUIS, & CO.**, Motiers-Travers, Switzerland (Agents, **TATHAM, HUGHES & EARLE**, 24 Philpot Lane, Fenchurch Street, London, E.C.).—Swiss Champagne.

1774. **DENNLER, AUG. F.**, Interlaken, Switzerland.—(1) Alpenkrauter-Magenbitter, hygienic liquor. (2) Eisenbitter.

### CLASS XIX.

1775. **NEFF, T.**, Appenzell, Switzerland.—Swiss Embroidery and manufacture of the same.

### CLASS XX.

1776. **ERNST, HEINRICH**, Zurich.—Plan of his System of Isolation as exhibited in a group of houses, near Geisberg.

### CLASS XXV.

1777. **STIERLIN, GOTTFRIED**, Schaffhausen, Switzerland.—Automatic Window for better ventilation.

### CLASS XXX.

1778. **MAUCHAIN, FRANÇOIS**, Geneva.—Patent Convertible Tables.

## VENEZUELA.

1780. [List of objects sent by the Government of Venezuela for the International Health Exhibition, London.]

### GROUP I.—FOOD.

#### MUCILAGINOUS FOOD.

Sour-sop (*Guanabana*), Cucumbers (*Pepinos*), Beans (*Vainitas*), Greens (*Hortaliza fresca*), Tomatoes (*Tomates*), Salad of Tomatoes (*Ensalada de tomates*), Salad of Vegetables (*Ensalada de hortaliza*), Purslane ("Piza" de *Verdologa*), Gombo Fruits (*Quimbombo*), Egg Plant (*Birengena*), Mango (*Mango de bocada*), best kind, *Chrysophyllum Cainito* (*Cainuito*), *Chrysobalanus Icaco* (*Icaco*), Prickly Pear (*Tuno*), Yaguaray, Passion Flower (*Pacha granadella*), passiflora. Medlars, Wild Cucumbers (*Cucumis Anguria*), Guacimo (fruit of *Guazuma ulmifolia*).

#### OLEAGINOUS FOOD.

Cocoa from Chino, Choroní, Tuy, Caucagua, Guacarapa, Higuerote, Barlovento, Barcelona, Patanemo, and Carupano. Chocolate, "Imperial" (Vanilla), Chocolate, "Imperial" (Cinnamon), Cacao "Imperial," Pastilles of Chocolate, Cacao Butter, Sweets of Coconut, Sweets of Ground Nuts (*Mani*), Coconuts, Fat of Cattle, Lard, Sesame Oil, Cocoa-nut Oil, Oil from feet of Cattle, Aguacate (*Persea gralissima*), Ground Nuts (*Arachis hypogaea*), Sesame (*Ajovjoli*).

#### SACCHARINE FOOD.

Crystallized Sugar, Brown Sugar, called "Papelón," Sugar, "Centrifugal," Honey, Confectionery, imitation of fruit, Confectionery, Almonds, Pastils of Mentha and Cinnamon, Confectionery, Sugared Almonds, Quince Jelly, Guava Jelly, Sweets containing Liquors, Crystallized Fruits, Preserved Milk, Papaw (*Carica Papaya*), Peaches, Coco, with White Sugar, Pumpkin, Quinces, Coco, with Brown Sugar, Citron, "Bocadillas" of Merida (Guava Preserve), different kinds of Sweets, Sugar Cane.

#### FARINACEOUS FOOD.

*Farinaceous Roots and Fruits*.—Celery (*arracacha*), White Batata, Potatoes, Hacren, Yams, Plantains, Yuca, Mapuey Blanco, Mapuey Morada, Red Batata, Fruits of Chayota, Roots of Ocumo.

*Cereals*.—Soup Beans, Chick Beans, Lentils, Reddish Bean, Quinchonchos (*Cajanus Indicus*), Frijol Brusquito, Guarcaro Rosado, Caraoti Poncha Morada, Caraota Sucia, Caraoti Negra (Black Bean), Caraota Groncha Negra, Guarcaro Negra, Caraota Huevo de Paloma (Pigeon



Egg Beans), Caraota Huevo de Rayada (Striped Bean), Caraota Huevo de Blanca (White Bean), Alverjas (Peas), Guaracaras Blancos, Frijol Rosado, Fryoles, Caraota, Frijol Ladrillo, Caraota Poncha Rosada, Tartaguita, Habas (*Canavalia Gladiata*), Caraota Bayeta, Maiz (Indian Corn), Rice, Caraota Poncha Negra, Frijol Coriano, Fecula of Ocumo, Apio, Laien, Yuca, Batata, Potato, Rice, Sulu.

*Preparations.*—Cassave Bread, Gofio, "Pan de Horno," Maizena, Chick Pea Meal, Mais Cariaro Meal, Tapioca, Roasted Indian Corn Vermicelli, Sago, Macaroni, Macaroni Stars.

#### ACIDULOUS FOOD.

Pulp of Oranges, Peaches, Sour Sop, Apples, Mango, Quinces, Guava.

*Sweets.*—Palha, Cambar, Tamarind, Tomatoes, Apples, Sour Sop, Peaches, Guava, Oranges, Pineapples, Quinces, Strawberries, Lemons.

*Jellies.*—Guava, Pineapple, Sour Sop, Peaches, Quinces.

*Preserves.*—Pineapples, Oranges, Apples, Guavas, Ciruelas de Hueso, Cambures titiario, Cambur Morado, Strawberries, Quinces, Bocadillos.

#### SACTEOUS FOOD.

Queso de Mano (a kind of cheese), Queso de Llanero (the ordinary cheese of the country), "Maryda de Leche," Milk Pudding, Milk Tart, Preserved Milk, "Boliviana" made of milk, Milk with Rice, Milk Jelly, Queso de Leche, Crema de Leche, Butter, Pichero.

#### GELATINOUS FOOD.

Sour Sop Jelly, Pineapple Jelly, Orange Jelly, Lemon Jelly, Peach Jelly, Sugar Jelly, Mondongo (a soup-like dish; a favourite preparation in the country).

#### FIBRINOUS FOOD.

*Meats.*—Beef, Veal, Pork, Goat, Mutton, Chiguire (*Hydrochaerus Copybura*), Turtle, Lapa (*Cælogunp Paca*), Hen, Turkey, Duck, Pigeon, Partridge, Rabbit.

*Fish.*—Carite (*Auxis*), Carite (*Escabeche*), Mero (*Terranus*), Pargo (*Mesoprion*), Liza, Bagre (*Platyostoma*), Pezcado Llanero, Pampano (*Trachynotus*), Lebranche, Sardina, Anguila (*Synbranchus*).

#### ALBUMINOUS FOOD.

Eggs of different Fowl, "Huevos Chimbos," Paibas (*Crustaceus*). Brain of Cattle, Eels, Crawfish, Sardines, Lapa de Mar (a mollusc), Prepared Mero, Pargo, Carite, and Pargo Fish, Escaleche de Carite, Escaleche de Pargo.

#### PEPTIC AND STIMULANT FOOD.

*Coffee.*—Ripe Fruit, Dry Fruit, In Shell, "Twins" (*Tierra Fria*), "Twins" (*Tierra Caliente*), Caracotello, Trillado, Descerezado, Pastilla (refuse), Descerezado (superior *Tierra Fria*), Descerezado (good *Tierra Fria*), Descerezado (inferior, *Tierra Fria*), Descerezado (superior *Tierra Caliente*), Descerezado (speciality), Trillado (superior), Trillado (inferior), Trillado (*Tierra Caliente*), Trillado (superior *Tierra Templada*), Trillado (inferior), Roasted, Ground.

Watercresses, Onions (large), Onions (small), Onions (white), Garlic (large), Garlic (small), Radishes.

*Condiments and Spices.*—Pimienta Guayabita, Nutmeg, Cumin, Pepper, Ginger, Cloves, Oreganum, Arnotto, Cinnamon, Mustard, Anis, Spanish Pepper, Pimentones, Aji Chirel, Tomatoes, Cucumbers, Spear Mint, Spanish Oreganum, Egg Plant, Culantro de Monte, Spanish Coriandrum, Caper, Celery, Carrots, Cocui (flower-buds of Agrave), Salt, Vanilla, Vinegar (double strength), Vinegar (ordinary), Vinegar made from Banana, Vinegar made from Cocui.

*Pickles.*—Carrots, Cauliflower, Cocui, different.

Safflor.

*Liquors.*—Aguardiente de Cocici with lemon peel, orange peel, watercresses, lemon grass, mint, Yerbu Luisa (*Lippia citridera*), Espana; Angostura Bitters, Perez Hermanos, Bospero Rey, Ed. Gathmann, Juan J. Arteaga; Anosette, J. A. Lira, Surfon de Holanda, Superior; Brandy (Fray Jose); Gin (*Ginebra*); Azahares (orange flowers), Centenario de Bolivar, Citronetto, Crema de Rosas, Curacoa, Lemon, Maraschino, Perfecto Amor, Rosolio, Tornillo, Vesperto surfin, Yerba Sagrada (Holy Herb); Limonada, Lemons, Raspberry, Orange, Granadilla, Strawberry, Sour Sop—(I. L. Arteaga); Raspberry, Lemon, Orange, Nectar, Tamarind, Pineapple—(I. G. Gonzalez; Rum, Caracas, Carupano, from Maiz, Maracaibo, Old from Carupano, Old from Caracas, Old (superior), Old (select), Old (the most select kind); Ron Sano, White Wine, Orange Wine, Pineapple Wine, Dry Wines—(Dr. F. Bolet, Petore).



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