

**Public lecture on "The plumber trade : a retrospect and a forecast" / by John Honeyman, delivered in the Waterloo Rooms, Glasgow, 28th March, 1893.**

### **Contributors**

Honeyman, John, 1831-1914.

National Registration of Plumbers. District Council for Glasgow and the West of Scotland.

University of Glasgow. Library

### **Publication/Creation**

Glasgow : Printed by Robert Anderson, [1893]

### **Persistent URL**

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NATIONAL REGISTRATION OF PLUMBERS.

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DISTRICT COUNCIL FOR GLASGOW AND THE  
WEST OF SCOTLAND.

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# PUBLIC LECTURE

ON

“The Plumber Trade: a Retrospect and  
a Forecast,”

BY

JOHN HONEYMAN, Esq., A.R.S.A.,

*Fellow of the Royal Institute of British Architects,*

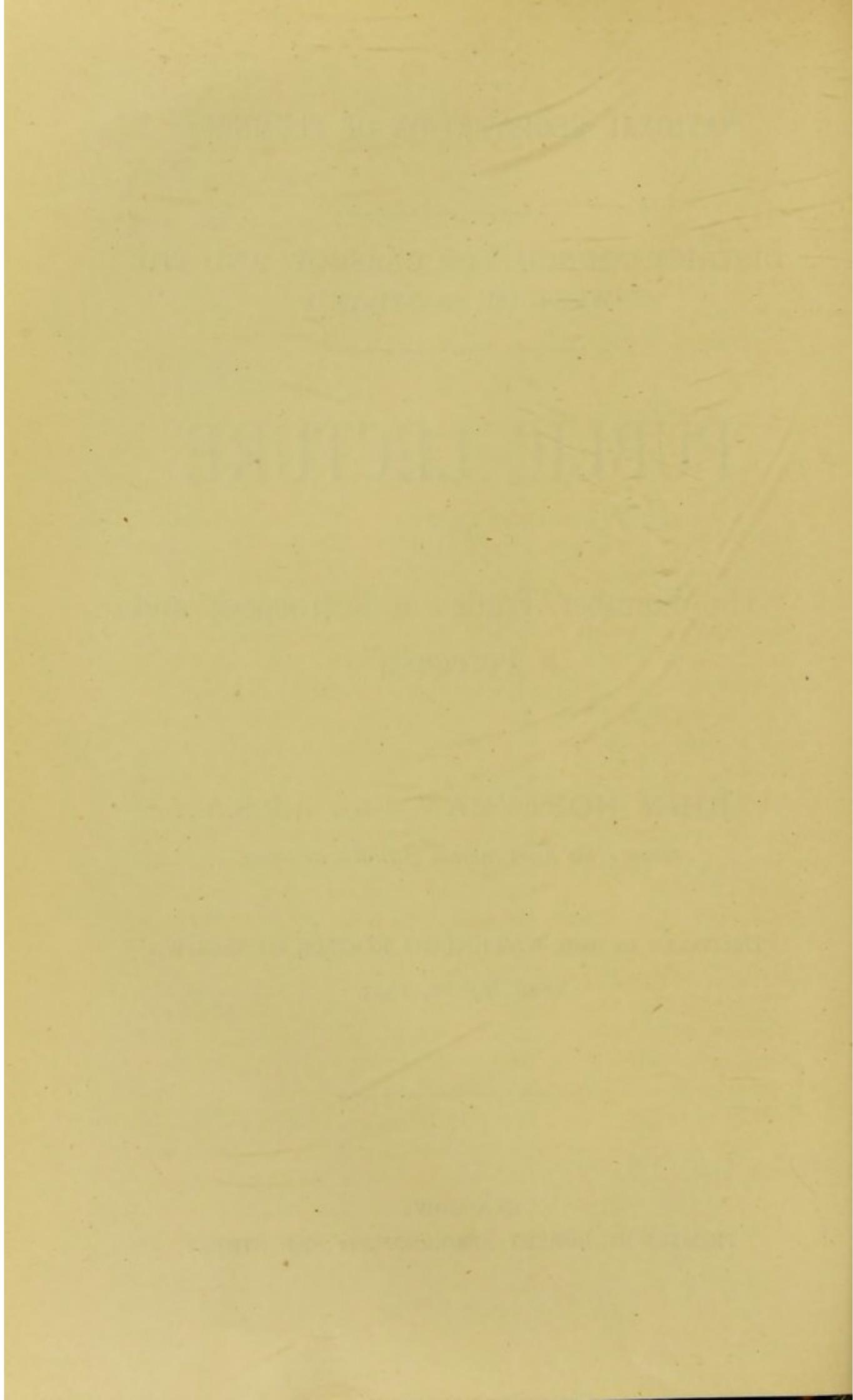
DELIVERED IN THE WATERLOO ROOMS, GLASGOW,

28TH MARCH, 1893.

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GLASGOW:

PRINTED BY ROBERT ANDERSON, 22 ANN STREET.



# NATIONAL REGISTRATION OF PLUMBERS.

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## PUBLIC LECTURE

ON

### “THE PLUMBER TRADE: A RETROSPECT AND A FORECAST.”

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A PUBLIC LECTURE on the above subject, under the auspices of the District Council for Glasgow and the West of Scotland of the National Registration of Plumbers, was delivered in the Waterloo Rooms, Glasgow, on Tuesday, 28th March, 1893, by John Honeyman, Esq., A.R.S.A., Fellow of the Royal Institute of British Architects. There was a good attendance of master and operative plumbers, and of members of the public interested in sanitation and good plumbing. Councillor Crawford, Convener of the Health Committee of the Town Council of Glasgow, and President of the District Council, occupied the chair, and was supported on the platform by Messrs. John Gordon, I.A., Vice-President of the Council; David Thomson, Alexander Skirving, and J. M'Auslin, Architects; Robert Stevenson, Metal Merchant; Messrs. Buchan, William Anderson, Speirs, Cairns, Fulton, Arnot, Richard Livingstone, James Crawford, Robert Campbell, and Isaac Low, Jun., Master Plumbers; Antonia Riva and William Spraggan, Operative Plumbers; and Archibald Craig, Secretary of the District Council.

The Chairman, in introducing Mr. Honeyman, expressed his gratification in presiding at a meeting of which so large a proportion consisted of members of the plumbing trade. The District Council were much indebted to Mr. Honeyman for his kindness in undertaking to lecture this evening. He not only occupied a very distinguished position in his own profession, but had given a wide consideration to matters outside of it of public importance. As regarded the present movement for the elevation of the plumbers' craft by education and registration, he was glad to

inform the meeting that the Plumbers Registration Bill was making good progress this Session in Parliament, having already passed its second reading in the House of Commons. When it became law, the plumbers would be able to say that they had an Act of Parliament all to themselves. (Hear, hear.) He had further to announce that the District Council, in addition to the present plumbing classes carried on under its auspices, were about to advance a step further by providing practical workshop instruction. The authorities of the Technical College had handsomely agreed to provide the necessary accommodation, and the Council had made substantial progress in raising a fund for equipping and maintaining this workshop, which would be ready for use by the beginning of next session. (Applause.)

Mr. Honeyman then delivered the following lecture:—

“ THE PLUMBER TRADE: A RETROSPECT AND  
A FORECAST.”

It is generally interesting, and often instructive, to look back on the course of events which have led up to the existing development of any movement, institution, or occupation. The saying is old and trite that “experience teaches fools,” and he must be a fool indeed who despises the instruction of such a monitor. Indeed, in this connection—our relation to experience—and in the sense of the word “fool” here intended, which is that of the Greek *scholasticos* rather than the English “stupid idiot,” we may readily admit the truth of Carlyle’s doctrine that people are “mostly fools,” and even venture to assert that there are no exceptions, for if we sit at the feet of experience till our last hour we shall still find our lesson incomplete. I am in hopes then, gentlemen, that although I may not say much that is new to you to-night, my reference to things of the past may not be unsuggestive, for wisdom is to be drawn from conspicuous failures as well as from conspicuous successes. I think a brief reference to the vicissitudes of sanitary science during the last forty years and the many changes which have been introduced into plumber work can hardly fail to be interesting to such an audience as I have now the honour to address, and I trust it may, in some measure, be useful. I propose to limit my retrospect to a period of about forty

years, beginning with the time when, as an embryo architect, I wielded the T square in the office of a gentleman who has long since left us but who will be remembered by some of you—the late Alexander Munro. Since that period enormous progress has been made in every department of mental and manual activity, but the progress observable in plumber work during the last half century is not so much in the direction of superior workmanship as in the adaptation of apparatus to new requirements. Sanitary science has dictated many changes in ordinary domestic appliances, which plumbers have—rather tardily, if the truth must be told—recognised to be advantageous, and modified their practice accordingly. The new requirements naturally led to the introduction of new apparatus, and to the production of many things by machinery formerly made by hand, and the manufacture of fittings for the use of plumbers has, in this way, been carried to great perfection, but the plumber trade can hardly claim much credit for progress in this direction. Plumbers, with a few conspicuous exceptions, have not been great inventors. I think I may very safely say that, even in recent times, the most perfect appliances have been known to be associated with very bad plumber work, while the converse is also true. In the building trades generally there is little room for progress such as we find in other departments of skilled labour. We find as good masonry in our Cathedral as we are able to produce now, and I have no doubt the man who “rolled” together the cast sheets of lead on its roof would handle in a tradesmanlike way the soft-milled sheets on a modern platform. But one reason why improvement in plumber work is not so marked as might be expected is that forty years ago we had remarkably good plumbers here. There has been greater improvement in England than here, but the reason of that is that there was much more room for it. Scottish plumber work was of a distinctly superior character, both in design and execution, and the most probable explanation of this, I think, is that the trade here was, as a whole, better educated. It very rarely happened that any lad apprenticed to a skilled trade was illiterate, and both journeymen and masters were well educated. But while forty years have made little change in the character of the plumbers’ work in Glasgow, they have made a vast change in two respects—(1) the development of the trade; and (2) the diffusion of correct views regarding the methods of securing the best sanitary results, and

the responsibility of the plumber in connection with the health of the community.

I think the development of the building trade has more than kept pace with the growth of the city, and there is a keener competition for work now than there used to be. That is certainly the case in my own profession. Some of you will remember all the architects of any standing in the early fifties—there were about 16 altogether, and in the last *Directory* we find no fewer than 138 names. Then, in the *Directory* of 1854, one of the first I purchased for my own use, I find that the list of plumbers occupies half a page—51 names in all; whereas in last year's *Directory* the list occupies eight pages—comprises 378 names—an extraordinary change to occur within the recollection of many who are here present. I am aware that some of these are rather bell-hangers and gasfitters than plumbers, but we may safely take the number as over 300. And here I may remark that I have a considerable respect for the old adage, "Let the shoemaker stick to his last." The plumber, strictly speaking, has to do with water only. He has to protect us from the water which comes down from above; he has to supply us conveniently with the waters we daily use; and he has to remove these waters, when used and laden with impurities, as quickly as possible from our dwellings—a large and important function. But, to return, when one looks at a list such as this (in the *Directory*) he cannot fail to be deeply impressed with the vast importance of the problem—How shall the energies of this great multitude of plumbers be so directed and governed as to insure that they do not work mischief to the public health? For we must remember that it is not merely the masters (whose names appear on these pages) with whom we have to deal, but the greater army of journeymen and apprentices in every shop, who are from day to day in every quarter of the city—in costliest mansions and humblest tenements—doing, according to their lights, either good or evil. Is it not true that many of these, indifferent to the result, are quite content even now to go on doing things by what we call "the rule of thumb?" But there are undoubtedly symptoms that "the rule of thumb" is becoming gradually discredited. This is one of the most encouraging facts connected with the present. The operative plumber has been roused to a sense of the growing comprehensiveness and complexity of his craft, and of the

advantage, if not the necessity, of technical education of a wider and, at the same time, a more exact character than sufficed in former years; and it is a most fortunate circumstance that just as this need becomes felt and pressing, facilities for supplying it increase and encouragements are multiplied. It cannot be questioned, I think, that in this connection the movement set on foot by the Worshipful Company of Plumbers has done notable service, and I trust the day may not be far distant when no respectable plumber will be contented unless his name appears on the official register.

The three things which, during the last forty years, have done most to stimulate the plumber trade in this district were—the introduction of the Gorbals gravitation water; the introduction of the Loch Katrine water; and the growth of the shipbuilding trade, especially the construction of so many magnificent passenger steamers here, with their luxurious fittings.

Let me refer very briefly to our water supply. When the Gorbals works were completed nearly 50 years ago, it was becoming evident that it would very soon be necessary to give up the river as a source of supply, and these works conferred a great boon on the inhabitants of the south side, who were so well pleased with their supply that when the Loch Katrine scheme was proposed they resolved to oppose it. The true reason of their opposition, I have no doubt, was that they were afraid of additional water rates, and they thought it unfair that they should be charged for what they did not want. Ultimately things were satisfactorily arranged, and for some years after the introduction of the Loch Katrine water the people on the south side continued to pay a rate of 1s. in the £, while those on the north side paid from 1s. 2d. to 1s. 4d. In 1865 the rate was equalised at 1s. over all, and in 1871 it was reduced to 8d.

It is a curious fact that the opponents of the Loch Katrine scheme relied chiefly on the contention that the water of the loch was too pure, and that by contact with lead it would become highly poisonous. The late Dr. Penny, of Anderson's College, a well-known analytical chemist, gave evidence to this effect before a Parliamentary Committee. And I remember seeing some of his specimens, which were certainly well fitted to create alarm—the lead suspended in the Loch Katrine water being greatly oxidised. I don't know exactly how this was got over, but I suppose some

other chemist must have proved that it was of no consequence, and I am not aware that we have any large mortality from lead-poisoning. One thing is certain, that the water was very soon brought into contact with a large quantity of new lead, for not only was it found that the old pipes were unable to stand the new pressure, but the demand for new supplies rapidly increased. Some idea of this may be gathered from the fact that in 1856 the total revenue, with a rate of 1s. 2d., was £62,335; whereas thirty years afterwards, with a rate of only 8d., the revenue was £162,572, and a sinking fund of £141,931 had been accumulated.

With reference to the growth of sanitary knowledge, that has been a very slow process. For many years after the introduction of the system of water carriage we were simply groping in the dark. Microbes and bacilli were fortunately unknown in those days, so the bad sanitary arrangements did very little harm! While water-closets were still comparatively rare, the prevailing idea seems to have been that all the water had to do was to take the soil out of sight: and, in point of fact, much of it never got beyond the built drains and the invariable cesspool, and the river remained uncontaminated. The regular fishing of salmon on the Clyde, just as on the Tay at the present day, is a thing quite within my recollection; often have I watched the whole process at "the fishers' hut," within a mile of Glasgow Bridge. I remember very well when, as a boy, passing up or down in the "steamboat," it was quite a common thing for her to slow or stop altogether several times between Dumbarton and Glasgow while the nets were drawn clear of her course. In those days our supply of water in Glasgow was drawn partly from pump wells, but chiefly from the Clyde, and there was very little plumber work in our houses. In the country generally there was practically none, and I may almost say that the plumbers, by their improved methods, are responsible for the filthy state of our river now! I used sometimes to live in a nice little cottage at Govan, which stood where the new graving dock now is. It had a small flower garden in front and a large garden behind, the gooseberries and pears of which I remember to this day. A narrow road passed in front, and then a beautiful green common sloped down to the towpath along the river, which here took a sharp turn to the north. On this common stood a pump well, to which the maids and matrons of the village resorted with their "stoups" for their daily supply of water. I need hardly say that in that happy

village, where almost every cottage was thatched, there was no need of plumbers, and there was no river pollution by Govan at least. The cottage I have described, being of rather a superior class, had a pump-well of its own. This stood close to the back door, with a large semi-circular trough in front of it, cut out of freestone, having a grating in the bottom. There was absolutely no other plumber work about the place, and the same might be said of almost every other house of the class throughout the country at that time. The trough in front of the well was the sink of the establishment, and where the waste water went, or how much of it got into the well again, I have not the least idea. The water was beautiful to look at, clear and cold, and this much must be said for this old style of thing that I never heard of a case of zymotic disease being in that house, and the old lady who was there in my boyhood lived there to be over eighty years of age, and her large family grew up to be the fathers and mothers of a generation which has been delivered over to the tender mercies of plumbers. The transition from such a primitive state of matters as I have depicted to the present complex development of domestic plumbing was a very gradual process. The difficulties and dangers involved in the change were not at first understood, although they very soon became apparent. The first difficulty which met the sanitary innovator of the day was the inefficiency of the drains formerly in use for the conveyance of sewage. It was soon discovered that ordinary built drains of brick or rubble were not suitable, although they continued to be used for many years, and, I have no doubt, some are in use in Glasgow to the present day. I have seen a built drain which did answer the purpose very well. It was made entirely of hewn stone, with a channelled sole on which the sewage flowed, but such a drain was very costly and beyond the means of most people. The defect of the rough built drains, of course, was that they leaked. The liquid sewage escaped and very often found its way into the wells, which continued to be used, and sometimes were the only source of water supply long after the introduction of water-closets; but, notwithstanding this serious defect and the inconvenience it caused—for danger was apparently not taken into account at all—so late as 1860, I saw the drains in the streets of a town not 50 miles from this constructed thus: rough slabs of the native slaty rock were laid together at the bottom of the trench to form the sole of the drain;

along the ends of these were built the rubble sides, and similar rough slabs laid on the top formed the cover. The streets were long and the gradients very slight, and I need hardly say that, in process of time, it was found that these remarkable common sewers had never acted as drains at all, but merely as elongated filtering tanks, in which all solid matter was retained. When this discovery was made, they were replaced by drains of a different type; but that a body of intelligent men should have done anything so foolish only about thirty years ago is a curious illustration of the slowness with which correct ideas on the subject of drains grew. The invention of glazed fire-clay pipes greatly facilitated the construction of good soil drains at a moderate cost; and although till quite recently far too little attention was paid to the proper pointing of these, it may be fairly said that these fire-clay pipes solved the difficulty of the water carriage of sewage.

The next stage in the progress of domestic sanitation was the growth of the idea that defective drains, and, ultimately, that all drains, were a source of danger to the dwellings to which they were connected. This led to the invention of traps and the abolition of the old built cesspool. The form of trap used for many years (and still manufactured) was the familiar syphon trap with the cleansing eye in the centre. When properly made, it served to cut off the connection between the house and the common sewer—a very important service, and all that was required of it, for the idea of ventilating the drains and sewers had not yet dawned on the sanitary engineer. I was not by any means the first to direct public attention to this subject, but in 1856 I invented and publicly exhibited a trap which greatly facilitated the ventilation both of drain pipes and sewers. Instead of the eye in the centre, it had an eye on each side of the water seal, either of which, or both, might be used for ventilation as might be required. The cleansing eye was on the side next the house, and the surface of water exposed on that side was considerably less than on the other, the run-out of the trap being different from the drop into it. Indeed the various traps now in common use having the eye on the house side of the seal are but very slight modifications of my design, which was probably the first of the kind applicable to drains. It is figured in the first edition of Dr. Parke's well-known work. But here again I must remark that progress in the direction of ventilation was exceedingly slow. For ten years

after my lecture and the exhibition of the new trap before the late Mr. Carrick and the principal Glasgow architects and builders of the day, I do not believe a single two-eyed trap was used except by myself. The man who did most to demonstrate the utility and practicability of drain ventilation here was undoubtedly our friend Mr. W. P. Buchan, and that, I may say, brings us down to the present day, when the proper ventilation of all sewage drains and soil pipes is regarded as a *sine qua non*. One of the most important changes made to facilitate ventilation was the carrying up of the soil pipe through the roof and leaving it open. In days of old it ended at the trap of the closet, with the result that the confined gases ate a way through the lead bend, and so had free access to the house. The late Dr. Fergus used to have quite a large collection of these honeycombed traps, and I have no doubt that many hundreds remain in use now.

I may here say that I think a good deal of the recent progress of plumber work is due to the existence of our sanitary protection associations. These have been a great means of bringing home to the public the fact that drains may be in a very bad state, although there is no perceptible smell, and although landlords and especially landladies protest, as they always do, that the drains are in perfect order. One result of this is that it is becoming customary for tenants to insist upon seeing a certificate from the sanitary engineer before taking a house, or even furnished apartments. If this custom became universal, it would have a most salutary effect, and make things very lively in the plumbing trade for some time to come.

The admission of air to a house through the drains is on many grounds exceedingly objectionable, but it is undoubtedly of more importance to make the drains and plumber work water-tight than air-tight. Organic matter must be removed quickly and perfectly without one atom being left behind to ferment or evaporate within the walls. If this is effected, and the drain disconnected from the common sewer, the drains are practically innocuous. The relative importance of the two things has been rather lost sight of. The air from drains is a very bad thing, if the drains it comes from are badly ventilated and full of putrefying matter, but in that case it would be a very stupid course to attempt mere palliatives; the right thing to do is to make the drains clean and wholesome. If the sewage of a house were taken across the

basement in an open channel, it would do no harm to the inmates, provided the channel was smooth and impervious and had a good fall. The covering of such a channel is a matter of convenience, not of sanitary necessity. But while air may, in certain circumstances, enter a house from its drains without serious consequences, the other contents of soil drains cannot do so without serious risk. That is the point I wish at present to impress upon you.

You will not understand me to imply that it is of no consequence whether drains are ventilated or not; for even if there be in them no micro-organisms worth speaking about, and no germs of specific disease, there are other things which, by universal consent, are held to be deleterious, having an atonic influence predisposing to certain forms of disease. There is, therefore, no question about the expediency of ventilating drains and sewers; but it will serve no good purpose to exaggerate its importance, for exaggeration is a species of falsehood, and is apt to distort our mental vision, causing us to form false estimates of the relative importance of things, and, in point of fact, I have seen cases where the means taken to effect disconnection and ventilation—the multiplicity of Buchan traps, and Hart traps, and grease traps of one kind and another—seriously interfered with the primary object of all domestic drainage: the immediate washing away of all the organic matter and waste water we commit to the drains. You will, therefore, I dare say, agree with me that on this point a word of warning is not uncalled for. Regarding the matter from the practical point of view, my experience has long since led me to the same opinion which Dr. Carmichael has reached by more scientific methods, namely, that sewer gases, as they are called, do not, and indeed cannot, originate specific disease. It is true that when typhoid fever or diphtheria has occurred in a house and the drains are tested, they are very often found defective, but they are also sometimes found to be in perfect order; and among the healthy houses you will not find a larger proportion with perfect drains than among the unhealthy houses. In both cases the percentage of defective drainage is exceedingly high even now, and what must it have been thirty years ago. If the air of the drains were laden with pathological germs, none of the last generation could have survived. I have lost faith in the virulence

of the healthy bacillus; but, at any rate, it is an ascertained fact (*v.* Dr. Angus Smith at Glasgow Congress of Sanitary Institute of Great Britain; Report of Dr. Dixon's Committee on Air of Glasgow to Philosophical Society; Paper by Dr. J. S. Haldane, *Transactions of Sanitary Institute*, vol. ix., p. 407, &c.) that there are not nearly so many micro-organisms in the air of sewers as in the air of ordinary apartments, or even in the external atmosphere. It would almost seem that the existence of micro-organisms in the sewers is due to the ingress of fresh air, not to the existence of sewage. Upon the whole, I am inclined to think that the bacillus is very much maligned. It is in itself a very harmless creature, but "evil communications corrupt good manners." You have often heard of people being killed by the bite of a fly. Well, in cases of that kind the flies may be caught and they may be identified as belonging to the same species; and if people did not know better, they might conclude that this species of fly possessed the specific virus of anthrax. In the same way you know that a scratch from a sharp steel knife causes little inconvenience; but if the scratch is made by the knife you are using in the dissecting-room, the effect is very different. The steel is as harmless as the cleg, yet both become deadly when they have been in contact with certain poisons. So is it, I venture to think, with the bacillus—at least, this theory seems not to be inconsistent with the results of experience and recent investigation. We may thus charitably believe that if the bacillus—which belongs to that most beneficent order of beings, the scavengers—is sometimes the vehicle of disease, it is only accidentally so. But I must not pursue this subject further here; it is a digression rather beyond the plumber of the past, perhaps, but quite within the range of the scientific plumber of the future.

Before concluding this brief reference to present practice, I would like to say that I notice one or two things which are still done by plumbers if left to their own devices, in a way which can hardly be commended. I shall not particularise, as I am not to lecture you in the sense of "blowing you up" to-night, but I may remark that the shortcomings I refer to point to the desirability of the plumber of the future attending some of our classes of building construction—a science for which plumbers often show supreme contempt.

There is another thing which the plumber of the future must know a great deal more about than the plumber of the past, and that is the nature and use of different metals. You have now to use many metals for a variety of purposes, in various combinations, and subject to both chemical, mechanical, and electrical action, and you must understand these things if you are to do good work intelligently; and allow me to say that you will never do work which will yield you any delight in the doing of it, if you cannot do it intelligently. I would, therefore, strongly urge any young men whom I now address to avail themselves of the many facilities which are now within their reach for obtaining this technical knowledge, so that they may rise to the proper level of the modern skilled mechanic. We know not what possibilities connected with the plumber trade lie before you, but this we know, that between the man who blindly labours at his daily task without one thought beyond his daily wage, and he who understands his work and delights in it, there is all the difference between a galley slave and the stroke of an Oxford eight. You may depend upon it, gentlemen, that it is knowledge which truly emancipates, and which alone can lead us to make any sense out of the phrase, or to bring the truth of it home to our individual experience, *labor ipse voluptas*.

I regret that so little time remains for reference to one important part of my subject—which, however, I must not entirely pass over—namely, the change which has occurred within the period under review in wages and the hours of labour. When I commenced business, the standard wage of a plumber was 23s. 9d. per week, and the hours of labour were 60 per week. In winter the hours were the same on Saturdays as on other days, but in summer the plumber, by working 10½ hours on other days, managed to get away at 2.30 on Saturdays. Now, at the present time, the number of hours of labour per week is only 51, and the week's work ends at one o'clock on Saturdays, and the wages, instead of being (as they would be at the old rate) only 20s., are 34s. There is evidently remarkable progress here; but is it in the right direction? Yes, I think there can be no question about that, and I am sure all here are unanimously of that opinion. 51 hours per week is a very near approach to the ideal 8 hours per day. It is a fair amount of work if that work is honestly performed, and yet it leaves a fair margin of leisure. I often wish I had as much myself, especially when, sometimes hurrying along just in time to

catch a 5 o'clock train on a Saturday afternoon, I find my way blocked by groups of workmen sauntering along in a very leisurely manner with the air of men in easy circumstances. And, no doubt, as compared with their predecessors, they are in easy circumstances, both in respect of toil and wages, for almost every necessary of life is a great deal cheaper than it was 40 years ago. There was no 4 lb. loaf at 5d. in those days, nor sugar at 2d., nor tea at 1s. 9d., nor—may I mention it—any “butterine!”

But, gentlemen, I fear we cannot say that the progress of the master plumbers has been quite as satisfactory. There were really wealthy plumbers in the old days, and it was quite possible to make a fortune at the trade; but now profits have greatly diminished, and it is a laborious job to get through enough of work to make a decent living. Now, is this an entirely satisfactory state of matters? That is an extremely interesting question for those interested in the plumber trade. We are not likely to be unanimous here, for the answer must depend on our particular point of view. Some there are who hold that masters, as a class, should be abolished; others apparently think that they should not be abolished, but only persecuted; while others cling to the old-fashioned idea that, upon the whole, they are still indispensable, and that they ought, therefore, to be supported and encouraged. To this latter class it must be discouraging to know that the inducements to assume the position of master are becoming year by year less and the deterrents greater, while to the others these facts must be regarded with satisfaction, as, among other things, indicating the approach of a new era in which the workman shall be master of the situation. It must be admitted that, during the last 30 years, events have distinctly tended in this direction; and I confess that, for myself, my sympathies are with those who desire to see the wealth-producer reaping the full reward of his toil; but I have no sympathy whatever with the methods hitherto pursued in furtherance of this object. What I would say to plumbers and to skilled workmen of every kind is this—While you have masters, treat them well, your interests are indissolubly bound up with theirs; but when you see your way to do without them, to manage your own affairs—converting, it may be, *quondam* employers into employees—then, I say, go forward in a self-reliant, straightforward, manly fashion, scorning to claim privileges while you refuse to accept relative responsibilities.

I cannot help thinking that the bill at present before Parliament for the Registration of Plumbers may facilitate such a revolutionary movement as I have just indicated, giving, as it does, legislative recognition to a great union of men all possessing a certain standard of skill in their trade. Who knows what the functions of District Councils may be thirty years hence? But whatever changes are before us, of this I feel assured that the great labour problem, which is at present engaging the attention of so many minds, shall never be solved till the working classes recognise the fact that their destinies are in their own hands, if only they have the capacity to shape them by efficient co-operation. There is no other practicable solution of the problem. Be assured that the great socialistic fabric of the future—which so many desire—if it is ever to overshadow our land, must rest on some better foundation than the treacherous quicksand of coercion; it must be the work of free men who can trust each other; and must rest on the solid basis of the immutable precept—"Whatsoever ye would that men should do to you, do ye even so to them."

At the conclusion, a cordial vote of thanks was accorded to Mr. Honeyman, on the motion of Mr. John Gordon, I.A., seconded by Mr. Robert Stevenson; and the proceedings were brought to a close by a vote of thanks to the Chairman, proposed by Mr. William Anderson.

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### Objects of the National System of Registration—

- To elevate, by Education and Registration, the status of the Plumber's craft;
- To give every competent tradesman a diploma which will be recognised throughout the Empire; and
- To ensure, by these means, the protection of the Public Health.

