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WILLIAM HENRY CORFIELD:

A BIOGRAPHY.

(Being a Reprint from "Contemporary Medical Men.")

EDITED

BY

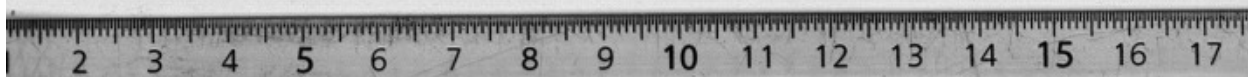
JOHN LEYLAND.

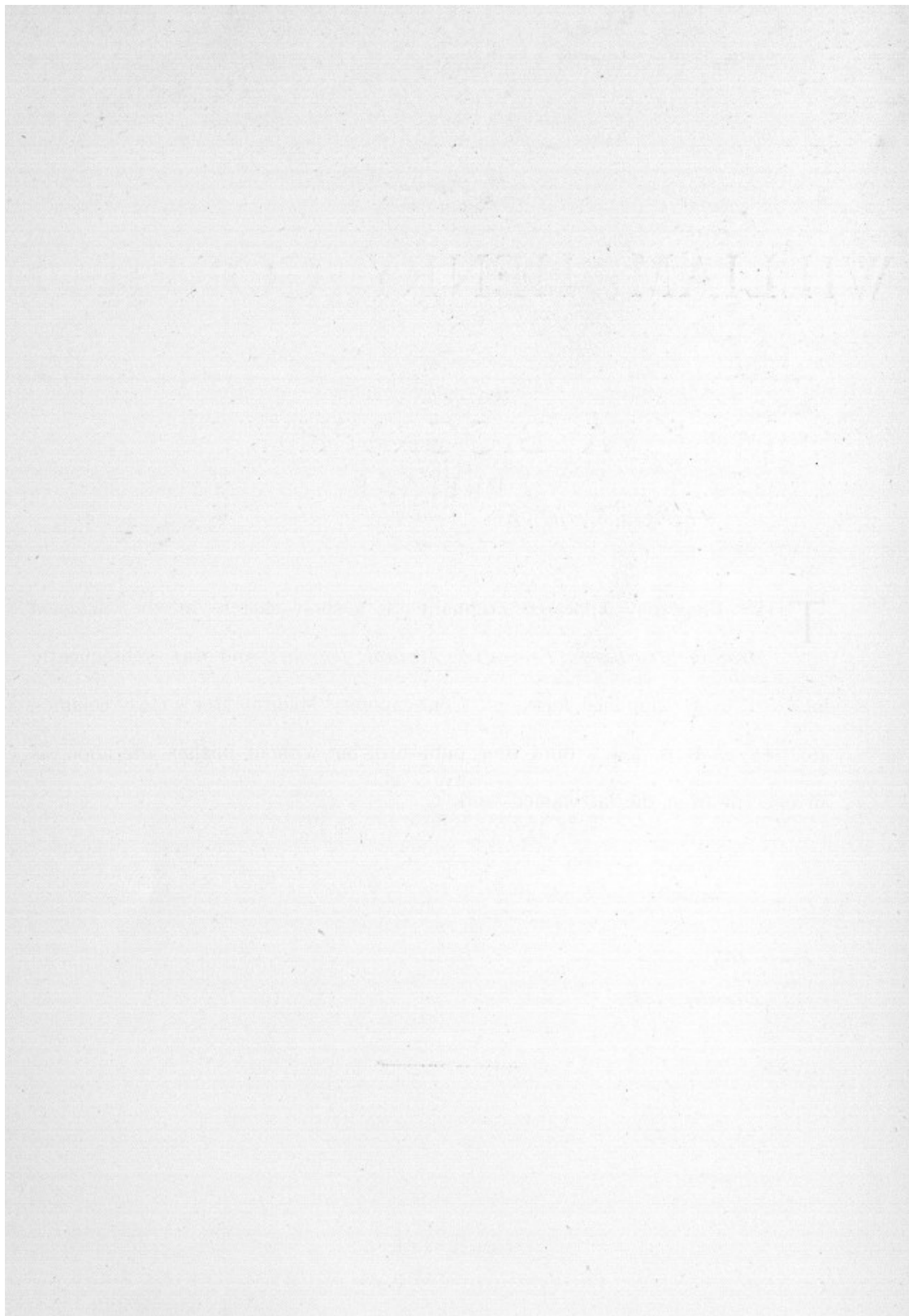
Author of "Ancient Buildings in the Parish of Halifax," etc.

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PREFACE.

THIS Biography appeared originally, as a short sketch, in the *Midland Medical Miscellany* (*Provincial Medical Journal*), and was subsequently included, in an amplified form, in "Contemporary Medical Men," (two volumes, 4to, 1887). It is now a third time published, but without further alteration, as an excerpt from the last-named work.

Forest Hill,

December, 1887.



WILLIAM HENRY CORFIELD.

M.A., M.D. (Oxon.), F.R.C.P., Hon. A.R.I.B.A.

THE subject of this memoir was born in December, 1843, at Shrewsbury, where his early years, together with those of his brother and sister, were tended entirely by his mother, his father having died when he was very young. He was educated at the Cheltenham Grammar School, where he was very successful in his studies, and obtained a Demyship in Natural Science at Magdalen College, Oxford, in March, 1861, at the early age of seventeen. In the subsequent October he matriculated, and in 1863 took a first class in Mathematics at Moderations. In the same year he had the honour of being selected by Professor Daubeny, the eminent Chemist, Botanist, and Vulcanologist, to accompany him in his examination of the volcanic appearances in the Montbrison district of Auvergne. In 1864 he passed in the final Classical Schools, and took a first class in Mathematics for the degree of Bachelor of Arts. Early in the following year Mr. Corfield obtained, in open competition, the Medical Fellowship at Pembroke College, and thus the line of his future career was decided. He next gained first-class honours in the Natural Science Schools, taking Chemistry and Geology as special subjects. Other successes followed rapidly, and the Burdett Coutts University Scholarship in Geology and the Allied Sciences fell to him in 1866, to which, a year later, was added the Radcliffe Travelling Fellowship in Medicine. This gave him an opportunity of visiting the professional centres of the Continent, and, amongst other places, Paris, where he studied analysis, with special reference to hygienic matters, under Berthélot, at the Collège de France, and took the opportunity then afforded of clinical study under Béhier, Sée, Hardy, and other eminent teachers, besides attending Bouchardat's lectures on Hygiene. He next proceeded to Lyons, where he worked at clinical medicine and surgery, and also made a special study of the remains of the remarkable aqueducts of ancient Lugdunum, and then passed over into Algiers, visiting afterwards some of the medical schools in Italy and Sicily.

In 1868 he took his M.B. degree, and was appointed Examiner for Honours in Natural Science at the University of Oxford; and, in 1869, he received the further appointment of Professor of Hygiene and Public Health at University College, London. His Introductory Lecture was printed in the *British Medical Journal* of June 18th and 25th, 1870, and was afterwards published in pamphlet form, under

the title of a "Résumé of the History of Hygiene." He still directs the Hygienic Laboratory, which he started at this College, and in which many pupils, who have subsequently gained important sanitary posts, have been trained.

He became a Member of the Royal College of Physicians of London in 1869, and, in the same year, was elected a Member of the Committee appointed by the British Association for the Advancement of Science, to report on the Treatment and Utilization of Sewage. For six years he performed the laborious duties of Reporter to the Committee, and was actively engaged in its important work, which has had a great influence on the subsequent advancement of sanitary science. The chief results of these labours of the committee may be briefly summarized as follows :

1. The proof obtained that earth which has been used even six times in an earth-closet has its manurial ingredients increased only to a very slight extent, and is, in fact, not richer than good garden soil, so that "such a manure, even if disposed of free of charge, would bear carriage to a very short distance only."

2. The results obtained from quantitative experiments, lasting over five years, to determine what per-centage of the nitrogen applied in sewage was recovered in the crops on a sewage farm. These experiments showed that nearly 33 per cent. of the nitrogen applied to the farm in the sewage was recovered in the crops.

3. The demonstration of the fact that on irrigation farms, where surface action is relied on, satisfactory purification of the sewage does not take place in the winter, but that on farms where the sewage passes *through* the soil, the purification effected in the winter, when plant growth is least, is as effectual as in the summer, when it is greatest.

At the request of the members of this important Committee, Professor Corfield prepared "A Digest of Facts relating to the Treatment and Utilization of Sewage," which was published in 1870, and has gone through two subsequent editions. This work embodied a vast amount of original research, and was in no sense a report of the Committee. The first general principle arrived at by its author is that "the method which does, in fact, where it is anything like efficiently carried out, remove at once and completely from the vicinity of habitations the various sorts of refuse in the most expeditious manner, is the one which must be the most conducive to health." The dry methods he finds are all wrong in principle, because in them the excremental matters are left in and about the house instead of being at once removed ; and, as Dr. Rolleston and Dr. Parkes have pointed out, the compost is not necessarily disinfected even when it is deodorized. The points which Professor Corfield considers in relation to the disposal of sewage are—the purification of it so that the effluent water may be safely allowed to flow into a watercourse ; the application of it as an agricultural manure so as to realize the greatest return per ton of the sewage per acre of land ; and the carrying out of these so that the health of the inhabitants shall in

no way be injuriously affected by the process. The first of these conditions, he says, is satisfied by irrigation ; but he lays great stress upon the fact that the sewage must not run merely over the land, but *through* it, so as to come into contact with the roots of the plants, and that it may be further purified by the action of the soil itself. That irrigation is the most economical way of disposing of the sewage he shows by a large number of returns as to the value of crops raised on sewage farms in various parts of the country. By sewage-irrigation perfectly worthless land, blowing sea-sand for instance, may be made to support large crops, and the quantity of crops obtained from the best land is enormously increased, while the use of other manures is in great part unnecessary, and the farmer is rendered entirely independent of drought. Far from thinking sewage farms a danger, Professor Corfield believes that the results of irrigation farming, properly carried out, may be a positive advantage to the public health, from the luxuriant healthy vegetation supported on the farms, and the giving off of ozone consequent thereon. There is, he says, no proof whatever that entozoic disease has ever been spread by the use of sewage-grown vegetables.

The alarming illness of the Prince of Wales at Londesborough Lodge, Scarborough, where he was attacked by typhoid fever at the close of the year 1871, called attention very prominently to the subject of house sanitation, and Professor Corfield made, at Lord Londesborough's request, a careful inspection of the condition of the Lodge, and described the results in a letter, which appeared in the *Times* on January 22nd, 1872.

In 1871 he was elected Medical Officer of Health for Islington, and, in 1872, obtained, and still holds, the same post for St. George's, Hanover Square. He took his M.D. degree at Oxford in 1872, and was next year appointed Lecturer on the Laws of Health at the Birmingham and Midland Institute, an office which he held for five years ; afterwards he accepted a similar post at the Saltley Training College. In 1873 he delivered a course of lectures on "Water Supply, Sewerage, and Sewage Utilization" to the Royal Engineers stationed at Chatham ; these lectures were at once reprinted in the United States.

Dr. Corfield, in 1874, read a paper before the Epidemiological Society "On the supposed Spontaneous Origin of the Poison of Enteric Fever," in which he vigorously combated the possibility of the *de novo* origin of the disease. The following passages will explain his views on this important question :—

"Are we, then, able to trace every case of enteric fever to a previous case? Certainly not ; and it would be very wonderful if we could ! When we consider that a person suffering from this disease may go about for weeks, leaving the poison in several different places every day ; that he may go about his work until so prostrate that he goes to bed to die ; that he may fall down dead from perforation of the intestines

without the disease having been recognised ; that the poison which he has left in so many different places may be distributed broadcast in water, milk, sewer-air, or some other vehicle—when we consider all these things, we may well wonder, not that we are often unable to trace the disease to infection from a previous case, but that we are so often able to do so. From the fact that we are able so frequently to point out the source whence the contagion has been derived, and to trace it to a previous case, we have at any rate a strong presumption in favour of the view that, when isolated cases occur, and when there appears to be no connection with previous ones, the fact is that we are unable to trace any such connection, and it is clear from the nature of the disease that this must frequently be the case ; and, moreover, we have no right to assume that we even yet know all the methods by which the poison of this disease may be conveyed. . . . I must confess that these considerations prevent my accepting any of the cases on record as cases where non-importation has been proved, and I cannot therefore accept the dictum that the disease ‘ may be generated independently of a previous case by fermentation of fæcal, and, perhaps, other forms of organic matter.’ Were this true, would not the disease be much more prevalent ? How is it that a house or town may be in a condition eminently suited for the existence of this fever, as shown by the fact that when a case is imported the disease spreads, and often becomes a severe epidemic, and yet no case is heard of there for many years, until the importation takes place ?”

Professor Corfield’s fixed conclusions are summed up in the following paragraph :—

“ I therefore maintain that foul air contaminated by decomposing animal matters is capable of producing mere diarrhoea, and that, when it produces enteric fever, it contains the poison of that disease, and that the arguments adduced to prove that this poison can be generated from such decomposing matters, independently of a previous case of the disease, are inadequate to do so ; that, in many of the cases where non-importation is supposed to have been all but proved, it has not been even rendered a fair presumption, and therefore that, in the present state of our knowledge, we are not justified in saying that the disease ever arises *de novo*.”

In 1875 Professor Corfield was elected a Fellow of the Royal College of Physicians ; and he has published some “ Remarks on the Study and Practice of Public Medicine,” which were delivered as an Introductory Lecture to the Students of University College in that year. One of his most interesting *brochures* is a pamphlet on “ Sanitary Fallacies,” which is the substance of an address delivered at Croydon, in 1879, to the Sanitary Congress, wherein he sketches the history of the Progress of Medicine, and dwells specially upon the current fallacies of the day, naming the untenable arguments adduced in favour of the spontaneous origin of zymotic disease,

the misunderstanding of the water-carriage system for the removal of sewage, and the popular errors in regard to dietetics and vaccination.

In 1879 he delivered a course of Cantor Lectures before the Society of Arts, taking for his subject, "Dwelling Houses, their Sanitary Construction and Arrangements." He illustrated the lectures at the time by specimens from the Parkes Museum, and the published editions contain many woodcuts from them. In these excellent lectures, Dr. Corfield deals with everything connected with his theme. The site in relation to soil, ground water, made ground, and the surroundings; the materials, ventilation, lighting, warming, water supply, and drainage, are all ably and lucidly dealt with. He concludes with these words, which, indeed, might be taken as the text of his discourse: "The principles that guide us in carrying out sanitary works are simple enough; but sufficient has been said in these chapters to convince every one that it is only by the minutest attention to details that we can hope to guard ourselves against the dangers that surround us, especially in the contrivances for the removal of refuse matters."

A very useful course of lectures, which Professor Corfield delivered at the rooms of the Society of Arts, under the auspices of the Trades' Guild of Learning and of the National Health Society, was published in an octavo volume by Messrs. Kegan Paul, and Co., in 1880. The lectures were of that popular kind suggested by Canon Kingsley in his "Essay on Science and Health," where he claimed that people should be taught "something of how their bodies are made, and how they work." It would be impossible to imagine anything more terse and clear for the understanding of unprofessional people than Professor Corfield's exposition, in these reprinted lectures, of the anatomy of the organs, the circulation and respiration, the process of nutrition, and the other functions of the body, with the conditions of health and disease. It may here be observed that lucidity and directness are characteristic of Dr. Corfield's professional writings, and have contributed largely to their popularity.

We come now to certain other of his publications, which belong to the domain of sanitary science and of preventive medicine, in which he has done much useful work. At the International Congress of Hygiene, held at the Hague in 1884, in an address on "*La Science Ennemie de la Maladie*," he made an eloquent claim for the antiquity and magnificent results of this science, declaring that the regulations of the Egyptians for checking the development of contagious disease, as known to us through the writings of Moses, were incontestably so excellent that, with the sole exception of the use of powerful chemical disinfectants, which were unknown to them, the most advanced professors of hygiene in these days can devise nothing better or more complete. The great aqueducts of the Romans excited his admiration, for in the time of Frontinus, as he said, it is calculated that the water brought to

Rome was ten times greater in quantity than that supplied to the inhabitants of London in these days, and, even now, when but a few of these magnificent works are in existence, the Eternal City is better provided with water than any town in Europe. "The Water Supply of Ancient Roman Cities" is a subject that Professor Corfield has treated recently before the Sanitary Institute. Proceeding with his address at the Hague, he asked what, in these days of revived sanitary knowledge, has become of scorbutic disease, which used to decimate our armies and our marine service, and pointed out the control we have acquired over the ravages of small-pox, the reduced mortality from typhoid, and the virtual extinction of typhus, as evidences of the importance of sanitary science and preventive medicine, and of the great services they have rendered to the public. "Tels donc," he concluded, "ont été les résultats de l'application de la Science à l'extirpation de la maladie et à la prolongation de la vie. Que pouvons nous faire de plus ? En cherchant diligemment les causes de la maladie, et en adoptant tous les moyens qui nous sont possibles pour combattre ces causes, en se reposant sur le vrai savoir et non pas sur les règlements empiriques, en suivant les préceptes d'Hippocrate, en étant rationaliste en hygiène et non pas empirique ; plus nous saurons, mieux nous pourrons lutter avec la maladie et la mort, et plus nous comprendrons la grande vérité que la Science est ennemie de la Maladie."

In a lecture at the Parkes Museum, in 1883, on "Common Defects in the Sanitary Arrangements of Houses," Professor Corfield, whose large experience of house sanitation entitles his opinions to great respect, detailed the right way of examining a house to test its condition. The best plan, he said, was to begin with the roof, and the water that flowed from it, the pipes to take that water away, and the gutters, which might become a source of disease from the putrescent matter that collected in them, if the foul air were not excluded from the house, as might the pipes also from their connection with the drains. The next things that should occupy attention were the cisterns and the sinks, particularly in respect of their connection with the drains ; and the closets were a very important matter. The drains themselves should be examined last of all, and with the utmost care. It may here be mentioned that Professor Corfield now devotes himself exclusively to Sanitary Practice, advising as to the causes of outbreaks of disease connected with sanitary defects, and the remedying of such defects. In recognition of his devotion to this subject, the Royal Institute of British Architects recently elected him an Honorary Associate.

At the International Health Exhibition of 1884, he was Director of the Hygienic Laboratory, and he made some very important contributions to the official literature of the exhibition. One of the most valuable of these was a lecture on "Foul Air in Houses," delivered on July 4th. The first impurities noticed were those proceeding from the respiration of human beings ; the most deleterious quality of the air

in improperly ventilated places is not, he said, the increase of carbonic acid, but the foul putrescible organic matter with which the air is filled—a fruitful source of disease. He next proceeded to notice the foul air that results from defective and ill-constructed sewers and drains, as well as from dust-bins and soil-pipes, with such a wealth of practical knowledge of the all-important details of sanitary construction that the little printed *brochure* must have been of the utmost use to builders and others concerned with domestic sanitation. He was also a member of the Committee that superintended the construction of the “Healthy and Unhealthy Houses” which attracted so much attention at that Exhibition.

Professor Corfield's most recent publications are : the third edition of his work on “The Treatment and Utilization of Sewage,” in the preparation of which he has been assisted by his former pupil, Dr. Louis Parkes ; his Anniversary Address to the Sanitary Institute on “The Water Supply of Ancient Roman Cities, with especial reference to Lugdunum (Lyons),” in which he shows that the Romans employed inverted siphons made of lead for the purpose of carrying their aqueducts across deep valleys, and which is illustrated by lithographs from sketches made by himself on the spot ; and his paper on “Outbreaks of Sore Throat caused by slight escapes of Coal Gas,” read before the Society of Medical Officers of Health.

As Professor of Hygiene and Public Health at University College, London, and for some years one of the Examiners for the Sanitary Science Certificate at the University of Cambridge, and at the Royal College of Physicians, as a Fellow of the Institute of Chemistry and of the Chemical Society, a Fellow of the Geological Society, an Honorary Associate of the Société Française d'Hygiène, and, more recently, an Honorary Corresponding Member of the Royal Society of Public Health of Belgium, a Past President of the Society of Medical Officers of Health, and Chairman of the Council of the Sanitary Institute of Great Britain, Professor Corfield is prominently before the Profession. He is also a public man in the ordinary sense of the word, inasmuch as the branch of Medicine which he practises is one in which the public take much interest, and which forms a more frequent meeting ground between them and the Profession than any other. Moreover, as Chairman of Committee of the Sunday Society, whose object is the opening of Museums, Picture Galleries, and Public Libraries on Sundays, and as a Member of the Council of the National Dwellings Society, he comes prominently forward in the domain of Social Science ; while his literary talents have been by no means too exclusively devoted to professional purposes, as is witnessed by his papers on “Mountain Climbing,” on “Etna in Winter,” on “The Volcanoes of Auvergne,” and on “Pile Dwellings in the Swiss Lakes.”

But no one can be incessantly at work, and most men who work hard have

"hobbies" for their leisure time. Dr. Corfield's hobbies are Geology, Fishing, and also, as is the case with many medical men, Art. With regard to the first, he has amassed an extensive collection of geological specimens; and has discovered the presence of *Lithodomi* in the Silurian strata, and thus "removed to an earlier age than had previously been known the existence of boring bivalves" (La Touche on the Geology of Shropshire). For the second, he has been an ardent angler all his life, and has a choice library of books on Angling, including that excessive rarity, the first edition of Izaak Walton's "Compleat Angler". For the third, he is well known as a Bewick collector; his collection of original drawings, rare prints, "states" of engravings, portraits, and personal relics of the great English wood-engraver, is indeed almost without a rival, and has been brought together as a labour of love.

Professor Corfield married, in 1876, Emily Madelina, youngest daughter of the late John Pike, Esq., F.S.A., and has six children.

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