

those now responsible for these branches of our army may well point with pride to the vast progress made during the Queen's reign in these matters, and contrast the mortality of the army at home of 15 per 1,000 and of 57 per 1,000 for those serving abroad for the years 1837-8 with the corresponding death-rates of 4.32 and 12.5 respectively at the present time.

EVOLUTION OF SANITARY ADMINISTRATION IN THE VICTORIAN ERA.

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IF some accomplished essay writer, thoroughly understanding and appreciating the various ways in which medical influence and knowledge could be made reasonably available for the public service, were to formulate a scheme of local and central administration for dealing with diseases more or less preventable, he would find it wonderfully different from the reality. Such comparison would, however, be instructive and useful if only for the purpose of showing us how the natural processes of development had been hindered or distorted at different stages of growth. But short of this ambitious project, we may with advantage record some of the principal developments of our legislative and administrative machinery, noting as we proceed the points of obstruction or deviation in what may be termed its natural growth. Fortunately, we are able to do this, for among his many great works, Sir John Simon has written a remarkable history of the developments of our sanitary institutions, not omitting anything essential from earliest times to within about twenty years of the present date. In thus introducing the theme of our article, let us not in our natural feeling of pride at all that has been accomplished during the blessed reign of our Queen, forget that some of the soundest foundations of modern preventive medicine were laid by our wise forefathers, Mead, Pringle, Lind, Baker, Blane, Jenner, Turner, and Thackrah.

THE GREAT AWAKENING.

Their influence had made itself felt, so that when the great awakening of the national conscience came in 1837 the growth of humanity in British politics—"the larger sympathy of man with man"—had prepared the minds of the statesmen of the period for receiving the idea that health must necessarily take rank as an object of practical politics. The dependence of this policy, not only upon the rapidly advancing medical knowledge of the era, but even more upon the maintenance of high professional tradition, can be exhibited at any point. It has been the chief function of our Royal College of Physicians to uphold those traditions. It is owing to their predominating influence which requires men of medical cult to sacrifice opportunities of gain where, as is so often the case, such gain means also relaxation of their humane duty towards suffering and illness, that the condition of the masses of the Queen's subjects has been so remarkably improved. That influence permeates all branches of the profession. To no section of the profession is honour more justly due than that of the Poor-Law medical officers of this country. They have not only alleviated the sufferings of the poor, but at obvious sacrifice of personal interest have protested against the causes of those sufferings, not seldom incurring thereby the dislike and loss of patronage of property owners and other influential persons.

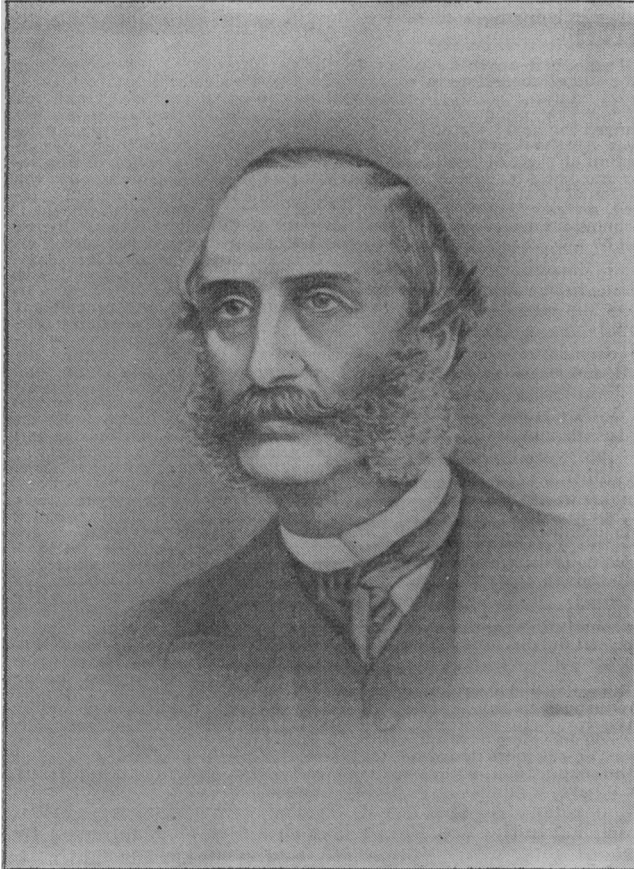
THE SEED.

The beginning of Sanitary Reform, as it was called in this country, was so to speak a by-product of the work of the Poor Law Commissioners, initiated by Chadwick in 1838. It was in the spring of that year that in a letter to the then Home Secretary, Lord John Russell, the Commissioners pointed out that the most prominent and pressing of the charges on the public purse which had to be made were for the means of averting the charges necessitated by illness, followed by destitution, the result of "nuisances," which at that time were such fruitful causes of ill-health. Here we have the first indication that prevention of certain burdens on the rates, striking at their root or cause, was to be the higher aim of the Legislature in the future. The Com-

mission had directed local examinations to be made in parts of the metropolis where fever was most prevalent by Dr. Arnott, Dr. Southwood Smith, and Dr. Kay, and they hastened to represent to Lord John Russell the urgent necessity of applying to the Legislature for immediate measures for the removal of these constantly acting causes of destitution and death. Much of what was written at that time, which will ever be associated with the name of Edwin Chadwick, relates to conditions which are happily nearly obsolete in London and most of the large towns of Great Britain. But they are still permitted to flourish in many a little country town, where the annual death-rate unmistakably indicates the neglect of the local sanitary (or rather insanitary) authority. The discontent of great bodies of the working classes (which, in the course of a debate in the House of Commons, it was shrewdly remarked arose from the intelligence rather than the ignorance of the people), helped to establish the General Board of Health in 1848. Broadly, the effect of the legislation of that time was to create a system of sanitary administration of a more centralised character than has ever been thought of since. The General Board of Health was intended to be an executive department for certain local improvement and disease prevention purposes. It did not, it is true, attempt to take the place of the local self-governing body in matters such as removal of health nuisances, which have never been thought of except as subjects for essentially local jurisdiction. But it introduced a principle of conferring on a central department certain powers to imperatively direct measures of disease prevention in certain districts or towns which were conspicuous examples of ill-government or mismanagement.

But although endowed with certain powers which are ever regarded with jealousy by the upholders of local self-government, the chief work of this Central Board was educational. In this respect it may be said that all real sanitary authorities have points of resemblance. For is it not true that some of the best work in promoting the interests of public health has consisted in the sound teaching of men possessed of medical and scientific understanding, and who have the ability and tact to use their special knowledge with discretion? Simon was a brilliant example of what a great teacher could do by identifying himself with his authority; so also in later years have been some others, notably Russell, of Glasgow. Government in a drastic sense is only possible in this country where it is founded on a general sense of rightness, and carries with it the convictions of the people. Students of the famous literature of the period will perceive how essential was the teaching element of health government during the Forties and the Fifties. In Chadwick's official days, it was the teachings as to district cleanliness, "sanitation" as it is generally called nowadays. The effects which had been produced by his memorable report in 1842 was, thanks to the Board's persistence, sufficiently maintained and diffused to determine real progressive growth in a hitherto neglected branch of national culture, so that the English, more than any other European nation, has always had "some sort of conscience against filth." Grateful as our country must be to one whose name is associated with the creation of a national feeling, we must not shut our eyes to the fact that he was, like so many great reformers, essentially a man of one idea. He took a side, and his side then, as often now, treats medicine and its representatives with very small regard. His own historian tells us that Chadwick disliked doctors. It is certain that he disregarded the life-work of famous physicians, and probably could not understand the questions involved in the diagnosis, classification and etiology of disease. It is with sorrow that we read of a man so earnest and singleminded, who spoke as if the pathologist were not, and as if the existence of insanitary conditions and the coexistence of illness of any kind was a demonstration of cause and effect. Here let us pause for a moment to consider an attitude which can only be justly described as "prejudiced." What is the secret of that dislike or jealousy of medical influence on which comments are sometimes made? It undoubtedly concerns the public interest that it should be discussed more fully than is possible here. To omit reference thereto would leave unexplained the deformities of our present system of administration, the development of which we are endeavouring to trace. The principles

of pathology are as important to the State as are the principles of law-making. Good medical administration should rank with good legal administration. Both are essential to the welfare of the community in different ways. Even in the direction of expenditure, which is directly under the control of sanitary authorities, there is surely room for improvement. Public money would be far better spent at the present day in the cultivation and support of medical and other scientific knowledge than in the continuous production of drain pipes and mechanical appliances with which the market must now be well stocked. Plain truths, like this, unpalatable though they may be to some, should be proclaimed from the housetops. Reflecting on the great work and teaching of the first score years of Her Majesty's reign, and comparing with it the still greater work of the next score years, and comparing again with that the experiences of the last twenty years, we are bound to declare that the progress of evolution of sound sanitary administration has been prevented by restrictions and impediments which it is possible for the Legislature to remove.



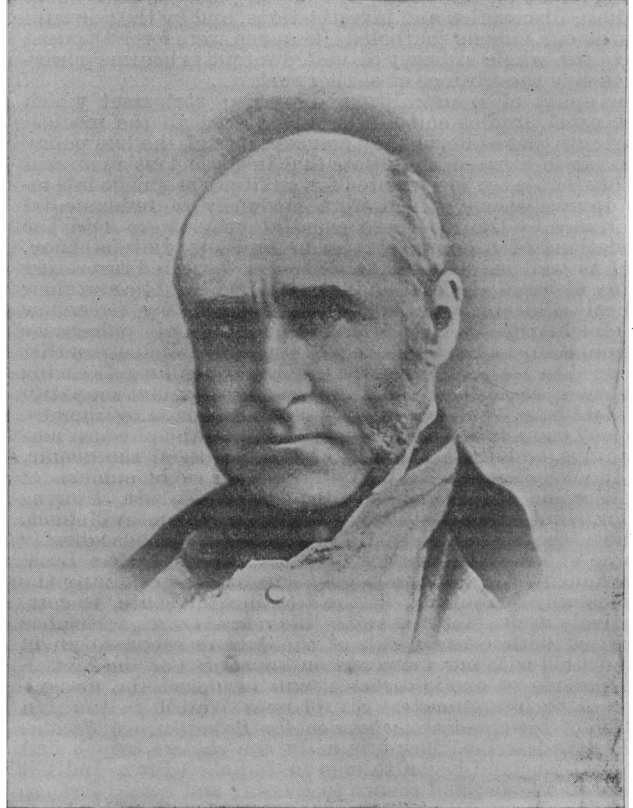
Professor E. A. Parkes.

The seed of sanitary administration was sown in the Forties when, in spite of the dislike of doctors' influence above referred to, medical health appointments were initiated at Liverpool and London, germinated and flourished in the fifties. During that period the central appointments were brought into existence,* John Simon, who had then had seven years' familiarity with the spirit and working of local representative government in the City of London, being invited to become the advising officer of the General Board of Health in 1885. Synchronously with this new creation and as part of a necessary complement thereto the Legislature required that fixed medical appointments should be created for all the districts of the metropolis. Among the early holders of these local appointments were physicians already distinguished in their profession, Edward Ballard, Andrew

Barclay, Robert Barnes, John Syer Bristowe, George Buchanan, Robert Druitt, Conway Evans, William Odling, Burdon Sanderson, Thomas Stevenson, and Dundas Thomson. Here let it be noted that the temptation to connect the appointment of health officer with some definite popularly understood function was exhibited at the outset. For in addition to the all-important work of permeating sanitary science and organisation with medical intelligence and influence, the physicians first appointed were saddled with the responsibility of pointing out the most efficient modes of ventilating churches and chapels.

THE SAPLING.

The twenty years that followed these appointments, and which intervened between that period and the surrender of medical influence to the traditions of a Circumlocution Office in the mid-seventies, were full of promising growth. Under the General Board of Health, and subsequently the Privy Council, reports were made which acquired for the profession a just renown for statesmanlike qualifications. It was nearly



Sir John Simon

"sixty years since" Jenner's great discovery had been known to the world, and the State had not as yet grasped the fact that a Government could not be said to have fulfilled its functions which left to the operation of mere chance the protection of the masses of the population, to whom at that time systematic and efficient vaccination practically meant the only means of salvation against small-pox. Times are changed to some extent, and the very fact that the masses are now educated, and in a better position to judge for themselves of the extent to which the principle of compulsion should be carried in *all* matters affecting health, somewhat alters the situation. So also does the proved capacity of medical sanitary organisation. Frankly admitting these essential facts, we may still claim for the system of compulsory vaccination that, besides its splendid achievements in the direct saving of life, it has itself been a powerful educational influence—so much so, that a Royal Commission, distinguished for its eminently judicial character, draws its conclusions largely

from the experiences furnished by the compulsory system, the abandonment of which, it significantly remarks, cannot at the present day be contemplated "without dismay."

In describing this, the comparatively flourishing stage of the young tree, one cannot but observe the wonderful influence in statecraft of a single master mind. Robert Lowe (afterwards Viscount Sherbrooke), as Education Vice-President, did more than any one man, before or since, to assist the medical profession to its proper place in the councils of the nation. It was under his ministry that those exact studies respecting the local and personal causes of disease were carried out which raised the work of the inspector of nuisances by enabling him, with the medical officer at his side, to combat the actual rather than the potential causes of disease, and in this way to secure the goodwill and support of all intelligent and unbiassed persons. In the days of the first General Board of Health, many a local measure of sanitary improvement must have failed simply for want of that medical intelligence. Such intelligence led to the discoveries of Snow and Budd, which were followed by the studies of Netten Radcliffe, Buchanan, Ballard, and Burdon Sanderson. By those discoveries and investigations, and by the powerful pens of our famous journalists, weapons were forged against which the whole armoury of vested interests became powerless to stay the advance of sanitary reform.

The spirit of practicality and precise statement which these exact studies embodied characterised all the medical reports of that time, as they do now those of the less palmy days. It is significant to note that in those days an annual subsidy of £2,000 was granted for auxiliary scientific laboratory investigations, which were obviously of fundamental importance. During these eventful years were laid the foundations of a sound system of sanitary administration. Local as well as central knowledge was acquired respecting famine diseases, cholera, and typhoid. The public and their medical advisers were enlightened—chiefly by Greenhow and Buchanan—as to the indirect causes of pulmonary consumption, and the method of regulating industries that conduced to its development, as well as other lung-diseasing influences, were described. The causes of infant mortality were laid bare. Cattle diseases were investigated by Gamgee. The food supply, the house accommodation, the physical surroundings, and the industrial circumstances of the people, and the hospitals of the United Kingdom, were subjects of investigation by Edward Smith, Robert Barnes, Swayne Taylor, Hunter, Guy, Whitley, Bristowe, and Timothy Holmes.

The labours of Netten Radcliffe and subsequently Thorne Thorne, the present medical officer of the Local Government Board, were largely devoted to explaining the reasons why quarantine, in the Continental sense, is comparatively useless for England. The rate of travel, which has increased with every decade of the Queen's reign, taken in conjunction with our more certain knowledge of the incubative periods of exotic diseases, now furnished the groundwork of their argument. Sir Thomas Watson in the first edition of his classical *Lectures on the Principles and Practice of Physic*, described how originally the cholera, which first attacked England began to rage in India. "From India it spread to Persia; and thence to Russia; and across through Poland to Germany; and at length it was found at Hamburg. It was predicted before that time that the distemper would at length reach Great Britain. Our Government had sent two physicians into Russia to investigate its nature, in the fearful anticipation that its march across the earth would continue progressive, and accordingly at the expiration of fourteen years, it made its appearance on the eastern coast of this country—in Sunderland—and in due time extended over every part of these islands." Sir Thomas Watson gave it as his belief in those early days of scientific medicine that the poison was "portable" and "travelled." We know this for certain now, and if we compare the knowledge of that time with the exact studies of epidemiology and the able reports of Netten Radcliffe, such as that on the effect of the construction of the Tifis and Poti Railway in 1873, we can see plainly enough what arguments have influenced our statesmen. The reports of the present medical officer of the Local Government Board have done much towards enlightening us about the uses and abuses of quarantine. It only remains to add to this brief discussion of a most important

part of one system of sanitary administration that, as the present writer endeavoured to explain in the Milroy Lectures of 1896, the most valuable and essential part of quarantine is really preserved in England under the different name of "coast isolation." In the elaboration of this system of defence the chief credit is due to local administrators and many medical officers of health for port authorities, of whom Leach, Parsons, Barry, Armstrong, and Collingridge are well known.

The labours of official medical sanitarians in the Sixties bore their fruit partly, it has been said, in the great educational influence they provided and partly also in legislation. The chief of these measures of legislation Sir John Simon tells us was the great Sanitary Act of 1866, which was promoted by the Lords of the Privy Council. Asiatic cholera at that time began to be severely epidemic in London. A moment of "popular piety" towards the cause of sanitary reform happened in consequence, and this ill wind (to justify the proverb) blew very favourably to fill the sails of the reformers, so that Lord Aberdare's Bill rapidly became law. It is only due to one of the greatest of sanitary reformers that we should quote *verbatim* what he says in his monumental work:

All who had anything to do with the passing of that Act may rejoice to the end of their lives in contemplating the gains which it achieved. Among its many noteworthy features, the one which perhaps first claims notice, is that, under the Act the grammar of common sanitary legislation acquired the novel virtue of an imperative mood. The Act expressly declares it "the duty" of the local authorities to provide for the proper inspection of their districts, and to proceed for the suppression of whatsoever nuisances should be found existing in them; and, as against the inaction of local authorities, it enacts that, when sewers are not duly provided, or water not duly supplied, or nuisances not duly removed, then, on complaint made, a Secretary of State and the Court of Queen's Bench shall be able to enforce the neglected duty. Besides the introducing an invaluable "must" into some of the most important branches of local sanitary functions, the Act largely increased the powers of authorities in relation to the needs of their districts; both as to the range of cases in which the authorities could intervene, and also as to the remedies it could apply. The Act gave for all districts the power to provide water-supply. It gave for town districts the extremely valuable power of regulating for sanitary purposes the so-called "tenement-houses" of the poor. It gave a series of enactments in relation to dangerous contagious diseases; on the one hand, affixing penalties to the various sorts of personal conduct which tend to spread dangerous contagions; on the other hand, giving power to authorities to fortify their districts against such contagions, by provision of hospital accommodation, mortuaries, and other necessary apparatus and facilities relating to the requirements of infected persons, and to the disinfection or destruction of infected things. Not least, the Act gave most important extensions to the term "nuisance," bringing within the term, and thus making subject to summary nuisance law, various largely morbid influences, which till then had been under little or no control. One of those extensions made the Nuisance Act operative, as it had never before been, against the unwholesome overcrowding of dwelling-places; and another, which cannot be too gratefully remembered, concerned the unwholesomeness of places of labour. By the latter, together with provisions of like intent introduced into the various Factory and Workshop Acts of the time, proper protection was at last constituted for the special sanitary interests of the artisan population; not only enacting for all factories and workshops whatsoever that they should be kept free from common nuisances of uncleanness, overcrowding and the like; but equally enacting (as against the special insalubrities which had been shown to be prevalent in so many particular branches of industries) that all gases, vapours, dust and other impurities, generated in the work, and tending to injure health, should, as far as practicable, be made harmless by proper uses of ventilation; and further enacting in regard of the more dangerous industries, that special sanitary rules, as to the conduct of the workers, or at least of the children, young persons, and women, among them, should be enforced.

The report of the Royal Sanitary Commission in 1871, which led to the first Public Health Act of 1872, followed by that of 1875, which suggested and enabled the appointments generally of medical officers of health, constituted the chief health legislation of the period under notice. Solidly regarding the whole of this important but piecemeal legislation, the present writer, who has had the advantage of twenty-five years' actual and continuous local sanitary administrative medical work, may be permitted to make a few independent observations. The remark that naturally occurs to one first is that legislation, which is much too far in advance of public opinion, and which though nominally compulsory is virtually permissive, can only have an indirect influence. The cardinal error in the legislation of 1865-75 seems to the present writer to have been, to use a familiar phrase, "the putting the cart before the horse."

In 1873-75 medical officers of health were appointed for all the 1,400 or more sanitary authorities in England. In the vast majority of cases this was done without proper stipulation as to the character of the appointment, the qualifications.

of the officer, or the position he was to hold. In a few exceptional cases medical officers have declined to be nominated without some proper stipulations; but their influence was unhappily more than neutralised by the fact that almost everywhere, except in very large towns, the necessity for appointing a medical officer of health necessitated also the selection of some well-known local general practitioner for the office, the successful practitioner acting as an occasional "referee" rather than an important public servant.

If in 1865 the Legislature had concentrated its efforts on securing the appointment for towns of the first magnitude of thoroughly competent officers of health who would at once have taken rank commensurate with the importance of the interests, public, personal, and pecuniary, with which they were constantly called upon to deal, even greater progress would have been made than we can record at present. No doubt there would have been serious local opposition to such a scheme; but the sources of this opposition would have been tolerably transparent, at any rate to old Parliamentary hands. The number of appointments would not have been large—fifty or a hundred at the most—and some device could easily have been contrived by the legislature for relieving the holders from the immediate effects of the jealousies of pre-existing local municipal officials. By this means, results would have been arrived at even more satisfactory to the public, and far more worthy of the great medical profession of which it ought to be proud.

THE TREE.

The tree which has grown from the seed sown in 1838 is still young, and shows at present defects which may disappear at later stages of its growth. Like the sapling, it is not to be represented by a single stem. From its root upwards, local administration, municipal and county, form stems parallel to the central one. This last may be said to be represented by the Government department at Whitehall. On either side are the municipal and county administrative trunks. Bonds of connection exist between—sometimes close, sometimes distant and rather strained. So that, apart from their origin from common stock, they are mutually dependent on each other to a considerable extent. Independence of existence is more nearly approached in the case of the large municipal centres than elsewhere. But this independence relates to the work of administration where it is generally recognised that business is conducted more expeditiously and efficiently by the representatives of local self-government, provided always that the area and population is of sufficient size to secure a good choice of representatives. In regard of the highest interests of sanitary administration—namely, scientific research, collective investigation, and the determination of problems of practical epidemiology, etc., dependent thereon, central and local organisation cannot be too closely allied. It is, perhaps, owing to want of appreciation of this fact that the process of development has not advanced as well as was expected in 1872. But other conditions have operated to make evolution, for a time at least, resemble devolution. As to one of the chief, we cannot be altogether silent. The want of cohesion on the part of our own profession in all matters in which they are brought into relation with the public is, on public grounds, simply deplorable. Cohesion of the kind seems absolutely necessary to prevent downward competition. Such competition, if unchecked, must ultimately tend to the destruction of a pure or unalloyed "profession," which, officially speaking, it is of paramount importance in the public interest to maintain. Here let it be noted that we distinctly mean the serving of public interests by a singleness of purpose which it would be unreasonable to expect under the conditions which prevail. Some manifesto from the medical profession, as a whole, is greatly needed in this respect for the guidance of the general public. Much of the hindrance to development of sanitary administration has, no doubt, arisen from the simple fact that the authorities have not had the case clearly put before them by competent persons. It is impossible for any intelligent person who has a regard for the health interests of the people not to sympathise with the protests of Sir John Simon as to the action of the President of the Local Government Board in 1872. This is not the place to discuss unpleasantly the circumstances under which the establishment of sanitary authorities took place; but it may be safely remarked, as obvious to any person of common sense, that to

entrust the education of the authorities to general inspectors of the Local Government Board, who had no knowledge of the problems to be dealt with, was not by any means the best course to pursue. It may also be observed that in failing to maintain and increase the auxiliary scientific work of the medical department, the Board has also failed to promote the health interests of the people through its central department. In other ways, which it is not necessary to describe, the position of things is worse now than what it was a quarter of a century ago.

In spite of all this and in spite of the difficulties arising from the highly complicated interests involved not only in the constitution of the local authorities, but also in the constitution of medical officers' appointments, wonderful advances have been made. We may indeed be proud of the achievements of public preventive medicine in the Victorian era. In the case of public health interests the work of medical officers during the quarter of a century now drawing to a close has been unceasing. Its results are such as are abundantly evident to the sanitarian and practical epidemiologist, although from their very nature they are incapable of demonstration in a popular manner.¹

The chief developments in sanitary administration during the last third of the reign have been in the endeavours to extend the principle of local self-government. The Act of 1888 created for the great metropolitan area a representative Council, which in time will unite the segments of the vast London population in matters of high common interest. By the same measure the counties of England were afforded opportunities of adapting to comparatively small urban and rural populations the machinery of government which has proved so advantageous to municipalities. By the Act of 1894 the relation of parish to district, and district to county, is established, and in time it may be expected that the representatives of local government will see more clearly and appreciate more fully where their common interests lie. At first the reconstitution of county government was intended to be accompanied by some much-needed measures of decentralisation. Without such measures, however, considerable change has been effected by the indirect influence of county gentlemen, who represent widely different interests, meeting together as a sanitary committee, and discussing the best means of securing objects that are for the welfare of all alike. In this way improvements in water supply, drainage, management of trades and sanitation generally have been quickened and brought about. The deterioration of rivers by progressive pollution has been, in many counties, partially stopped. Water supplies in the Valley of the Thames have been improved by the action of various authorities. The deficiency of house accommodation

¹ Although it is always difficult, in tracing the effect of different kinds of sanitary work, to disentangle that which should be credited to its proper source, it may be possible here. The net gain in respect of small-pox mortality in London, is thus ably and fairly stated by Dr. Dudfield the medical officer of health for Kensington:

"The Asylums Board were first called upon to provide for the accommodation of small-pox patients at the end of 1870. During the ten years, 1871-80, they dealt with upwards of 33,000 cases, all of which were treated in the town hospitals. The deaths in London in the ten years were 15,539, including 7,912 in 1871. In May, 1881, the 'Camp Hospital' was opened at Darenth, and the system of removing cases of small-pox to the country thus initiated was gradually perfected, so that for many years all of the sufferers coming under the managers' care have been treated at extra-mural hospitals. During the ten years, 1887-96, the number of cases admitted to the hospitals was 5,232. The deaths in London were 429 only, and of these 206 were registered in 1893, in which year 2,376 cases of small-pox were admitted to the managers' hospitals. Had the mortality during the ten years, 1887-96, been at the rate as in the ten years, 1871-80, regard being had to increase of population, the deaths would have been, not 429, but 18,752. The net gain in life saved during the ten years, therefore, was represented by 18,323 lives. In other words, had the average death-rate from small-pox in the ten years, 1871-80, continued throughout the ten years, 1887-96, 18,323 lives would have been sacrificed in addition to the 429 which were actually lost by death from this cause. This satisfactory result is admittedly due in a large measure, if not entirely, to the removal of nearly all cases of small-pox out of London, and this was the outcome of the deputation of the sanitary authorities and other public bodies, to the President of the Local Government Board on April 23rd, 1881, the primary object of the deputation being to present the resolutions adopted at the conference of sanitary authorities, held at the Town Hall, March 23rd, to consider the question of the compulsory notification of infectious disease, a measure for which London had to wait a further period of eight years."—(Dr. Dudfield's report for 1896).

For this result, the community generally have to thank members of the society of local medical officers of health, with whom the system of notification in its practical working originated.

and the consequent overcrowding of rural cottages is receiving earnest attention. In the face of much opposition facilities have been afforded for the isolation and treatment of the cases of infectious fevers occurring in such cottages, and for valuable legislative help in this direction the public have to thank the County Councils Association, and especially Lord Thring. But perhaps not the least of the changes effected in the few years of county government is, by the very nature of things, impossible to demonstrate. By improved organisation and inter-notification among medical officers of health an effective vigilance system has now been created, which, by the help of consultative assistance freely afforded, acts as a check on outbreaks of epidemic disease, which are more or less controllable in various ways. By such means and by facilitating the cultivation and diffusion of knowledge respecting the causes of consumption and other kinds of chronic disabling illness some county councils are taking a leading part as sanitary authorities in the kingdom.

In concluding this brief and perhaps imperfect sketch of the development of sanitary administration during the reign of Queen Victoria, let us not forget that one of the chief responsibilities of medical officials in the public service is that of teachers as well as learners. Let us remember that while we must strive to learn something of the spirit of local government, and to identify ourselves therewith, we must endeavour also to the best of our ability to forward the work of sanitary administration by explaining to the public whom we desire to serve the medical principles involved. This brief sketch may be fittingly closed by reference to the late Dr. Edmund Alexander Parkes, whose bright example should inspire all medical men of true public spirit. He is thus referred to by Sir John Simon:

"His work at the Crimean period alone might have sufficed to certify him for the chair at Netley; but in fact long before that he had gained high-class reputation in ordinary professional work, investigative and practical. While Professor at Netley, he did duty in other spheres of public service, as notably in the General Medical Council and in the Senate of the University of London; and it seemed that wherever he worked, his public spirit, and the kindness and bright sincerity of his nature, won the confidence and affection of his fellow-workers. His life, abounding in industry and usefulness, and always of good cheer for whatever duty had to be done, was an arduous, gallant struggle against heavy disadvantages of ill-health, and his early death gave rise to public and private expressions of such personal sorrow as is felt only for the best of men when they pass away" (*English Sanitary Institutions*).

VITAL STATISTICS IN RELATION TO PUBLIC HEALTH.

DR. WM. FARR AND THE GENERAL REGISTER OFFICE.

The year in which Queen Victoria ascended the throne was also the year in which civil registration of births, deaths, and marriages came into operation. The sixty years which have elapsed therefore exactly represent the period for which accurate vital statistics are available for England and Wales. It was a happy thing for the value and applicability of these statistics to the purposes of public health that William Farr so soon became associated with the work of the first Registrar-General, Mr. T. H. Lister; and a history of the progress made in public health during Her Majesty's reign, in respect of the very great proportion of this progress which has resulted from accurate vital statistics, almost entirely resolves itself into a history of Farr's association with the General Register Office.

In July, 1839, William Farr was appointed "Compiler of Abstracts" in the newly-formed General Register Office at the modest salary of £350 per annum, a sum which was slowly raised, but never reached a tithe of the value of his great services to the country. At that time, Farr was only 32 years old, but he had already won his spurs by an article in M'Culloch's *Statistical Account of the British Empire*, on "Vital Statistics: or the Statistics of Health, Sickness, Diseases, and Deaths." This article will still repay study by all interested in vital statistics; and in it are to be seen the germs of ideas which were developed in detail in later reports.

It may be hoped, in passing, that the sufficiency of the title "Vital Statistics" as defined above by the father of English vital statistics will prevent the general use of the objectionable phrase "Mortal Statistics," as though death from a statistical standpoint were more than the last act of life. If "Mortal Statistics" is to be allowed, then we must have Natal, Vital, and Mortal Statistics, an obvious absurdity. From the very first, Farr shaped the reports of the Registrar-General and stamped upon them his own original mind. The subjects of nomenclature and classification of diseases received constant study and attention in his annual reports, until something approaching order was evolved out of the chaos previously prevailing. Thus in 1894, the deaths ascribed to "dropsy" in England and Wales were only 190, and to "ill-defined and not specified causes" 1,764, as compared with 12,251, and 8,482 respectively in 1839, with a population only half that of 1894. This gradual transference to more accurate headings, while it steadily increases the value of each year's returns, has led to much erroneous argument as to the supposed increase of such diseases as Bright's disease and cancer, for which there is no sufficient basis of fact.

THE LIFE TABLE METHOD.

Very early Farr realised the importance of the life table method of investigating and measuring the duration of life, and in the Fifth Annual Report of the Registrar-General appeared his English Life Table No. 1, based on the deaths and the population of 1841. It is satisfactory to know that after nearly sixty years the importance of this method is being realised by medical officers of health, and that we have now life tables for such towns as Manchester, Brighton, Glasgow, Liverpool, and Portsmouth based on the experience of the decennium 1881-90. By means of these life tables the exact vital conditions of these communities can be contrasted in the only way that is completely free from fallacies.

COMPARISON OF 1841 WITH 1881-90.

A comparison of Farr's English Life Table No. 1 (1841) with Dr. Tatham's life table for the decennium 1881-90 gives a very important measure of the improvement in public health which has been secured. At birth the mean expectation of life for males in 1841 was 40.19 years, for females 42.18 years; in 1881-90 it was 43.66 and 47.18 years respectively, representing an improvement of 8.6 per cent. for males and 11.8 per cent. for females. The following extracts from the two life tables show that the greater part of the improvement in life prospects during the past fifty years has been secured by saving the lives of children, there being after the age of 30 a slightly diminished prospect of life as compared with the earlier period.

At Age.	Mean Expectation of Life for			
	Males.		Females.	
	1841.	1881-90.	1841.	1881-90.
20	39.88	40.27	40.81	42.44
30	33.13	32.52	34.25	34.76
40	26.56	25.42	27.72	27.60
50	20.02	18.82	21.07	20.56

The same facts are brought out in another form by the accompanying diagrams, which show at a glance the gain in the total years of life lived by a generation of 100,000 persons starting at birth, in accordance with the experience of England as a whole and of London in 1841 and 1881-90 respectively. Each diagram represents the progress of a generation of English people or Londoners through life. The light part indicates the living, the dark the dead, at each age out of 100,000 born alive. The vertical lines dividing the generation into five yearly periods serve to measure at every fifth year the number alive and dead at the respective ages. The extent of light space upon each diagram gives a general notion of the relative population living in England and in London respectively out of an equal number of births. Thus it will be seen that the 100,000 born were reduced to 50,000 according to the experience of 1841, at the age of 46 years in England, and at the age of 40 years in London; while in 1881-90 the number born was only reduced to one half at the ages of 55 and 50 years respectively.

This was but the first of a series of three life tables, the most important being that based on the recorded deaths in the seventeen years 1838-54 and on the three census populations of 1831, 1841, and 1851.