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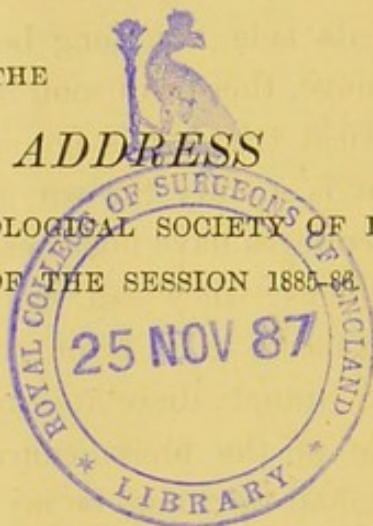
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NOTES
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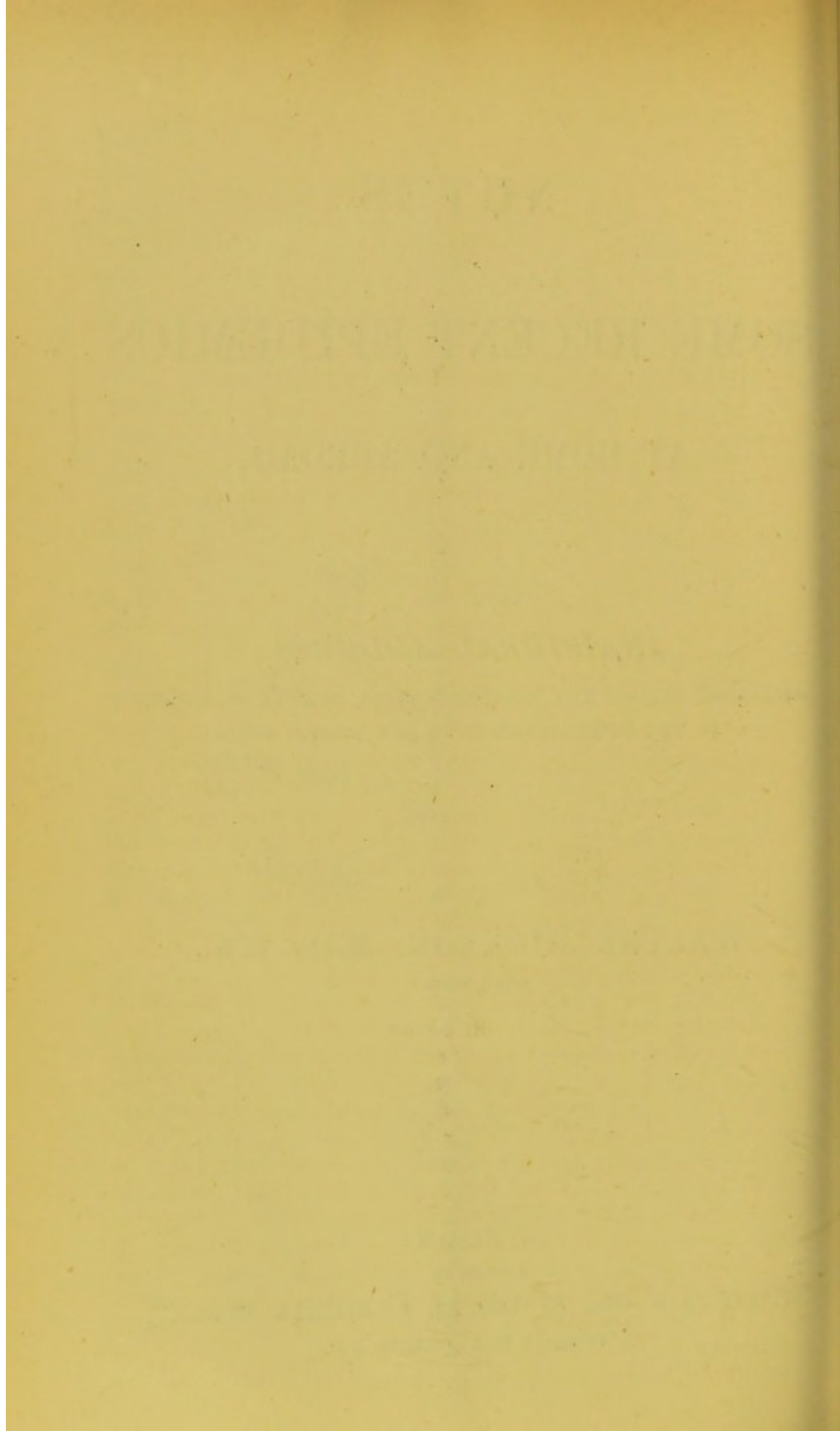
BEING THE
INAUGURAL ADDRESS
DELIVERED BEFORE THE EPIDEMIOLOGICAL SOCIETY OF LONDON
AT THE COMMENCEMENT OF THE SESSION 1885-86



BY
WALTER DICKSON, M.D., R.N.,
PRESIDENT.

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INAUGURAL ADDRESS OF SESSION 1885-86.

WITH NOTES ON SOME RECENT EPIDEMICS AT HOME AND ABROAD.

BY WALTER DICKSON, M.D., R.N., PRESIDENT.

(November 11th, 1885.)

GENTLEMEN,—I thank you most heartily for having raised me to the presidency of this Society, and I must ever consider it as a high honour to have been deemed worthy, through your kindness, to succeed the eminent men who have occupied this chair and contributed so much to promote and diffuse epidemiological science. I value the compliment the more highly as conferred by a body of gentlemen comprising so many distinguished veterans in sanitary work, who have combated disease and death, some in distant lands and some at home, and who have since availed themselves of the opportunity of learned leisure, and dignified but not inactive retirement, to contribute to this Society, and so to the profession and the public, the matured results of much thoughtful observation and world-wide experience.

During the twenty-three years I have enjoyed the privileges of Associate and office-bearer many changes have occurred in the composition of our Society, and also, to some extent, in its functions and scope of action. In 1862 the science of public medicine had only just begun to show a bold front in our civic polity under the banners of two illustrious leaders, and the names of Simon and Farr must be held in lasting and grateful remembrance. Mr. Simon, as well as Drs. Milroy and Richardson, Mr. Chadwick, and Sir William Jenner, who all at that time took an active share in our discussions, are happily still among us, but many of our whilom colleagues have passed away. The memory reverts to our first President, Dr. Benjamin Babington, a most genial as well as ingenious man, of extensive knowledge and fertility of resource, of a wide and varied life-experience, for

he had in his youth served as a midshipman in the Royal Navy, and was for some years in the Civil Service of India. Dr. Seaton was also long an ornament of this Society. His amiable disposition and courteous, winning manners endeared him to all, while his industry and perseverance and unwearied efforts in the cause of vaccination have borne good fruit in the mild character and diminished mortality of the recent epidemics of small-pox by which we have been visited.

Our opening anniversary last year was clouded by the recent death of Mr. Netten Radcliffe, whose diligence and zeal in epidemiological research could not be surpassed. For many years he was a most active member of the Society, discharging with great energy and ability the onerous duty of Secretary, and subsequently held for two years the office of President. The labour he bestowed, and the warm interest he took in our proceedings, conducted, doubtless, very much to our growth and prosperity.

Of other eminent colleagues now gone to their rest were Drs. Copland, Stewart, Murchison, Parkes, Goodeve, and Sir Ranald Martin; and in that branch of the public service with which I have the honour to be connected, Dr. Bryson, some time Medical Director-General of the Navy, and Dr. Eugene Mackay, Medical Statistician at the Admiralty, both of whom, during their tenure of office, greatly improved the reports on the health of the Navy, and frequently took part in our discussions in this place on the subjects with which they were conversant.

I regret to add to the list of departed naval worthies the name of Dr. Thomas Colan, Inspector-General, who died recently at the early age of fifty-four. Although not a member, he occasionally took part in our discussions. An officer of varied and distinguished service, he became widely known a few years ago from having been in medical charge of the last Arctic expedition, and his views as to the formidable outbreak of scurvy and its possible prevention, were supported and confirmed by a most intelligent and painstaking committee appointed by the Admiralty to adjudicate on the matter. In Dr. Manson Fraser the Society has lately lost, by a tragic death, a member of great promise and of proved ability, both as student and practitioner. A distinguished graduate of Aberdeen University, he had been engaged in hospital practice at Liverpool and at Homerton Fever Asylum, and had written papers on scarlatina and fever. In 1883 he went out to Borneo to fill the appointment of medical officer. He was attacked on the Kawning

River by a party of fanatical natives, who slew him and three Sikh policemen who accompanied him, adding one more name to the long roll of medical martyrs for the great cause of science and humanity.

One of our Vice-Presidents, who occupied a prominent position, has passed away during the year. Sir William Muir, after long and distinguished foreign service, presided for some years over the Medical Department of the Army, and proved himself to possess high administrative qualities in that eminent but difficult and responsible office, together with an amiability of character which charmed all who knew him.

Only a few weeks ago we had to lament, in common with the whole country, and I might justly say, the whole world, the loss, in the fulness of age, of a great and good man, who for many years had been one of our honorary Vice-Presidents. Lord Shaftesbury was the perfect type and pattern of the Christian philanthropist. His name will be long held in veneration, while his noble example will encourage others of his rank to follow in his footsteps, "and, whilst they have time, to do good unto all men"; and will rebuke the rich and luxurious, the idle and selfish, who, with all the advantages of wealth and station, are unprofitable servants, and pass into oblivion unregretted and unlamented. As a leader in sanitary reform, and as Chairman of the Lunacy Board, Lord Shaftesbury knew more of medical men than any other statesman; and by no class of his fellow-citizens is this illustrious man more deeply mourned than by those who, often with scant reward, toil like himself for the poor and needy, for the relief of suffering, and the well-being of the community, in the exercise of their profession.

One of the distinctive features of our Society is to bring together, more than any other in this metropolis, or, so far as I am aware, in Europe, medical men of very varied training and experience. Besides many civil practitioners and members of the Medical Civil Service, the various militant branches of the public service are well represented, and more especially of late years that of India. Three most distinguished Presidents we owe to that service, and our published *Transactions* have been enriched by many valuable communications relating to Indian subjects. None of our discussions have been more animated or interesting than those on the nosology, etiology, and prophylaxis of Indian disease. Our retiring President brought to bear on them exact and profound knowledge, a mastery of facts and a truly philosophic breadth of view in judging them, which, conjoined with his genial

courtesy and power of lucid expression, pre-eminently fitted him to initiate and lead our debates on these important questions. I, for one, rejoice at the recent prominence of the Oriental element. India is ever a problem of absorbing interest, from the magnitude of the empire, its diversity of climates, races, and religions, and the marvellous system of paternal government which there flourishes, to the envy and admiration of the world. Of this system a most important share must always devolve on the medical profession, and whether in connection with the horrors of pestilence or famine, or with fairs and pilgrimages, or the gloomy forebodings of hostile invasion, sanitary questions invariably come to the front. The medical officer is a veritable apostle of humanity and civilisation, whose mission cannot be misunderstood, a living, moving proof of the truly beneficent nature of the English Raj, in caring for the wants and woes of the dusky millions whom Providence has committed to its rule. I can assure all Indian officers that here they will always be heartily welcomed, and every attention will be paid to the weighty communications they may have to offer. Their discussion will form one filament in the bond of union which connects our country with its vast Asiatic dependency.

In striking contrast has been the fate of the magnificent tropical empire acquired by the Spaniards in the sixteenth century. Avarice, bigotry, and remorseless cruelty, combined to exterminate in a few years two most interesting and advanced types of an ancient indigenous civilisation; and subsequently, indolence, apathy, and intestine wars have reduced the finest regions of America to almost primitive barbarism. Lands of exuberant fertility, with a salubrious climate, and capable, it is estimated, of supporting five hundred millions of mankind, remain, in the absence of a strong governing hand, for the most part unpeopled, waste, and unproductive. Yet even from this unpromising region valuable contributions to epidemiology have reached this Society; and in the first volume of our *Transactions*, memoirs of great interest are to be found on the outbreak of yellow fever and of hæmorrhagic typhus in the Andes, at abnormally high altitudes, and on diphtheria in Peru. Information is still wanted as to the diseases peculiar to certain localities in the tropical portion of the American continent. Of these, may be mentioned the Verruga, or malignant bleeding wart of Peru, an endemical exanthem which is strictly limited in its area to the western slopes of the Andes, between the 9th and 16th degrees of south latitude, at from 3,000 to 8,000 feet eleva-

tion from the sea. This remarkable disease seems to exist only in deep, narrow gorges, with precipitous sides of bare granite, and clay bottoms permeated by mountain streams whose banks are clothed with luxuriant vegetation. Where the valley widens, even a few miles below, the disease is not known. Great alternations of temperature occur in those ravines, in which the thermometer rises to 100° in the day, and falls to 65° at night. The malady consists in the eruption of vascular warty tumours on the extremities, face, head, and neck, very rarely on the trunk; while, in the more severe cases, the mucous membranes are also affected. Slow in development and bleeding freely, their number and the amount of hæmorrhage appear to be the measure of the patient's danger. They are preceded, it is said, for some weeks, by febrile debility, headache, acute pains in the limbs, and a peculiar cramp-like sensation of contraction in the gullet. But when the warty eruption appears these symptoms subside. The average duration of the malady is about three months, and the mortality among the natives appears to be 6 to 10 per cent. of cases. But new-comers, especially of European race, who take up their abode in those valleys, suffer far more intensely. It is said to have destroyed a fourth of the conquering troops of Pizarro in the beginning of the sixteenth century; and only a few years ago, a party of engineers and English navvies lost one-half of the former and three-fourths of the latter in seven or eight months, while employed in this region in constructing the trans-Andean railway. The etiology of this remarkable disease is as yet undetermined. It is believed to be non-contagious, essentially endemic in its nature, but to attain at times epidemic virulence, chiefly among foreigners who reside some time in the locality, and who seldom escape it.

Another, but in no way formidable, cutaneous disease peculiar to tropical America may be mentioned as worthy of further elucidation, the Pinta, or Mal de los Pintos. It appears to be restricted to the hot, low-lying regions of the west coast of Mexico, Central America, and to the river basins in the States of Venezuela and New Granada, and to be unknown where the mean temperature of the year is lower than 70° . The Tierra Caliente, and only that of the Pacific coast, and the banks of the rivers Madalena and Meta, are the chief seats of the malady, which is almost confined to the coloured races, and to the poorest and least cleanly individuals among them, but so prevalent that in some villages nine per cent. of the inhabitants are infected with it. Apparently of mycotic origin, it is characterised by piebald

coloured patches of black, blue, red, and white, giving the skin, in some cases, the appearance of jasper or variegated marble, and is probably due to the location of parasitic fungi ("*Champignons microscopiques*", their describer calls them) in the layers of the epidermis. It is attended with itching, and the patches are found of irregular size over the whole body, except the palms of the hands and soles of the feet, and appear first on the parts not covered by clothing. In favourable circumstances the disease is communicable; and some writers say it is preceded by febrile and other constitutional symptoms lasting a few days, and then by an interval of forty days before the spots appear. Professor Hirsch, however (from whose great work these particulars are taken), considers it doubtful whether this prodromal stage exists, and is at all connected with the skin disease, which seems to be a purely cutaneous affection, chiefly remarkable for its very limited geographical distribution.

On the eastern coast of South America a very formidable and fatal disease has appeared since 1864, first at Bahia and soon after at Para, Pernambuco, Maranhão, and other ports of the Brazilian Empire, soon spreading inwards to provinces remote from the sea-board, and everywhere causing a heavy mortality. In the poetical language of Professor Feris, "Le Beribéri, immense vampire, étend ses ailes noires sur toute l'étendue du Brésil, du Couchant à l'Orient, et du Midi au Septentrion." The malady, in its main features, seems to be identical with that well known to many of our Indian physicians as endemic in the littoral of the Madras Presidency, and in the Island of Ceylon, which in the end of the last century and beginning of this was very fatal to our troops, and was considered to be of a purely endemial character. From its symptoms, anæmia, dyspnoea, dropsical effusions, and paralysis, it was classed among constitutional diseases. Death often occurred with appalling suddenness from embolism or syncope; and it is recorded that the mortality among the European troops amounted to 25 per cent. of those attacked, and that among the convicts in jails the proportion of deaths was as high as 37 per cent. The disease seized acclimated persons and old residents in tropical India in preference to new-comers, and was rarely found far from the coast. Beriberi is well known in other Oriental countries, in the great islands of the Malayan Archipelago, and in Japan. Recent researches in the ancient medical literature of China and Japan show that the disease was known and described 2,000 years ago, and the two great varieties of dropsical and paralytic were recognised and differentiated in Japan so far

back as the tenth century. At present, China does not seem to suffer from this disease, but in Japan sickness and mortality from it are still very considerable. Occasional outbreaks of epidemic character have occurred on board ships in the Indian Ocean, and in voyages, with coolies on board, between Asia and America. Cases have been noted in the West India islands and in Guiana, but it is in Brazil that beriberi has found a congenial home, and since 1864 has asserted its right to be deemed cosmopolitan. At first the new epidemic was not identified, and it seems to have been Drs. Paterson and Silva Lima who first recognised it, their opinion being confirmed by that of M. Le Roy de Méricourt, the distinguished editor of the *Archives de Médecine Navale*; and a most interesting account by Dr. Feris of the history of beriberi in Brazil is to be found in that periodical for the year 1882.

In some respects it differs from the same disease as known in Asia, in its being found far from the sea-coast, for in the war between Brazil and Paraguay both contending armies, as well as the river flotillas, suffered greatly, although several hundred miles from the sea. A new feature also is its attacking women, who suffer in Brazil in considerable numbers, and chiefly from the paralytic and nervous symptoms. The young of both sexes under 15, and the old over 65, seem to be exempt. In school dormitories striking instances often occur of youths being affected, while those a little younger, in beds side by side with them, escape. The duration of the disease varies very much, four to eight weeks being the average, but five days and seven months are quoted as occasional extremes, while the chronic form lasts for several months, and even years, with alternate remissions and exacerbations. It is in this condition that patients are sometimes sent for improvement on a sea-voyage to Europe, and either die on the passage or land at Liverpool and other ports. The proportional mortality of beriberi in Brazil to all other deaths is not definitely known, but it must be very considerable. In the war with Paraguay both the armies and fleets engaged were described as "decimated". The relative mortality to number of cases has varied from 74 per cent. at its first outbreaks at Bahia, 1864-66, to 13 per cent. in the hospitals of Rio Janeiro, when, after a few years, in 1869-75, its nature and treatment were better understood.

Notwithstanding the host of scientific observers occupied in the investigation of this formidable disease, its etiology is still obscure and controverted. The high temperature and humid atmosphere which mostly accompany its incidence are not

universal: and it has frequently been found in cool, dry, and elevated localities in both Brazil and Japan. The dietetic and quasi-scorbutic origin which the Dutch physicians are prone to give it, is founded on their experience of beriberi among the Malays in Sumatra and other islands, and lascars on board ship, whose food, often scanty, and consisting almost exclusively of rice and dried fish, is destitute of albumen and fat. But this pathogenesis cannot be accepted in India, and still less in Brazil, where many of the well-fed and comfortably placed inhabitants (both white and coloured) have grievously suffered. It has always been accounted an essentially non-contagious disease, yet Professor Feris and Dr. Silva Lima cite some remarkable instances which seem to be more than mere coincidences. Three French priests affected made a journey in the province of Minas Geraes, from Caraça to Diamantina, by way of Mariana, stopping at these places, and there, and at no other localities, the disease soon after appeared. Two women died of beriberi, and soon after their husbands were stricken with the malady. Two negroes were admitted to hospital for trivial surgical disorders, occupied beds which had been used by beriberi patients, and both were seized with it. Such cases are considered exceptional and inconclusive; yet the malady would seem capable of being imported, for its first appearance in the Antilles, Guiana, and Brazil was almost simultaneous with the first introduction of coolie labourers from Asia. Like cholera, it seems to be making the tour of the world, but is, as yet, limited in its sphere of habitat to tropical regions. Brazil, where epidemics were long unknown, has suffered greatly of recent years. Yellow fever first appeared in 1849 and cholera in 1855, at the very same ports where beriberi first attracted attention: whence it may be inferred that that comparatively flourishing empire has, like others, paid a considerable penalty for its commercial prosperity.

I had hoped for a paper on beriberi from our learned Secretary for Portugal and Brazil, Dr. Donnet, whose linguistic accomplishments and large experience would have given him unusual facilities for the investigation of this interesting subject, but he has declined the task, for the valid reason that he has not himself had any opportunity of seeing the disease. I venture respectfully to submit that some of our Anglo-Indian brethren who may have known it in the East would find its portentous extension and development in the South American Empire a theme well worthy of their consideration and further exposition. Their practical experience would add new zest and lustre to the recent valuable

literature on the subject, and be far more worthy of your acceptance than the very meagre sketch I have now laid before you,—founded, not, as I would have desired, on personal observation, but on the monographs of French and Brazilian physicians. During the few months I spent on the shores of the Gulf of Mexico and Caribbean Sea I saw no other endemic disease than the malarious fever of the country; and in 1842, when I was at Rio Janeiro, that magnificent port had been as yet unvisited by cholera, yellow fever, or beriberi.

I trust that this session we shall also be gratified by some communications on the saddest but most attractive topic of the year, the memorable expedition to the Soudan, than which there never was sent from England one more creditable to the medical officers who formed so important a part of it. The diseases occurring to European troops in that hitherto almost unknown region offer a deeply interesting subject of research. The incidence of enteric fever and dysentery, and the considerable mortality that attended the advance of our heroic army, and threatened at times to mar its efficiency, seem to require elucidation. Peculiar and novel features are described to have been manifested in the mode of attack, the progress of the symptoms, and the ulterior history of the cases, due, doubtless, to the unwonted and trying conditions and surroundings in which those brave men were placed. The Nilotic basin and adjacent desert constitute a new field of epidemiological observation, and we may look forward to being favoured with new and valuable information on East African diseases, and on the specific differences, if such exist, betwixt the bowel fevers of the Soudan and those of other portions of tropical Africa. Under the auspices of the distinguished Medical Director-General of the Army, who has formerly taken an active part in our proceedings, reports of unique interest and importance may be soon expected to be published, and we may venture to hope for much instruction and food for discussion in regard to them.

That fevers of abnormal and exceptional type sometimes occur, is vividly shown in the *Report on the Health of the Navy for 1883*, wherein is detailed the history of H.M.S. *Thalia*, on a voyage from England to China. She left Plymouth on the 3rd of January 1883, and on the 15th arrived at Malta. There, five cases of erysipelas appeared among the crew, three traumatic and two idiopathic, likewise some cases of erythema. By the Suez Canal and Red Sea route she reached Colombo in Ceylon, leaving it on the 22nd of February. Betwixt that date and the 16th of March, when she arrived at Hong-Kong, eighteen cases of continued fever had

occurred, of doubtful character, but supposed to be enteric, although few of the cases were attended with relaxation of the bowels. The ship was overcrowded with young men and boys, as relief crews for the ships of the China squadron. The *Thalia* is a wooden ship of 2,200 tons, with a spar deck. She carried a crew in all of 479. Of these, 215 were lodged on the main deck and 217 on the lower deck. Both decks were much overcrowded, especially the lower, on which the younger men and boys slept. It was, moreover, badly ventilated, and, in the hot weather of the Indian Ocean, had become close and offensive. The bilges had become foul, and the sanitation of the vessel was reported as defective. It was naturally inferred that this unwholesome condition of affairs, so unusual in Her Majesty's ships, had caused the outbreak of disease. And this view was confirmed by the fact that the great majority of the sick were derived from the lower deck, where the crowding was greatest, the ventilation worst, and the malodorous emanations most offensive. Fever seized a large proportion of the crew at Hong-Kong, where 46 cases were treated at the hospital, 38 of whom were betwixt the ages of fifteen and twenty-five, and had nearly all slept on the lower deck. The reliefs were drafted into the various ships, and many of them, after joining those vessels, were affected with the same *Thalia* fever which they had contracted during their stay on board her, although they were not attacked till after they had left her. The young were most often its victims, and some eighty cases are recorded to have occurred of this description after their migration to other ships. Attacks continued to occur till May, and some had not recovered in September.

This disease was neither contagious nor fatal, no death having to be recorded as resulting from it. Yet it was a most painful and distressing form of fever. Sudden in its onset, with chills and acute pain of the head and back, and high pyrexia, the temperature remained high, 104°, till the fourteenth day, when it began to fall, but in several cases continued at this height for forty days. Relapses were frequent. Of the forty-six cases at Hong-Kong Hospital, twenty-five had relapses, and some repeatedly. The bowels were generally confined, and the urine normal in quantity and quality. Delirium, tremor, and great debility were often found, but no marked eruption. The average duration of the attack was 145 days, convalescence being very slow, even when not interrupted by relapses. As a sequel, orchitis occurred in six, and rheumatism in forty cases. This fever can hardly be classed as typhus or as relapsing fever of the usual type,

for it was not communicable to those who had not been exposed to the local morbid poison of the *Thalia*; yet in most respects it resembled relapsing fever of Europe as to pain, tediousness, and non-mortality. It would seem to have been analogous to the old ship fever or typhus, so prevalent in the foul, overcrowded, ill-ventilated ships of the olden time, and, like it, affected the young in preference to the middle-aged, and notably those lodged in the part of the vessel most exposed to the deleterious influence of putrefactive fermentation in a hot climate. In one respect its pathogeny appeared to be analogous to that of the memorable, and far more serious, outbreak of fever on board the *Bristol*, after leaving Sierra Leone in 1865, inasmuch as those only who had lived in the poisonous, confined atmosphere of the tainted vessel—in that case, the *Isis*—suffered from it, and did not spread the disease to the crews of other ships whither they had migrated. The *Thalia* was cleansed and purified at Hong-Kong, some structural defects were remedied, and her ventilation improved. She returned to England with a reduced number of men on board, and without any symptoms of illness appearing among them that could be ascribed to sanitary imperfection in the ship. The cause of the epidemic was therefore not only local, but very temporary in its operation, and indicated the imperative need of diligent, anxious attention to hygienic details during the conveyance of numerous bodies of men in voyages of even moderate length. This instance is so interesting and typical, that I hope the Society will obtain for its *Transactions* fuller details than time will now allow me to submit, and more elaborate even than are to be found in the brief but admirable narrative of the report.

In the same year the naval records show a considerable but happily non-fatal epidemic of malarious remittent fever in the river Niger. An expedition ascended the river in October to attack a piratical town. The vessels were ten days in the river, and during their stay the health of the crews was very good. They were 283 in number, very great care was taken of their hygienic condition, and quinine was administered as a prophylactic while in the river. The vessels, on their leaving the Niger, on the 30th October, dispersed in different directions, but in the course of November cases of malarious remittent or intermittent fever occurred in all of them. The cases were 268 in number, being nearly the whole of the white force employed on the service; but they were readily amenable to treatment, one death and five invalidings constituting the entire loss. This great river highway to Central Africa is

obnoxious, as of yore, to endemic fever, as the normal hindrance to its navigation; but, fortunately, the resulting mortality is comparatively small when due precautions are observed as to the season of undertaking the ascent of the stream.

Some interesting statistics in the last Annual Report of the Royal Navy testify to the serious increase of the various forms of venereal disease on the Home station since May 1883, when an important clause of the Contagious Diseases Acts regarding the compulsory examination of prostitutes ceased to be enforced. The latter half of that year exhibited a very marked augmentation in the number of cases of syphilis, both primary and secondary, gonorrhœa, and epididymitis among the seamen and marines, averaging 22,000 men. The ratio of such cases for the year 1883 was 280 per 1,000; the number of men thereby disabled was 367 per diem, or 17 per 1,000 of the force employed. The mean ratio of the previous ten years had been 132 cases per 1,000 men, and the whole number on the sick-list from these disorders had given a daily average of 10.6 men per 1,000. These figures speak for themselves, and appear to show conclusively that in this particular the sanitation of the navy had retrograded considerably within a few months. It would be desirable to know whether the troops, many of whom are quartered in the naval arsenals, have similarly suffered; and I venture to suggest that some of our colleagues connected with the army and navy, who are interested in this important question, should give us the benefit of their experience at home and abroad, and more especially as to whether this regrettable deterioration in the health of the forces on the Home station may be considered as likely to be permanent, or as only a temporary evil.

In 1864, while the subject of protecting the servants of the State from those diseases was beginning to be mooted, and when these much controverted Acts were as yet only in embryo, I had the honour of submitting to the Society some observations I had the opportunity of making a few years before in China, which satisfied me as to the great utility and benefit of legislative measures of a preventive character when faithfully and honestly administered. Again, in 1866, I laid before the Society, in a paper on the Sanitary Condition of the Mercantile Marine, the expediency of protecting seamen in our great ports from those destructive maladies, which are more virulent in men so circumstanced, and tell in a more intense degree on after-health than when they affect the carefully tended and well-

treated men of the Royal services. I may be pardoned for thinking that this matter of the prevention and mitigation of enthetic disease is a branch of public medicine which comes within the scope of our deliberations; and that, at this juncture, when a very decided and unreasonable opposition to prophylaxis has for the time emasculated legislation thereon, the discussion of the points in dispute by thoughtful and experienced medical officers may be interesting to themselves and advantageous to the State.

The principal epidemiological events on the Continent of Europe during the present year have been the invasion of Spain by cholera, and its recrudescence in Southern France, Italy, and Sicily.

Last year, Spain escaped almost unscathed, but in May of this year the disease broke out at Valencia, and has thence appeared to spread over the whole kingdom, few provinces or great towns having been free from its ravages. The mortality is estimated at 100,000 deaths in the six months, or 6 per 1,000 of the entire population. The cases have been supposed to be 300,000 in number; but such attempts at registration must necessarily be imperfect, these epidemics, in most countries, comprising many cases of choleraic or even simple diarrhoea, co-existing with the more terrible and fatal form of pestilence. Everywhere, by the accounts given in the journals, the disease has been associated with impurity of water and defective sanitation. Such towns as had a wholesome supply of water and better drainage suffered but lightly compared with those in which these all-important matters were neglected. Madrid, Barcelona, and Seville are instances of the former; Valencia, Granada, and Aranjuez of the latter. The first cases in Madrid occurred on the 20th of May, and 1,000 persons, or 2 per 1,000 of the population, are stated to have perished in the epidemic, which fell, however, on limited districts of the city situated at the lower level, inhabited by the poorer classes, and noted for their insanitary condition. Some of the sewers are described as elongated cesspools, with brick walls of so porous a quality as to permit free percolation and leakage to contaminate soil, air, and water. And although pure water from the distant hills is supplied in abundance to fountains all over the city, too often, through ignorance or indolence, water from old wells is said to be still sometimes used in the houses of the poor; and it was observed that on such premises the disease was most virulent. The greater part of the city, enjoying a copious supply of pure water, and fairly well drained, remained uninjured. The sewage of the capital finds

its way to the small river Manzanares, and thence to the Jarama, an affluent of the Tagus at Aranjuez, some thirty miles to the south; and this town showed an appalling mortality, one-fifth of its population having been swept away. The invasion was sudden and rapid. The first victims are said to have been labourers from Valencia and Murcia, who, working in the fields, drank water from the Jarama. In thirteen consecutive days 785 deaths occurred, the maximum number, 135, being on July 6th. In the confusion and panic of such an outbreak all sanitary arrangements were overwhelmed. Dejecta and polluted clothing were carelessly thrown out, and intensified the spread of the disease. In Toledo, further down the Tagus, with 20,000 inhabitants, in a salubrious site, 2,400 feet above the sea, the malady appears to have been combated with energy by the local authorities, and only 100 cases, with 60 deaths, are said to have occurred in the summer months; but this city had been visited in the previous autumn by an epidemic of equal severity, beginning in September and lasting to December, although the temperature had fallen to that of frost and snow.

The great Spanish elevated plateau of 2,000 to 3,000 feet above the sea level forms about one-half of the kingdom. This immense plain is traversed by parallel mountain chains, running transversely from east to west, forming the watersheds, and bounding the basins of the great rivers that flow westward to the Atlantic. The banks of these rivers are fringed with fertile lands and cultivation, and considerable towns; but the plains above are arid, sterile, and treeless, parched in summer, and swept by icy blasts that blow for more than half the year with piercing keenness. "Nine months of winter and three of hell", is the proverbial description of the climate of this extensive region. With few railways or other roads, and a limited traffic, it would seem to be unfavourable for the dissemination of a disease generally found to follow in the track of human intercourse. Yet the morbid poison has been rapidly diffused over the country, and in localities of *prima facie* most healthy character. A very notable circumstance of this epidemic is that it has not as yet extended into Portugal, and in the last great cholera epidemic that afflicted Spain in 1865, Portugal was almost equally exempt. Now Spain and Portugal form but one geographical region; the great physical features of the land, the ranges of mountains, the elevated plains and the rivers, are all continued on the west into Portugal, where they fall by a gradual slope into the Atlantic. Nor do the climates

essentially differ, save that on the western sea-board, and near it the air is more humid, and the temperature necessarily less extreme. The habits of the people are also much alike, and sanitary science is cultivated, or practised, even less in Portugal than in Spain. No natural boundaries exist between the two countries, which are conterminous for about 500 miles. The frontier is an ideal line, with the usual custom-houses and military posts of the two nations confronting each other on the rivers, railways, and roads at the boundary point of intersection. The epidemic that ravaged Spain in 1865 first appeared, like that of this year, at Valencia, whence it spread over nearly the whole of the kingdom. Dr. Hirsch considers it proved that on that occasion it was brought by a traveller from Alexandria *viâ* Marseilles, and was therefore of Levantine origin. It began in July 1865, and reached Badajos, near the Portuguese frontier, in October, whence it crossed into Portugal to the great fortress of Elvas, and also appeared at Oporto; but the cases were few in either place, and the smaller kingdom may be said to have had immunity from the disease.

In former epidemics of cholera affecting the Iberian peninsula Portugal had greatly suffered, in 1833 and 1853, in common with Spain, but both countries entirely escaped the epidemic of 1849. The earlier invasions were both from the north-west, the first cases being at Oporto and Vigo, whence they were to be traced all over the country, and were believed to be introduced from England, which had on those occasions received the disease from Russia *viâ* Germany, by what may be called the north-east route. The Portuguese are, therefore, always apprehensive when cholera is visiting this country. How it does not reach them from their close neighbour, Spain, seems inexplicable. One-half of the Spanish territory is drained into Portugal by the great rivers Douro, Tagus, and Guadiana on their way to the ocean. It may be that their waters have become purified by their rapid flow through the thinly peopled pastoral lands on the frontier, or that a very limited commercial traffic at all times exists in that part of the country. It can hardly be supposed that a strict sanitary cordon, maintained, though it be, with mediæval rigour, and repelling *vi et armis* all persons and goods from infected places from entering the Portuguese territory, could be so efficiently carried out over an extensive boundary as to be successful in excluding so subtle and mysterious a disease. The Portuguese Government congratulate themselves on their rigid surveillance. Railway passengers, cattle, goods, are still subjected to detention for some days, and to this vigilance they ascribe their safety.

All such exemptions from the apparently natural diffusion of the disease, when unchecked by energetic sanitation, are worthy of most attentive consideration. One of the unsolved mysteries of cholera is the remarkable immunity hitherto enjoyed by some places, in our own and other countries—as, for instance, by Cheltenham and Birmingham in England, and by Lyons, Rouen, and Versailles in France—even in pre-sanitation days; and the exemption of so considerable a kingdom as Portugal, while two epidemics were raging at an interval of twenty years in the conterminous State, seems to be a matter deserving full investigation.

It seems inexpedient to refer, except in the briefest terms, to the experiments on inoculation for cholera, that have been performed by Dr. Ferran and his coadjutors in Spain, with the view of counteracting or mitigating the virulence of the morbid poison. Opinion seemed, for a time at least, to have been divided as to the results, but by the last accounts the balance of evidence appears to be unfavourable to the operation. Besides many of the vaccinated having died of the disease, serious local symptoms of inflammation and blood poison are reported to have followed the introduction of the cholera matter, and the reputation which, like most novelties, it acquired for a season seems to have already vanished.

The interesting question of Asiatic cholera having for its essential cause the so-called Comma Bacillus described by Dr. Koch, has been much disputed, and the report of two eminent histologists, who proceeded from London to India to investigate the matter on the spot, has been decidedly adverse to Dr. Koch's theory. Their opinion has been confirmed by a commission of distinguished experts in this country, who, after careful consideration of the experiments and arguments of Drs. Klein and Gibbes, have accepted them as correct. Doubtless much controversy will yet be expended on the subject of microbes in relation to the etiology of cholera. In this epoch the microscope, in its application to pathology, is credited with great and growing importance, and will furnish material for much interesting discussion here and elsewhere on this subject.

Reverting to our own country, the only epidemiological points of recent date that seem to demand a cursory notice are the remarkable outbreak of diarrhoea at Hull in March and April, and the severe visitation of small-pox in London and its Essex suburb of West Ham, with varying intensity, during the last twelve months.

The epidemic at Hull was chiefly notable for its extent rather than its severity. Betwixt the 22nd of March and

the 10th of April it is computed that at least 20,000 cases of diarrhoea occurred in that great seaport town, or about ten per cent. of its population. Most of these were comparatively mild and tractable, but in some instances the bowel disorder was accompanied by cramps and other alarming symptoms, although happily there was no undue mortality—only nine deaths in four weeks. Considering the extensive diffusion of the disease, this is remarkable. The onset was sudden, and the cases were confined to persons residing within the area of the “Hull water-supply”. Those who used the water of other districts of the town, having a separate supply, escaped. Contaminated water from a foul sewage-tainted stream had been permitted to mingle with the town supply, and the case presents a warning example of the great risks of such carelessness, and the necessity of vigilantly safe-guarding the community from what might have proved to be extreme peril.

In 1883 the deaths from small-pox in London had fallen to the number of 134, giving the low rate of 34 in every million of inhabitants. In the previous year, 1882, the mortality rate was 107 per million; but in the preceding year, 1881, when the disease attained epidemic virulence, it had risen as high as 600 per million. Thus, in three years, the mortality from this disease had varied exceedingly, eighteen times more victims having fallen in 1881 than in 1883; and by legitimate inference, the number of cases occurring in London may be estimated as proportionately decreased in the period. Before the year 1881 the most destructive epidemics were in 1877, when the death-rate was 714 per million, and in 1871, when it had risen to the portentous figure of 2,500 per million. But, in the intermediate years, small-pox was either non-existent or far less fatal, as in 1874 the mortality was so low as 20 per million, and in 1875, 23 per million. Last year, 1884, the deaths in the metropolis from this cause were 1,250, or 310 per million, and the mean annual rate for the last eight years has been 297 per million. Season is well known to have a powerful influence in determining the incidence and mortality of this exanthem. The seasonal curve is generally lowest during the months of July, August, September, and October. It begins to rise in November, and, be the epidemic great or small, continues high till the middle of June. Last year and this have been no exception to this rule. In September 1884 the mortality of the week had fallen to ten deaths, and the number of admissions to the asylum hospitals to 65, but both increased *pari passu* in the last quarter of the year, during which the

deaths were 560 in number, and the admissions to hospital 2,600. In the winter and spring months the higher ratio was maintained, 5,326 admissions to hospital having been recorded in the half-year from January to July, and 1,731 deaths, the majority in January, February, and May. In July a marked mitigation began to take place, and in the last week of September the number of deaths had again fallen to a minimum of six per week, and of hospital admissions to 32 per week. The whole annual cycle from October 1st, 1884, to October 1st, 1885, yielded 1,920 deaths in London, and 8,700 admissions to the hospital asylums. If, as is probable, twice as many cases occurred of slighter character, or were detained at home for medical treatment, the death-rate on the whole number of cases would be 1,920 in 26,100, or 7 per cent.—a comparatively small mortality, when it is considered how large a proportion of the community remain, through default of parents, unvaccinated, and how few persons, through ignorance, indolence, or perversity, avail themselves of the opportunity of re-vaccination in adolescent or adult life.

In that department of the Civil Service of which I have medical charge, the salutary regulation is enforced of all candidates for admission to permanent employment producing proof of re-vaccination. I have had occasion to examine, in the last three years, 250 adults and boys who have been thus re-vaccinated, and of the whole number I found only 18 in whom the second operation was not successful, notwithstanding their having two, and in some cases four, good cicatrices of infantine vaccination. In not more than three or four of those men and boys did any undue inflammation or other untoward result occur from the operation, although many of them were engaged in manual labour in various capacities at the time. Of the 250 examined—persons from all parts of the United Kingdom—nine who had been vaccinated in infancy had subsequently been attacked with small-pox, and of those who had been vaccinated and re-vaccinated, only three had small-pox in after years. None of these twelve individuals bore any conspicuous or disfiguring marks of the disease—an indication that the attack had not been very severe. In the epidemic we have passed through, the Essex suburb of West Ham suffered much. Being in close proximity to the docks, many poor persons, labourers and others, immigrants from Ireland, Wales, and other remote parts of the kingdom, inhabit this locality, the population of which is stated as 200,000, a larger proportion than usual of them being doubtless unprotected by vaccination.

In the year we have been discussing, from October 1st, 1884, to September 30th, 1885, the mortality from small-pox in West Ham amounted to 800, or nearly one-sixth of the whole mortality of the district. In some weeks more than half the deaths are recorded to have arisen from this cause. If the ratio assigned to London, of seven per cent. mortality on the whole number of cases, prevailed in this ill-fated locality, the number of persons affected would have reached the startling figure of 11,000 out of a population not exceeding 200,000. In the absence, however, of registration, this cannot be positively asserted; and the proportion of very severe and fatal cases was undoubtedly much higher than in the contemporaneous epidemic within the limits of the metropolis. While the mortality in London from small-pox in the period may be stated as not much exceeding the rate of 400 per million inhabitants, the death-rate of West Ham from this epidemic may be computed at the rate of 4,000 per million.

Vaccination and re-vaccination are unquestionably the only safeguards against such terrible outbreaks, and it is a matter of deep regret that so much fanatical opposition should be enlisted against the salutary laws enjoining the former, and against the extended practice of the latter. With the exception, perhaps, of vegetable acids as a preventive of scurvy, no prophylactic in medical science has been proved to be so eminently successful. That a loathsome, and often fatal, disease can, in so simple and harmless a manner, be averted or greatly mitigated, appears to be incredible to some minds, in an age when excessive credulity often exists side by side with irrational unbelief. We can only hope that the diffusion of sound education and true enlightenment, founded on the cultivation of the natural sciences, may in time overcome the ignorance and bigoted prejudice that resist those legislative measures which, if fully carried out and extended to adolescents as well as infants, would, in all probability, relegate these great epidemics of small-pox to the history of the past.

In a few exceptional cases there is, doubtless, an extraordinary individual susceptibility to this morbid poison, just as there are, on the other hand, a considerable minority of persons who appear to resist it and remain unaffected, even when fully exposed to it. Instances of this kind in small-pox and in other diseases are familiar to all experienced practitioners. I may perhaps be permitted to refer to an outbreak of small-pox which I had the opportunity of observing in the flagship on the coast of Central China, in the hot season of 1859, in circumstances when isolation or separation

was at the time impracticable; and when, therefore, during the month the epidemic lasted, every one of the 550 persons on board might be considered to be exposed to the infection. Of the forty-four cases which occurred, all, save one, bore the marks of infantine vaccination. This one was the first case, very severe, confluent and fatal. He was a native of a remote island of the Hebrides, where probably there was no medical practitioner, and rarely any opportunity for vaccination. Only one other died, but of dysentery, during convalescence from the small-pox, which was not unduly severe. One-fourth of the whole number of cases exhibited copious confluent eruption, high, recurrent pyrexia, and general severity of symptoms. In the remainder the eruption was sparse and discreet, and the accompanying fever moderate. In some cases only a few pustules appeared, with brief constitutional disturbance. Re-vaccination was comparatively rare in those days, and none of those attacked had, so far as I could ascertain, submitted to it. A very careful examination of the ship's company was made, and a few, not more than five or six men, were found on whose arms no cicatrices of vaccination could be detected; but none of these, although fully exposed to the contagion, were attacked. Whether those persons were vaccinated or not is of course uncertain, but no mark of it could be discovered. If this small epidemic were typical of what occurs on a larger scale, it would serve to show that in predisposing circumstances, such as over-crowding, etc., a focus of contagion, accidentally introduced into a community, might affect as many as ten per cent. even of vaccinated persons exposed to its influence. Re-vaccinated persons doubtless suffer in a greatly diminished proportion. Only one instance occurred in my experience in 1872, of a man who had been vaccinated and re-vaccinated dying of the disease; and this was the more remarkable, as only two years before he had with impunity been daily in contact with a relative who laboured under a severe attack of small-pox. His age was only thirty-four; and this matter of age is of considerable importance in determining the expediency of repeating the operation as life advances. It is very desirable that details of the ages and other particulars of the numerous victims of the recent epidemic in the circumscribed area of West Ham should be utilised, and I hope that some of our colleagues may have the opportunity of investigating them, and of giving the Society the benefit of their researches.

Although my daily labour for many years has chiefly been in the east and south of London, where zymotic febrile diseases have always been more prevalent and fatal than

in other quarters, it has been my fortune to see comparatively little of them. Only 7 per cent. of the total amount of sickness among those in my professional charge has arisen from such diseases, and in several years the zymotic ratio has not exceeded 4 or 5 per cent. Living in the better streets, in comfortable small houses, well ventilated and fairly well drained, with, as a rule, the water-closets, sinks, etc., outside the premises, these persons and their families have suffered but little even in the epidemics that have sometimes fallen with considerable weight on their immediate neighbourhood. And in evidence of the general gradual improvement that has been taking place in the sanitary condition of our London suburbs, I am glad to be able to state that in recent years the number of cases of diseases usually associated with sanitary defects has steadily diminished. Thus, taking a period of twenty years, it is found that in the first ten years there occurred twenty-four cases of enteric fever, with two deaths; but in the second ten years only nine cases, and no death. Of typhus, eleven cases are recorded in the first ten years, and six deaths; but in the second ten years not one case. Of intermittent fever, twenty-four cases in the first period, and only six in the second; of relapsing fever, only one case in 1869, when it was epidemic in London, and which had a fatal termination. Of erysipelas, the distribution has been less unequal, showing twenty-seven cases in the first, against twenty-four in the second period, with two deaths; most of these, having been of traumatic origin, from injuries of the head, etc., have not much importance as a test of insalubrious environment, and I have never seen the disease communicated to others residing in the house; and the same may be said of the enteric fever occurring in the time.

Febricula, generally from insolation in summer, or exposure to cold at other seasons, can hardly be accounted a zymotic malady, but in the first period 180 cases are noted against 111 in the second. Dysentery showed 18 cases in the first period, only nine in the second. Like these, diarrhoea can hardly be accounted a zymotic disease. Occurring, as it does, for the most part in summer, its etiology has been generally determined by rise of temperature or errors in diet. In 1866, however, it prevailed epidemically at the same time as cholera, sixty-five cases having occurred that summer of considerable severity, and ten of them exhibiting the graver symptoms of choleraic diarrhoea. But only one case of decided cholera appeared among the Customs officers, and that in a young man resident in Bermondsey, who may

be said to have induced it by taking unnecessarily a brisk purgative, which caused hypercatharsis, followed by alarming algid symptoms and collapse. He rallied from this condition, but subsequently died on the tenth day, from consecutive fever. Although 600 of those officers lived at that time in the Tower Hamlets, which suffered far more from cholera than any other part of London, they and their families, amounting to about 3,000 persons, escaped. This immunity is the more remarkable, as many resided in the streets which suffered severely, and all drank the water which was blamed, and doubtless with justice, for the dissemination of cholera in the east of London. Small-pox has been the gravest form of zymotic disease in the Customs force, fifty cases of illness and six deaths having been thereby caused in the twenty years under review. This does not seem to be an excessive proportion in a corps composed of more than 2,500 individuals, and in a period during which London has been visited by one formidable and two considerable epidemics. The fatal issue, in more than one instance, was probably determined by the fatigue and exposure of a long journey, say from Poplar to Highgate, to reach the hospital asylum, in cases when the moderate amount and non-confluence of the eruption had led to the hope that the attack might be surmounted. Revaccination being now insisted on for all entrants to the service, the ratio of small-pox may be expected still further to diminish; and it may be remarked that in the epidemic which so cruelly devastated West Ham in the earlier half of this year, not a single case occurred, although many officers live in that quarter, as conveniently situated for their duties at the docks. Typhus some years ago was occasionally met with, but no case has been recorded since 1870, and no death has been due to that cause since 1868. Relapsing fever has not been seen since 1869, when one fatal case occurred. No instance of diphtheria has ever been observed in this body of men during the twenty-eight years in which an exact registration of all cases of illness has been carried out.

It may therefore be inferred that the diseases which it is mainly the province of this Society to discuss, are of less personal importance to adult males, or what may be termed the bread-winning class of the community, than are those constitutional and local maladies which form the bulk of medical practice, and are the chief source of mortality and premature disablement. Among those officers I have mentioned, who may be considered a fair type of a large section of our population, four or five per 1,000 perish annually from

phthisis, and as many more from various forms of organic disease of lung, heart, brain, and kidney. But in the whole period of a quarter of a century the group of zymotic and febrile diseases has not destroyed in each year more than one per 1,000, and in the last ten years not more than one per 2,000; the annual mortality of the force averaging twelve per 1,000 from every form of disease. It is only when, by default of energetic preventive measures, storms of pestilence sweep over the land, that adult life, at least among men, is very seriously affected. Infantine and early life are so susceptible to the subtle contagion of zymotic maladies, and so imperilled by them, that it is a matter of deep congratulation that in this particular a very great amelioration has of late years taken place, shown in the gradually decreasing death-rates of London in the last five years, from 21.7 in 1880 to 20.3 in 1884; falling a few weeks ago, in the last week of September, to the marvellously low and unprecedented mortality of 13.8 per 1,000, only 1.8 per 1,000 being from zymotic diseases. The deaths from the whole group were but 145 in number, being 100 below the average of that week.

Except in periods of unusually low temperature, when pulmonary diseases are prevalent and fatal, and those debilitated by other illness more readily succumb, the mean adult mortality fluctuates but little. But from birth to five years of age extremes of temperature are especially destructive. Thus, for instance, in the hottest week of last summer (on the whole a cool and dry season) the thermometer rose to 90° Fahr., and the mean temperature was 65°; 348 deaths were recorded from diarrhoea, and the public mind was agitated by fears of coming cholera; but on analysing the tables, only sixteen of those deaths were in persons over five years of age; and of those sixteen, eight were in persons betwixt 60 and 90. The general population was therefore singularly free from bowel disorder, so far as it can be estimated by deaths. Yet the total deaths of the week were raised by this infantine mortality to 1,750, or the rate of 22.4 per 1,000, although only 475, or one-fourth, of those deaths occurred in persons betwixt five and sixty years.

Again, let us take the first week in January (one of the coldest weeks in a mild winter), when the thermometer fell to 25° Fahr., and the mean temperature was 30°, we find that the mortality from all causes attained the high figure of 1,956, or the annual rate of 25 per 1,000, and that the deaths from chest affections of all kinds amounted to 978, or 100 above the mean, and exactly one half of the whole; but of those latter, 349 deaths, or 36 per cent., were of persons above

sixty; 216 deaths, or 24 per cent., were of children under five years; and only 393 deaths, or 40 per cent., occurred from respiratory disease in the wide range of the London population between the ages of five and sixty years. The total mortality of the week shows the same inequality, being in the old, 636, or 32 per cent.; in young children, 559, or 29 per cent.; and in those aged from five to sixty years, only 761, or 39 per cent. Those weeks were respectively the most fatal both of the winter and the summer seasons, and coincided with the extremes of temperature recorded in the year. It may therefore be inferred, although it does not strictly follow, that they were the most unhealthy. But a heavy amount of sickness is not unfrequently found in connection with a low mortality when the type of the prevalent disease is not severe. Of this we have just seen remarkable instances in the *Thalia* fever in China, the river Niger fever, and the recent epidemic at Hull, all of which exhibited a high rate of illness with few or no deaths.

In our variable climate atmospheric vicissitudes must always be reckoned a principal factor in the causation of disease; the hereditary proclivity to various forms of constitutional disorder, and the habits and propensities of individuals, are also most potent elements in etiology. Sometimes these causes are combined, as in gout, of which I encounter a good many cases, averaging thirty in a year. With few exceptions it is of hereditary origin, the individuals themselves being in poor circumstances, leading laborious, active, open-air lives, for the most part abstemious, and sparing in the use of animal food and fermented liquors. It occurs at all seasons of the year, but perhaps most often in February and March, and is sometimes quasi-epidemic in its incidence, apparently by reason of sudden changes of weather. For example, a few weeks ago, in the end of September, four cases of gout occurred on the same day, in men of different ages, and variously circumstanced as to residence, occupation, and mode of living. Similarly, four cases occurred together in the second week of July, and five in the last days of March and beginning of April, apparently due in part to abrupt climatic changes. There is considerable variation in the prevalence of this disease in various years. In 1881 and 1882 I had seventy cases; while in 1883-84 there were only thirty-three. This year has been favourable to the development of gout, thirty-five cases having already occurred since the 1st of January. I will not weary you with the statistics of a disease which does not quite come within our purview as

epidemiologists, but which may be of some interest as showing that this malady, generally attributed to luxurious, inactive habits, and dietetic errors and excesses, is frequently not directly connected with them, although probably almost always traceable to inheritance from self-indulgent progenitors, and is greatly influenced by the same climatic changes that regulate, to some extent, the appearance and disappearance of the so-called zymotic diseases.

In this connection, as showing how obviously heredity influences gout, I may mention that, although several hundreds of men of Irish birth have been under my supervision, and also many Scotchmen, I have hardly found an instance of the disease occurring among them, notwithstanding their mode of life in London does not differ, in regard to the consumption of butcher-meat and malt liquor, from that of the people of this country. Excess in those articles, with insufficient exercise, would probably develop in time the same morbid condition which affects in more or less intensity so many persons of English nationality.

Rheumatism, the most afflictive and disabling of all the diseases of our climate, fluctuates also much in amount from year to year, being in some twice or thrice as frequent as in others. Of late years, 1868 and 1876 were as remarkable for the number as 1869, 1873, and 1875 were for the paucity of cases. It seemed almost to disappear during the cold dry weather we had some winters ago, notably in 1878-79, 1879-80, and 1880-81; being replaced, however, in many instances, by the still more formidable pulmonary diseases, bronchitis chiefly, with which rheumatism is so often connected.

The registration of disease, if at all attainable, would throw desirable light on the etiology of many diseases which, from being rarely directly fatal, cannot be estimated at their due proportion. Such records as I have accumulated, although on a small scale, relating to some 15,000 cases, possess the advantage of being based on a personal knowledge of the history and surroundings of the patients, and of the result of their illness, and may possibly, on some future occasion, form the ground-work of a communication to the Society.

Meanwhile, I fear I have already trespassed too much on your patience. I therefore beg to thank you, gentlemen, for the attention with which you have so kindly favoured me in this slight sketch of a few of those epidemic and endemic diseases of recent occurrence that seem to deserve notice at the hands of the Society. I have

endeavoured to suggest that some might be with advantage brought before us in fuller detail than space can generally allow in the blue-books of the public services, and in the cursory notices of the journals. Incorporated in our *Transactions*, such histories may furnish useful data for future reference. It is our mission to collect trustworthy evidence on etiology, and to investigate all facts and circumstances relating to outbreaks of preventable disease. It is the duty of our various sanitary authorities to enforce the salutary laws now existing, and of our legislators to amend them, if required, in the interest of the community, regardless of the self-interest and avarice that now too often successfully obstruct their due execution. At present the sanitary reformer is frequently

“ Like one lost in a thorny wood,
That rends the thorns and is rent with the thorns;
Not knowing how to find the open air,
But toiling desperately to find it out.”*

It is calculated by well-informed persons who have closely studied the subject, that, without any further demand on the already oppressed ratepayer, a far more efficient and economical administration might be devised, to supersede the present confused, divided, and perplexing muddle which cannot be fairly called organisation. In such a system the medical officer should have a firmer and less dependent position than now falls to his lot, too frequently, through the ignorant apathy or selfishness of those whose pecuniary interests are opposed to improvement in the dwellings, food, drink, and general condition of the poor, but who often, in the struggle for local position, obtain power and influence for which they are unfitted, and which they sometimes abuse. In the great political changes that are now going on around us, let us hope that reform of local government, in relation to public health, may find a conspicuous place, to the still further improvement of the sanitary condition of the country.

* Shakespeare, *Henry VI*, Part iii, Act 2.

