of the time lost by sickness; 31 per cent. of the whole mortality, and 9 per cent. of the superannuation.

Proceeding now to the local diseases, we find that the various maladies of the nervous system give 7.5 per cent. of cases treated, and 9 per cent. of time lost by illness; 9 per cent. of the mortality, and 20 per cent. of the superannuation, one-half of which latter proportion is caused by insanity.

Diseases of the organs of circulation show only 1 per cent. on the number of cases, and 3 per cent. on the time lost by sickness; but lesions of the heart and great vessels have caused 13 per cent. of the deaths and 1.5 per cent. of the superannuations.

Diseases of the respiratory organs yield 27 per cent. of the cases treated, and 20 per cent. of the time lost; 11 per cent. of the whole number of deaths, and 17.7 per cent. of the superannuations. Including phthisis (which, in the great majority of the cases that occur in this body of men, may be considered as a local pulmonary rather than a constitutional disease), the maladies affecting the lungs and air-passages yield the large proportion of 28.4 per cent. of the cases, 30 per cent. of the time lost by sickness, 42 per cent. of the whole mortality, and 27 per cent. of the superannuation.

Diseases of the organs of digestion exhibit the ratio of 17 per cent. of cases, 13 per cent. of time lost, 9 per cent. of deaths, and 7 per cent. of superannuations.

Diseases of the urinary organs give only 2.4 per cent. of cases, 3 per cent. of time lost, 2.6 per cent. of deaths, and less than 1 per cent. of superannuations.

Affections of the skin and cellular tissue occur in the proportion of 11.5 per cent. of cases and 10 per cent. of time lost by illness; but no death and only two superannuations (from ulcers) have to be recorded under this head.

Injuries of various kinds and of every degree of severity are necessarily of frequent occurrence, from the nature of the duties of those officers, more particularly afloat. They constitute 10 per cent. of the cases disabled, and 11 per cent. of the whole time lost in illness by the force. Deaths from violence form 9.5 per cent. of the entire mortality, of which 3 per cent. are the result of fractures, etc., 4.7 per cent. are from accidental drowning, to which the out-door officers and watermen are especially liable in following their vocation, and 1.8 per cent. are due to suicide. The ratio of superannuation from external injury does not amount to 1 per cent.

GENERAL SUMMARY.

In reviewing these figures, it is obvious that pulmonary and rheumatic diseases are those which, as might be expected in a climate which for eight months in the year is more or less wintry, prove most destructive, nearly one-half of the sickness and mortality of the force being due to those diseases; for, although rheumatism and gout are rarely fatal *per se*, they are too often the precursor of heart-disease, bronchitis, and dropsical effusions, which, next to phthisis, are the maladies which show the largest mortality. In about one-half of such cases occurring in persons above middle age, I find a history of former arthritic disease. Gout appears to be unusually prevalent in this body of officers, averaging 6 per cent. on the total number of cases, and 5 per cent. on the time lost by sickness, and the watermen are the class most liable to it, although they are temperate in the use of fermented liquor, and their duties are of a very active, exposed, and arduous character. The attacks seem to be irrespective of age or personal habits; often most severe in abstemious men; but, in the majority, gout is of hereditary origin, and very remarkably influenced by weather. In last year, no fewer than forty cases of true gout occurred in the force, chiefly in the warmer months, when a humid state of the atmosphere had succeeded suddenly to dry weather. The mean duration of such cases is eleven days, that of rheumatism being twenty-four days.

Pulmonary consumption, the most formidable in its mortality aspect of all our diseases, is probably less fatal in this force than in most other bodies of men of similar age. It exacts four lives per 1,000 annually, the average age of its victims being 41 years. In the army, 7 per 1,000, and in the navy 5.5 per 1,000, is the combined death and invaliding rate of this fell disease.

Cancer is of rare occurrence in the Customs force, having in the period not exceeded the rate of 0.3 per 1,000 men. Diabetes is also extremely unfrequent, showing only one death and one now under treatment: a rate equivalent to 0.1 per 1,000, or 1 per 10,000 men.

Brain-diseases yield a death-rate of 1 per 1,000 men, and a superannuation-rate of 1.5 per 1,000. Heart-disease and aneurism exhibit a mortality of 1.5 per 1,000 men, the average age being 48 years. Other chest-diseases, exclusive of phthisis, present a death-rate of 1.2 per 1,000 men. Bronchitis and pneumonia are the chief causes of mortality.

Diseases of the digestive organs are fatal only in the ratio of 0.8 per 1,000. One instance occurred of leucocythæmia. Disease of the liver and dysentery were the chief causes of deaths in this class.

Diseases of the kidneys and bladder are likewise rare or terminate fortunately, the death-rate not exceeding 0.3 per 1,000 men, or 3 per 10,000.

In some cases of complex organic disease, involving equally various viscera, and attended with serous effusion, the deaths have been tabled as dropsy, and amount to 5 in 10,000.

Deaths by accident or violence somewhat exceed the rate of 1 per 1,000; but I have already referred to them, and apportioned their causes.

We now come, in the last place, to the extensive group of zymotic diseases, which, all-important as they are to the general, and more especially to the youthful population, will be found to affect comparatively little the adult male community, when contrasted with the disability and death induced by constitutional and organic disease, exhibiting only 6 per cent. of the whole amount of sickness, and 7 per cent. of the entire mortality, the zymotic death-rate does not reach 1 in 1,000 (0.9). Yet no epidemic has visited the eastern and southern suburbs of London, where the large majority of the Customs officers reside, without their being, however slightly, affected by it; and typhus, relapsing fever, and small-pox have all claimed their victims in these visitations. Small-pox was especially destructive in 1870-71-72, when it inflicted an annual loss to the extent of nearly 2 per 1,000 men. One-fourth of the cases terminated fatally, of whom all had been vaccinated, some had been revaccinated, and others had been a few years before freely exposed to the contagion without injury: a proof of the peculiarly malignant potency of the variolous poison in the last epidemic.

Only two cases of fatal cholera are recorded in the last eighteen years, presumably sporadic. One occurred in 1861, when no epidemic existed in or near this country; the other in 1866, the year of the last outbreak of cholera; but it was apparently self-induced by the officer, who, although in good health, had taken of his own accord a powerful purgative. Violent catharsis degenerated into decided cholera, and, through consecutive fever, destroyed life. No other case occurred in the force, although many resided in the stricken districts or on board vessels from infected ports; but there was in that summer a greater amount of severe bowel-complaint than I have seen before or since, the ratio of diarrhoea having been as high as 70 per 1,000, or four times the normal average.

The almost entire exemption of the Gravesend officers from zymotic disease is very remarkable. It is their duty to board and live for a time in all vessels from abroad, and they are daily brought into the most intimate contact with crew, passengers, and cargo of every ship on arrival; yet there is not an instance on record for many years of any of these officers having contracted in his vocation any reputedly contagious malady. No more satisfactory proof could be adduced of the general healthiness of the port of London in relation to its enormous foreign trade, or of the satisfactory sanitary condition of the Customs officers employed on this service.

In conclusion, I would beg leave to observe, in regard to this somewhat dry accumulation of statistical facts, that in one respect they possess a peculiar advantage; viz., uniformity and exactness in the numerical details, reaching over many years, on which they are founded; and, as I believe the diagnostic data and calculations to be as accurate as the nature of the subject will possibly admit, I venture to hope it may be favourably received as a contribution to our knowledge of the sanitary condition of the industrious adult male middle-class population of the country, and may even prove serviceable, by affording an estimate of the quantity and quality of sickness probably existing among them, and so may conduce to the sounder and more equitable management of those institutions for mutual help which, though admirable in conception, so often result in failure and disappointment to their members through sanitary miscalculation.

ON DEFECTIVE NERVE-POWER AS A CAUSE OF BRIGHT'S DISEASE.

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CASES of chronic albuminuria are not unfrequently brought under the cognisance of the physician, whose etiology and course are not, to my mind, satisfactorily explained by the ordinarily received ideas regarding the pathology of Bright's disease.

I do not here purpose to enter into the question of the morbid ana-

tomy of the kidney in this malady; but I may at the outset be permitted to remind the reader that, by careful observers, three different views, though perhaps really not so conflicting as at first might appear, are held as to the seat of the pathological renal change. Dr. G. Johnson believes this change to occur primarily in the gland-cells of the convoluted tubes; Drs. Dickinson and Grainger Stewart hold that the inter-tubular fibrous matrix is first the seat of disease; whilst the more modern theory—that of Sir W. Gull and Dr. Sutton—is that the outer coat of the renal vessels undergoes a hyaline fibroid change. These observations have reference to the small red granular kidney, which is commonly regarded not as a local affection, but as the expression of a constitutional state.

The precise nature of this constitutional state is one of difficulty, but the commonly received opinion is that gout or other allied blood-poison is the etiological factor. Without venturing to express any dogmatic opinion as to that portion of kidney-tissue in which the initial alterations occur, we are able to come to more harmonious conclusion as to the nature of the morbid process. It is eminently degenerative in type, and, attacking the gland in the part of greatest functional activity, soon interferes with its physiological work.

I regard many of the cases of chronic Bright's disease that come before me as illustrations of malnutrition in connection with impaired and diminished nerve-power. It is not difficult—indeed, it would only be the record of every-day experience—to cite instances of the influence of insufficient or perverted nerve-force in the impairment of the integrity of tissue and interference with cell-life and development. The physician finds such instances not merely in the wasting, but in the retrograde metamorphosis of tissue seen in paralysed limbs, or in similar changes in a persistent sciatica; the surgeon, in like changes by reason of pressure in the course of nerve-trunks, or wasting of the deltoid in injury to the circumflex nerve; the practitioner of ophthalmic medicine, in a conjunctivitis or corneitis, the consequence of a disturbance of the first division of the fifth cranial nerve and branches of the ciliary ganglion. Are not these fair and incontrovertible proofs of the influence of sensory and vaso-motor nerves in the phenomena of nutrition? In support of my view of the occasional, not to say unusual, occurrence of chronic albuminuria in association with disturbed nerve-force, I will draw a picture from real life.

A man of middle age, of temperate habit, and with a good family history (free from those diseases usually credited with heredity), complains of languor, weariness, and a sense of fatigue on exertion altogether disproportionate to the effort. He is dyspeptic, flatulent, and with a tendency to constipation. The appetite is bad; he has occasional nausea; the tongue is fairly clean, but pale, and marked with the teeth. Sleep is disturbed, not from pain or other very apparent cause, but a general restlessness. He has sometimes to get out of bed to pass urine, but the total quantity does not exceed three pints in twenty-four hours. His facial expression is haggard and somewhat anxious. His memory is not so good as formerly, and mental efforts are a great labour. These symptoms may have been in existence a year or more before advice is sought. The careful physical examination of this man fails to discover any evidence of organic lesion until his urine is examined, when albumen is found, with a shedding of imperfect renal epithelium. The crystalline deposit, if any, will probably be the oxalate of lime. This condition may go on for years, and with but little variation; and I now have a case, answering to the above, that has been under observation, without material change, so long as eleven years; and I quote it as an instance of simple malnutrition associated with defective nerve-power.

For the most part, those who, in my experience, suffer from this form of disease, are men of middle life, of sanguine temperament, the subjects of depressing emotions, or upon whom unusual anxieties and responsibilities have heavily pressed. The resulting enfeeblement of health courts, if I may so speak, disease degenerative in character. That the more violent, though brief, disturbances of nerve-centres powerfully affect the physiological function of the kidney, I am able, by the kind courtesy of my friend Dr. Moxon, to illustrate in the record of the following case. A gentleman under Dr. Moxon's care three months, whose urine had been repeatedly examined for albumen without results, was, a few days ago, suddenly seized with a fit in the street, and brought to the doctor's house. Immediately after the fit, the patient voided urine, which, on examination, was found to be loaded with albumen. In twenty-four hours, all trace of this had disappeared. There can be no doubt of the relations subsisting between the nerve-storm and kidney. If, therefore, such marked results as these can occur under brief, though powerful, nerve-influence, does it seem unreasonable or improbable that slowly destructive changes should follow the more silent influence of continuous nervous depression? Why the nerves of the kidney in any particular instance should be prominently

affected, must be determined by surroundings, if, in the present state of our knowledge, it can be determined at all; but I have not yet learned why the branches of the fifth cranial nerve are more frequently painful than any other, unless it be urged that they are more exposed, which I do not, however, accept as sufficient reason; but if the theory of exposure be accepted, then, *à fortiori*, will a nerve-sympathy and kinship be established between skin and kidney. It is important to remember, in actual bedside work, that long-continued functional disorder is very liable to lay the foundation of actual organic lesion; so that when we have involved an organ essential to life, the early recognition of such disorder becomes a question of vital importance.

I think reason exists for a belief in the milder, though not less chronic, forms of Bright's disease, as being due to imperfect nutrition of renal cells; not merely from the fact of disease continuing to be limited to cell-life, but from the absence of those secondary changes, which most frequently, within a comparatively limited period of time, occur as the result of a blood-dyscrasia.

I hope, at some future time, to follow up this subject by the record of cases in detail; at the present moment, however, my object will be attained should I be able to engage professional attention in a new field of clinical inquiry.

THE CLIMATE RESULTS OF TORQUAY AND MADEIRA.

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SINCE the publication of my Lettsomian Lectures, several criticisms have appeared in the *BRITISH MEDICAL JOURNAL* on my conclusions relative to the climates of Torquay and of Madeira, the authors being for the most part medical men residing now or formerly in these places.

It is not unnatural that such old-established health-stations should have their staunch defenders among those who have not, like London physicians, had full opportunities of judging of the results of many and various climates, and of learning lessons from the failures and successes of each.

However, the criticisms were, on the whole, acceptable, as containing some additional matter; and this was especially the case in respect to Dr. Hounsell's letter. Before discussing each in detail, I must remark that the writers appear to me to cling too much to the traditional ideas as to the ideal climate for consumptives, in which protection from winds, mildness, and equability are held to be primary requisites, and dryness and bracing influences only secondary.

Now, it seemed to me that the time had arrived when climates could be examined, not according to their theoretical value, but by the actual results furnished by them in the treatment of disease; and, if this examination has led to the depreciation of some of the leading favourites, the climates are to blame, and not I. The real deduction to be drawn from my figures is, that the old ideas of fitting climates for consumptives must be modified to bring them into harmony with ascertained facts.

My statistics have been called too small a number on which to build and promulgate opinions; I wish they had been larger; but still, as they stand, they exceed any relative climate statistics yet offered to the profession, and, when we consider how many patients, recommended to English or foreign health-stations, either do not go where they are ordered, or, if they do, furnish no results to the physician, the 251 foreign climate patients and the 248 home cases, all of whom belonged to the upper and middle classes, and were carefully observed before and after such climatic treatment by my father and myself, most of them having been many years under treatment, are surely not such small numbers.

The opinions of the most distinguished climatologists, like Sir James Clark and others, were based on less exact data.

Dr. Spencer Thomson and Dr. Strangways Hounsell find fault with my results about Torquay; and, while both allege my number of cases to be too small, Dr. Hounsell dwells on the difficulty of selecting similar cases, and intimates that the worst ones were sent to Torquay. Now, Torquay has the least right to complain on these grounds, as no fewer than 100 patients were submitted to the influence of its climate, and, so far from their being the worst cases, a reference to my second Lettsomian Lecture will show that the best cases were sent to Torquay and Ventnor, and the worst ones to Hastings and Bournemouth; so that no loop-hole remains in this direction for evading the conclusion arrived at.

Dr. Hounsell meets my favourable deduction about the breezy climate of Hastings with a quotation from Mr. Haviland, "that chest-disease is in excess in proportion to the amount of exposure to high