REVIEW.

Army Medical Department: Statistical, Sanitary, and Medical Reports for the Year 1861. Presented to both Houses of Parliament by Command of Her Majesty. London: Harrison and Sons: 1863.

The Blue Book of the Army Medical Department, which is now published every year, is divided into three parts,—the Statistical, the Sanitary, and the Medical. The first is produced under the superintendence of Dr T. Graham Balfour, Deputy Inspector-General; the second is edited by Dr Logan, Inspector-General; and the third by Dr Mapleton, Deputy Inspector-General of Army Hospitals. The three reports make up a bulky octavo volume of 550 pages, the price of which is only five shillings; and whether we look to the statistical, the sanitary, or the more purely medical information contained therein, we must allow that the work is one of the cheapest ever issued from the press.

The value of a correctly drawn up statistical report of the numbers, composition, sickness, and mortality of our army can scarcely be over-estimated, even if we regard the welfare of the soldier solely from the utilitarian point of view. The army is such a costly machine, and so much of our material prosperity, as well as of our influence and prestige as a nation, depends, or may, at almost any time, depend upon its efficiency, that whatever has a tendency to elevate or to depress it in this respect, whatever also purports to give us information concerning it, deserves to be scanned with the most jealous scrutiny. It is right, therefore, to approach the examination of these reports in a somewhat sceptical spirit, and not to accept their conclusions until after due investigation. The Statistical Report especially requires to be sifted in this manner, owing to the proverbial difficulty of deriving just conclusions from merely numerical data. "Tables," it has been well said, "are like cobwebs, like the sieve of the Danaides; beautifully reticulated, orderly to look upon, but which will hold no conclusion. Tables are abstractions, and the object a most concrete one, so difficult to read the essence of. There are innumerable circumstances; and one circumstance left out may be the vital one on which all turned."

During the last few years there has arisen a very general belief, that the sickness and mortality of our army previously to the war in the Crimea almost exceeded the wildest dreams of the imagination; but that since that period, and mainly through the exertions of Lord Herbert and Miss Nightingale, the soldier's occupation has been stripped of its dangers, and that his health is even better now
than that of the class from which he sprang. We must confess that the evidence in favour of this opinion has never seemed to us entirely satisfactory. That the mortality of the army is less now than it was ten, twenty, or thirty years ago, there is perhaps sufficient proof; but we question whether the reduction has been so sudden, so great, so real, or so entirely dependent upon what are called sanitary improvements, as certain writers in the daily and weekly press would have us to believe. It must be confessed, however, that Dr Balfour's reports have had a tendency to lead one to such a conclusion. In his first Report, viz., that for 1859, for example, it was stated that there was "a remarkable and most satisfactory reduction in the amount of mortality in all classes of troops; indeed, except in the depot battalions," it was said to be "little above that of the civil population in the healthiest districts of England." In 1860, a similar satisfactory condition was reported; and in the Report for 1861, which we now have under review, a still further reduction of mortality is alleged to have taken place. Dr Balfour also contrasted the mortality of the British army in 1859 with that of the period from 1836 to 1847; and because the death-rate in that year was considerably less than the average of the decade, many of our contemporaries and a great portion of the public have taken it for granted that the reduction was entirely the work of Lord Herbert, Miss Nightingale, and the somewhat noisy band of amateur sanitarians who followed in their train. On this point we consider that a great injustice has been done to the medical profession, because the alleged diminution in the rate of mortality occurred before the special sanitary duties of medical officers, instituted by the new code of regulations, were generally entered upon, and before the recommendations of the Sanitary Commission, with respect to the barracks and hospitals, were carried into effect.¹

A reduction in the rate of mortality, in fact, generally depends upon many concurrent causes, and not upon one only; whilst, therefore, we are far from denying the efficacy of a rigorous hygiene, we contend for the importance to be ascribed to advances in pathology and therapeutics. A great deal has recently been written about the prevalence of venereal diseases in the army, and the mortality that ensues from them; but if syphilis proves fatal now, what must it have done in the period from 1837 to 1846, when, to give a full diet to a soldier affected with venereal disease was contrary both to practice and precedent in the military service, and when the use of mercury was so imperfectly understood, and its abuse so common? Our sanitarians have not as yet made any impression upon the numbers admitted to hospital for this class of complaint; but we have good grounds for believing that improved treatment has greatly reduced the disability and mortality arising from it. Again, at the military stations in tropical countries, very

¹ Vide Dr Logan's Sanitary Report for 1859.
little has been done by the sanitarians, so far as we can discover, calculated to prevent sunstroke, dysentery, and certain forms of fever; yet we know that these diseases have become much less fatal of late years, owing simply to improved methods of treatment. It is wrong, then, to conclude that the reduction of mortality in the army, which has happily been effected, is to be ascribed solely to the labours of a few enthusiasts. It would be more correct, speaking broadly, to assign a diminution in the number of admissions to the agency of sanitary measures, and a reduction of the rate of mortality amongst the admitted to the greater efficacy of purely medical science.

Of course, Dr Balfour is not to be held responsible for the mistakes of the sciolists who are so fond of dabbling in medico-military matters; we cannot, however, acquit him of a tendency to exhibit the present condition of the army in a more favourable light than the facts would seem to warrant. Thus, in the first table of the Report for 1861, the ratio of deaths per 1000 of mean strength, of the troops serving at home, is represented as having been 9·95 in 1860, and only 9·24 in 1861; and the tables on pages 12 and 13 would lead to a similar conclusion if we did not mark the fact, that a practice prevails in the army of weeding the rank and file of their diseased lives, and that this process of discharging those who have become incapable of further service is called invaliding. We then naturally endeavour to discover what influence may have been exercised upon the death-rate by a difference in the amount of invaliding, but we regret to observe that the information on this head is neither so full nor so satisfactory as might have been expected. Dr Balfour is aware that invaliding affects the rate of mortality, and shows its influence, so far as may be done, by calculating the number of deaths amongst those of the invalids of the household cavalry, of the dragoons and dragoon-guards, of the royal artillery, the military train, foot-guards, and infantry regiments, who were placed on the pension list in the previous year; and his conclusion is, that the mortality of the cavalry and foot-guards was increased in 1861, whilst that of the artillery, military train, and infantry underwent a decrease. We can scarcely accept his conclusion, however, without objecting, not only, as he himself admits, that his calculation takes no note of the men discharged without claim to pensions, but also that one year is too short a period to refer to for the information required; and farther, that by omitting the results, whatever they may have been, of the invaliding from the depôts, he has neglected perhaps one of the most important items. We are inclined to think that invaliding has a greater effect upon the rate of mortality than Dr Balfour makes it appear, for, if we take the numbers afforded us by the table on page 12, we find that in 1860 the mortality amongst those of the troops above-mentioned who were serving at home averaged 8·61 per 1000, and in 1861 only 7·62; but then, if we take the trouble, we may discover that only 21·50 men per 1000 were invalided in 1860, whereas as many as
33·35 per 1000 were invalided in 1861 in these same corps. So that an increase in the rate of invaliding of 11·85 per 1000 was coincident with a diminution of mortality, amongst those remaining in the service, of no less than 99, or nearly one per 1000; and it seems difficult to avoid the conclusion, that, if the rate of invaliding had been the same, there would have been no reduction of the death-rate in 1861.

If now we turn our attention to the influence of age, or rather to the combined effects of age and military service, upon the mortality, we shall find additional evidence in support of the views we have expressed. Dr Balfour asserts that the mortality of the troops serving at home, exclusive of the depôts, only slightly exceeds that of the civil male population of similar age, even in the healthiest districts. But why should the depôts be excluded? Is it not possible, nay, even probable, that by adopting this principle of excluding the most unhealthy corps, or by overlooking the effects of invaliding, a body of troops might at any time have been presented whose death-rate would have been less than that of the civil population? But we should imagine, that if the mortality of the depôts were not estimated with that of their respective regiments, no correct deductions as to the real amount of sickness and mortality in the army could possibly be made. The household brigade have, however, no depot, properly speaking; and as they have no foreign service, except in time of war, their rate of mortality and invaliding will indicate pretty nearly the effects of military service at home. The following table, compiled from those on pp. 26 and 27 of the Report, will elucidate this part of the subject:—

| Year | Annual Ratio of Deaths per 1000 living at the following Ages: | Invalided. Ratio per 1000. |
|------|-------------------------------------------------------------|-----------------------------|
|      | Under 20 | 20-24 | 25-29 | 30-34 | 35-39 | 40 and upwards. |     |
| Household Brigade | | | | | | | |
| Household | 3·12 | 13·29 | 5·43 | 6·17 | 34·01 | 8·2 |
| Cavalry,1 |      |      |      |      |      |      |
| Foot Guards, | 8·40 | 10·35 | 11·42 | 21·51 | ... | 28·2 |
| Troops generally (including depôts) | 3·21 | 7·10 | 8·45 | 13·40 | 12·38 | 33·54 | 42·23 |
| at home stations, | | | | | | | |
| Civil Male Population | 5·83 | 7·30 | 7·93 | 8·36 | 9 | 9·86 | ... |
| Healthy districts, | | | | | | | |

1 The average strength of the household cavalry being only 1219, the figures concerning its mortality are less trustworthy than when larger numbers are dealt with, as in the foot-guards and troops generally.

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With the results of this table before us, and bearing in mind the observations we have made concerning the influence of invaliding in reducing the death-rate, we think it will be admitted, that whatever may hitherto have been done to improve the health of the soldier is very far short of that which yet remains to be effected. All our soldiers are picked men, but the guards are the crème de la crème. They are subjected neither to great changes of climate, nor to unhealthy climates, nor to privations in bad seasons; they live in comparatively healthy districts, and yet their mortality exceeds that of the civil male population. Surely, under such circumstances, it is somewhat premature to sing peans in celebration of our victory over death and disease. We ought not to cry “Peace, peace, when there is no peace;” or to “Rest and be thankful” whilst such a large amount of sickness and mortality prevails among the most select and most favoured of our troops. On the whole, we believe that Dr Balfour has prepared his report with the utmost care, still we cannot help noticing that it is not always easy, or possible, to reconcile his tables one with another. At page 5, for example, the average strength of the army serving at home in 1861, is stated at 88,955, with 822 deaths; but we look in vain for the sources from whence these numbers are derived. At page 12 the average strength is figured at 83,542, with 731 deaths; and these numbers are corroborated by the other tables, so that there are 5013 men and 91 deaths, concerning which we are left in the dark. Again, at page 26, the number discharged as invalids from the troops serving at home, is stated at 4554; but neither there nor elsewhere can we discover from what corps more than 3781 of these have been discharged; the remaining 773 are nowhere accounted for.

Turning aside, however, from the unwelcome task of exposing these defects, we have pleasure in observing the large amount of valuable information which the Report contains, of a kind that will be found useful to the civil as well as to the military medical practitioner.

The dockyards and arsenals and the seaport towns are observed to be the most unhealthy of the home stations; Dublin, London, and the large manufacturing towns, come next; and then the camps. The miasmatic diseases occur very nearly in the same order.

The ratio per 1000 of admissions for venereal complaints was,—in Manchester, 487; at Portsmouth, 485; at Plymouth, 470; at Woolwich, 399; at Aldershot, 361; at Dublin, 363; at Edinburgh, 260; at Fermoy, 195; in London and Windsor, household cavalry, 135, foot-guards, 328. “The admissions into hospital by this class of diseases have amounted to 354 per 1000 of the strength;” and in the proportion of 209 for syphilis, and 144 for gonorrhoea. “The average period in hospital is found to be,—of primary syphilis, 25-70 days; of secondary, 27-73 days; of bubo, 35-35 days; of gonorrhoea, 18-77 days; of swelled testicle, 17-80 days; and of stricture of the urethra, 29-90 days.” With respect to the average
period in hospital for primary syphilis, we suspect that the cases of primary and secondary syphilis are not always kept entirely distinct one from the other, and that the average of 25 days for primary syphilis is in reality considerably above the mark.

The tubercular diseases cause by far the greatest amount of mortality amongst the troops serving in the United Kingdom, and they are more frequent in the foot-guards than in any other corps.

Diseases arising from intemperance seem to be diminishing, both in amount and fatality.

During the year, 2053 soldiers and 4395 recruits were vaccinated, with the following results:

| Class       | Results (calculated in ratios per 1000) | In those who bore marks of previous Small-pox. | In those who bore good marks of previous Vaccination. | In those who bore doubtful marks of previous Vaccination. | In those who bore no marks of previous Vaccination or Small-pox. | Total. |
|-------------|----------------------------------------|-----------------------------------------------|------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------|--------|
| Soldiers    |                                        | In those who bore marks of previous Small-pox. | In those who bore good marks of previous Vaccination. | In those who bore doubtful marks of previous Vaccination. | In those who bore no marks of previous Vaccination or Small-pox. |        |
|             |                                        | Perfect pustule                                 | 451·4                                                | 484·6                                                  | 236·8                                                      | 326·0  | 430·6                   |
|             |                                        | Modified do.                                   | 159·6                                                | 157·4                                                  | 505·3                                                      | 277·5  | 218·7                   |
|             |                                        | A failure in                                   | 389·                                                 | 358                                                    | 257·9                                                      | 396·5  | 350·7                   |
| Recruits    |                                        | Perfect pustule                                 | 345·5                                                | 407·3                                                  | 461·3                                                      | 527·3  | 415·5                   |
|             |                                        | Modified do.                                   | 266·8                                                | 240·8                                                  | 301·3                                                      | 202·6  | 242·5                   |
|             |                                        | A failure in                                   | 387·7                                                | 351·9                                                  | 237·4                                                      | 270·1  | 342                      |

From this table one of two things is sufficiently clear. If it be true that the capability of developing a perfect vaccine pustule is a measure of the susceptibility of the system to the small-pox poison, as most authorities maintain, then vaccination, and even small-pox itself, affords but little security against subsequent attacks of small-pox; or else the distinction between the perfect and the modified vaccine pustule is but little recognised by the medical officers of the army—a conclusion which we think much the more probable.

Recruiting.—Of 12,191 recruits inspected, England furnished 6237; Wales, 235; Scotland, 1899; Ireland, 3742; British Colonies, etc., 78. Of these, 4600 were rejected, viz., 2257 English; 60 Welsh; 778 Scotch; 1476 Irish; and 29 Colonial—the proportion being highest in the Scotch, and lowest in the Welsh and English; and it is added, that “upwards of two-fifths of the rejections were for causes indicative of ill health or feeble constitution, and one-fifth for defects which would have affected the marching power of the men.”

Previous Occupations of the Men serving in the Army.—In the army, on the 1st of January 1860, there were 2655 bakers; 2527 blacksmiths; 2886 smiths generally; 1976 bricklayers; 2144 masons; 5032 tailors; 7404 shoemakers; 4001 carpenters; 957 cabinet-makers; 2146 painters; 1762 butchers; 1162 gardeners; 1197 printers; 244 druggists; 600 attorneys’ clerks; 4078 commercial clerks; 31,115 agricultural labourers; 69,861 labourers of
branches undefined; etc., etc. We should imagine that an army so composed ought to be well able to take care of itself under almost any circumstances; for there is ample material in it wherewith to furnish troops equal, if not superior, in intelligence and skill, to those of any other army in the world.

Of the foreign stations, we find that Bengal was the most fatal to the British soldier—the death-rate in that presidency having been 45.57 per 1000 of mean strength. In Bombay it was 24.72, and in Madras 15.83, per 1000. In China it was 20.19; in Ceylon, 19.85; in Australia, 15.44; at the Mediterranean stations it was about 11 per 1000; at the Cape, 10; and in Canada, 9.42. In India and China the high rate of mortality was caused principally by disorders of the abdominal viscera (cholera, dysentery, hepatitis, etc.), and by remittent and intermittent fevers. At the Mediterranean stations, fever, continued and remittent, and tubercular diseases, were the two chief causes of death.

From the various tables in this Report we have also gathered, that the average strength of the British army at home and abroad, in 1861, was 196,316, and that the deaths numbered 3675, or in the ratio of 18.72 per 1000; also, 6041 men were invalided, giving the ratio of 30.77 per 1000. Adding, then, the deaths and the number of invalids together, we have 49.49 per 1000 as the rate of expenditure in 1861. In the review of the Army Medical Reports for 1860, which appeared in this Journal in February last, the death-rate for that year was stated to have been 19.9 per 1000, and the rate of invaliding 13.1 per 1000,—the total waste of men being 33 per 1000. Consequently, although the actual number of deaths that occurred in the army in 1861 was less than in 1860, the conclusion seems well founded, that the reduction in the rate of mortality was almost entirely attributable to the greater extent of invaliding.

Having devoted so much of our space to the examination of the Statistical Report, our comments upon the Sanitary and Medical Reports must necessarily be very brief.

The object of the Sanitary Report is to show the condition of the barracks, hospitals, huts, and camps occupied by the troops; to note their defects, and to record what may have been recommended for their improvement; to mark the influence upon the health of the soldier exercised by his clothing, food, occupation, change of climate, etc.; in short, to take cognizance of the circumstances which tend to preserve the army in health and efficiency, as well as those which produce, or may be likely to produce, sickness and death.

In accordance with the new code of regulations, there is now sent to the Army Medical Department Office at Whitehall, at the commencement of every year, by each medical officer in charge of a detachment, regiment, or station, either at home or abroad, a detailed sanitary report, in which all the matters just mentioned
are commented upon, according to the extent in which they may
have come under his observation. The Sanitary Report of Dr Logan
is in reality an abstract of these; and notwithstanding certain
peculiarities of its style, which we should be glad to see amended,
it is impossible to glance through it without perceiving that the
medical officers are generally both able and active in the discharge
of their manifold and important duties. Professor Parkes, of the
Army Medical School at Netley, has also contributed to this section
an excellent "Report on the Progress of Hygiene;" and the
"Report on the Ventilation of the New Hut Barracks at Graves-
end," by Assistant-Surgeons Hewlett, Stanley, and Reed, for
clearness, brevity, and scientific precision, may well be regarded as
a model.

In the Medical section of Dr Mapleton there are a few contribu-
tions from medical officers to the literature, as well as to the science
and art of medicine and surgery. The "Observations on the Influ-
ence of Pandemic Causes in the production of Fever," by Mr
Lawson, Deputy-Inspector General of Hospitals, supply good rea-
sons in behalf of the theory which supposes the existence of a
noxious morbific atmospheric wave, whose course is from the south
or south-east towards the north or north-west in the Indian and
Atlantic Oceans. It is Mr Lawson's opinion that this pandemic
wave "determines the frequency and severity, rather than the
particular form of the fever; which, there are many reasons to con-
clude, is more intimately connected with the local circumstances at
the time" of its outbreak.

The report on fever as it occurs in Malta, from the pen of
Assistant-Surgeon D. Marston, R.A., may also be read with ad-
vantage. We are especially glad to see the paper of Dr David
Milroy, Assistant-Surgeon, 30th Regiment, on "Pulmonary Diseases
and their relation to Syphilis," followed by another on the same
subject from Professor Aitken of the Army Medical School, because
we fear that constitutional syphilis has never been sufficiently re-
cognised in this country as a cause of phthisis. The profession
will welcome the observations of these gentlemen, as being very
valuable contributions to our knowledge both of syphilis and
phthisis.

Professor Longmore's Reports on the Cases of Gunshot and
Sabre Wounds of Invalids, sent to Fort Pitt during the year
1860-61, are excellent in every respect.

Dr Mapleton himself informs us, that "on the 1st of January
1861 there were 1033 medical officers on full-pay. During the
year, 22 assistant-surgeons entered the service; 15 medical officers
died; 9 resigned; 8 retired upon permanent half-pay (7 from ill-
health, 1 from other causes), and 27 were placed upon temporary
half-pay, on account of illness." He also gives a list of the medi-
cal officers, from the Director-General downwards. With reference
to the number of deaths of medical officers, we must, however,
observe that in Hart's Army List 41 deaths were reported for this year, and in only 12 of these instances had the medical officers been on the half-pay list more than two years. We are therefore justified in believing the mortality of the officers of the medical department to be much higher than Dr Mapleton represents it,—indeed, not far short of 29 per 1000 (as was stated in this Journal last year), and consequently about 10 per 1000 more than that of the rank and file, and more than double that of the civil male population of England of similar age. When, therefore, we look down the long list of medical officers, and remember that two-thirds of them receive less than £210 a-year, we cannot wonder at their being discontented with their condition, especially as there seems no other prospect for the majority of them than to linger on for from ten to twenty years more, at very nearly the same rate of pay. This we believe to be the fundamental source of the dissatisfaction which pervades the department, and which serves to give exaggerated proportions to all its other grievances, whether emanating from without or from within. As to those which emanate from without, it is easy to understand why the medical has more of them than any of the other civil departments; for the officers of the latter are not brought so much into contact with the combatant officers, or in such important relations. The medical officer is in a false position in the army, owing to the absurdity of the regulations which affect him. He may be said to be a living anomaly, only to be described by antithesis; for "he is made to march, yet he was never drilled; he is supposed to ride, yet he was never taught; he carries a sword, yet he must not draw it;" he perhaps ranks as a captain or a major, yet he is neither one nor the other; he has grave responsibilities, yet no command; he pays his full share of the mess and band expenses, but has less than his share of their management; he is subject to military discipline, yet is considered a civilian; he has to dress like a soldier, yet he is not a soldier; he has to go into action, and occasionally also to fight, both for his own safety and for that of others, "yet he is perpetually told he is a non-combatant, etc., etc.; in fact, he is a civilian sailing, not under false, but under military colours." It is clear that he is too much, yet not enough; and the only way out of the dilemma would seem to be that which would separate him as far as possible from the purely combatant ranks,—which would, in reality, make him a staff instead of a regimental officer as he now most frequently is.

Nor is it difficult to account for the grievances which have their origin within the department. There is probably no class of men who, from the very nature of their studies and pursuits, are so sensitive as the medical, or so prone to resent any dictatorial interference on points of professional practice; and hence it happens that in no profession is there a stricter code of etiquette, or more necessity for its exact observance. But, strange to say, in the
military medical service such a code has scarcely any place, for it seems to be often thought that relative army rank entitles the senior to dictate to the junior, even in matters appertaining solely to surgical or medical practice; and as the "regulations" can generally be interpreted so as to sanction such a proceeding, it would be contrary to human nature if the power were never exercised. But, as if this were not a sufficiently fertile source of heartburnings and distrust, it is said¹ that there has recently been instituted a system of "confidential reports," which, if carried out, must tend, we think, to make every medical officer a spy upon the private as well as upon the public conduct of his subordinate.

We need not go farther in search of the causes which have rendered the medical department of the army so unpopular. We can only re-echo the general belief that the remedy is very simple. As there are only two classes of medical officers really required in the army, viz., surgeons and inspectors, these ranks only should be retained, and the pay and relative rank of each should progress according to length of service. But will this remedy be applied, seeing that it involves an increase of expenditure? We hope so, because we know that every improvement in the medical department of the army, every advance made by its members in station and comfort, has hitherto been almost immediately followed by an amelioration of the health of the soldier, and by an increase of his longevity. The good effected by Lord Herbert and Miss Nightingale arose, we firmly believe, almost entirely from the extent to which their acts and efforts led to the loosening of the bonds of red tape by which the hands of the medical officers had previously been so closely tied, and not from the fanciful schemes which they inaugurated. Of late these bonds have been tightened again, notwithstanding that the sickness and mortality of our army are still so much greater than they ought to be. Well, therefore, may we ask whether it is wise already to neglect the lesson which was taught us by the sad and humiliating experience of the Crimean war?

On Malaria and Miasmata and their Influence in the Production of Typhus and Typhoid Fevers, Cholera, and the Exanthemata. By Thomas Herbert Barker, M.D., F.R.S. Edin., etc., etc. London: John W. Davies: 1863.

The subject of the production of disease by malarious and miasmatic influences has of late years received great attention, and on various important points a marked change of opinion has taken place. Typhus, for instance, which was formerly considered as derived from a specific poison, and as being incapable of being generated

¹ Army and Navy Gazette.
de novo, is now generally recognised as capable of being produced under deficient hygienic conditions, the most important probably being the crowding together of human beings. Typhoid or enteric fever, again, which is now regarded as a distinct disease from typhus, is probably capable of being generated by the emanations proceeding from decomposing fecal matter. As to the true exanthematous diseases, small-pox, measles, and scarlatina, there is as yet no proof that they can arise spontaneously, and there is indeed a great probability to the contrary, as there is no evidence that these diseases existed in Europe at a remote period, and as they appear to have been unknown in the western world and in Australasia until introduced from the eastern hemisphere. The solution of the various questions regarding the influences of malaria and miasmata in the production of disease, is not merely of pathological interest, but of the highest practical importance, for a diminution in the mortality occasioned by the exanthematic and allied diseases is to be sought for, not so much in improvements in curative treatment, as in the discovery and enforcement of judicious prophylactic measures.

The first six chapters of Dr Barker’s book contains an abstract of the opinions of a great variety of authors as to the influence of malaria, and as to the origin or development of epidemic diseases from geographical, meteorological, and climatic influences. The seventh chapter contains Dr Barker’s own opinions on the subject, and the following is the general conclusion at which he arrives:—“The thing is clear, as I shall have occasion to show in the sequel, that there are specific poisons for all the diseases under consideration, and that other agencies and influences, whether meteorological, geographical, or mental, are but secondary agencies, adding to the effect of the primary and no more.” With this conclusion, in the present state of our knowledge, we entirely concur.

The eighth chapter contains original observations on the relations of various meteorological states to particular diseases. The results are interesting; but as the period of observation (two years) was too short, and the number of cases of disease was too small to warrant the deduction of general conclusions, we refrain from stating Dr Barker’s results in detail; we may merely state that they agree on the whole with those arrived at by other observers.

The tenth chapter is headed “Illustrations of the Origin and Propagation of Diseases by Infected Air.” Regarding the cases detailed, Dr Barker observes:—“Suffice it to say, in the way of introduction to the examples of disease named, that they were all well marked types of the families to which they respectively belonged, and that the circumstances under which they occurred were observed in the most careful and trustworthy manner. However much, therefore, opinions respecting the origin or propagation of the diseases may differ, the facts must be accepted; and on the facts, apart from the opinions, I base all the value that attaches to the histories appended.”
We are far from saying that there is not much interesting matter contained in these observations; at the same time, many are detailed in such a loose manner that their value as scientific facts is greatly impaired. In proof of this we shall quote the first two observations recorded by Dr Barker, as illustrative of the origin of typhus and typhoid fever:

"Observation 1. A gentleman under my own care had often complained of the offensive smell in the lower part of his house on going down in the morning; and was compelled to open the windows and doors for some time, in order to remove it. This arose from a neighbouring drain, the emanations from which had frequently been so copious as to tarnish the candlesticks in the kitchen, and the brass handles of all the doors,—not only of his own house, but of the adjoining house. In August 1857, this gentleman was seized with fever, which he had so severely as to be confined to his bed for four weeks. During his illness a nephew from another part of the country visited the next door, but had no intercourse with his uncle. The nephew returned home and was directly afterwards seized with fever. After the gentleman's recovery, a shop-girl was also seized with fever, which went through precisely the same course. In this instance the water-supply was good, and removed from any source of contamination.

"Observation 2. In the immediate neighbourhood of a slaughter-yard in St Paul's Square, Bedford, the drainage is very deficient, fever has been rife for some years past. The exhalations are so powerful as to have been known frequently to have discoloured plated brass, and silver articles hanging up inside the houses. In one row of houses, in the autumn of 1849, a tradesman's wife and daughter, whom I attended, were attacked with fever, and the wife died. The members of another family in the adjoining house were all, except the husband, seized with fever in 1850. This fever was so virulent that it was with difficulty the affected family could procure a nurse to attend them. In another house, in the same row, several members of one family were seized, and two died. In 1853, several members of a fourth family were seized. On this occasion the fever continued in the house many months, and one person died from it. In 1853 and 1854, a large family in the same locality was attacked with fever. Two of the children suffered from it severely; one of them, a girl of twelve years of age, was confined to her bed for four months. They both recovered."

To these observations, in which it will be noticed nothing is said of the symptoms of the disease, Dr Barker appends this remark: "The fever in all these cases was pure typhus, and many of the sufferers from it, after partial or complete recovery, were subjected to relapses." In an inquiry of the nature of the present an author has no right to require his readers to accept his conclusions unsupported by evidence; what proof is there that the cases recorded were examples of "pure typhus"? and does not the frequent occurrence of relapses rather indicate that the disease was typhoid, in which relapses are not uncommon, although they are unknown in pure typhus?

The third observation is the following:—

"Dr Frederick J. Brown of Chatham has communicated to me the following case. 'In the city of Rochester there was a house adjoining a privy-cesspool which had long been closed. One day this cesspool was opened; typhoid fever of a malignant type at once showed itself in the house, and three children
died from it. The connexion of cause and effect in this instance was immediate and unmistakable."

The connexion of cause and effect may to Dr Frederick Brown's mind have been immediate and unmistakable, but Dr Barker had no right to expect it should be equally so to his readers, and observations require to be much more carefully and minutely detailed before they can be accepted as scientific evidence.

In many of the other observations the description of the fever is equally vague; thus, it is spoken of as "low"; "low continued"; "of an obstinately relapsing character"; "of a typhoid character"; "typhus and typhoid fever with diarrhoea." We regret that more precision has not been introduced into these descriptions, for it is only by means of a collection of carefully-recorded observations that the question of the origin of the various forms of fever can be determined.

The twelfth chapter contains a record of original experiments regarding the poisonous effects of gases emanating from sewers and cesspools. By means of an ingeniously-constructed apparatus, Dr Barker was able to expose the animal under experiment to the influence of a continuous current of cesspool-air for any length of time. One of the experiments is very interesting, though incomplete. It is too long to be detailed here; but it may suffice to say, that a dog was exposed to a current of cesspool air for twelve days, and the symptoms produced were certainly not unlike those of typhoid fever; the animal was at first restless and uneasy and refused food; on the second day, there was frequent sickness followed by diarrhoea; thirst and loss of appetite continued, and emaciation made rapid progress; on the ninth day, when removed from the box for a short time, his skin was found hot and dry, and he was very weak; on the twelfth day, being very ill and restless, he was removed from the box, and the experiment was brought to a conclusion. As it stands, this experiment teaches us little or nothing; but had the animal been allowed to die, or had it been killed on the twelfth day and a post-mortem examination been made, its previous sufferings would have been utilized, as it would have been very important to know whether ulceration of the intestines would have been found. Experiments with sulphuretted hydrogen, sulphide of ammonium, and carbonic acid gas, are then detailed, and the result arrived at is expressed in the following terms:—

"The symptoms which we have thus noticed as resulting from the inhalation of sulphuretted hydrogen, sulphide of ammonium, and carbonic acid gas, are sufficient to account for the effects arising from cesspool emanations, without seeking for any further product from such emanations. Comparing the experiments with cesspool air, with those in which separate gases were employed, the inference seems clear to my mind, that the symptoms arising from the inhalation of the cesspool atmosphere were due mainly to the presence of a small amount of sulphuretted hydrogen, which gas with ammonia was always present. If the experiments with the cesspool air be placed side by side with those in which sulphuretted hydrogen, in the proportion of 0·51 per cent. was administered by inhalation, the analogy between the two sets of results will be sufficiently unmistakable."
With this conclusion we cannot altogether concur; among other reasons, because sulphuretted hydrogen, when present in sufficient quantity to be injurious, can always be recognised by its odour; whereas there seems every reason to believe that cesspool emanations may cause disease though no peculiar smell can be detected. The fourteenth chapter treats shortly of public and private hygiene in its relation to the diseases under consideration.

In conclusion, though we have pointed out what we consider to be serious deficiencies in Dr Barker's work, we consider that he is entitled to the thanks of the profession for the care and ingenuity he has devoted to a very important and complicated inquiry.

A System of Instruction in Qualitative Chemical Analysis. By Dr C. Remigius Fresenius. Edited by J. Lloyd Bullock, F.C.S. Sixth Edition. London: Churchill: 1864.

The works of Fresenius have long since been recognised as amongst the best guides to the student of analytical chemistry. Their success both on the Continent and in this country are sufficient proofs of the estimation in which they are held. The present edition of the work on qualitative analysis contains several important improvements. In the first place, whereas the plan of the work originally excluded the rarer substances and their compounds, all the known elements are well treated of, and processes are given for their preparation and detection; and in the second place, the beautiful process of spectrum analysis is fully treated of. This part of the work is illustrated by an admirably-executed plate of the spectra produced by the alkalies and the alkaline earths. With these important additions, combined with the known accuracy of the older portions of the work, we cannot doubt that the popularity of Fresenius' Qualitative Analysis will be both maintained and extended.

Part Third.

MEDICAL NEWS.

CONVERSAZIONE OF THE ROYAL COLLEGE OF SURGEONS.

On Thursday the 17th of December, a Conversazione of the Royal College of Surgeons was held in their hall, Nicolson Street. The company, which was very numerous, and consisted exclusively of members of the medical profession, included, besides Fellows of the College of Physicians and Surgeons, most of