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A REPORT

ON THE



SANITARY CONDITION OF THE ARMY,

PARTICULARLY DURING THE LATE WAR WITH RUSSIA,

By A NON-COMMISSIONER.

1858

REPORT,

&c.

SINCE the close of the eventful war waged with the greatest CAPTAIN of ancient or modern times, the vast naval power of England has enabled her to protect not only these shores, but her numerous dependencies in every quarter of the globe, with the aid of a comparatively small standing Army. The immense developement of steam navigation, during forty years of peace, has, however, so greatly facilitated the means of attack as to render it no longer prudent in any state, having an extensive and vulnerable seaboard, to rely too exclusively on a single arm, restricted to a particular element, for the defence of its territory.

To men who see a rampart in every ditch, and a redoubt in every inclosure, to be defended by tumultuous levies, imbued with the native courage of our race, against veteran soldiers, skilfully led, we have not one word to say. They simply ignore the advantages of strategy and organization, which would speedily convert the green fields into bloody shambles.

It was behind such frail defences that the hardy bands called out from the counties south of Humber, to do battle at Hastings, resisted the fierce onset of the Normans, with a stubborn courage which their posterity cannot hope to surpass; and, if we are to credit the old Chronicler, no sooner was that unwieldy mass of footmen set in motion, by the

stratagems of the enemy, than the fate of England was decided on that well-fought field. The lesson was too dearly purchased to be lightly forgotten ; and England has no Sebastopols in which, behind solid earthworks, undisciplined valour, ably directed, might long defy the utmost efforts of trained legions.

A regular force, therefore, sufficiently strong to keep the field, and check the progress of an invader, until the great military resources of the country can be made available, is, henceforward, an imperative necessity. But in a land where conscription is no longer possible, such an Army is collected by slow and painful steps, even at a time of military enthusiasm ; and it was only by repeatedly lowering the standard, and increasing both the age and the bounty, that 49,150 recruits, and volunteers from the Militia, could be gathered together to swell the ranks during the first thirteen months of the late war with Russia. (Report, Sebastopol Committee, p. 357.) It would be a delusion to suppose that the men thus raised were really effective soldiers, for “when the Duke of Newcastle informed Lord Raglan that he had 2,000 recruits to send him, he replied that those last sent were so young and unformed that they fell victims to disease, ‘and were swept away like flies.’” (5, Report, Sebastopol Committee, p. 6.) The noble-minded Field-Marshal, though at his utmost need, “preferred to wait,” and this wise resolve was fully justified by the testimony of the Officers of the Army, proving how largely these raw levies augmented the mortality of that calamitous winter.

In the Report of the late Royal Commission on the Sanitary Condition of the Army, it is stated (p. viii) that “the soldier’s is a picked life,” which is true in so far as regards “unformed youths,” and the other rough subjects presenting themselves for examination ; but the population of these kingdoms must be degenerating with rapid strides if nearly one-half of the peasantry and working classes, of a

suitable age, shall be found unfit for military service. A few morning visits to Duke Street, Westminster, or to the head-quarters of any other recruiting district, will soon convince the most credulous spectator that the ranks of the Army are *not* filled up from the *élite* of our peasantry, notwithstanding the majority of the motley assemblage he may see before him has undergone a preliminary scrutiny, either by medical men at out-stations, or by non-commissioned officers skilled in all the mysteries of recruiting.

According to the tables (p. 499) in the Report of the Commission, 523 recruits were rejected on primary examination in Dublin, 484 in Edinburgh, and 388 in London, in each 1,000 examined; while only 324 per 1,000 conscripts for the French Army were rejected for physical defects.

We must not in consequence infer that the degeneracy of the race has made greater progress in this country than elsewhere, or that the Irish and the Scotch are inferior to the English in physical conformation, but that the net of conscription includes all classes in its meshes in France, while with us, the unformed, the poverty-stricken, and the dissipated classes, voluntarily enlisting, present themselves with more assurance at one station than at another. We cannot forbear expressing some surprise at the small number of recruits rejected for "a tendency to consumption," namely 1 in 263 (Roy. Com. Table p. 497, App.), seeing this disease is the bane of both civilian and soldier. The same singularity is apparent in the French Returns (*Ibid.*, p. 500) as regards "diseases of the chest," but in the latter the numbers rejected for "weakness of constitution," are to the rejections in the British Returns for "unsound health," and "muscular tenuity," &c., as 94.8 to 56.2 per 1,000.

It is evident, therefore, that a winnowing which separates so little of the chaff can exert no very

marked influence on the rate of mortality from pulmonary disease in the army compared with civil life.

Until attested, the recruit can release himself from his engagement by paying the smart, and by this picking, in an opposite direction, many of the best men elude the service.

In the Report of the Royal Commission, the soldier's rate of mortality has been industriously compared with that of the rural labourer; of out, and indoor trades in towns; of night printers; of policemen; and of miners, and in each instance the comparison appears to be most unfavourable to the soldier. In order to find a fitting parallel, the Commissioners at last resort to clerks, and they say "it seems almost incredible that it should be necessary to have recourse to the most unhealthy occupations in order to institute any comparison in which the rates of mortality shall approximate to those prevailing among your Majesty's troops, for at present the Army stands almost at the head of unhealthy occupations in the United Kingdom." (Report, p. xi.)

The mortality in the Army is no doubt deplorably great, and our regrets thereat can be in no degree diminished by finding that it is far surpassed in other occupations of the people.

In the Report of Dr. Letheby to the Common Council of the City of London, for the year 1857, as reported in "The Times," we find the following passages, which deserve the earnest consideration of the Commissioners. The able Health Officer of the City says:—"As to the influence of occupations on the mortality, I may remind you of what was said in my last report, for the experience of another year has only confirmed the former observations. Taking the mortality of the two years, the following are the results:—Of all the males of 20 years and upwards in the City of London the deaths per 1,000 are 22·5; but the different classes of society have contributed

very unequally to the aggregate ; for butchers, poulterers, fishmongers, shopkeepers, and merchants, have died at the rate of only 15 to 16 in the 1,000 ; while tailors, and weavers, shoemakers, printers and compositors have succumbed at the rate of from 20 to 23 per 1,000 ; wine-merchants, publicans, waiters, porters and messengers, at the rate of from 24 to 26 per 1,000 ; blacksmiths and gas-fitters, painters and glaziers, dyers, bargemen and watermen, at from 28 to 30 in the 1,000 ; cabmen, draymen, ostlers, carmen, and stablekeepers, at the rate of 31 in the 1,000 ; clerks and needlewomen, at from 34 to 35 in the 1,000 ; and, lastly, the hard-working classes of carpenters, masons, and labourers, at from 43 to 45 in the 1,000. These figures may not be expressive of the exact influence of the occupations on the mortality of the several classes, because it is impossible to eliminate all sources of error, but they represent nearly enough the general fact, that there is a great difference in the vitality of the several classes, for the well fed butcher and the prosperous merchant die in far less proportion than do those who are more exposed to the rough usages of life ; and then again there seems to be something about the close occupation of clerks and needlewomen that makes them especially susceptible of disease."

"If we turn to the other modes of testing this matter, we shall find that while in all London the mean age at death among adult males is a little less than 51 years, each class has its own particular longevity. The merchant, shopkeeper, and domestic servant, will live to be nearly 57 years of age ; the butcher, poulterer, and fishmonger, to be about 53. Most of the other classes will reach from the age of 50 to 52 ; though the painter and dyer, the costermonger and hawker, the bargeman and waterman, survive only from 48 to 49 ; and, lastly, the printer and compositor live to but 45 ; and the baker and confectioner to only 42."

Considerable allowances must necessarily be made on account of age in a comparison of these occupations with the soldier's; but the hard working classes, suffering as they do from so much sickness and mortality, can scarcely be supposed to follow their laborious employments much beyond the usual service in the Army. Unfortunately, the rate of mortality among them is sufficiently ample for every deduction, being more than twice that of the Foot Guards; while that of the healthiest trades exceeds the rate of the Household Cavalry.

Other examples of the unequal pressure of death rates on certain populations and employments might be found; but we turn from the task, in sorrow that so many of the busy hands which create the wealth of England should be consigned to an early grave.

The aggregation of troops in camps, garrisons, and quarters, places them in nearly the same circumstances with town populations, and it is with these that their rates of mortality can be most justly compared. But as such comparisons throw no light upon the causes of that mortality which they indicate, we must search for those causes in the special conditions in which the soldier may be placed.

When the recruit joins his regiment or *depôt*, he suddenly undergoes a total change in his manner of living. The barrack room is substituted for the crowded lodging-house or poor cottage. His clothing is changed almost always for the better. He is better fed than he had been for months, or, perhaps, for years, and the monotony of his diet has not yet excited disgust, nor is it varied by the occasional fasts of his former imprudent and thoughtless career. But he now lives under restraint, and inwardly pines for that vagrant liberty to which he had been accustomed, as is too evident from the frequency of desertion. His drills are slow, and full of sameness, and come under the class of "outdoor employment requiring little exercise," shown by Mr. Neison

(Rep. Roy. Com. p. 508, App.) to be unfavourable to health. In the Infantry, after about four months' instruction, he is usually turned into the ranks, and begins his duties as a soldier by mounting a few supernumerary guards.

How far the privations the recruit has, in most cases, undergone before enlisting, his mental depression afterwards, or his course of training for his new duties, may influence his health, it would be no easy matter to decide; but it is only under 25 years of age that his rate of mortality is more than twice as great as that of the civilian in the unfavourable comparison instituted by the Royal Commissioners. (Report, p. viii.)

We have already submitted a few facts which appear, in some degree, to justify grave doubts as to the "excessive mortality" said to prevail in the Army, on home service, compared with other occupations. But the Commissioners say (Report, p. xiii), "the causes assigned to us for these high rates of mortality are:—

- "1. *Night duty:*
- "2. *Want of exercise, and suitable employment:*
- "3. *Intemperate and debauched habits among the soldiers:*"
- "4. *Crowding and insufficient ventilation, and nuisances arising from latrines, and defective sewerage in barracks:*"

And in endeavouring to determine how far they have duly weighed the influence of each of these causes, we shall follow the same order.

"1. *Night duty.*"

Independently of tropical climates, and malarious districts, in which the effects are too manifest to be overlooked, the belief has long been prevalent in the Army that night duty, "*per se*," was a cause of sickness and mortality. But our preconceived opinions were

rudely shaken when we found the Royal Commissioners affirming that "we are, after a careful investigation of the subject, disposed to attach comparatively little importance to the first head." The comparison with the Police, who perform a night duty far more severe, and yet have a mortality of only one-half of that of the Infantry of the Line, and less than one-half of that of the Guards, seems to support our conclusion." (Report, p. xiii.)

In some dismay, we looked at the Returns from the Metropolitan Police (App. p. 501), and found that the mortality, *while serving*, is 7·6 per 1,000 annually. But "the specified period of sickness during which a man is allowed to be on the sick-list, on the authority of the chief surgeon, is not to exceed four weeks in one year." Longer periods must be sanctioned by the Secretary of State, the maximum being twelve months. This regulation virtually excludes the mortality from chronic diseases, particularly in all policemen under five years' service (the full average in the force), who are not entitled to pensions or gratuities. In the Foot Guards (Report, p. xv), the mortality from chronic diseases of the lungs is stated to be 12·5, and if we deduct this number from the total rate, 20·4, we at once reduce the mortality in the Guards to 7·9 per 1,000, which is nearly the same rate as that of the Police.

But the Royal Commissioners remark (p. ix), that "to state the loss of men by invaliding is the same as the loss by death." . . . "It is obvious, therefore, that the rates of mortality, taken alone, represent a part only of the loss annually caused in the ranks of the Army by disease." This rule must be equally applicable to the Police, and the Return (p. 501) shows that not only 35 policemen are "discharged by being invalided" annually per 1,000, but that the force is renewed "*de fond en comble*" in less than five years; whereas only 14·3 guardsmen, under seven years' service, are invalided per 1,000 of mean

strength yearly. Although the policeman's "is a picked life," yet objections might be raised to this comparison, which render it necessary to pursue the parallel a little farther. On contrasting the number of attacks of sickness in the two forces, it will be found that the admissions in the Guards (Statistical Report, 1853, p. 12), average 862; and in the Police (Roy. Com. App., p. 501), 1,897 per 1,000 of mean strength annually. The admissions in the Police, therefore, are more than twice as numerous as in the Guards, and slightly exceed the admissions (1,892) among the white troops in the West Indies (Roy. Com. App. p. 489) since 1837.

It has thus been shown that the mortality in the Police Returns can include few deaths from chronic diseases,—that nearly five policemen are invalided for two guardsmen,—and that attacks of sickness are exceedingly numerous among the police, but the Metropolitan Returns do not enable us to determine how far these results are dependent upon night duties.

The Returns to the Royal Commission from the City Police, however, furnish the desired information, and we find (9. p. 505, App.), that the admissions from the night force (2,001), exceed those from the day force (1,480), by 521 per 1,000; while another Return (2. p. 504, App.), shows that 57·2 night policemen die for every 35 day policemen. These differences in the number of admissions and rates of mortality, in the night, and day forces, support the opinions prevalent in the Army—that night duties are injurious to health; but the strength of the City Police is too small to warrant the conclusion, that *night duties alone* are more fatal to the Police than all causes collectively are to the Guards.

“2. *Want of exercise and suitable employment.*”

Experience on a sufficient scale has apparently established the fact, that active labour in the open air is promotive of health and longevity; but the soldier's time is usually spent in sudden alternations of great exertion and comparative inaction. The rural labourer, the most healthy of the class, strips to his work, and resumes his outer clothing when the hours of exertion are over. The soldier, on the contrary, is buttoned up to the throat at a field day, or when out in marching order, and he will strip to his shirt and trowsers, *if permitted*, the moment he returns to barracks. In heavy marching order, the infantry soldier carries no light load; his chest is covered to some extent by thick buff belts, and his back by the knapsack, consequently any considerable or prolonged exertion throws him into a most profuse perspiration. The fear of jibes from his comrades, and a spirit of emulation, prevent him falling out until fairly exhausted, and he frequently drops down in the ranks in a fainting state. Though ordinary outdoor labour may be promotive of health, yet irregular and violent exertion of this kind may not; but such is the labour which falls to the lot of the foot soldier alone, the most unhealthy of soldiers.

The duties of the Cavalry are very different. The dragoon never grooms his horse in his ordinary dress; nor, excepting as a punishment, does he ever carry a heavy load. He seldom remains long inactive on parade, and at drill uses his arms rather than his legs. In exercising his horse, his feet are not drenched in the mire or snow. His time is more fully occupied in his duties, and his horse is a source of pleasure to him. It is for the infantry soldier, therefore, if his time cannot be profitably occupied on public works, that means of exercise and recreation are chiefly required, and every inducement should be held out to him to spend that time to advantage, which is now too frequently wasted in undermining his health.

"3. Intemperate and debauched habits among the soldiers."

Intemperance is beyond all doubt a source of sickness and mortality in the Army, but we possess no data to show whether it is more or less prejudicial than in civil life.

A cursory examination of the Statistical Report (1853) shows that delirium tremens is less common in the Foot Guards, than in either the Cavalry, or Infantry on home service. In the North American Colonies, including Bermuda, it is both more prevalent and fatal than in the Mediterranean garrisons, but in all it is more frequent than in Great Britain. It is also worthy of remark that this disease is never mentioned in the returns of the Malta Fencibles, while it is peculiarly fatal among our soldiers on some of the small Ionian stations.

During the ten years, delirium tremens appears to have caused 150 deaths on an aggregate strength of 474,830, on all these stations, but to this number must be added forty-five deaths from "excessive intoxication," increasing the total to 195. These figures do not show the whole loss, however, for fatal accidents are more frequent on the stations where drunkenness is most prevalent; and there are, moreover, the deaths from diseases of the digestive organs and nervous system (other than delirium tremens) to add to the list, as the special offspring of drunkenness.

Intemperance is likewise a source of crime and punishment in the Army, and we need only refer to the evidence of Colonel Jebb for the proof. (Report, Roy. Com. p. 174.) Though military prisons are vigilantly superintended, yet there are few military officers credulous enough to believe that confinement is favourable to health. In the "Papers relating to the Sanitary State of the People of England" (p. 23), it is said, Dr. Baly ascertained from the records of the Milbank Penitentiary, "that the mortality caused by tubercular disease had been

between three and four times as great during the eighteen years, 1825-42, among the convicts confined in this prison as it was in the year 1842 among persons of the same period of life in London generally." Imprisonment, however, is the usual punishment of drunkenness; and, notwithstanding an amount of ventilation, which gives each prisoner thirty cubic feet of fresh air per minute, "on the whole they lose weight, but they generally are discharged in good health." (Colonel Jebb, p. 173, Report, Roy. Com.) The same high authority states (Q. 5196), that "there are many depressing influences in imprisonment which lower the condition of a man, and render him liable to a general failure of health."

The diseases arising from debauched habits may be divided into two classes, the one comprising puriform discharges, which probably exert no permanently injurious effects beyond those of a local nature; the other, ulcers and constitutional affections, which frequently impair the health for years, if they do not permanently destroy it—these dangers being much increased by the exposure of the soldier on night duty. Impressed with these convictions, which are very generally entertained by Army Medical Officers, we had recourse to the abstracts appended to the Statistical Reports (1853), to see how far these opinions might appear to be borne out as regards chronic pulmonary diseases. Accordingly, we found that in the Cavalry at home, the admissions, with the diseases held to be injurious, averaged 88, and the deaths from chronic pulmonary diseases, 6.6 per 1,000 annually. In the Infantry, the admissions were 134, and the pulmonic deaths 8.9 per 1,000. In the Foot Guards, the admissions were 154, and the deaths from chronic lung diseases 12.5 per 1,000 of mean strength, annually.

On extending our inquiries to the stations in British North America, and the Mediterranean, we likewise found that, in all of them, the admissions

with the special affections under consideration, and the deaths from pulmonary diseases, were lower than at home; and that, in the Malta Fencibles, both the admissions and the deaths were at their minimum. Though these results are founded on an experience of ten years in a large aggregate force, in various climates, yet we must confess that they only appear to support the conclusion drawn by the Royal Commissioners from other premises,—that the dissipation and debauchery of the soldier “have a most injurious effect on his constitution.”

“4. *Crowding and insufficient ventilation, and nuisances arising from latrines and defective sewerage in barracks.*”

Barrack accommodation had been a subject of complaint and correspondence for years before the revised orders and regulations of 1851 were issued by the Board of Ordnance. The recommendations of the Committee of 1855 were still more extensive, and great improvements, in consequence, were in progress, when the Royal Commission of 1857 denounced the overcrowding and want of ventilation and drainage in these buildings, as the principal causes of that chronic pulmonary disease which prevails in the Infantry. The Commissioners, in opening their “brief,” say, “that in civil life insufficient clothing, insufficient and unwholesome food, sedentary and unwholesome occupations, and the vitiated atmosphere of unhealthy dwellings, all contribute to the propagation of this class of diseases.” Nevertheless, the clothing, the food, and the dwellings of the people have undergone great improvements within our own memory; yet Mr. Neison informs us (p. 327, Report, Roy. Com.), that “there has been very little variation in the value of life,” for more than a century. The barrack accommodation of the soldier has likewise undergone great changes, but his occupation and habits have remained

the same, and the mortality from chronic pulmonary disease, in the ranks, has not decreased in a greater ratio, of late years, than the deaths on the pension list have increased. (Statistical Report, 1853, pp. 48-50).

The careful researches of Dr. Greenhow (Papers, &c., p. 79), show that in Liverpool the death rates, from pulmonary affections among males, above 20 years of age, are 10·4, and among females 7·5 per 1,000, though the latter follow no special occupation, and are at least as much exposed to the evils of defective ventilation and the foul air of unwholesome dwellings, as the males. The same table shows that the difference in the death rates of the two sexes in Birmingham is less than in Liverpool, and still less in Manchester than in either, apparently in consequence of the larger employment of females in special occupations. From another table (p. 63), it appears that pulmonary affections carry off 14·4 males, above 20 years of age, per 1,000, at Alston, and only 7·8 females; this striking excess in the male rates being evidently due to occupation.

The mortality from pulmonary disease in the Guards is higher than in the Line, but there are no good grounds for imputing the disparity to any inferiority in their barracks.

The annual pulmonary death rate of adult males in London is, however, nearly 2 per 1,000 above the average of England and Wales, and this circumstance may explain, in part at least, the higher mortality prevailing among the Guards.

The Commissioners state (p. 13) that the mortality in the Guards while in Canada fell below that of the Line; but we learn from the Statistical Reports (1853, p. 194,) that "in all the new barracks the space allowed each man was 300 cubic feet," and that during the period in question "the number accommodated was often considerably beyond what the space would have warranted if calculated on that principle."

This improvement in the health of the Guards, therefore, can scarcely be ascribed to more roomy quarters in Canada; and to the best of our memory and belief, neither the means of ventilation nor the latrines and sewers are better there than at home.

In these remarks we would merely protest against that imperfect analysis of the facts upon which the Royal Commissioners found their conclusion, "that the ravages committed in the ranks of the Army by pulmonary disease are to be traced in a great degree to the vitiated atmosphere generated by overcrowding and deficient ventilation, and the absence of proper sewerage in barracks." (Report, p. 16.)*

Neither the class from which the recruit is taken, his drills and employment, his intemperate and debauched habits, crimes and punishments,—nor, above all, his night duties, and recklessness of exposure in all seasons and climates,—have been duly weighed, in these inquiries into the causes affecting the health of the soldier.

Overcrowding and impure air will no doubt injure the health, and they appear to be peculiarly favourable to the production of fever, and the dissemination of infectious diseases. But there are other considerations which render it most desirable that barrack accommodation should be improved,—namely, that "it is indispensable as the basis of all training by which the moral standard of the Army may be raised." Very few witnesses can speak with greater authority on this subject than Colonel Jebb, and it was with feelings of astonishment that we saw his great experience in the construction, ventilation, and warming of buildings, overlooked in the appointment of a "Barrack Improvement Committee."

Much has been said on Military General Hospitals, and the converted Barrack at Fort Pitt appears poor

* Mr. Neison has disposed of the hypothesis since this was in type.

and miserable in comparison with costly Naval and Civil Hospitals.

The Commissioners (p. xxxix) give a description of our first General Hospital for the Army, now building at Netley, "which," they say, "will be constructed upon a scale in every respect worthy of the object to which it is to be devoted;" but this opinion does not appear to have been entertained by all the Commissioners, for the objections since raised to this Hospital have almost imperilled its existence.

The alleged mismanagement of General Hospitals, both in the late and former wars, has been made the grounds of severe animadversion on Army Medical Officers, as it appears to us, with much injustice, seeing they possess no authority over those auxiliary departments, on the active co-operation of which the efficiency of such hospitals depends. So long as the labour, the furniture and stores, the food and comforts, and the medicines and surgical appliances, shall be obtained from different and quasi-independent departments, there can be no unity of action, and there ought to be no undivided responsibility.

Regimental Hospitals are training schools for hospital management. They are institutions absolutely necessary for the reception of accidents, and the treatment of acute diseases, in a force so frequently in motion as the British Army; and during the winter of 1854-5 they relieved our General Hospitals from a pressure of sickness, which must have overwhelmed their resources. Our gallant Allies, who are so able to appreciate every advantage to be derived from mobility and efficiency in the organization of armies, created Regimental Infirmaries (M. Scrive, Relation, &c., p. 366), which were of great service in relieving the pressure upon the ambulances, and their fifteen General Hospitals in the rear; although from their temporary character, they were necessarily inferior to our Regimental Hospitals.

As General Hospitals, however, are indispensable

during war, and for the reception of sick and invalids from our colonial dependencies, we may inquire whether their alleged mal-administration during the late war with Russia was, in truth, a cause of much sickness and mortality, or to what other causes that sickness and mortality were due.

A Committee of the Commons, and three Commissions dispatched to the seat of war, having recorded their several findings on the causes of the sickness and mortality in the Army of the East during the winter of 1854-55, a Board of General Officers assembled at Chelsea, and with their proceedings the subject seemed to be exhausted. But the Royal Commissioners of 1857-58 re-opened the story of these misfortunes, which, they say, "offers to our view the most complete case on record, on the largest scale, of neglects committed, of consequences incurred, of remedies applied, and of consequent improvements in health and efficiency." (Report, p. xxxi.)

It may savour more of presumption than prudence to try to untie the knot which is thus unceremoniously cut, but we can, at least, make the attempt.

The Army continued healthy while in the vicinity of Constantinople, but shortly after its arrival at Varna epidemic disease broke out, and the mortality, which had averaged only 8·8 per 1,000, per annum, during the three months of April, May, and June, rose to 159·6 in July, and to 340·8 in August. The General Orders of the 12th of May, regulating drills, parades, marching, fatigues, bathing, exposure to the sun, clothing, food, the position of camps and privies, and the covering the contents of the latter daily with fresh earth or lime, and directing their daily inspection, and also "the vicinity of camps, with a view to the discovery and removal of every source of malaria," which Orders were followed by those of the 3rd, 27th, and 28th of June, of the 30th of July, and 1st of August, all relative to precautions for the preservation of the health of the soldier, prove that this

subject was not wholly neglected. (Vide Parl. Paper, 28th June 1858, and Abstract of Lord Raglan's General Orders.)

Our gallant Allies were not less alive to their duties in this respect, and the official correspondence of M. Scrive (*Relation Medico-Chirurgicale*, p. 57, et seq.), shows that no means were omitted in order to attain this desirable end.

Much has been said of the insalubrity of our encampments, particularly of that of the Light Division, at Devna, but immediately on the outbreak of cholera their camp was removed to Monastir; and, as this change had no effect, the regiments were actually dispersed. Still the disease pursued them for a time. Strange to say, the 19th Regiment, which was left on the dirty soiled ground, exposed to the effluvia of the old divisional latrines, continued healthy, until "moved to a fine, beautiful piece of ground, and there they took the cholera immediately." (Sir R. Airey, *Evidence*, p. 97.)

Independently of strategic considerations, of which we are ignorant, the deficiency of the means of transport confined our Army to the vicinity of Varna; but the better equipment of our Allies enabled them to push on three divisions towards the Dobrudscha, which unfortunately suffered so much that our immobility proved a blessing, not a curse.

The Fleet was not bound to the coast by any considerations of transport or supply, yet the Fleet suffered severely, and the "Britannia" lost 93 men in ninety-six hours, from cholera, in a crew of 920. (*Medical Statistical Report of Fleets*, p. 5, 27th February 1857.)

If this terrible visitation could, with any justice, be attributed to defective sanitary conditions, the state of the flagship must, indeed, have been worse than that of "a slaver in the middle passage;" but such a supposition is too monstrous for belief, even among the most credulous of the community. The tide of pestilence was now on the flow, and the

triumph of sanitary science had to be postponed to the ebb. This prevalence of sickness led to the establishment of a General Hospital at Varna, with supplies drawn from Scutari, and the delay was long before these were either returned or replaced from England.

When the Army embarked for the Crimea, sickness followed in its train, and 3,987 sick and wounded, after the battle of the Alma, were sent down to Scutari, during the last fifteen days of September. (Miss Nightingale's Evidence, p. 363.)

Such a sudden influx of sick would have tried the resources of our largest and best Civil Hospitals, and thrown them into some temporary confusion. Wants, of course, were felt; and had not the Duke of Newcastle, on his own responsibility, "desired that a very large further supply (Report, Sebastopol Committee, p. 133) should be instantly sent out," matters might have been much worse than they really were. Nor did the Duke's solicitude end here, for he promptly secured the aid of Lord Stratford de Redcliffe on the spot, which proved more immediately effectual than the slower assistance from home; and we find Dr. Menzies, on the 26th of October, applying for Turkish bedding, articles of furniture, and the immediate erection of stoves in the hospitals. (Maxwell and Cumming, p. 261.)

The proportional mortality on board the transports appears to have been greater at this than at any other time, and arose chiefly from the number of cases of cholera embarked. The crowding and scarcity of attendance on board, no doubt added to the misery of these poor sufferers; but the mortality in the "Caduceus" was equalled in the flagship, exceeded in the 1st Regiment of Zouaves, in which 300 men were attacked, nearly all most severely, in one day (M. Scrive, p. 78), and far surpassed in the Baschi Bazouks, four-fifths of whom perished, literally in a desert, and in a few days. Such melancholy

catastrophes have hitherto been as far beyond the control of sanitary science as the resources of medical art.

The detention of the vessels, too, which "was in many cases very great," must necessarily have increased the number of deaths on board. (Maxwell and Cumming, p. 22.)

During October 1854, there was a considerable diminution in the mortality of the Army, and the formation of Regimental Hospitals relieved Scutari from a pressure under which it must have sunk, but this happy respite was of short duration. (Tab. K, fig. 1, Appendix, Roy. Com.)

The sanguinary Battle of Inkerman, the broken weather of November, the losses among the transport animals, and the destructive tempest of the 14th, which deprived the Army of its winter clothing, left the soldier to contend, under all disadvantages, with the elements as well as with the enemy. The sick poured into Scutari in shoals during that calamitous winter, and whatever exertions were there made to relieve their sufferings, the means disposable were unequal to their necessities.

This is the period chosen to exhibit the incompetency of Army Medical Officers in sanitary matters and hospital management. "With regard to the hospitals at Scutari and Kululi," say the Royal Commissioners, "the evidence shows that their unexampled
 " mortality arose from other causes beside the severe
 " type of disease. The drains of the hospitals were
 " nothing better than cesspools, through which the
 " wind blew sewer air into the corridors and wards;
 " there was no ventilation; there had been little or
 " no lime-washing; the ward utensils infected the
 " atmosphere; the hospitals were overcrowded; there
 " was an overcharged graveyard close to the General
 " Hospital; the number of sick admitted went on in-
 " creasing; no sanitary improvements were effected
 " and the mortality rose progressively month by

“month;” in short, “the hospitals were becoming “more unhealthy the longer they were used.” (Report, p. xxxi.)

Unfortunately for the reputation of the Medical Department, the Medical History of the War, drawn up from official sources, still lays upon the table of the House of Commons, inaccessible to those to whom it might be useful, and useless to those to whom it is accessible. We are compelled, therefore, to use figures derived from other quarters, which often disagree, and to borrow such additional light as we may from the official returns of the Navy, and the published statements of our Allies, in order to examine this gloomy picture, painted by the Royal Commissioners, in which no one could recognise the features of those hospitals that had “agreeably surprised” the Eastern Sanitary Commission “at their cleanliness and comfort.” (Letter from Lord W. Paulet to Lord Panmure, 8th March, 1855.)

Before inquiring if this “unexampled mortality arose from other causes than the severe type of disease,” we may institute a general comparison between the total losses sustained by the French and English Armies during the war, founded on the valuable information laid before us by M. Scribe (*Relation, &c.*, p. 350), and the tables in the Report of the Royal Commission (Appendix, pp. 524-5). It appears that the aggregate French force sent to the East amounted to 309,268 men, and that the total loss on this number was 69,229 men, or 22·38 per cent. of the whole strength. The total English force embarked to March 1856 was 93,959 men (Sayer, p. 415), and the total loss from all causes was 20,812 men, or 22·15 per cent. of the aggregate strength. This comparison, which is probably the fairest that could be made, from the documents as yet before the public, is rather favourable to our own troops. Again, in the French Army the total admissions into hospital were 112·6 per cent. of the aggregate

strength; and in the British 172·5 per cent. But in the former, the rate of mortality on these admissions (exclusive of killed in action and “disparus”) was 15·5 per cent.; and in the latter 11·2 per cent. These figures will warrant no conclusions unfavourable to the sanitary condition of our Hospitals; and it only remains for us to inquire, how far our losses depended upon the severe type of disease.

In the Medical and Statistical Returns of the Baltic and Black Sea Fleets, printed by order of the House of Commons (27th February 1857), it is stated (p. 47), “that the patients admitted [at *Therapia*] during October, November, and December, were, with few exceptions, much broken down in health, from the long-continued use of salt meat rations, confinement on board ship, and exposure to privations, and hardships on shore; while among others who had been landed, scurvy and bowel complaints of various degrees of severity, were generally prevalent; so that, with scarcely a single exception, all the stumps and wounds were in a sloughing state when the patients were admitted.”

“During November and December 1854, a large number of Marines from the battalion serving on the heights at Balaklava, were sent down in a very exhausted state, suffering from diarrhœa, dysentery, consumption, and frost-bite. A number of these men when admitted were mere skeletons, covered with bed sores, and far beyond the reach of human aid. The warmth of the hospital, and cordials, might revive them for a few hours; but they soon fell back again into a state of collapse, from which they never rallied.”

“Throughout January 1855 patients continued to be received in a very exhausted state, especially from the Marines serving on the heights. So utterly prostrated were these men when they arrived, that the wonder was, not that so many died, but that so many recovered. The weather throughout February was fine, though cold, consequently the number of

patients admitted decreased, and towards the end of the month those that were sent down from the Crimea were much less shattered in health; they no longer exhibited the wasted and skeleton-like forms presented by those who were received during the two preceding months."

This impartial testimony ought to be decisive as to "the severe type of disease;" and we could add to it, that of nearly every Medical Officer who was present, either with the Army, or in the Hospitals, during that fearful winter; but we may have said enough to satisfy the Commissioners.

That "the drains of the Hospitals were nothing better than cesspools, through which the wind blew sewer air into the corridors and wards," is not to be denied. In his report for November 1854, Dr. Menzies points out the leaky state and disrepair of the General Hospital, the defective state of the drainage and privies, and the influence of a south wind in wafting very offensive odours through the building. He also objects to the site of the burial-ground, and recommends its removal (although 100 yards from the hospital), and notices the unsuitableness of boards and trestles both for the sake of cleanliness and appearance. In his evidence before the Sebastopol Committee, he admits that the drains and privies were in a disgraceful state until a late period; and he also states, that the works undertaken for their improvement produced only temporary benefit.

Let us see whether Commissioners "accustomed to deal with sanitary questions . . . with ample power to examine the sanitary condition of the hospitals of the camps, and of the ships," with their skilled officers, were more successful in their "scientific labours" (Hansard, February 16, 1855.)

The Eastern Sanitary Commission arrived at Scutari on the 6th of March 1855, and, after ten days spent in examining, and maturing their plans,

they commenced their works on the 17th. "In the beginning of July," they say, "after all that could be done in the way of temporary improvement, cleansing, and flushing, the drains under and near the hospitals, from their inherent bad construction, were still nothing but cesspools, communicating, by open tubes, with the interior of the hospitals." (Report, Eastern Sanitary Commission, p. 52.) Such miserable results, after four months of "scientific labours," appeared unsatisfactory even to the Commissioners, though they in no degree retarded *the rapid decrease of the mortality* in the hospitals. The occurrence of a few cases of cholera in the hospitals, however, made the Commissioners feel "that they would be incurring a very grave responsibility if they did not correct completely those defects, even at the cost of procuring materials and skilled labour from England" (Ibid. p. 52), the necessity of which had been pointed out to the authorities at home on the 5th of February 1855. (Parliamentary Paper, 28th June 1858.)

In November 1855, cholera again broke out in these hospitals, when "the privies and drains connected with them had become very foul, and the most offensive odours from them could be traced, not only along the corridors towards the barrack-rooms, but also into the hospital part of the building." (E. S. C. Rep. p. 54.)

"It lasted (*i.e.* cholera) altogether about a fortnight, during which period there were about 225 cases, nearly three-fourths of which proved fatal" (Ibid. p. 55); a pretty conclusive proof that the sanitary improvements, hitherto effected, had but little influence on the severe type of the disease. So late as April 1856, when the drains of the Barrack Hospital were laid open, it could be seen "that even after all the flushing which the sewers had undergone, their condition, when opened, was so very bad that nothing short of reconstruction, which was in progress, would have obviated the dangers to which the sick

would have been exposed, had the events of the war led to the full occupation of the hospital, especially while epidemic disease prevailed." (Ibid. p. 61.)

These passages, taken from their own report, prove "that the endeavours of the Commissioners were attended with no better success than those of the Officer of the Royal Engineers during the winter" (1854-5); and even "parts of the hospital which had previously been inoffensive became the reverse." (Inspector-General Cumming's Remarks, p. 18.) It was, perhaps, to get rid of this result of sanitary improvement that soil-pans and urinals were wanted, and the estimate approved on the 14th of March 1856, a year after the inauguration of the sanitary régime. (E. S. C. Rep. p. 61.)

We learn from the Report of the Sebastopol Committee (p. 555) that Dr. Menzies took advantage of thorough ventilation, and the constant removal of dressings, to abate the nuisance arising from the offensive discharge from numerous wounds in September 1854.

We cannot, therefore, believe that an officer of Inspector-General Cumming's long experience and well-known prudence would neglect to use those means of "perfect ventilation" which he (Remarks, pp. 8 and 15) knew the hospitals possessed, although they were entirely overlooked by the Sanitary Commission in their inspections.

Overcrowding was an unavoidable evil during the greatest pressure of sickness, and must have been a serious hindrance to frequent lime-washing, which is better suited for empty wards. Assuming the state of the hospital utensils to have been such as it is represented, it might have been attributed to the want of skilled servants, which is so justly complained of by Inspector-General Cumming (Remarks, p. 28), that he thinks a corps of trained orderlies would have been efficient substitutes for the Sanitary Commissioners.

There are other means of estimating the sanitary condition of hospitals, but the singular reserve which still withholds the official returns of our hospitals during the war from the public, precludes the possibility of using the materials they contain either for the establishment of the truth, or the exposure of error. In the table (p. 525, Appendix) given by the Royal Commission, we find some information possessing a certain interest as regards the hospitals of the whole Army. For example, although 18,283 wounded, and about 4,000 other injuries and accidents passed through these hospitals, yet the admissions with erysipelas and mortification (no bad tests of their sanitary condition) were only 157, and the deaths from both diseases 41, while the mortality among the wounded did not exceed 9·6 per cent.

In November 1854, when the hospitals at Scutari were supposed to be at the worst, the General and Barrack Hospitals contained 2,074 wounded, nearly all by gun-shot, and experienced practical surgeons will be gratified to learn that only 108 deaths took place among the whole number, including four from sloughing, being in the ratio of 5·2 per cent. during the month. Again, on 218 operations, chiefly amputations, several of which were secondary, the deaths were 30, or 13·8 per cent. for the same period. (Maxwell and Cumming's Report, p. 259.)

The admissions with typhus and continued fever were 25,841, and the deaths 3,075, or 11·9 per cent., whereas in Guy's Hospital "the average ratio of mortality from that species of disease is 10·3 per cent." (Med. Chir. Trans. 1857, p. 187.) We shall only add that (exclusive of killed in action) one-fourth of the total mortality in the Army was caused by cholera, which cut off two in every three attacked, but the rate of mortality was even higher at Scutari in November 1855, "nearly three-fourths" of the patients having died. These hospitals had been under sanitary management for eight months before the cholera

broke out, and this disease, which is said to be preventible, was as fatal as ever.

When the Royal Commissioners, in proceeding to illustrate the results of sanitary improvement by figures, say "the number of sick admitted went on increasing; no sanitary improvements were effected, and the mortality rose progressively month by month," it would have been well that they had given others the means of testing their calculations. There is no proof that the number of sick went on increasing after January 1855; the evidence, without a single exception, points the other way, and the admissions into the Regimental Hospitals decreased by 37 per cent. (Sir J. Hall, *Observ.* p. 51) in February as compared with the admissions in January 1855.

Although the admissions were decreasing, yet the mortality might be increasing, so we sought for the proofs. The return in the Appendix (K, I, p. 524) proves that the mortality in all the hospitals of the Army was 3,168 in January, and that it had fallen to 2,523 in February, showing a decrease in the latter month of 645, which closely corresponds with the number (650) given by Sir John Hall. (*Observations, &c.*, p. 51). It is clear, therefore, that if the mortality was increasing anywhere the case must be local and exceptional. The Commissioners point out Scutari; and we learn from Inspector-General Cumming that a number of the worst cases had been landed from six steamers passing with sick for Smyrna, and that "all were in a very hopeless condition, and such was the character of the diseases that the greater part soon proved fatal." (*Remarks*, p. 23.) Here was an obvious cause for an increased mortality at Scutari in February, which has unduly swelled the death rate during the three weeks before "the sanitary works were commenced." (*Rep. E. S. C.*, p. 50.)

We have the high authority of Miss Nightingale for believing that "the Adjutant's head-roll of burials

is the most trustworthy record of deaths" (Miss Nightingale's Evidence, p. 377); and those who know anything of an Adjutant's duty will not very readily admit that a mistake in the number of burials was possible. This really authentic document proves that 1,473 burials took place in January, and only 1,151 in February, showing a decrease of 322 burials in the latter month. In March, again, the burials were 418, showing a further decrease of 733 as compared with February, and of 1,055 as compared with January. These numbers show that for every 100 burials in January there were 78 in February, and only 29 in March; and also that the "cases treated" could not have exceeded 2,700 in February, had the mortality thereon actually attained the high rate of 427 per 1,000.

We sought through the evidence for the number of sick in these hospitals during February, and found it, in one place (p. 334), stated so high as 7,289, and in another so low as 4,178, but nowhere had it dwindled down to 2,700. According to the first statement, 4,589, and according to the second, 1,478 patients must have vanished! We next made use of the number of sick (7,289), and the rate of mortality thereon (182), given at page 334, to compute the deaths supposed to have taken place during February, and it at once became apparent that the Medical Returns (Column 2, Table IV, p. 391) had been adopted as the measure of the mortality for the month, not the trustworthy "head-roll of burials," or "reported deaths" of the Adjutant.

In this shock of figures, the helping hand of Miss Nightingale again extricated us from the horns of a dilemma, by informing us that "the Adjutant having buried 280 men more than the total number reported by the Inspector-General as dead, the account had to be balanced at a subsequent period." Miss Nightingale accordingly shows (Evidence, p. 377), that "253 deaths," which had probably

taken place in December and January, were added to the mortality of February in order to square accounts.

These 253 deaths, therefore, which could in no way belong to February, swell the mortality of this month to the fictitious rate of "427 per 1,000 cases treated," a rate which never had any real existence, even at the very worst period.

This rummage through the returns having made us intimately acquainted both with the Adjutant's "head-roll" and "reported deaths," we used the number (416) in the latter, for March 1855, and the number of sick in the Hospitals (4,115) about the 17th when the improvement of these buildings was commenced by the Eastern Sanitary Commission (Rep., p. 30), to calculate the rate of mortality for the month, and found that it had already fallen to 10 per cent., and the rate for April, though calculated only on *the remaining* (for we cannot learn the admissions) did not exceed 4.7 per cent.*

After these results, it was needless to follow the slow march of sanitary improvement, as Health, the fair daughter of Nature, was advancing with rapid steps, before her rival, the feeble child of Art, had drawn its first breath.

The inexorable "head-roll of burials" having repelled with scorn every effort to affix upon the walls of Scutari, the foul reproach, that they were from day to day becoming more and more, through military mismanagement, "a charnel house" for our sick soldiers, we turned our eyes in another direction, imagining that we might, perhaps, have been deceived by the printer.

This new delusion arose from a statement of Inspector-General Cumming, who says, "of the many hundred sick sent to Smyrna, in February, the mortality during the first month, as usually occurred elsewhere, was greater than on the Bosphorus."

* Remaining, 3,199; "deaths reported," 152.

(Remarks, p. 20.) But this position was also untenable, for "the hospital there was for the first time occupied by us," and therefore, could not be "becoming more unhealthy the longer it was used." Had the able and highly instructed "civil element" omitted "carrying out every requisite improvement before a single sick man was placed within their walls"? (Reply to Sir J. Hall, &c., p. 8.) There was certainly no necessity for that hot haste, which has been so freely blamed in their military brethren, when they were compelled either to occupy the unprepared Barrack Hospital in September 1854, or to leave the sick and wounded in the open air.

When we turn back to the Crimea, the Royal Commissioners say, "throughout the winter of 1854-5, the troops were suffering from work altogether disproportioned to their strength, from broken rest, insufficient clothing and shelter, unwholesome food, and want of cleanliness;" so far, they afford us no grounds to dispute their statements. But when they add, "as the spring advanced, to these causes of disease and mortality were added others, arising from the want of drainage and ventilation, and the nuisances resulting from the lengthened occupation of the same ground without sufficient countervailing precautions" (Rep. p. xxxi), it seems no more than reasonable to ask for their proofs.

The following state shows the admissions into the Regimental Hospitals, as given by Sir John Hall (Observations, p. 51); and the deaths, taken from the table (K, fig. 1, p. 524) appended to the Report of the Royal Commission, in each 1,000 of aggregate strength per month, from December 1854 to April 1855, inclusive, viz. :—

					Admissions per 1,000 strength.	Deaths per 1,000 strength.
December	..	..	..	..	324·	60·
January	..	..	..	..	348·	97·4
February	..	..	..	..	230·	81·6
March	..	..	..	..	192·	46·8
April	..	..	..	..	140·	18·

These figures leave no doubt as to January having been the month in which both the admissions and the mortality attained their maximum. In February, the decrease in the admissions was *far* greater than in the deaths. In March the diminution in the two was nearly equal. In April, again, the diminution in the admissions was rather more than twice as great as in the deaths.

When we inquire into the causes of this sickness and mortality during the winter months, we meet with difficulties, at present insuperable.

The subjects of shelter, clothing, food, and transport have been discussed with an asperity which is not likely to tempt any one to travel in such a thorny path. But as these circumstances were, beyond doubt, more or less active causes of sickness as well as death, we cannot pass them by without notice.

On the failure of the first attack upon Sebastopol in October, it was decided, in a Council of War, to undertake a regular siege, the preparations for which had to be made in the beginning of winter. (M. Scrive, p. 119.)

During some days, in the early part of the investment, our army had no tents, but it was soon provided with the common bell-tent, which is decidedly superior to the "*tente d'abri*," which formed nearly the sole protection against the weather, enjoyed by

our Allies during the winter 1854-5. (Sir R. Airey's Evidence, p. 97; M. Scrive, p. 132.)

The winter clothing intended for the British Army, sunk with the "Prince" on the 15th of November, consequently, our Allies had a great advantage in this respect until the beginning of January.

With regard to food, perhaps, and certainly in the means of transport, the superiority lay with our Allies. But, notwithstanding the solicitude of the Emperor supplied the French with wine as well as brandy, and their military organization enabled them to substitute bread for biscuit, yet scorbutic disease appeared in both armies about the same time, and prevailed to nearly the same extent, in proportion to their strength, even during the first winter. (M. Scrive, pp. 141 and 347.)

In the Report of the Crimean Commissioners (McNeill and Tulloch), it is stated (p. 5) that "in the 4th and Light Divisions, the deficiencies of the rations were not only greater in amount, but also more continuous. In those Divisions the men were frequently on three-quarters, two-thirds, and sometimes on half rations of meat and rum; on two occasions they had only quarter rations, and on one day none at all."

In order to obtain some precise information relative to the effects of this compulsory abstinence upon the health of the men, we selected seven regiments, which had been on the "plateau" *all the winter*, from each of the four Infantry Divisions in the front, taking them in the order in which they stand in the table given by Sir A. Tulloch. (Crimean Commission and Chelsea Board, p. 171.) We then took the total deaths in each of these regiments from the Adjutant-General's return (Ibid p. 170), and grouping them according to their Divisions, found that the mortality in the seven regiments belonging to the 2nd Division had been 41 per cent. of the

average strength; in the 3rd Division 54 per cent.; in the 4th Division 46 per cent.; and in the Light Division 54·7 per cent. We now referred to the tables in the Appendix to the Report of the Crimean Commissioners (McNeill and Tulloch, p. 46), and found that the 4th Division had been the Division starved "*par excellence*," and in that Division the 21st Regiment. But the 4th Division had been the healthiest but one on the "plateau," and in it the 21st Regiment occupied the middle place among the seven regiments.

This unexpected result directed our attention to the Brigades of Guards and Highlanders composing the 1st Division, in which the wants, as to food, had been few, but the position and duties so very different. In the former the mortality had been 80 per cent. of the average strength, according to the table, and in the latter 28 per cent. Part of this difference was, no doubt, due to the battle of Inkerman, in which the Guards suffered so severely, and the Highlanders were not engaged; but this loss made no very great impression on the excess. Could the differences in the several Divisions have arisen from losses in battle? The "Gazette" was before our eyes, and it testified that the 2nd Division, which had lost fewer men than any other on the "plateau," had easily borne away the bloody honours of Inkerman.

The Cavalry and Marines had been fed on nearly the same kind of food with the Highlanders and the rest of the Army, but their mortality was under 15 per cent. of the average strength.

We now appeared to be once more adrift, without either compass or rudder; but it was not so, for the return of duties given by Sir A. Tulloch (*Ibid*, p. 172) proved that the 3rd and Light Divisions, and the Brigade of Guards, which had furnished by far the largest share of the guards and working parties *in the trenches* in November, December, and January, had also suffered the greatest mortality. The

evidence of Sir John Burgoyne before the Sebastopol Committee (Query 17,634, &c.), and of many others, is perfectly decisive upon this point, which has been almost disregarded by Commissioners.

The singular exemption of the Naval Brigade from the sickness and mortality around them, is like an oasis in the desert. Their loss scarcely reached $3\frac{1}{2}$ per cent. from disease during eleven months, but their loss from the casualties of war was more than twice as great. The former exemption depended, in a very great measure, upon the ample reserve at hand, which replaced the ineffective; the frequent changes of men on the departure of ships; the relief from the harassing journey to Balaklava, after Christmas; the far less onerous nature of their duties, which came round once in four days; and, lastly, to their better shelter, clothing, and food. In short, beside their share of the means of transport, a party of 300 men, stationed at Balaklava, carried up all supplies.

In January, the Army received a good supply of warm clothing, and towards the end of the month it began to be better fed, and lime-juice was issued to the troops as an anti-scorbutic.

On the 7th of February, the French Army, now nearly 90,000 strong, was divided into two corps, and a general reserve (M. Scrive, p. 139), one of which undertook the duties on the extreme right of the Allied Army, and released the 2nd British Division for the trench duties, which were also reduced in amount. The weather too became more favourable, and the effects were immediately apparent in the admissions into the Regimental Hospitals, which fell from 11,282 in January to 7,108 in February. The diminution in the sickness and mortality made such rapid progress in March that the Eastern Sanitary Commissioners, who arrived in the Crimea on the 6th of April, were forced to admit "the health of the Army, when compared with that of males of the same

ages elsewhere, was by no means good! It was, nevertheless, hardly below what has hitherto been the usual standard of armies in the field, and its health was better than that often experienced by armies similarly circumstanced." How could they expect it to be otherwise? When, "considering the pressing nature of the siege duties at that time, they found the camp remarkably clean, and the external sanitary arrangements, on the whole, well attended to." (Report, p. 121.) They proceed, however, to make some exceptions, we suppose, upon the grounds that there are motes in every sunbeam, and he who can remove one of them does something to improve the light. But had the state of things been the very reverse, had the camp been an Augean stable, and each Commissioner a Hercules, they could not have so far inverted the order of nature as to make the effect precede its cause, if that cause is assumed to be their sanitary improvements.

The annual rate of mortality, from zymotic disease alone, was 177·5 per 1,000 in April, while the average during the following four months was 164·2 per 1,000, showing a decrease in the annual rate of 13·3 per 1,000. (Royal Commission, Appendix, p. 524.)

The admissions, on the contrary, had increased from 140 per 1,000 of the strength in April to an average of 230 per 1,000 during the next four months; but a considerable share of this increase arose from wounds, though by far the greater part was from disease.

The Malakoff was carried by assault on the 8th of September 1855, and the duties and fatigues of the siege came abruptly to a close. The effects of this sudden change, from war to peace as it were, became immediately visible in the returns of the army, the mortality from zymotic disease falling from 130 per 1,000 per annum in August to 47·5 in September. (Report, Royal Commission, Appendix, p. 524.)

We looked everywhere to see if any grand sanitary work had been executed about this time, but we discern nothing of the kind in any direction, and the conclusion, drawn from the events of the preceding winter, that the siege duties were the main causes of mortality in the army, received another confirmation.

From this time onwards our "troops were suffering from" *no* "work altogether disproportioned to their strength," and they accordingly became more healthy; but the rate of mortality never descended, for any equal period, to the same low level as during the first three months of their sojourn in Turkey.

In the midst of this Army, enjoying comparatively good health, there was one dark spot in the camps and hospitals of the Land Transport Corps, the British portion of which seems to have sustained a loss at the rate of thirty-four per cent. per annum for four months. Indeed the whole corps of 3,400 men, during the eleven months from May 1855, to March 1856, lost 477 men, or rather more than 15 per cent. per annum, under the eyes of the Eastern Sanitary Commissioners. (E. S. C. Report, p. 177.)

We attach no blame to them for this untoward result, which set at nought their resources in the sanitary art for eleven months; but we regret that the Commissioners were doomed to be spectators of a calamity (on a small scale), which they had no more power to avert than the Army Medical Officers had to turn aside the far greater affliction during four months in the preceding winter.

We have long entertained the opinion that if sanitary science could prevent any unusual mortality, it ought *à fortiori* to be able to prevent any unusual amount of sickness, for the art of prolonging life without health and efficiency would be a comparatively unimportant benefit.

Tested by the amount of sickness in the Army before Sebastopol during the last four months of the

siege, sanitary improvement produced no evident impression on the admissions, which were at their minimum in April, and we have no means of prosecuting this inquiry beyond August.

In the autumn and winter of 1855-6 our energetic Allies advanced into the valley of Baidar, and to the sources of the Belbeck, and formed the outposts of the Allied Armies during the remainder of the war. In the winter months, the roads, such as they were, became difficult or almost impassable, even for their well organized field transport, and the task of supplying an army, extended over nearly forty miles, required the greatest exertions. The troops suffered great privations in consequence, from the deficiency of fuel, and bread itself was too bulky to be conveyed from Kamiesch to the front. The fresh meat supplied to the soldier does not appear to have been always of good quality, and, at times, was rather scanty. The severity and inclemency of the weather made the men close up every crevice in their tents in order to keep up the warmth. Amidst these sufferings they had to be incessantly at work, making and repairing roads, and draining encampments, while, at night, they had to guard against the enterprises of a resolute and active enemy thirsting for revenge. In short, to use the expression of M. Scrive, "the soldier had to move with the rifle in the one hand and the pickaxe in the other."

It was no wonder that disease broke out among troops so situated; and any comparison between the mortality in the French and English Armies, at this time, is just as inadmissible, as between the English Army in quiet cantonments in the winter of 1855-6, and the same Army over the ankles in mud, and night and day in the trenches, during the privations of 1854-5.

The sufferings of our brave Allies, however, were in no way due to a neglect of sanitary precautions, for the destruction of camp refuse by fire had been

enjoined by "General Orders" in their army on the 17th of March 1855, and they even carried their views so far as to attempt the disinfection of the ground on which their tents were pitched by the same agent.

No means within their power were omitted, but, unfortunately, their efforts were of little avail until, with the lapse of time, health returned in the late spring of 1856.

It may, perhaps, surprise some persons to learn that the whole loss in the British Army did not, at the very utmost, exceed four per cent. of the aggregate losses of the Allies and the enemy, during this brief but mortal struggle, which exhausted the vast military resources of Russia in unavailing efforts to preserve the palladium of her power on the Euxine.

We have entered into these details with some reluctance, but feeling it to be a duty to leave no stone unturned when the reputation of comrades and friends was at stake, we trust that the Royal Commissioners will see with pleasure, those mistakes corrected, into which they have been involuntarily led by untrustworthy returns; for had the popular delusions on this subject been permitted to take root and flourish beneath the shadow of their high authority, the very name of "Army Medical Officer" might have become a bye word and a reproach!
