Report on the pathology of the diseases of the army in the East.

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Sir, *War Office, April* 27, 1855.

I am directed by Lord Panmure to transmit herewith, for your guidance, a Copy of the Instructions which have been drawn up with reference to the Pathological Researches about to be made by you in the Hospitals attached to the Army in the East.

I have the honour to be,

Sir,

Your most obedient Servant,

(Signed) B. HAWES.

Dr. Lyons,

&c. &c.

INSTRUCTIONS TO DR. LYONS.

1. You will proceed without delay to Scutari, and report yourself, on your arrival, to the Commandant, Lord William Paulet, who will be apprised of the objects of your mission, and instructed to place you in communication with the principal Medical Officers of the Hospitals at Scutari.

2. You will have the entire and uncontrolled direction of the *post-mortem* researches on the bodies consigned to you for examination; but you will be required to demonstrate the Morbid Appearances discovered to such of the Medical Officers as may feel disposed to attend. In order that these gentlemen may have the full advantage of your Pathological researches, you will arrange with the principal Medical Officer of the Hospital as to the time which will be most convenient to the Medical Officers to attend your demonstrations.

3. You will have under your directions two able Assistants (one First, and one Second), and both accustomed to and versed in the operations of the dead house.

4. As Morbid Anatomy is of little value unless studied in connexion with the history of the disease, you and your Assistants will require to visit the Hospital wards in order to become acquainted with the symptoms and characters of the diseases during their progress; but you will not interfere with the treatment of the patients. In making notes of the cases, the name of the patient, and the number of his regiment, should always be stated, as by this means the nature of his duties, and the place where he was first attacked by disease can be more easily ascertained.

5. The Medical Officers of the Hospitals will be instructed by the principal Medical Officers to afford you every facility in visiting the wards; and it is hoped that they will be able to supply you with notes of the symptoms and progress of the more urgent cases.

6. It is expected that you will not content yourself with the simple dissection of the subject, and the demonstration of the morbid parts, but that you will submit them to microscopical examination.

7. As you are provided with all the appliances necessary for your researches, it is expected that you will take full advantage of the opportunities which present themselves to prosecute your inquiries in this direction to the fullest extent; and as you are also provided with the means of preserving such specimens of disease as you may deem necessary for the illustration of your researches, you will naturally avail yourself of them, and take the necessary steps for having them transported to England.

8. Although in all probability you will find at Scutari ample opportunities of completing your Pathological observations, you are not to confine yourself entirely to the Hospitals in that place; should the information which you receive

from reliable sources lead you to believe that more favourable opportunities present themselves in the Hospitals at Kululee, or elsewhere, on the Bosphorus, you may use your own discretion in transferring your researches, for a time, to such Hospitals, acquainting the Commandant of your intention, and the Superintendent of the Hospital you propose to visit.

9. With the view of rendering your researches more complete, it is desirable that you should observe the nature of the diseases of the Russian prisoners; and it would further be desirable that you should visit the French Hospitals, and ascertain the results of the researches of the French physicians in the diseases of their sick.

10. If, after having completed your researches in the Hospitals on the Bosphorus, you should be of opinion that you might acquire additional information, to render your researches more complete and useful, by observing the character and effects of the diseases prevalent in their earlier stages and more acute forms in the Crimea, you are at liberty to apply to Lord William Paulet for a passage for yourself and one or both of your Assistants and labourers to Balaclava; upon obtaining his approval, you will, upon your arrival, report yourself and explain the object of your mission to the Head of the Medical Department of the Army in the Crimea.

11. Should your health unfortunately suffer so as to render you unable to continue your researches, you are to commit the charge of carrying them out to your first Assistant, giving him these instructions as his guide; and if he should require further assistance, application may be made to the principal Medical Officer at Scutari, or elsewhere, for such assistance, or to the Superintendent of any of the Civil Hospitals in the East.

12. In the event of either or both of your Assistants being unable, from sickness, to render you the assistance you require for the successful prosecution of your researches, you are to apply to the principal Medical Officer of the Hospital where you may be for one or more assistants, or to the Superintendent of the Civil Hospitals in the East.

13. If, unfortunately, both yourself and your senior Assistant should be attacked by sickness, the circumstance should be immediately communicated to the principal Medical Officer at Scutari or elsewhere, or to Dr. Parkes, Superintendent of the Civil Hospital on the Bosphorus, who has one Assistant Physician at least capable of carrying out the Pathological researches on which you will be engaged.

14. As the office to which you are appointed is new in the Medical Department of the Army, it is possible, although not probable, that some difficulties may arise in the prosecution of your researches. If, by your own prudence and conciliatory conduct, you fail to overcome any such difficulties, you will apply to the Commandant of the Hospital at Scutari or elsewhere; and should he not afford you the support which you require, you will report the circumstances to the Secretary of State for the War Department with as little delay as possible. You will, however, under any circumstances, report from time to time to the Secretary of State for the War Department the progress made in your researches.

15. When you shall have completed these researches, you will draw up a full report thereof, for the information of the Secretary of State for the War Department, to whom it should be addressed.

16. Although not strictly limited to time, it is presumed that a period of about four months will be sufficient to enable you to accomplish the object of your mission; as soon as you have so accomplished it, you will return to England without delay, in order to present the report of your researches to the

War Department, it being important that no time should be lost in making known this report, as it may be the means of elucidating the nature of the diseases affecting the Army in the East.

17. On application to the Commandant at Scutari, a passage will be afforded you in one of the first Government vessels returning to England; and immediately on your arrival you will report the same to the Secretary of State for the War Department.

18. Should one or both of your Assistants desire to remain in the East, and should it prove that his or their services are required, the Superintendent of the Civil Hospitals will be authorized to employ his or their services, if he should think fit to do so. If, on the contrary, either or both should prefer returning to England with you, a passage will be afforded to him or them on application to the Commandant. The same option, with the approval of the principal Medical Officer, or Superintendent of any Civil Hospital, may be given to your two English porters, if willing to take the duties of orderlies, or if it be found that they can otherwise usefully be employed.

(Signed) PANMURE.

London, April 27, 1855.

My Lord, *London, March* 1856.

I have the honour to present to your Lordship, in this Report, the results of the Investigations conducted by me and my Assistants, into the Pathology of the Diseases of the Army in the East.

It may be permitted to me to state at the outset, that these results are not by any means so complete in several respects, as I originally anticipated they would be. Various causes have concurred to this end.

On my arrival at Scutari at the close of April 1855, I found that all but the expiring embers of the terrible Epidemics of the past winter had disappeared. To the past no methods of Pathological Research are applicable; and to have been enabled to avail myself of the almost unparalleled opportunities for investigating the nature of Disease, which had unhappily been presented at Scutari, I should have been in the East not less than fully two months earlier than the date at which my mission commenced.

To prosecute with success Investigations such as those entrusted to me, it requires that suitable apartments specially adapted for the purpose, and also that Instruments and other Appliances shall be in readiness. The latter it was found necessary to have made in this country; the former it was fully expected could be furnished at Scutari. Having already brought this subject under your notice, it will be merely requisite to state here briefly, that not until the expiration of more than two-thirds of the period originally assigned for our inquiries, were I and my Assistants put in possession of the necessary instruments and appliances for the due prosecution of our labours.

Notwithstanding the disadvantageous position for the conduct of a Scientific Inquiry in which I thus found myself placed, different as it was, in all respects, from what I had been led to anticipate, I proceeded to make the best use of the materials at hand. I established for myself and my Assistants a regular system of Clinical visits to the Hospital Wards, for the purpose of determining the essential phenomena of the Diseases presented in the Living; and, as far as the means at our disposal allowed, we prosecuted inquiry into the Pathological characters which they exhibited in the Dead.

After some time spent in the investigation of Disease at Scutari, it became apparent to me, that for a due and complete appreciation of the Pathological characters of the Diseases of the Army in the East, and for the determination of the most important medical questions connected with their nature and origin, the materiél presented by the Hospitals at Scutari, at this period, did not suffice. The great Morbid Types which had been so fearfully illustrated a few months previously had become all but extinct. Fevers and Dysentery still continued to present themselves, it is true, but in much mitigated forms, and in diminished numbers.

Having, therefore, carried my researches to a certain issue at Scutari, I thought it advisable to proceed to the Front, with the object of determining, if possible, the primary nature and Pathological characters of the Diseases, which, in the Hospitals of the Bosphorus, showed themselves, as it seemed, in more or less of a secondary form. Accordingly, having left the charge of the Pathological Department at Scutari, and the superintendence of the construction of the Mortuary and Pathological Rooms, to my first Assistant, Dr. Aitken, I proceeded to the Crimea in June.

My anticipations were correct, for, in fact, I soon found that without a lengthened experience of both Medical and Surgical Pathology, as presented amongst the Troops in Camp, it would not be possible to come to any just conclusions as to the nature of the Diseases of the British Army in the present campaigns.

In the prosecution of my observations and researches, I have held two chief objects permanently in view. First, to determine, with as much precision as possible, the primary nature and characters, and the essential phenomena of the Diseases of the Troops as presented during life; second, to ascertain by careful post-mortem examination in fatal cases, the actual changes produced by Disease in the various organs of the body. In dealing with these subjects, however, in an adequate and comprehensive manner, it becomes necessary to include some other considerations which bear a very close relation to the General Pathology of Disease. Disease is a process of great complexity, and its phenomena are influenced not only by various external circumstances, in any given series of Morbid Actions, but also in a marked and important manner by the Type of Constitution in which these Morbid Actions are brought into play.

The Constitution of the Soldier in the Crimea had undergone the influence of agencies, which, for a long period at least, sensibly depressed it below the average Physiological standard, and the effects of which gave a marked character to the Diseases from which he suffered.

It is not my province to investigate the causes here alluded to, which have been elsewhere as ably as fully entered into. So far only as their effects became manifested in the deterioration of the Constitution of the Soldier, and in the consequent modification of the Diseases with which he was affected, am I concerned with them in this place.

It seems undeniable that the circumstances in which the British Army was placed during the winter of 1854–55, were such as of themselves directly to induce the invasion of Disease on a large scale and in a malignant form. Not only was this so in reality, but, even after the lapse of months, and when such causes had ceased to operate directly to any large extent, their effects were still manifest in the unstable health of the Soldier, his impressionability to morbid influences, and more especially in the behaviour of his constitution under the attacks of Disease.

It is also not to be forgotten that, even when to some extent relieved of the harassing and excessive duties to which the men had been exposed, when ill-clothed, ill-fed, and ill-housed in the winter months, and even when food had become both varied and abundant, and most other requisites equally so, two causes still continued in operation capable of exercising deleterious influences on the most robust constitutions; namely, the fatigues and night exposure of Trench Duty, and the singular and rapid vicissitudes of Crimean weather. Of the harassing nature of the duties of a Soldier exposed in entrenched lines for twenty-four hours to every possible alternation of temperature and weather, no one can form a full estimate without some practical acquaintance with the operations of a siege. From actual observation in the French and British Trenches I can fully corroborate the statements of some of the most experienced Medical Officers in both these Services as to the active agency of such fatigues and exposure in the production of the gravest forms of Disease.

With regard to the second class of causes, that due to rapid meteorological changes, I doubt not that your Lordship will be put in full possession of the best scientific data on this subject; yet, as directly illustrative of certain well defined modes of the induction of Disease, I may be permitted thus far to notice them. The heavy rains, not infrequent in the summer months, flooding the Trenches, and often the Huts and Tents, caused much suffering, and I believe in many instances could be said to have been directly productive of Disease. The great vicissitudes of temperature, scarcely any two successive days presenting the same conditions of the Thermometer, must have largely conduced to a similar result. The effects produced by these two causes alone on the health of men unprotected by night and day, when on Trench duty, have been very marked, and it is not to be wondered at, if they left lasting and almost indelible impressions, especially on the constitutions of the young and immature.

It is by no means, however, to be inferred from these considerations that the climate of the Littoral of the Crimea on which the Allied Armies were encamped is naturally an unhealthy one. On the contrary, there are some very good grounds for quite an opposite opinion, as I shall have occasion hereafter to observe. Considerable immunity has been enjoyed by the Allied Troops from more than one form of Disease which elsewhere has caused extensive ravages amongst Forces in the field. Thus Ophthalmic Disease has been almost unknown; Lesions of the Respiratory Organs have been of unusual

occurrence; and with the exception of certain marshy lands on the borders of the Tchernaya, Intermittent Fevers seemed to have no habitat within the lines occupied by the Besieging Armies. The more recent experience in the English Camps seems very clearly to establish that with the realization of the other necessary conditions, respecting moderate duties and fatigues, proper and abundant food, suitable clothing and protection against the weather, the climate of the southern shore of the Crimea is such as to favour the maintenance of a very excellent and satisfactory state of health, even amongst very large masses of Troops. That an opposite state of things is in great part, if not wholly, due to causes which are probably *not* climatic may be deduced from a consideration of the much less healthy condition of other Troops in the same region of the Crimea.

In treating of the various predisposing causes of Disease in operation amongst Her Majesty's Forces in the East, there is one which may be classed amongst Physiological influences, and which demands most earnest consideration at your Lordship's hands. I allude to the extreme youth, incomplete physical development, and general immaturity of a very considerable proportion of the strength of several regiments; and constituting, as I have reason to believe, in the total of the Army, a number sufficiently great to render the question one of vital moment and of even national interest, as largely affecting what may be called the Physiological Economy of the Army. Amongst even well-matured constitutions, the hardships and fatigues, trials, privations, and exposure of campaigns, such as those of the past years in the Crimea, must almost of necessity prove largely productive of disease, and induce much mortality. But on the undeveloped frames and the unripe strength of the ill-seasoned recruit such causes operated with twofold energy, and with a more than doubly fatal effect.

Not only does the power of resistance to morbid influences, and the consequent invasion of Disease in such youths seem inferior to that of the older soldier, but when attacked they succumb more readily under the effects of a Fever or a Flux. And even when such disease does not prove immediately fatal, the convalescence of the young is generally slow, constantly attended by a disposition to relapse, or to the development of those Secondary Enteric Lesions the almost unfailing result of such Fevers as those which prevailed amongst the Troops in the East. Again, should constitutional taints exist, as is not uncommonly the case, more especially in regard to the Strumous diathesis so general in some of the classes from which recruits are largely raised, the fatigues and privations of Active Warfare, the exposure and vicissitudes of the field, and the attacks of Acute Disease, supply precisely the stimulus most calculated to call into active operation various low and complex forms of Disease with a slow and lingering course. Such diseased processes either prove directly fatal of themselves, or so complicate other morbid states set up in the system, as to leave no expectation of aught but a fatal issue.

Such doubtless is the rationale of the Pathology of many of the examples of Tubercular development in Typhoid and Dysenteric cases, which we have witnessed in the Secondary Hospitals of the Bosphorus, in some instances causing death by Lesions peculiar to itself; in others inducing most complex processes of disorganization in the vital parts.

Even when the less formidable of such cases are not actually fatal, convalescence is usually so slow, lingering, and imperfect, that as soldiers, these youths cannot be, till the expiration of a long period, if ever, sound and effective men; while during such time of convalescence they but burden the Hospitals, required as they often are, for the more pressing wants of the field. Thus not only does their illness cause the loss of their own services, but it encumbers the Hospital Staff, while their transport is an additional pressure on departments already perhaps, fully worked.

The results of Surgical Pathology corroborate to a large extent the observations just made, which are chiefly based on considerations arising out of the behaviour of the immature constitution under the effects of Disease. As a general rule, true at least in a very large part of its usual acceptance, youth forms a favourable element in the calculation of chances in surgical cases. Amongst the troops in the Crimea, however, no such favourable anticipations could be indulged on the score of youth. The constitution of the young, even independently of the presence of actual disease, seemed much impressed by the influence of the various causes already dwelt on; many succumbed almost

immediately under the shock of injuries, and in the case of the graver Surgical Operations, no more advantageous results, but the contrary, appeared to be shown on the side of the young: in fact, youth was not to be counted on as a favourable element in determining a prognosis in such cases.

In the statements I venture to make respecting the operation of youth and immature physical development as a predisposing cause in the production of Disease, I do not rely solely on the results of my own observations. This subject has been the topic of repeated consideration with some of the most experienced and accomplished medical officers in the field, by whom my views on these physiological points have been fully concurred in. And, indeed, I do not believe that any persons sufficiently acquainted with the principles of Physiology could entertain opinions in the least differing from those here expressed.

I am not in a position to prove, by actual statistical evidence, the precise proportion to strength in the entire Force in the Crimea, at any given date, of those who may be considered as of immature age. I did not possess the means of determining such questions on any large scale; and I do not pretend to any such results. However, amongst a portion of the wounded of the 18th June and 8th September, I found means to make a few statistical observations. The cases may, I think, be fairly taken as a general average, and so far admit of being used to support what is stated above. The joint numbers on the occasions of the assaults on the Grand Redan, received into one hospital in the field, amounted to 664, embracing all variety of gun-shot injuries, and some of the very worst kind. Of this number of men the average age was 24½. But this statement would give only an inadequate view of the actual youth of a great proportion of them. Sixty-one were *under* the age of 20, of whom one was only 17, and the rest varied between 18 and 19; 75 were *of* the actual age of 20 years. Thus of the whole, considerably more than one-fourth were actually only 20 years of age and under; 76 were found to be between 30 and 40, inclusive; two were of the actual age of 40; while one was stated to be 48, which is at least doubtful. The remainder, constituting a little more than two-thirds, were of various ages between 20 and 30, the majority inclining to the former rather than the latter. These results show a very high proportion of immature youth, such as, I have no hesitation in saying, it is not consistent with any sound physiological principles to expose to the severe trials and hardships of actual War. Amongst them disease finds a rich and easy harvest.

I would not wish to be understood as implying that any objections exist to the practice of early enlistment. On the contrary, such a measure is undoubtedly of great general utility. On home service, or on secondary foreign stations in favourable climates, the training and well-regulated exercise of the young soldier conduce to the development of a vigorous frame, and in no small degree add, I am persuaded, to the natural powers of the constitution. Such training should, however, be gradual and apportioned to the strength of the recruit, according to the earliness of the period at which he is enlisted; and under a properly regulated system, I believe it would not be necessary to fix any precise limits in this direction. Trained at home, and gradually inured to the fatigues of the soldier's life, by a suitable rotation in the selection of foreign stations, Troops could, I doubt not, be slowly but steadily brought to a maximum of safe endurance of the hardships of Warfare, far above the average of what is now reached. A judicious system of "cross drafting," or some such expedient, would enable the younger soldiers and recruits of one regiment ordered to the seat of War to be replaced by the more hardy, seasoned, and serviceable men of another; while in the several secondary depôts on the high road to the scene of action, the former could undergo a gradual process of seasoning and acclimatization, which would ultimately add immensely to their actual strategic value and efficiency when called to the field in their turn. In this way I believe no loss of strength or actual inconvenience to the Service could result; while the increased efficiency of a large proportion, probably one-fourth of the Forces, in the field would be thus almost certainly secured. I am sufficiently well aware that the employment on active service of the young and immature prevails largely in other Forces besides the English; but I have reason to know that it is with equally unfavourable results. Neither precedent nor practice, however, can be admitted as outweighing the dictates of Physiology, and the results of Pathological experience in a matter of such moment. As a conviction based on these considerations, I would beg respectfully to express it as

my unqualified opinion that no soldier under 21 years of age should be sent on service to the Crimea, or any other seat of actual War; and not even then, without a previous training and gradual acclimatization in suitably chosen secondary stations. In the foregoing statements I believe I am justified in saying, that I express views shared in by a large number of the most able and intelligent Medical Officers.

Besides the class of men who, by reason of youth and immaturity of physical development, seemed to suffer peculiarly from the toils of Crimean life, it will be necessary to briefly notice another class equally unfitted to make effective Troops, but from a somewhat different cause. I allude to those recruited at a rather advanced age, 25—30, from the mechanical trades in densely populated towns. Such men have seldom enjoyed a vigorous youth; and even at this age (30) the meridian of their physical development is passed. Ill fortune, or it may be a life of dissipation, has led them to take to arms as a last resource. How far any of such men are capable of becoming efficient soldiers I know not; but it is certain that the testimony of Medical Officers bears me out in the observation that they are constant and early applicants for admission into hospital, their constitution, never robust, soon giving way under exposure and fatigue. Men of such a class may add to the numerical, but never to the effective strength of an Army, and it is more than doubtful if they ever repay the labour and cost of their transport, and of their maintenance in the Field or Secondary Hospitals. One sound, seasoned, and effective soldier outweighs in value any number of immature and inefficient youths or effete adults. And in the Physiological Economics of an Army, the maintenance of the largest number of effective men is the great problem.

The several agencies just considered, many of them continuously in operation, and others, though ceasing to be immediately felt, leaving well-defined impressions behind them, had induced sensible modifications, as I have already said, in the constitution of the soldier. Some of these effects were visible to the eye. A marked characteristic of the Crimean soldier was a premature appearance of age. The veteran of 40 would be readily taken, by the inexperienced, for the old man of 60 to 65; the youth of 20 to 22 wore the settled aspect of 35 to 40. With the haggard features of disease, especially that of a chronic kind, these appearances became still more exaggerated, often to a most marked degree.

Even with those who possessed a still robust exterior, and all the apparent physical conditions of health, the manner in which their system was observed to behave under the influences of disease or the effects of injury or operations, showed that the force of the constitution was to a very considerable extent deteriorated. To express this in another way, it may be stated, that the available vis vitæ for the resistance to, or recovery from Disease, or for the resistance to, or recovery from the effects of Injury or of great Surgical operations, was below the average physiological standard. The powers of the system, and consequently the *viability*, so to speak, of the soldier were below par. This was especially manifested in some of the prominent and distinctive characters of prevailing diseases, which presented a decidedly low adynamic, and often Typhous type, and such as urgently called for a generous and stimulant treatment.

It is all but impossible to realize for the soldier in the field the same conditions of life, or the comforts he enjoys on a home station. Many peculiarities, privations, and irregularities, independently of necessary fatigues and exposures, must attend camp life. The constitution is highly impressionable, and readily acquires morbid peculiarities, and from the various concurrent causes which had prevailed in the Army of the East, and from the lowered tone of constitutional powers already alluded to, the system of the soldier had become prone to the influence of certain Pathological types to a greater or less extent. Some diseased constitutional states seemed to prevail, even independently of the actual development of cognisable lesions, with definite anatomical seat. Foremost and most remarkable, as well as perhaps important, amongst this class of morbid conditions is to be reckoned the Scorbutic Dyscrasis.

Well developed cases of Scorbutic and allied forms of disease, such as Purpura Hæmorrhagica, were, at the date of my arrival in the Crimea, of comparatively rare occurrence amongst the English Troops, while in the neighbouring allied camp of the French these affections still prevailed to a considerable extent. The continuance of these diseases in the French Army at this period

did not seem to be attributable to deficiencies of vegetable diet. It is now well known that this class of affections does not recognize any such limited or exclusive cause. They are known to occur amongst masses of men in whom the vital stamina have been impaired by any causes, as by the toils of many campaigns; and in accordance with this view, I learned that cases of Scorbutus were sufficiently common amongst those veterans of the French Army in the Crimea who had served with such distinction in the campaigns of Africa.

Uniformity of diet, when it amounts to a monotony inconsistent with the wellbeing of the Digestive system, is, perhaps, almost as fully operative in the production of Scurvy in some of its forms, as an actual deficiency of any single requisite ingredient of the soldier's food.

Having had the fullest opportunities of becoming thoroughly acquainted with all the essential features of disease as presented in the English Camp, I can safely say that during and subsequent to the month of June of the past year, cases presenting any marked development of Scorbutic Lesion as a primary and essential disease were of the greatest rarity. Some few such, I have seen; but they were, undoubtedly, exceptional. But I have not the less reason to believe that, to a considerable extent at least, a general Scorbutic State was recognizable in the constitution of the soldier, which, though it seldom led to the actual development of Scorbutic Lesions of a primary independent form, lent a decided influence to, and even sometimes distinctly modified, the characters of the other diseased processes which were so commonly prevalent. In more precise terms, it may be stated, that while Scurvy did not, except in rare cases, exist in any form as a distinct disease; and while (from the month of June) no single fatal case came within my sphere of observation in the English Hospitals in which Scorbutus was the direct cause of death, many cases of disease occurred in which modifications attributable to a prevalent Scorbutic Dyscrasis could be recognized, such as various discolorations of the extremities externally, hæmorrhagic effusions internally, and the very remarkable and, as yet, unexplained phenomenon of hæmeralopia. On post-mortem examination, several of such cases, besides the ordinary lesions of the dominant disease, exhibited anatomico-pathological characters, such as mucous hæmorrhages, and sub-mucous blood extravasations, which were in all probability referable to the Scorbutic Dyscrasis as their immediate cause. Of the independent existence of Scorbutic Lesions at an earlier period, I wish to express no doubt; but I speak here of what came directly under my own observation.

The next great morbid Constitutional State which deserves attention is the Typhous.

Very numerous, varied, and ill-defined significations attach to this word. I would be understood to use it at present, not in the sense in which it implies Special Diseases, but for the purpose of designating by it a certain generally prevailing morbid state of the constitution, which determines in any given Essential Disease or any special Pathological Lesion, when actually called into existence, the marked and peculiar Clinical characters which, by universal concurrence of interpretation, are known as Typhous. I employ the word in its comprehensive and generic sense to embrace as well the phenomena called *Typhoid* as the *Typhous* proper. That some such general constitutional state, brought about by various influences, did exist, and manifested its influence from time to time in the determination of the characters of disease, I think there is every legitimate reason to believe. Circumstances being the same, Disease at one time presented Acute, Sthenic, Inflammatory characters; at another, and far more commonly, its phenomena tended to a low Adynamic form.

Of the Diseases prevalent in the Forces in the Crimea during the period of my observations, the majority presented undoubtedly low adynamic, in other words, Typhous characters; and this will be found to have been true not only of the Essential Diseases as Fevers, but to have been all but constant with regard to many other diseased processes. Acute Inflammatory Diseases were exceedingly uncommon; I have myself not witnessed any such; and the highest *tone* of symptoms which I have at any time determined to exist, would not, in my opinion, admit of being classed as other than *Sub*-Sthenic and *Sub*-Acute. As usually manifested, however, the *tone* of diseased action was much lower, and either verged on or actually exhibited the low Typhous Adynamic Types; and such, as it appears to me, was the class of Diseases commonly presented. This type of disease plainly indicated, and as urgently called for, a liberal,

generous, and stimulant treatment, often requiring the bold and unsparing use of Wine and Brandy. To the experienced clinical physician, these well-known Pathological indications as clearly and unmistakeably precluded the idea of Anti-phlogistic and Depletory measures, which must be regarded under such circumstances as worse than useless, for in many instances they would not have been devoid of danger to life. I have great pleasure in here offering my humble testimony to the generally just and intelligent views of the great majority of the Medical Officers of the Army of the East on this vital point in Pathology, and its immediate practical bearing. Few of those who possessed the requisite experience of Disease failed to seize readily its great characteristic features, and its manifest disposition to Typhous forms. It is needless to add, that their practice was most properly, and I have reason to believe, in many cases at least, as successfully regulated in accordance with these views which indicated a generous, and often in the worst cases a highly stimulant treatment.

While anxious to avoid even the appearance of an approach to controversy, I cannot help, in connexion with so important a subject, expressing my entire and most unqualified dissent from certain Pathological views and principles, and the applications to the treatment of disease in the English Forces, which necessarily and directly grew out of them, and which were as directly as forcibly urged by authorities of eminence resident in Constantinople. That the principles urged by these distinguished persons were in all probability true in their application to the class of disease ordinarily presented to their observation, I am free to admit. That the type of disease now and of late years prevalent in these parts of the East of Europe differs materially from that exhibited in the West, is not only possible but likely. Furthermore, I am prepared to believe that residence in the midst of Eastern influences will, after the lapse of even a few years, induce marked constitutional changes in the system of the Western European; changes which are followed as a natural consequence by modifications in the types of disease when it occurs, and which both clearly indicate and require corresponding modifications in the medical treatment which they call for. It is far from improbable that Types of Constitution, and, as a consequence, Types of Disease undergo great, varied, and extensive modifications, not only in different climates and latitudes, but even within the same climates and latitudes at different times. And, perhaps, more in this, than in any of the supposed extraordinary advances in the practice of the healing art, is to be sought the explanation of the opposing views as to Pathology and Treatment of apparently the same disease at different times and in different places. Certain it is, such views as to possible modifications of disease, both as to time and place, have been too much kept out of view. Be this as it may however, to the experienced Clinical Physician the characters of the Typhous type were too well evidenced in the Diseases of the English Army during the past campaigns to admit of doubt as to the Pathological views to be entertained, or the appropriate treatment to be adopted with regard to them. What the tendency of the Diseased Types and the Essential Pathological Phenomena of the same Army in subsequent campaigns may be, I am by no means prepared to state. To the closely observant eye, an elevation slow, gradual, but distinctly sensible in the general type of the constitution of the soldier, with corresponding though slight modifications of the phenomena of disease when induced, did not fail to make itself evident even before the termination of the past year. And I am ready to admit it as possible that the Pathological views of the Constantinople observers may be as applicable in their full force to the diseases of this same Army in some future campaigns, as they were in the past campaigns wholly inadmissible.

The observations here adduced are in great measure confirmed and supported by those of several accomplished observers amongst the French and Sardinian Medical Officers. The latter especially had noticed as a result of even a comparatively short exposure of the Troops of Piedmont and Savoy to the influence of the Crimean campaigns, a decided though slight depression of the constitutional tone of the men, and not only a less urgent demand for, but a less tolerance of anti-phlogistic measures of treatment, especially the depletory. In a more general, but not less important way, the experience of the French Hospitals in the Field bore out the conclusions derived from the study of the characters of disease amongst the English Forces in camp. The French Troops had, it will be remembered, been exposed to all but the same influences as the English.

Of the two chief Pathological states which may be grouped under the head of Typhous, I must now treat somewhat more particularly. They constituted, perhaps, the gravest forms of disease which extensively affected the Troops. The Typhous proper, and the Typhoid as essential diseases, allied as they undoubtedly are, yet presenting important differential characters, stand pre-eminent amongst the Fevers which have made ravages on the Armies of the East. I shall not here enter into any discussion as to differences between these two Types of Disease. I use the terms in a sense the same as that which a pretty general conventional recognition of their chief differential characters has assigned to them. Of the precise nature of the Diseases treated of, the very full Anatomico-Pathological details which will be subsequently communicated will leave no doubt. Of the Typhus Proper, the true Spotted or Petechial Fever, I have determined the existence in the Hospitals of the East, by some few but well-marked and unmistakeable cases. But it would appear not to have been by any means so general, nor to me does it seem to have been of such importance as the Typhoid. This latter form of Fever prevailed to a very considerable extent, and at times in a type of the gravest kind. Occurring in constitutions already depressed below the physiological standard, it is not to be wondered at that it frequently proved fatal. It is not, however, in its more immediate effects perhaps that its most formidable characters are to be sought.

Fevers of this class, as it is well known, exhibit a marked tendency to Secondary complications in vital parts, and this apparently by reason of some cause, as it were, natural to the order of morbid actions which they embrace. Several causes foreign to such Fevers likewise concurred to determine the all but constant occurrence of one class of internal Lesions, those, namely, of the Abdominal Organs. From both influences combined doubtless, the Secondary Enteric Lesions which this order of Fever induced were of the severest kind; they were all but universally attendant upon it, and were usually of a markedly fatal character. In the Typhoid Fever of the Crimea, it was especially noticeable that a convalescence, more or less apparently complete, often occurred after the subsidence of the primary disease, before the development of any Secondary lesion was manifested by appreciable signs. Such periods of convalescence, it must be observed, did not always occur, for the primary symptoms not infrequently passed into those of the Secondary affection, with scarcely any sensible intermission. The cases assumed, it may be, a more low and lingering character, and terminated in some one of the forms of fatal issue common in this disease. Convalescent intervals, with apparent though fallacious restoration to health, did, however, sufficiently often occur, and in many instances to such an extent as apparently to warrant a return to duty; a circumstance almost constantly fraught with increased danger to the patient. The great danger to life involved in these Secondary Enteric Lesions, which so often lead to slow lingering illness, with its attendant diarrhœa, wasting and gradual exhaustion of the patient, with sometimes an end of pain and misery, as when they issue by Intestinal perforations, is a well-established fact in Pathology. And when a Fever prevalent amongst masses of Troops is ascertained to present any tendency to the development of such Lesions, the greatest circumspection is called for amongst those entrusted with the charge of such cases. During convalescence, however well established to all outward appearance, the utmost restrictions should be placed on the diet and drink of the patient. He should be kept under constant observation, and, if circumstances admit, transported carefully to some Secondary Hospital for Convalescents. And till such time as he may be fairly considered beyond the danger of the possible induction of the insidious disease which he inherits, as it were, from the primary affection, he should be strictly treated as still in all respects in *statu ægri*. The neglect of such precautions would, I believe, be found to lead to the loss of many valuable lives. It is with regret I have to say, that it does not appear to me that the principles which furnish indications of such importance as these, are sufficiently known and properly recognized.

Of the various causes operating in the production of Disease amongst the Troops in Camp, the greater part tended undoubtedly to the development of morbid action in one part of the system more especially, and this almost to the exclusion of affections in other organs, at least in a primary form. The Abdominal Viscera were those in which disease was most commonly manifested. Physical causes from without, and irritation established within, in some measure at least, connected with peculiarities of life and diet, led to a predominant

tendency to Gastro-Enteric derangements, and the consequent development of the Diseases known as Fluxes, in their various forms. It may, indeed, be said, that the main features of the Pathology of Disease, as presented in the Army of the East, were embraced in the two great classes of the Fevers and the Fluxes; and of the latter, no inconsiderable proportion owed their origin to the former. Ample proofs will be found in the various following sections of this Report, of the extraordinary predominance of Abdominal Lesions. To such an extent did they prevail, that I believe I shall be warranted in stating, that in no case submitted to examination by me or my Assistants has a perfectly normal state of the Digestive Viscera been found to exist; while a marked absence of lesions in other parts was, in those who died in the early periods of disease or injury, the general rule.

Amongst the several diseased processes attended with one or other of the forms of Flux, that connected with the development of Enteric Lesions secondary to the variety of Fever already considered under the name of Typhoid, deserves most especial attention for reasons already adduced. It seems, however, to have been not infrequently confounded with other, and often less important affections under the ill-defined head of "Diarrhœa." Evidence bearing upon this point will be found throughout the body of this work. I would only further venture to remark in reference to it at present, that this branch of Diagnosis does not seem to me to be in such a position as its importance demands for it.

As I shall subsequently have occasion to show, Dysentery formed by far the greater part of the true Fluxes which so largely affected this Army. In its chronic forms it was a lingering, wasting, and almost constantly fatal disease.

When established as a chronic disease, Dysentery evinced a marked tendency to the induction of other morbid states in the system. The most complicated forms of diseased action, and those presenting the most profound disorganization of vital parts, have been illustrated by Dysentery in certain orders of morbid association; in one, in connexion with the Typhoid state, either as an antecedent or a consequent; in another, in connexion with the developement of Tubercle; and in a third, with the development of both these processes in a more or less advanced degree. But the discussion of the details of such cases belongs to the domain of Special Pathology.

I have before alluded to the comparative immunity from Diseases of the Respiratory Organs enjoyed by the soldier in the Crimea. This is to be understood as referring to the primary and idiopathic forms of these affections; for as will be evident in the details of cases subsequently given, extensive Secondary Diseases of the Lungs have been all but constant as the result of the Typhoid and the Dysenteric processes, more especially when in the chronic state.

As a cause influencing the nature and results of Disease to an important extent, I cannot omit alluding to the subject of deportation of the sick.

Of the various Diseases existing in camp, a broad practical distinction into two great classes presented itself, in a Medico-Economic point of view; namely—first, into those which were characterized by a uniform determinate course, of longer or shorter duration, and with a definite primary issue in death or recovery; and secondly, into those in which, after the primary phases of morbid action had been brought to an end, the system was still under a dominant morbid influence, liable to the invasion of important, often fatal, Secondary diseases, as an almost direct consequence of the primary affection, though, in many instances, periods of complete intermission occurred. In the former class were to be ranked the simpler Fevers, the uncomplicated forms of Diarrhœa and Dysentery, and such cases of Acute or Sub-Acute Idiopathic Inflammatory Affections of isolated organs as, though exceptional, were found to exist from time to time. In the latter group were included, in a general way, almost all other diseases, whether Fevers or Fluxes, witnessed in camp. I may, however, especially mention Relapsing Fevers, those of the Typhoid type, with tendency to the development of Secondary Enteric Lesions, any such few independent forms of Enteric Disease as may have occurred, and all the forms of Chronic Dysentery which presented disposition to complex morbid associations, especially with the great Dyscrasic types, as Scorbutus, Tuberculosis and Typhoid disease.

It is not in a scientific point of view that such a broad division of Diseases is most worthy of attention. Certain Medico-Economic considerations of great practical moment arise out of it; and it is because it has seemed to me that such

indications have not received that recognition which they are entitled to, that I venture to bring them into notice at present. It will need little reasoning to show that Diseases having a tendency to determinate issue in the primary stages should be treated *in loco*, having due regard to the place of their occurrence, and the possibility of requisite accommodation being found for their reception and cure. The same applies to the second great Class during their acute stages. It is not necessary to point out the impropriety, and often even fatal effects liable to result from the deportation of Disease in an Acute form, either by land or sea, to any considerable distance. Yet neglect of this principle has led to very unfavourable results. With regard to the second great class of cases, with tendency to secondary disease subsequent to a primary attack, removal from the morbid influences in which the disease has originated, and which are capable of determining its further development, rest from all duties and fatigues, with strict attention to diet, are absolutely essential. Such conditions as are here implied can be only adequately realized in the great Secondary Hospitals.

On the principles here indicated, there is good ground for believing that a large and timely extension of the system of sick and convalescent leave would be attended with marked beneficial results, and would, doubtless, restore to a state of efficiency for active service many valuable lives. It has not appeared to me that such a system has been followed to the extent that would be requisite, and which could be readily accomplished.

I have already informed your Lordship that on the occasion of the 8th September, in the illness of some, and absence on sick leave of others of the Medical Staff, I had the honour of lending my services to the care of a considerable number of the Surgical cases which that event produced. It is likewise, doubtless, known to you, that a large proportion of operations was performed by me on that occasion.

The Pathological phenomena exhibited in the sequence of mechanical injuries from the various forms of projectiles, or developed as a consequence of Surgical Operations, presented, in very many instances, features of remarkable interest. An attentive study of the Pathological conditions thus brought into existence will be found of value, not only because they constitute in themselves important subjects of scientific inquiry, but also because they tend to throw light on the states of constitution in which they themselves became manifested, and to which, in all probability, they owed their origin. When elucidated themselves, they became, as it were, so far, fixed Pathological standards, and then, in their turn, admitted of being used to estimate the nature and degree of the deviations from the Normal Physiological Status of the System in which they occurred. In this manner, it will be subsequently seen, that, though on the whole the general results have been satisfactory, a consideration of the pathological conditions presented as the sequence of injury or of surgical operations, leads to the estimation of very grave and important aberrations from the Physiological Standard in the constitution of the soldier. So far the indications furnished by Surgical corroborate those derived from Medical Pathology. As a general rule, though no epidemic morbid states prevailed, low forms of diseased action attended the graver Surgical cases. Destructive processes were often exhibited in limbs after the operation of Amputation; and only very moderate success has been obtained in this class of operations.

In connexion with this subject, some notice must be taken of marked constitutional effects, in all probability due to the excessive and habitual use of intoxicating liquors. Testimony has been elsewhere borne, and very properly, to the general abstemiousness of the soldier during a part of the past campaigns. It was with regret, however, that I noticed, subsequent to the month of May, that the increased facilities for procuring malt and other intoxicating liquors became a means of great and general abuse. Habitually employed, even in not excessive quantity, I am far from agreeing with many that Porter constitutes a perfectly healthy ration for the soldier. Immoderately used, it leads to an inflation of the system, and a phlethoric state not consistent with a firm and vigorous health. Certain it is, that men presenting these fallacious appearances of strength often presented rapid, low, and fatal forms of disease, and quickly succumbed under the effects of injury or great operations. However robust in appearance, they were far from being in a normal state. Proofs of the truth of what is here advanced will be found in a proper section hereafter.

It will be interesting to notice here, that a tolerance of the effects of Injury and of the greater Surgical Operations has been observed amongst the Russian Prisoners, both in the French and English Hospitals, far superior to that exhibited by the wounded amongst the Allied Troops, with the exception, perhaps, of the Sardinians.

In a very considerable proportion of the Russian Prisoners who came under my observation, the physical development of the frame seemed to be that best suited for the safe endurance of the hardships and fatigues of warfare. The Muscular System was well developed, vigorous, and firm, with the Adipose tissues at a minimum. Their frames were, in fact, "hard," "firm," and in thorough working order; and, in this respect, contrasted forcibly with the "soft" inflated, though apparently stalwart systems of some of Her Majesty's Troops. I regret extremely that my opportunities for investigating the Physiological and Pathological Status of the Russian Troops were not sufficiently extensive to enable me to communicate any definite results on these subjects.

In the primary forms of Disease as observed in camp, Lesions of the Abdominal Organs have been stated to have been the great characteristics; and while in their early stages, such Lesions commonly existed isolated. When, however, Disease assumed the chronic form, complexity of diseased processes became manifested. This latter tendency, namely, that to multiple associations of morbid actions, was, perhaps, the greatest point of difference which existed between Disease as it occurred in the Hospitals of the Camp, and in those of Scutari. In the latter place, Chronic Disease was the rule, and so far, complexity of Lesions and of diseased processes was to be expected. A tendency to the development of Dyscrasic states, especially that of Tubercle, in association with Chronic Disease, was, moreover, largely manifested in the Secondary Hospitals of the Bosphorus. Though I have not failed to observe some cases of similar complex affections amongst the sick in Camp, they were undoubtedly of rare and exceptional occurrence in the Hospitals in the Field.

In the several following sections the results of the Investigations undertaken by myself and my Assistants will be found detailed. I have held it in view to endeavour to give such descriptions of Disease and Diseased Processes presented to us as will enable them to be recognized and identified in the fullest manner at any time, or for any purpose. In some instances it has been found necessary to go into considerable detail to furnish the requisite data for estimating the characters of the Diseases observed by us. But it is not to be expected that in a work of this nature, or within the limits of time and space properly assignable to a Report, the various important Pathological subjects which we shall have to pass in review, could receive that complete and elaborate discussion which, under other circumstances, would be demanded for their full elucidation. To elaborate the numerous details of our Investigations, and to show their full bearing on Medical and Surgical Pathology, would have required for its accomplishment as many months as we have been enabled to devote weeks to this work. Such as it is, however, I trust that in its various Sections the chief outlines of the Pathology of the Diseases of the Army in the East will be found considered with sufficient fulness for the purposes of this Report.

I cannot close this section without bringing to your Lordship's notice the services of my first Assistant, Dr. Wm. Aitken. To his zeal and energy, his discretion and judgment under circumstances of no ordinary difficulty, I am greatly indebted. And to his ability as an investigator of Disease, much of the results of this inquiry are largely due.

I have the honour to be,
My Lord,
Your Lordship's obedient Servant,
ROBERT D. LYONS.

The Right Hon. the Lord Panmure, G.C.B.

PART I.

DISEASES OF THE ARMY IN THE EAST.

DIARRHŒA.

PROPERLY speaking, the term "Diarrhœa" has no place in strict pathological language. It cannot even be said that it is taken by common interpretation to represent any one definite morbid condition; and it has therefore no constant significance. As, however, the word "Diarrhœa" has received a very general conventional acceptance, whereby morbid states are designated, the chief clinical phenomenon of which is looseness of the bowels; and as the word, in this sense, seems partly to replace the term "Flux," so much in use amongst the older Writers, we shall employ it in our preliminary observations for the purpose of grouping together such lesions as present this marked, common, and important feature. By so doing we shall have the advantage, to a certain extent at least, of considering a large body of diseases in the same category as that to which they are very commonly referred in accordance with an erroneous usage. Subsequently, however, it will be necessary for us to examine with minute care, and place under their proper Pathological headings, the several morbid processes thus temporarily associated together. And that much more attention is requisite for the proper diagnosis and classification of these forms of disease than is sometimes bestowed on them, will, we think, be sufficiently apparent from the results of the anatomico-pathological investigations which bear upon this part of our inquiry. This is a subject which is important in so far as that Diagnosis forms the only safe index to Therapeutics.

Useful as any such mode of dealing with disease, as that of grouping together various affections presenting one great common feature, may be, and undoubtedly often is, it will be expected that an arrangement more in accordance with the strict requirements of the present state of Pathological science shall be adopted by us, when we come to the more close investigation of the several classes of disease in question.

In the medical history of former wars, such terms as "Diarrhœa" or the "Fluxes" were perhaps sufficiently admissible; but neither of these words, unless within very definite and precise limits, can be now accepted in the language of Clinical Medicine or Pathology. So far as they are taken to express a phenomenon of disease, not a disease itself, their use is proper; but it will be hardly necessary to say that like the terms "Emesis," "Hydrosis," "Diuresis," &c., Diarrhœa constitutes a symptom or phenomenon of disease, not any constant or established form of diseased action recognized as such in the pathological scale.

In a certain defined and limited sense Diarrhœa is undoubtedly yet admitted in the language of medicine to indicate diseased states, of inconstant seat and characters, as existent *per se*, of which we shall treat more fully afterwards. But we have little hesitation in saying that, at a more advanced period of pathological research, the sphere of application of the term will become gradually narrowed, till it is finally excluded from any distinct place in the nosological category, and it will then be employed, as it only properly can be, to designate a phenomenon of disease, not any special form of disease itself.

As frequently employed at present, however, in various official records, the term "Diarrhœa" has received what we cannot but consider, under any circumstances, a most wide and undue extension. The number of cases returned as "Diarrhœa" in published records of disease would lead to the supposition that some well-defined and generally recognized pathological condition exists under this denomination. Pathological investigation, however, distinctly shows that such is not the case; for, on the contrary, the results of *post mortem* examination have established the connexion of Diarrhœa with lesions of the most different and sometimes opposite characters, and not necessarily always in the same organs.

Cases will unquestionably be met with from time to time, in which it is hardly possible, even by the most careful exercise of diagnostic principles, to determine to what lesion of what part or organ the Diarrhœa owes its origin. Under such circumstances, the term may be admissible as a useful one to express the most prominent feature of the disease under consideration; but it should be abandoned whenever more defined symptoms during life, or anatomico-pathological appearances *post mortem*, enable us to establish a more accurate diagnosis, and to specify the lesion, or the organ affected, to which the symptom owes its origin. When this lesion of a part or organ is determined, a suitable pathological designation should certainly replace the ill-defined word "Diarrhœa" in all published records of disease, whether for civil, military, or special scientific purposes.

The diseases of which Diarrhœa is a symptom are various, and the number of cases presenting this clinical feature in a more or less aggravated form often constituted a very large proportion of the entire sick list of the Army; and the numbers of men who for a time were thereby rendered incapable of duty was often very high. Thus, during the months of June, July, and August (1855), the numbers in the British Army of the East affected with Diarrhœa amounted in several regimental hospitals to one third, and even, in some instances, to one half of the total sick and wounded under treatment. The Official Returns will, we believe, be found to show, under the heading of "Diarrhœa," at least an equally large, if a not still greater proportion; there is even reason to think that at an early period of the campaign still larger numbers were thus affected.

Some of the diseases returned under this head will be found of a comparatively mild and trivial character, admitting of tolerably certain if not speedy cure. Others, again, are those which involve lesions of vital parts, and are always accompanied with great danger to the life of the soldier; and some even are almost necessarily fatal.

Taking into account, then, the value of the soldier's life, the diagnosis of this class of affections, as constituting the essential step to a successful employment of therapeutic means, assumes the highest practical importance. And it will, we think, be hardly denied that a class of diseases capable of rendering unfit for duty, on any given day, some thousand men, and often still larger numbers,* is deserving of the very closest investigation. It will therefore need no apology that we purpose to examine, in a very strict manner, the diseases grouped together under the name of "Diarrhœa," with a view to determine, as clearly as possible, the precise pathological conditions, and the nature and proximate causation of the important morbid phenomenon in question in its various forms.

That most opposite pathological conditions, and diseases differing in their site as much as in their relative nosological importance, are often aggregated together, under the one common undistinguishing head of "Diarrhœa," we beg to adduce as evidence the accompanying Table.

This Table contains a summary of the pathological conditions carefully determined *post mortem* in different cases taken from our note-books. In the first four columns are placed the names of the patients, with the disease as specified in the returns sent with the cases to the Pathological Rooms. In the chief column will be found a brief summary of the most important pathological conditions observed *post mortem*; and in the last, either the proper nosological term assignable to the order of diseased processes ascertained to exist, or a brief descriptive term, indicative of the essential lesion to which death was attributable.

It may be, perhaps, as well to state that most of the cases enumerated in this Table were not treated in their respective regimental hospitals.

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* When numbers are given in this Report they may be taken as based on official information. But it is to be observed here, that no statistical results are to be expected from us. No means available for such purposes, however valuable to us the statistics of the diseases of the Army in the East undoubtedly would have been, were within our reach. We may also add, that, as will probably be sufficiently apparent in the sequel of this Report, figures seem to us to have but little positive scientific value in Medical Returns, unless the greatest care and discrimination be exercised in the classifications of Disease.

TABLE I.—DIARRHŒA.

Diseases returned as "Diarrhœa," with Details of their essential Pathological Conditions as determined post mortem, and their Nomenclature rectified accordingly.

Name of Patient.	Regiment.	Regimental Number.	Name of Disease as officially returned.	Summary of essential Pathological Conditions determined post mortem.	Nomenclature rectified in accordance with post mortem results.
Private Jas. Gillings - -	1 Bat. R. Brig.	- -	Diarrhœa	Exudation into and friable state of Right Lung. Ulceration of Peyer's Glands throughout Small Intestine. Extensive Ulceration in whole tract of Colon and Rectum.	Dysentery, with probably Sequelæ of Fever.
Private Jas. Higgins - -	88th	3,782	„	Low Epithelial Exudation in Lungs. Extensive Ulceration of Colon, with great amount of melanic deposit at intervals throughout this Intestine. Mesenteric Glands enlarged.	Chronic Dysentery.
Private Moses Ewans - -	44th	2,929	„	Oedema with partial Apoplectic effusions in both Lungs. Peyer's Glands showing evidence of healed Ulcers. Extensive congestion round margins of these Glands, with wasting of the Follicles. Enlargement of both Kidneys to about two volumes. Mesenteric Glands enlarged.	Enteric Lesions, probably Sequelæ of Fever, with Pulmonary Apoplexy.
Corporal Rich. Toogood - -	4th L^t Drgs.	- -	„	Extensive adhesions of Right Lung. Engorgement and friability of pulmonary tissue in Left. Excessive enlargement of Mesenteric Glands, and softening in some of them. Peyer's Patches throughout in various stages of morbid action. Advanced ulceration of those towards end of Ileum. Spleen large and soft.	Secondary Fever, associated with the progress of changes in Exudation in Peyer's Glands.
A Bashi-Bazook - - -	- - -	- -	„	Effusion into Pericardium. Very extensive Pneumonia of both Lungs. Atrophy of Small Intestine. Spleen very large. Liver œdematous, soft, and fatty.	Pneumonia, with Atrophy of Follicular Apparatus of Small Intestines.

TABLE I.—DIARRHŒA—*continued.*

Name of Patient.	Regiment.	Regimental Number.	Name of Disease as officially returned.	Summary of essential Pathological Conditions determined post mortem.	Nomenclature rectified in accordance with post-mortem results.
Lance-Corporal Chas. Boroughs	62nd	3,676	Diarrhœa	Extensive Peritonitis, with effusions of recent lymph. Ulceration of Peyer's Glands. Descending Colon and Rectum the seat of large Ulcers, with raised and thickened edges.	Peritonitis, Sequelæ of Fever, Chronic Dysentery, all combined.
Benjamin Brown - - -	34th	3,674	„	Extensive Dysenteric exudation throughout Colon and Rectum.	Dysentery.
Wm. Beecher - - -	9th	1,749	„	Numerous Ulcerations of Peyer's Glands, some of them laying bare the Peritoneum. Ulcers half an inch in length, one-eighth inch in breadth, with raised thickened edges, and sloughs in centre.	Enteric Lesions, probably Sequelæ of Fever.
Jas. Baraham - - -	R. A.	- -	„	Extensive Bronchial Congestion of Right Lung. Effusion into Pericardium. Enlargement of Peyer's Glands close to Cœcum. Transverse and descending Colon coated with Dysenteric Exudation.	Chronic Dysentery.
Wm Bracey - - - -	41st	3,289	„	Viscera of Abdomen glued together with recent lymph. Effusion of reddish Serum in Abdominal Cavity, with flakes of lymph floating about in it. Liver adherent to Diaphragm. A few spots of Congestion in Small Intestines, but no Ulcerations.	Peritonitis (probably Idiopathic).
Jas. Correy - - - -	R. H. A.	C. Troop	„	Great Congestion of inferior Lobes of both Lungs. Hypertrophy of Liver, and Condensation of its structure. Great prominence of Peyer's Patches, which were surrounded by a well-marked ring of congested vessels. Many of these Patches ulcerated. Ulcers very large (some an inch in diameter), with raised edges, and brown slough in centre. Near Cœcum they had laid bare the Peritoneum. A few small circular Ulcers near cœcal end of Large Intestine. Solitary Glands very prominent throughout large Gut. Mesenteric Glands enlarged.	Enteric Lesions, probably Sequelæ of Fever.

Private Jas. Cook - - -	1st Ryl. Drgs.	1,524	„	Pleuræ on both sides adherent throughout. Several large Vomicæ in apices of both Lungs, but more numerous in Right. Liver large, pale, soft, and greasy to the touch. Great Congestion of Tubular portion of Kidney. Peyer's Patches throughout in a state of ulceration. Ulcers circular, with sharp, well-defined edges, in some places laying bare the Peritoneum. A few small Ulcers throughout Large Intestine. Mesenteric Glands infiltrated with Tubercle.	General Tuberculosis.
George Nicholas - - -	7th R. F.	3,735	„	Extensive adhesions of Pleuræ on both sides. Peyer's Patches extensively ulcerated. Ulcers thickened at edges, with sloughs in centre. Mesenteric Glands enormously enlarged.	Enteric Lesions, probably Sequelæ of Fever.
Thos. Power - - - -	L. T. C.	6,683	„	Opacity and adhesion of Arachnoid in several places, with extensive effusion beneath it. Great Vascularity of Pia Mater and Choroid Plexus. Lateral Ventricles filled with Serum. Extensive Adhesion of Pleuræ by recent lymph on both sides. Expensive Bronchial affection. Parietal layers of Pericardium adherent throughout by recent Lymph. Deposit on Tricuspid Valves. Extensive Peritonitis, with Adhesions of all the Viscera by recent Lymph. Considerable effusion of Serum in Abdominal Cavity.	General Inflammation of Serous Cavities. Meningitis. Pleuritis. Pericarditis. Peritonitis.
Wm. Sullivan - - -	R. A.	2 Co. 8 B.	„	Congestion (extensive) in posterior parts of both Lungs. Exudation into some of the Pulmonary Lobules. Heart large; its walls flaccid and flabby. Mucous Membrane of Small Intestines perfectly healthy. Some Ulcers of old standing at lower end of Rectum.	Extensive Pulmonary Congestion, with Lobular Pneumonia.
Henry Woodward - - -	7th R. F.	2,825	„	Heart flabby, fatty, and easily torn. Extensive Ulceration of Peyer's Patches.	Enteric Lesions, probably Sequelæ of Fever.

Besides the cases detailed in the foregoing Table, a large number of these, as well as of other forms of disease equally important, has been brought under our observation at various times, in which the lesions found *post mortem* did not correspond with the terms assigned to them; but at present we shall not take any more special notice of them. It needs only to be stated that the conclusions arising out of the study of the Table just given are equally applicable to many cases not detailed in it.

An attentive consideration of the foregoing Table will show that diseases of the most opposite character, and presenting lesions which range through a very large portion of the pathological field, are placed under the same undistinguishing and not very significant term "Diarrhœa."

When carefully analysed these diseases may be classed under the following heads:—

SUMMARY TABLE, No. I.

1. Lesions of the Great Intestine, being chiefly Dysentery in either the Acute or Chronic stage.
2. Lesions of the Small Intestine, with marked changes of a well-defined character in its Minute Glandular Apparatus, and which are most probably to be regarded as secondary Lesions of some antecedent Fever.
3. Inflammatory Lesions of the Great Serous Cavities.
4. Various Lesions, more or less well defined, of the Thoracic and of the Solid Abdominal Viscera.
5. Lesions the result of general Dyscrases, and implicating many organs, viz.,—Tuberculosis.

The lesions under the first head scarcely need comment at present; they will be treated at large in a special section proper to them. It is obvious that attention to the clinical history of these and all such cases would have readily ensured a more accurate and definite diagnosis.

But the second class of affections deserve some more particular notice from our hands in this place. It is hardly possible to exaggerate the importance, in a scientific and also in a practical point of view, of devoting to such lesions the most careful study, not alone with the view to the determination of their precise Pathology, but also to the adoption of an appropriate system of Therapeutics.

In commenting upon them it will be unavoidable to anticipate by a little, what will be considered in more complete detail, under the special head, to which these affections are more properly referable. It cannot be denied that they occasionally present, during a great part of their course, the phenomenon of "Diarrhœa," in a more or less aggravated form. But "Diarrhœa" must be regarded in these cases only as the sub-dominant, not the *essential* clinical feature. True it is, their diagnosis often presents extreme difficulty; indeed, without a careful consideration of their clinical history, and their antecedent pathological phenomena, we may well doubt that the precise nature of these cases admits of absolute determination, by even the closest attention to the symptoms which they present at the moment. It may be summarily stated here, that the germs of this diseased condition of the Glandular Apparatus of the Small Intestine, which was very commonly found as a *post mortem* appearance in fatal cases of so-called Diarrhœa amongst the Troops in the East, were generally laid, in the manner so well known to pathological observers, during the course of some antecedent Fever; and that in the progress of certain morbid changes in these glands, there subsequently became developed a condition of actual disease, at a period more or less remote from the date of the primary Fever, a state of almost complete immunity from any morbid symptoms having often intervened.

A knowledge of this tendency to the development of Secondary Lesions is of the utmost importance. When once it has been determined by observation that such a tendency is actually manifested in the Fevers which prevail at any station of Troops, or under any other circumstances whatever in civil or military life, it will not only be necessary that the utmost care should be bestowed on the treatment of the Fever during its primary stages; but it must also be clearly held in view, that a liability to Secondary disease, often of a fatal character, is entailed upon those who have suffered from such Fevers; and the duties of soldiers or others convalescent from these diseases should be regulated accordingly, until it may be reasonably expected that the period has elapsed during which these formidable Secondary Lesions are liable to occur. Till then, they cannot be considered as men in a state of health, or fit for active duty. The neglect of this precaution we have known to be followed by the most fatal results. Perhaps no more striking instance than that now under consideration could be adduced of the invaluable services rendered to Practical Medicine by the inquiries of the Pathologist.

A most scrupulous attention to the clinical history of each case, it is obvious, therefore, forms the chief and, indeed, the only safe guide to diagnosis in this class of cases, and it cannot be neglected without danger to the patient. "Diarrhœa" may, as we have already said, be present as the most marked symptom, but its import is very different indeed from that which it has, under other circumstances.

Prominent a feature as Diarrhœa may be in these cases, at the secondary stage in which we are now considering them, we cannot admit that it constitutes an adequate Nosological term whereby to designate them. The affections to which it is, perhaps, not improperly applicable, in the absence of any better means of designating them, are of far other and much less grave significance; and when employed by the Classic Authors of Medicine, "Diarrhœa" was associated with a class of cases of a totally different and less important order.

Of the third, fourth, and fifth classes of lesions enumerated in the Summary Table, No. 1, on the foregoing page, it needs only to be said, that while, doubtless, Diarrhœa may or may not have been present as one of a group of indifferent symptoms, it could in no way be taken as expressive of the essential pathological conditions present, and it is consequently wholly inadmissible as a Nosological heading under which to place them.

Diarrhœa may doubtless be present as an intercurrent and more or less constant phenomenon of almost any form of disease. It seems to have been at all times a very common, and hence important feature of the diseases which prevailed amongst masses of troops, whether in standing Camps or in the Field. We have before alluded to it as constituting one of the forms of the "Flux," so remarkable in the medical history of the campaigns which preceded those of this century.

Diarrhœa (properly so called).

Apart from the diseases with definite Anatomical Lesions of which it forms a symptom, but to which it is not applicable as a nosological term, the example of the best Classic Authors of Medicine warrants the use of the term "Diarrhœa" to designate certain disorders of the Alimentary Tract, of ill-defined seat, inconstant symptoms, and uncertain origin.

The characters of the diseases so named seem most inconstant; few authors entirely agree in their descriptions of them. It may be observed, however, that, of themselves, diseases of the class now alluded to are but seldom fatal; and in this particular they are markedly distinguished from the important group of Secondary Enteric Lesions with which they are too often confounded.

No distinction can, therefore, be of greater importance than that between the comparatively mild disease unassociated with any lesions of vital parts, marked solely by laxity of the bowels, and which, consequently, admits of the successful exercise of medical skill, and that latent and insidious form of morbid action, which commences frequently without pain or other symptom to denote its approach. During the hopeful anticipations of convalescence, the latter affection advances slowly but surely, and too often, by the destruction of the most delicate parts of the Nutrient Glandular Apparatus, brings the patient to a lingering death; or when perforation of the great serous cavity is produced by ulceration, abruptly terminates life by the shock of a sudden and general Peritonitis.

As the result of unwholesome diet, excess in food or drink, cold, wet, fatigue and exposure, various functional derangements of the Biliary and Gastro-Intestinal Apparatus, but independent of specific lesion of any organ, also as the effects of certain general and physical causes not well defined, but which seem to prevail invariably where large bodies of men are massed together, a lax condition of the bowels is produced, which from time to time affects a greater or less number of individuals amongst Troops in the field. This increased Intestinal action is not always, perhaps, to be regarded as constituting an actual disease. It seems commonly, and indeed all but invariably, to attack new comers to the field, who generally pass safely through it as a "seasoning" or acclimatizing process. As such it is, in many instances, not an unfavourable introduction to the hardships of camp life, toning down the plethoric, and those of full habit. It is, on the other hand, often a tedious, troublesome and sometimes dangerous affection.

Of the diseases properly assignable to the head of "Diarrhœa," in conformity with the usage of Medical Writers of authority, and in the limited sense above defined, that is to say, without special Anatomico-Pathological Lesion, we shall now proceed to consider such examples as have been presented to us in our investigations of the diseases prevailing amongst Her Majesty's forces in the East.

It will hardly be necessary again to premise, that we exclude from consideration at present all that class of diseases presenting the symptom of Diarrhœa, but which admit of the determination of their essential Anatomico-Pathological Lesions. All such cases are referred by us to their own proper sections, under which they will be found fully examined.

Under the head of "Diarrhœa" thus considered, we will place the following forms of disease as observed by us. It will be necessary to remark, however, that taken in this well-defined and limited sense, Diarrhœa appears not to have been by any means so common or general an affection amongst the troops as has been usually supposed, and as would be deduced from official returns. Diarrhœa *per se* has rarely, if ever, been a fatal disease in our experience; and, in fact, we possess no records of *post mortem* examination of cases in which death was solely attributable to Diarrhœa considered as an independent disease.

Summary Table, No. II.

Forms of Diarrhœa observed in the Army of the East.

1. Atonic Diarrhœa:—A form of disease corresponding in all essential particulars to the "Diarrhœa Lienterica" of the older Authors.
2. Bilious Diarrhœa.
3. Congestive Diarrhœa. (*a.*) Acute. (*b.*) Chronic.

Various other forms of Diarrhœa as a disease *per se* have been recognized by Writers on Medicine, but no other forms, besides those here enumerated, strictly deserving this name as we have defined it, came under our observation.

Such terms as Choleraic Diarrhœa, Scorbutic Diarrhœa, Dysenteric Diarrhœa, have, it is true, been as largely as loosely admitted into Medical nomenclature. It is, however, our opinion that the use of such terms is inconsistent with the present requirements of scientific Pathology. True it is, that the limits of diseases are not mathematically defined, but yet they will generally be found to admit of division into tolerably well-defined groups, by a careful study of their most essential characters. These characters are liable, no doubt, to much variety as to the mode of their occurrence, their manner of aggroupment, and their intensity. But yet, they are sufficiently constant to admit of our defining, by their aid, in the great majority of cases at least, the essential lesions to which they owe their origin. The estimation of the differential characters of disease forms the first aim of the practical physician. It is thus alone that any real advances can be made in the science of Diagnosis. Such loose terms as those above cited lead but to a loose and inaccurate Pathology. We shall, therefore, use such names only as indicate some one special well-defined pathological condition, believing that it is generally practicable, with ordinary attention to strict diagnostic principles, to assign almost every important variety of morbid action to a distinct and appropriate place in the pathological scale.

1. *Atonic Diarrhœa.*—The first or Atonic form of Diarrhœa will be found deserving of notice. It corresponds, as we have said, in its main features with the "Lientery" of the older Writers. The importance of this form of the disease is rather of a relative, than of a positive kind. We know of no case in which it was itself directly fatal. But it was not infrequent as a precursor to various forms of much graver diseases; and it is in this point of view, perhaps, that it is most especially deserving of notice. When continued, as it often was, for a considerable period, it produced a general debility and depression of strength, that unfitted the patient for a struggle with any severer subsequent malady.

Sometimes on their first arrival, more usually after a longer or shorter residence in camp, many persons found themselves affected with a general, but ill-defined *malaise*. Much of their strength and natural elasticity was soon lost. No actual condition of disease existed, but it was noticed that calls to stool became frequent, and after a time urgent, while the appetite became indifferent and sometimes failed altogether. Continued thirst was experienced by some; by others a slight feeling of nausea was felt, continuing for some hours, especially during the heat of the forenoon of the summer months, and referable chiefly to the cardiac orifice of the stomach, but never proceeding to actual emesis.

Feverish symptoms seldom attended this condition, or indicated its approach. A relaxed state of the bowels gradually came on, and though disregarded at first, became troublesome chiefly from its frequency and continuance. Pain was seldom felt, or if present was only of a passing character. But, perhaps, the most remarkable phenomenon was the almost total suspension of the digestive, assimilative, and absorbent functions, the egesta often differing in appearance but little from the ingesta; thus solid fragmentary particles of various kinds of food, animal as well as vegetable, could be readily detected in the fæces, still preserving their ordinary physical qualities. We have repeatedly had opportunities of identifying amongst the egesta, particles, from an eighth to a quarter of an inch cube, of ration biscuit, potatoe, and carrot, the latter articles preserving their natural colour. With regard to potatoe and carrot, we were, at one time, disposed to attribute their non-assimilation within the system to some indigestible property acquired in the process of desiccation, and the pressure to which they are subjected in the course of preservation. A ration of preserved vegetables was pretty generally issued about this time. That preserved meats and vegetables, irrespective of imperfections in the process of cooking, may be found to possess less facilities for undergoing the due process of assimilation in the human economy, we think very probable, but we have no very accurate data to bring to bear on the subject. It is, however, one well worthy of investigation; under such circumstances as attended the position of the British army in the Crimea, everything relating to the food of the soldier becomes of importance. This form of indigestion was sometimes a subject of remark even amongst the men themselves, many of whom were in the habit of saying, "It was no use eating their victuals, as they passed through them undigested."

Many, while suffering from this affection, though no doubt a good deal debilitated from the non-assimilation of their food, continued in the performance of their ordinary duty. Few seemed to regard it as amounting to an actual condition of disease; little apprehension was felt about it, and though troublesome, medical aid was not always sought for it, and it was but rarely thought to constitute a sufficient reason for seeking admission into hospital.

It may be that from this cause Medical Officers were not in a position to know of the existence, to any considerable extent, of such an affection amongst the men, and hence we believe little notice of the prevalence of this form of Diarrhœa will be found in the ordinary hospital returns, documents which otherwise give a sufficiently faithful picture of the conditions of disease amongst the Troops. Of its existence, however, to a considerable extent, as before stated, during the months of June, July, and August, we can have no manner of doubt. We have experienced it ourselves, witnessed it in others, more especially amongst new comers to the Camp and to Scutari, and we have been repeatedly consulted about it.

A continuance of this state, and of the accompanying suspension, to a greater or less degree, of the proper digestive functions, often exhibiting a remarkable and obstinate resistance to the action of medicines, produced, as may well be supposed, after the lapse of many days, or, as was not infrequently the case, after some weeks, a very great depression of strength. In some cases complete change of air seemed to offer the only prospect of permanent relief. In a few instances, however, change of weather, improved regimen, or some appropriate and successful medication, brought about an amelioration of the system; and the patients gradually regained the full power of their digestive functions, and thenceforward convalesced more or less rapidly. When, however, this affection continued to resist the action of medicines for any considerable time, it most frequently led to the development of some graver form of disease. Thus, its symptoms were not infrequently soon entirely merged in those of the third form of Diarrhœa we have enumerated in the Summary Table No. II, at page 8. We have known it as the precursor of Dysentery in some of its less severe forms. It has also been the prelude to certain types of Fever.

In its uncomplicated form, Atonic Diarrhœa as above described, or "Lientery," if this term is still to be retained in the language of medicine, has not, in our experience, been known to prove fatal. We have, therefore, no positive grounds for determining whether or not it is assignable to any special or clearly definable derangement of normal physiological conditions, or to any actual anatomico-pathological state of parts. We have called it "Atonic," under the impression that it was most probably attributable to a want of tone or normal tonic action in the minute apparatus of the Alimentary Canal, subservient to the processes of digestion and assimilation. But whether this state was dependent on abnormal conditions of the capillary vascular system, the minute glandular organs connected with the secretion of the intestinal juices, or lesions of innervation, we are not in a position to state. So far as may be gathered from the "Juvantia," the most effective of which were the bitter tonic infusions, and sometimes the preparations of iron, it may be considered to have been connected, with some want of tonic power in some or all of these parts just mentioned, and to have been unattended with actual organic lesion.

Atonic Diarrhœa was capable of assuming a chronic form, and it then produced marked debilitating effects on the constitution, and undoubtedly paved the way for further disease.

2. *Bilious Diarrhœa.*—This form of Diarrhœa prevailed to some degree, but never to any very considerable or important extent. We have been enabled, however, to determine its occasional presence with certainty by the clinical examination of some well marked cases. In some instances it has assumed a chronic condition. The characters presented by this form of the disease amongst the Forces in the East correspond in all essential features with those described by the various systematic writers on medicine. We know of no fatal case whereby anything could be added, from the results of *post mortem* examination, to what is already known, and sufficiently fully described on the subject. We shall therefore dismiss it from consideration with this brief notice.

3. *Congestive Diarrhœa.*—The third form of Diarrhœa which we have to notice was that which prevailed perhaps most extensively. Its symptoms were not either constant or characteristic; the disease was rarely, if ever, fatal; it, probably, was caused mainly by Intestinal Congestion; and hence we have ventured to assign to it the term Congestive. It must be again brought to mind that we are excluding from consideration in this section all forms whatever of disease (and they were various) which, though presenting Diarrhœa as a clinical phenomenon, however well marked, were referable to well-known and generally recognized independent pathological conditions; all those cases, in fact, and they were not few, in which Diarrhœa was to be considered as a subdominant clinical feature, and not as constituting an essential disease *per se.* The consideration of this order of affections is to be sought in the several sections appropriate respectively to each class of the diseases under which it was embraced.

The symptons of the form of Diarrhœa now under consideration varied a good deal at different times. In common with many other diseases of a graver nature, the Congestive Diarrhœa was undoubtedly influenced, in many of the characters which it exhibited, by some one or other of the Dyscrasic Types of constitution which prevailed amongst Her Majesty's Forces long after the actual cessation of the general causes to which they owed their origin.

We have already drawn attention to this important question of *physico-pathological* influences as modifying the constitution of the soldier in camp, and as determining through the influences thus produced, the finer and more peculiar characteristics of the diseased processes developed in systems so modified.

That such Pathological types of constitution prevailed, we have already endeavoured to establish. The forms of disease exhibited, including that now under consideration, showed evidences of the truth of these observations, sufficiently apparent to all who investigated them with the requisite minuteness to make such characters appreciable. While, however, we admit that almost all diseased processes were, to a certain extent, modified by such an important dominant constitutional influence, as that, for example, of the Scorbutic Dyscrasis, we cannot think that such terms as Scorbutic Diarrhœa, Scorbutic Dysentery, &c., can be used with strict propriety. They are apt to lead to erroneous notions as to the nature and characters of any particular morbid process in question, and they tend to confound most important pathological distinctions.

While a Dyscrasic constitutional type prevails, all diseased processes established in the system are liable to be more or less influenced by it. Any Anatomico-Pathological Lesions, when such are actually called into existence, which is not constantly the case, attributable to the general Dyscrasis, find a place in the same organ, or it may be in the same tissue, with those of the intercurrent disease. Thus we may have found the secondary Typhoid Lesions of a Fever, or the ulcerations of a Dysentery, presented on the same mucous surface with the hæmorrhagic patches which owed their origin to the Scorbutic Dyscrasis. In such cases, it is no more proper to call the Dysentery "Scorbutic" than it would be to apply the same term to the Fever. In such a loose sense as that in which these terms are often employed, all prevailing forms of disease may be called Scorbutic: and perhaps if thus used and so generally understood, it may sufficiently answer a purpose.

In the course of our various *post mortem* examinations, we have met with sensible evidences of the effects of the Scorbutic Diathesis in the structures of the Alimentary Canal, as well as elsewhere throughout the system. Thus we have observed hæmorrhagic spots on the Mucous Membrane of the Small Intestine throughout a large part of its course. Melanotic spots, the result of circumscribed minute hæmorrhagic extravasations, have also been found on the Intestinal Mucous Membrane, more especially remarkable round the orifices of the minute Glandular Apparatus, and very much more constant in the Colon than in any other part of the Intestinal tract. But these appearances were usually associated with graver forms of disease, to which death was more immediately attributable.

Except, then, in the sense that Diarrhœa, like other forms of disease, was under the common influence of the prevailing dominant Dyscrasis, we have no evidence of any immediate anatomico-pathological connexion between it and Scorbutus. How far some such condition of the mucous membrane of the Intestines as that above noticed established a tendency to the production of Diarrhœa, which the concurrence of other causes, systemic or local, would at once call into active existence, we know not; that such, however, is extremely likely to have been the case, we think more than probable. But we can only say, that no fatal case of Diarrhœa occurred in our experience which showed *post mortem* evidences of any such connexion having actually existed. We cannot, therefore, admit it as fully established that any form of Diarrhœa existed which had for its sole and essential cause any distinct or definite Scorbutic lesion of the Mucous Membrane of the Alimentary Canal, or which could be properly designated as Scorbutic Diarrhœa in strict language.

This third or Congestive form of Diarrhœa, as we have observed it, presented no very constant clinical characters. Its invasion was sometimes sudden, in other cases it was gradual. Men were seized with it while on duty; and it very often attacked those exposed to the severe labours of the Trenches. Night exposure, with the extreme vicissitudes of Crimean temperature, the depression of the constitutional powers, resulting from the various antecedent causes already dwelt on, constituted abundant predisposing causes for the production of this disease. We have already shown that a marked proneness to Abdominal Lesions extensively prevailed, and it required but little to determine the development of actual disease in some portion of the Abdominal organs. Diarrhœa, therefore, as a symptom or a disease, may be expected to have required a large share of the attention of the Medical Officers in the field, and such was actually the case. Few days passed that each regimental Surgeon and his Assistants were not called on to administer relief for some one or other of the various forms in which this affection was presented. New comers to the camp were specially liable to this affection, and amongst the information gathered by us from regimental Surgeons, we find it repeatedly noticed that "Diarrhœa was very prevalent amongst the new drafts, who almost all go through it." The young seemed particularly obnoxious to its attacks.

The symptoms of this, the Congestive form of Diarrhœa, were sometimes mild both at the outset and throughout the greater part of its course, patients often, though rendered quite unfit for duty, not requiring admission into hospital. In other cases, however, considerable abdominal pain was felt: the evacuations were very frequent and copious, sometimes reaching to the number of twenty, thirty, or even more, in the twenty-four hours. A good deal of disturbance of the system, with an indistinct feverish state, and great debility, were the result; and in such cases the condition of the patient made it absolutely necessary for him to remain in bed.

In some instances the alvine dejections were very large in quantity, but there was much variety in this particular; at times a little blood or mucus was to be observed. The consistence of the egesta likewise varied much; in the more severe cases the fluid condition was the most common; the colour, as we have observed it, was in no way remarkable

either as to excess or deficiency. We have no reason to think that in general there was any marked change in the nature or amount of the biliary secretion.

Of the wasting effects of Diarrhœa in this form on the very young we have seen many examples; some, after but little more than two months' service in camp, became so emaciated, so enfeebled, and so totally incapable of any active duty, that they were only fit to be sent to some good climate, where, with genial air, rest, and proper nutritious food, they would doubtless have had some chance of restoration to health, and could, perhaps, after the lapse of a year or two, look forward to the prospect of enjoying something like a vigorous and effective manhood. Exposed to continued toil in the field, after a deceitful convalescence, it is to be feared that many of them were but too surely doomed to sink prematurely under the effects of secondary disease, to the assaults of which their weakened constitutions left them exposed.

Many cases of this form of disease assumed a very chronic character; great debility was the natural result. A marked resistance to treatment was often shown; and it seemed that, so long as the patient continued within the sphere of the influences to which the malady owed its origin, he had little prospect of complete recovery. Indeed, it was a constant subject of remark (and it is an observation the justice of which we can most fully corroborate) with many of the able and experienced Medical Officers of the Army in the East, in reference to this and some other forms of chronic disease, that the greatest difficulty was experienced in establishing a complete and perfect convalescence amongst their patients. They could, as it were, be brought up to a certain point towards restoration to health, but beyond that neither Medicines, Stimulants, nor extra Diets, however judiciously or generously administered, seemed able to bring them. Change of air it would be difficult, though, we conceive, not impracticable, to accomplish on a sufficiently large scale to reach a considerable proportion of the sick; but that it would have been of material advantage to them we can have no doubt. It would, in all probability, not only have more than doubled their chances of becoming again sound and efficient soldiers, but would, in all likelihood, have materially lessened the time required for their complete convalescence. We have already elsewhere forcibly drawn attention to this important subject.

Pathological Anatomy of Diarrhœa.

As we have before stated, we have not had any opportunities of determining by *post-mortem* examination, the actual condition of parts, the presence of any, or the absence of all definite Anatomico-Pathological Lesions to which the forms of Diarrhœa just described, considered as diseases *per se*, could be referred. Yet it may be of interest, as in some measure illustrative of the subject, to give in connexion with it, in this place, a brief summary of certain general conditions of the Abdominal Organs very commonly observed by us to prevail, and which, though they cannot be taken, any one of them individually, as the proximate cause of this class of affections, doubtless materially concurred in a general way to their production.

It may be stated that in no instance in which a post-mortem examination has been made by us, have the Abdominal Organs been found entirely free from disease. And these observations will hold good not only in the case of those dying from Acute or Chronic Disease, in which symptoms referable to the Abdomen were present, in a more or less marked degree, but also to all those cases in which death was the result of the shock of great mechanical injuries, or followed at an earlier or later period after the greater Surgical operations. This tendency to the development of Pathological conditions in the Abdominal Organs is the more remarkable that, with regard to other parts of the system, a very considerable immunity from diseased action seemed to prevail. Thus in the great majority of such cases examined by us in the Crimea, the great Cavities of the Cranium and the Thorax were found in a condition as little departing from that of health as possible.

In the Abdominal Cavity, on the contrary, evidences of morbid action were, as a general rule, all but constantly present. While, then, the Circulatory and Respiratory Apparatus enjoyed a considerable immunity from disease, it seemed, that, in almost all cases indifferently, a marked and all but exclusive tendency of abnormal action towards the Chylo-Poietic Organs, and their more immediate appendages was manifested.

Of the Anatomico-Pathological conditions observed by us in the Abdominal Organs, which may be supposed to have in some measure directly or indirectly concurred with other causes in the production of Diarrhœa as defined by us, at some period of the patient's history, the following are the most remarkable.

Summary Table, No. III.

Anatomico-Pathological Conditions concurring to the production of Diarrhœa.

1. (*a*) A condition of the Stomach, in which the mucous membrane exhibited increased vascularity, with marked prominence of the Gastric Glands. These states very often existed, but exhibited great variety as to amount and degree. (*b*) The opposite state of the organ, in which its coats were bloodless, and had a parchment-like aspect, with atrophy of the Glands.
2. A marked increase of Vascularity, often amounting to great congestion, in the Gastro-Splenic Omentum, sometimes combined with the foregoing states of the

Gastric Mucous Membrane and Glands, and sometimes with increase in size and great vascular injection of the Spleen.

3. A state of more or less intense congestion of the Small Intestines, sometimes extending throughout their whole tract, and manifested on both the Serous and Mucous surfaces. In some instances this congestion was so remarkable on the Peritoneal aspect as to give to the whole Jejunum and Ileum a very deep bluish-red tinge. The excess of blood determined to the Abdominal organs in these cases was very considerable.
4. Associated with the last-named condition, there was usually likewise, extensive congestion of the Mesentery and the Mesenteric Glands. The conditions just noted, and which, as we have said, occurred sufficiently often, indicate a marked stagnation, and it may be, in some instances, an actual permanent condition of Stasis in the Portal system. That relief of this state of vascular repletion should be very readily effected by an increased drain from the mucous surface, in many instances, is highly probable; and in this, no doubt, may be found the explanation of some at least of the cases of Diarrhœa, unattended by special characters, which so often occurred, and which we have denominated Congestive Diarrhœa.
5. A state in which patches of vascularity were to be observed at various parts on the mucous aspect of the Jejunum and Ileum. These vascular patches, when closely examined, were generally found in connexion with the Minute Glandular Apparatus of the Intestine. Thus, (*a*) in some places arborescent vascular rings could be seen to surround independent Solitary Follicles; (*b*) in others a larger vascular patch was found to embrace a group of Peyer's Glands; (*c*) a third form was that in which the vascular injection occurred as an oblong patch, some three, four, or more inches in extent, and from half to an inch in breadth, and occupying a position diametrically opposite to that of the point of division of the mesenteric vessels; (*d*) a remarkable and doubtless very important condition of vascularity, limited to the free borders of the Valvulæ Conniventes, and probably connected with the Villi, and, it may be, with the radicles of the Lacteal Absorbents.
6. A condition of the Mucous Membrane, in which it was generally thickened, and its epithelial coat very soft and easily detached, constituting a form of the "Ramollissement" of Authors.
7. An opposite condition, in which the Mucous Membrane, most generally that of the Small Intestines, was remarkably diminished in thickness, its coats atrophied, and its Glandular Apparatus degenerated. This state is so important that it will receive more full consideration in another place. (*See* pages 93 and 94.)
8. A condition of disease, engaging the general Glandular Apparatus of the mucous surface of the Intestines, including Peyer's patches, and embracing the most opposite states, from extreme infarction of these little organs with the products of secretion, to atrophy more or less pronounced.
9. Various conditions of disease in the Mesenteric Glands, including all stages, from intense vascular congestion, to complete disintegration of their substance, and their infiltration with various deposits.
10. Certain morbid states of the Liver, affecting both its vascular apparatus and its proper secreting substance.

No states of the Mucous surface, corresponding to the Intestinal Catarrh, the Pituita Vitrea, the Catarrhal Phthisis, or any of the exudative processes of Authors, have been met with in our investigations, and if they occurred at all, it could only have been in very exceptional cases.

It will be perceived that most of the foregoing conditions of the Alimentary Canal and its appendages are capable of materially interfering with the due performance of the digestive function. So far, doubtless, they may have led indirectly to the production of Diarrhœa. One or two of them will probably be thought quite adequate in themselves to lead to such a result. Combined with various physical agencies, either those acting on the system from without, or connected with deficiencies in quantity or quality of the nutrient material, it is highly probable that some such Anatomico-Pathological states of the Abdominal Organs as those here enumerated operated largely in the production of the several forms of Diarrhœa which prevailed so extensively amongst the Troops.

These forms of Diarrhœa seem not to require, as far as they are themselves concerned, any more special consideration at our hands. We have treated only their broad typical characters, but in a sufficiently definite manner to enable them to be recognized, and compared with similar forms of the disease elsewhere found to prevail, and from which they do not seem to us, as will already have been observed, to be distinguished by any characteristic points of difference.

Clinical Relations of Diarrhœa.—There are, however, certain important clinical relations which the various forms of Diarrhœa just considered exhibited, in connexion with other and much more serious diseases. Convalescence to a perfect state of health from a long established Diarrhœa was, as we have shown, exceedingly difficult to be accomplished. The debility which it occasioned still farther lowered the powers of the constitution, already, in all probability, under the influence of some general Dyscrasic type of disease. In strictly scientific language, Diarrhœa is probably always to be considered as referable,

so far as its more immediate causation, to some form of morbid action, however slight or inappreciable, in some organ or part, and its continuance for a long period is probably in most cases associated with some obscure, slow, yet progressive change in the structures of a vital part. A wasting of the delicate Glandular Apparatus of the Small Intestine, which, though minute, plays a part of such high physiological importance in the animal system, was, as the foregoing Summary Table (No. III.), shows, very probably the most marked attendant on, if not to a large extent, one of the immediate causes of, many of the forms of Diarrhœa. Whether or not it be, however, that the seeds of subsequent more serious disease were laid during the long continuance of a less formidable malady, such as Diarrhœa, and this may perhaps admit of some question; it is certain that in the Army of the East, Diarrhœa was very constantly observed as an antecedent of several forms of disease, usually intense, sometimes fatal. We would not be understood as insisting on any relation of cause and effect in this matter; sufficient, however, we think can be established to show the importance, in a clinical point of view, of bearing this very possible connexion in mind.

If such a connexion as that here indicated between a long continued minor affection, as Diarrhœa, and the ulterior development of more severe, and frequently fatal disease, could be at all brought within the limits of certainty, it is needless to observe how necessary it would be to remove all such cases in due season from out of the sphere of the morbific influences which may be supposed capable of determining the actual development of such secondary Diseased States. It is our opinion, that such a connexion does, in a large number of cases at least, unquestionably exist. If this be so, the indications thus afforded for improving for the soldier the chances of escape from ulterior, possibly fatal disease, need not be dwelt on. Early removal, and the extension on an adequate scale, of a judicious system of sick and convalescent leave, would not only save life, but in many cases restore to a state of efficiency for field duties a considerable proportion of those who, as the result of lingering disease, even, when not fatal, require to be permanently invalided as unfit for further active service.

The clinical relations which we have observed to prevail between the simple forms of Diarrhœa considered, as we have treated them, as diseases *per se*, and other Morbid States, are as follows:—

1. As an antecedent to some of the forms of Cholera.
2. As an antecedent to Dysentery in either its acute or chronic conditions.
3. As an antecedent to various forms of Fever, with or without more or less extensive development of Enteric Lesions.

As a not infrequent, and at the same time as a most important secondary affection, occurring in the sequel of other diseases, we shall have to consider Diarrhœa in a subsequent section in connexion with the lesions to which it was due.

In relation to Cholera, we find that a very considerable number of cases have been noted as occurring in patients admitted for Diarrhœa, and also that many already in hospital with diseases in which Diarrhœa was an intercurrent or more or less constant phenomenon, became affected with Cholera. It is hardly necessary to state that we have observed Cholera to supervene in cases attended with very varied, and with sometimes well-marked organic lesions of the Abdominal organs, in which Diarrhœa was the symptom and not the disease.

As an antecedent to Dysentery, Diarrhœa has been very frequently observed, and it is highly probable the connexion is more than an accidental one. It may be supposed that the irritation, if it were not some still more definite lesion of parts which produced the Diarrhœa, passed, when continued for any considerable time, into a state attended with more pronounced organic change, and that this secondary pathological condition, whether of an inflammatory nature or not, though probably at first confined to the Small Intestines, gradually invaded the structures of the Large.

The relation of Diarrhœa to Fever is somewhat more obscure. How far the occurrence of an antecedent Diarrhœa, especially if connected with some of the forms of change in the minute Glandular Apparatus of the Small Intestines which we have before alluded to, may account for the so constant occurrence of the important Enteric Lesions often found to prevail in the Fevers of the Camp, and at Scutari, we are not prepared to say. We think, however, that such a connexion did exist to some very considerable extent, and in a very direct manner. It is to be borne in mind, however, that the type of Fever which prevailed to a large extent amongst the troops, was that which in itself seems competent to explain the occurrence of a considerable portion of the secondary changes in question, which were such very constant attendants upon it.

In concluding our observations on the subject of Diarrhœa, it will be well, perhaps, to give a brief summary view of the chief features of importance which we have determined this disease to possess. We have therefore thrown into the form of propositions the results of our investigations on this subject. It appears to us:—

1. That the term "Diarrhœa" has received a more extended application, and a less definite significance than are consistent with the present state of medicine.
2. That from the want of sufficient caution in the determination of the clinical characters of various diseases, pathological conditions of the most opposite kind very often came to be included under the common and undistinguishing head of "Diarrhœa."

3 That thereby the value of numerical medical returns is greatly diminished.

4 That the class of cases which properly present themselves as secondary affections, arising out of graver diseases, such as Fevers, though attended by "Diarrhœa" as a sub-dominant clinical feature, require to be most carefully separated from that order of affections to which alone the term Diarrhœa as indicating a disease *per se* is strictly applicable.

5. That certain most important, General, Pathological, and Therapeutic considerations arise out of the study of these different lesions; and that these considerations become of especial value when it is borne in mind, that they affect the chances of restoration to health, and efficiency for duty, of large numbers of soldiers.

6. That independent of the Secondary Lesions presenting Diarrhœa as a clinical phenomenon, the pathological evidences brought under our observation have led us to recognize three forms of Diarrhœa, which, as a disease *per se*, prevailed amongst Her Majesty's Forces in the East:—

   (*a.*) Atonic Diarrhœa, the Lientery of the older Authors.
   (*b.*) Bilious Diarrhœa.
   (*c.*) Congestive Diarrhœa.

7. That a very generally prevalent Scorbutic Dyscrasis has been found to exercise some influence on the phenomena of this, as well as of most other forms of disease.

8. That while in the absence of any fatal cases of Diarrhœa as a disease *per se*, we are unable positively to connect this affection with any well-defined anatomico-pathological lesions, we possess a considerable amount of general evidence tending to show that certain conditions of the Abdominal Organs were very commonly present, which may be assumed as intimately associated with the production of Diarrhœa considered in this limited sense.

9. That the chief conditions concurring to produce the forms of Diarrhœa just mentioned were; (*a.*) more or less Abnormal States of the Vascular Apparatus of the Digestive Organs, with frequently marked stasis in the Portal System; (*b.*) certain Abnormal Conditions of the Mucous surfaces generally; (*c.*) certain states of abnormal action in a more or less advanced degree, in the minute Glandular Apparatus of the Alimentary Tract.

10. That the prevalence of Diarrhœa, and the marked tendency to Abdominal Lesions generally, evinced amongst the Troops in the East, and this often to the almost total exclusion of disease in other parts, recognize for their chief and essential causes certain general conditions regarding temperature and other meteorological states, deficiencies in amount and quality of food, and the numerous harassing duties and constant fatigues and exposure of the soldier on active service in the Crimea. These causes it was not our province to investigate.

11. That Diarrhœa presents important clinical relations as an antecedent or precursor of other more serious, and sometimes fatal diseases; relations which it is not always possible to define in any clear or precise manner, but which are of the gravest importance in the clinical consideration of the diseases of the soldier in camp.

12. That certain general Hygienic and Therapeutic indications of the greatest moment, arise directly out of the study of the pathological relations of these primary and comparatively mild diseases to certain secondary and often fatal affections. For the restoration to health, and efficiency for duty, of a large number of sick troops on active service in the field is in question.

CHOLERA.

On the subject of Cholera, as presented to us, we shall not have a great deal to observe.

Though it has repeatedly appeared in an epidemic form in several of the Divisions of the British Army in the East, and although on such occasions the mortality has been very high, it cannot be said that Cholera ever invaded Her Majesty's Forces in a truly formidable manner, or for any very protracted periods. It has unhappily been far otherwise in the Allied camps, more especially amongst the French, with whom the mortality from this disease has sometimes reached so high as to become a subject of the gravest apprehension.

In the English Army, though the disease continued to lurk about more than one Division for a considerable time, we believe that we shall be entirely correct in saying that it never invaded the whole of the English Forces simultaneously, or indeed more than two Divisions at one time, to a very large extent.

On some occasions the outbursts of Cholera have taken place in a very sudden manner, and there appears good reason to connect these outbursts with marked meteorological

conditions. At Scutari in particular, on more than one occasion, the disease appeared in sudden invasions after very heavy falls of rain. In a large French hospital near Constantinople, set aside for the convalescents of the French Army, a very fatal outbreak occurred on one night, when considerably more than half of the cases attacked proved fatal; and there appeared to have been quite as sudden and marked a cessation of the disease, for no fresh cases occurred at that period.

The form of Cholera presented in some of the outbreaks, was of the most severe description, especially at its outset, when few of those attacked survived. We would refer more particularly to the very distressing character of the vomiting, the cramps, and also the peculiar general state to which we can only apply the term "anxietas." This latter embraces a marked condition of dyspnœa, accompanied by a general state of nervous excitement, alternating with sudden and great depression. That this dyspnœa was not altogether a purely functional state, but was, in many cases at least, connected with actual engorgement of the Thoracic Organs, may be deduced from the result of our *post mortem* examinations, which showed in many cases considerable change in the pulmonary parenchyma, as will be noticed hereafter more at length.

The suddenness and rapidly fatal nature of the attacks have also been very marked. In many of the invasions of Cholera, from six to twelve hours have been known as a very common period within which cases have succumbed; but we have seen not a few instances, in which the fatal issue took place within a much shorter time.

In very many instances the victims of this disease have been men in the enjoyment of health, their bodies full and robust. It is also to be noticed, that in the Camp, as well as at Scutari, a very decided predisposition to Cholera was evinced amongst those recently arrived at those stations. This has been very distinctly shown, not alone in Her Majesty's Forces, but amongst the troops of the Allies.

With the Sardinians, the British German Legion, and, amongst the subordinate departments of the British Army, in the Medical Staff and Land Transport Corps, this fatal proclivity was unfortunately too well evidenced.

We have been enabled to recognize, and determine the existence of three forms of the disease:—

Summary Table, No. IV.

Forms of Cholera observed in the Army of the East.

1. The so-called Choleraic Diarrhœa, a very unhappy term in our opinion, but one which, having received a very extensive acceptance, we do not feel warranted in rejecting altogether. It seems to be applied to cases which are really examples of one or other of the two forms of true Cholera, when occurring with comparatively mild symptoms.
2. The Sporadic or European Cholera, or by whatever other name it is destined this form of the malady should be ultimately known in scientific medicine.
3. Cholera proper, Asiatic, or Spasmodic.

It is in no way necessary to enter into any very particular consideration of the forms of the disease here enumerated. Perhaps the most important point of view in which they admit of being examined is the statistical; but, as already noticed, we did not possess the means, nor was the necessary machinery within our reach, for determining such questions.

There are however some, both Clinical and Anatomico-Pathological, considerations connected with Cholera, on which we believe it important to dwell at some length. More than one reason induces us to think that such details as we are about to consider, are not devoid of important practical interest.

The cases known as Choleraic Diarrhœa we must regard as milder forms of the true disease, more allied probably to the European or Sporadic, than to the true Asiatic Cholera.

A marked form of Cholera, in which death, as it were, gradually supervened, not during the first violence of the disease, but at a period when these primary symptoms had ceased to be exhibited for from two to three or more days, was observed by us. In such cases the evidences of non-oxygenation of the blood became highly marked, the patients appearing like those labouring under some of the well-marked forms of Organic Cyanosis. Coldness of the surface was never complete, nor did any marked collapse exist; the pulse remained fair, of moderate tone and volume; but the blueness continued, and the cases were marked also by the absence of evacuations from the bowels, approaching in this respect, the Cholera Sicca of the Indian pathologists.

In a large proportion of the cases in which Cholera did not prove directly fatal of itself, by the violence of the disease in its first stages, a transition was observed within a shorter or longer period, as the case might be, after a subsidence of the proper Choleraic symptoms, into a low febrile state, which not infrequently proved fatal. This state constituted the so-

called "Cholera Typhoid." This remarkable secondary condition was often presented; and when well developed, a most close resemblance in its general symptoms to the true Typhoid state could be observed. The system generally was low; the pulse weak, though sometimes full and rapid; a general dusky hue of the surface was to be observed; but no eruption of any kind, so far as we are aware, has been noticed. The eyes were suffused, heavy, and dull; the tongue was often thickly coated, sometimes creamy, at others covered with sordes, which were also formed on the lips and teeth. In fact, after two or three days, the Typhoid state became as fully pronounced in these cases, as it often is, after a much longer period, in the true Fevers of this type. The Cyanosed condition in some instances did not disappear altogether for a considerable time,—we have seen it well exhibited even after the tenth day; and perhaps it was this alone that gave, even to an experienced eye, any ready indication of the true nature of the disease under which the patient was labouring. Otherwise, without attention to the history of the case, we believe it would be difficult, if not impossible, to distinguish it by the consideration of symptoms alone, when it was once well established, from genuine Typhoid. In one remarkable circumstance, however, the two states differed essentially. In the "Cholera Typhoid" the characteristic symptoms, though we have known them to be well marked to a later period, usually began to disappear at about from the seventh to the tenth day; and the re-establishment of the patient, in appearance at least, took place with what seemed an extraordinary rapidity, considering the apparently profound nature of the malady which oppressed his whole powers but a few days previously. It is not to be supposed, however, that for a very large number of cases of the "Cholera Typhoid" there was any such favourable issue, for death very commonly took place within the first ten days. Such cases generally showed no symptoms of amelioration, but steadily progressed to a fatal termination from the outset.

It will be necessary here to call attention to a very singular phenomenon presented during the course of convalescence from Cholera. As far as we know, it has not been observed in any of the cases occurring in the English hospitals. The instances of it witnessed by us occurred in the practice of M. Casselas (de l'Etat Major), a most distinguished and accomplished medical officer, who had charge of the French hospital established in the buildings of the *ci-devant* Ecole Polytechnique at Pera. Large numbers of Cholera patients were received into the wards of M. Casselas; and it may be also stated that in the campaigns of Algeria, this eminent physician had acquired a very large experience of the pathology of this disease. The phenomenon in question is the occurrence of a more or less extensive subcutaneous emphysema in certain parts of the body. We have seen the integuments of the abdomen in a sort of doughy state, and showing, by well-marked crepitus, on examination by the fingers, the presence of air in the areolar tissue over a considerable extent of surface.

Though it can hardly be considered as the cause of this phenomenon, we think it as well to state here, that a very peculiar mode of treatment was adopted by M. Casselas in many of his cases of Cholera, often, too, with very marked success. While in the stage of collapse, the patients were submitted to the action of the warm moist vapour of the inner chamber of a Turkish bath,—appropriate stimulation, with frictions of the surface, being also employed at the same time. In one instance that we are aware of, this singular emphysematous condition supervened almost immediately on the exposure of the patient to the influence of the heated vapour.

It is to be observed, that in cases submitted to the bath treatment, at our suggestion, in the General Hospital at Scutari, under the able superintendence of Deputy Inspector-General Dr. Lawson, no such symptom as that here noticed was ever produced.

This emphysematous condition we have found in some cases to extend over the whole surface of the chest and abdomen. In most cases this singular phenomenon gradually disappeared, the air or gas seeming to undergo a progressive absorption. In one instance it was observed that a slough formed over the crest of the ileum, about the time that this anomalous gaseous exudation, of whatever kind it may have been, was reabsorbed.

A very large number of cases of Cholera has been observed and examined by us. They have, however, been found to present but little variety; the characters observed have been pretty uniform and constant. We have selected a few, which will be found in the accompanying Table, with a view to illustrate the essential characters of the disease as it prevailed in the Army of the East, and also that they may serve for the purpose of comparison.

The cases given illustrate three varieties in the modes of fatal invasion of the disease:—

1. Those in which the affection proved fatal, with a very brief course, under twelve hours, the anatomico-pathological appearances being generally confined to the mucous surface and the Follicular Apparatus of the Small Intestines.
2. Cases fatal within twenty-four hours, attended with dyspnœa and anxietas, and showing, besides the last-named appearances, more or less extensive implication of the Thoracic Organs.
3. Cases fatal after the lapse of two to thirteen days, and exhibiting in the Follicular Apparatus of the Intestines changes connected with the elimination of the creamy exudation into the gland cavities.

TABLE II.—CHOLERA.

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their chief post-mortem Appearances.
Private Fred. Sturdis, aged 23	38th	4,015	*Death within Seven Hours.*—Invalided from the Crimea, and arrived at Scutari May 27th; seized with Cholera May 30th, at 5 o'clock a.m.; death at 12, noon of same day. Duration of the disease, seven hours. Abstract of post mortem state:—Great vascularity of Omentum, Mesentery, and Small Intestine generally. *Condition of Mucous Membrane of Intestines.*—There was a general clean and washed appearance of the Mucous Membrane, with patches of congestion here and there. *Stomach.*—Cardiac surface blackened; with an emphysematous state of the Mucous Membrane. *Condition of the Glands.*—Mucous Follicles of the Tongue enlarged, also those of the Tonsils, and those between the pillars of the Fauces. *Duodenum.*—Brunner's Glands considerably distended. *Jejunum and Ileum.*—Intumescence of the Solitary Glands existed at the lower part, and throughout the Ileum, increasing towards the lower part of this Intestine. *Colon.*—The Solitary Glands had collapsed, and showed the dark dot centrally. *Contents of the Intestines.*—These consisted of partially digested food, with serous fluid in Small Intestine, and some fæcal matter in the Colon. The greater part of the contents was of a pink colour, and milky consistence (rice-water fluid so called). Enlargement of Mesenteric Glands, which were white externally, but on section vascular.
Major S—— (an Indian Officer)	- - -	- -	*Death within Eight Hours.*—From Balaclava, June 18th, in good health, having been on a short visit to the camp (about ten days), and returning home from service in India. Was seized about 6 p.m.; death about 2 a.m. of the next morning. Duration of disease, about seven hours. Only three evacuations, and these not very copious, only the last was characteristic. There was no vomiting. The cramps were excessive, and almost constant. Great "anxietas," with much dyspnœa. Suppression of urine. Coldness of hands, feet, legs, and arms, and of the Tongue at a very early period. Collapse gradual till fatal issue. No dissection.
Private Hugh Corr - -	6th E.K. Dgs.	- -	*Death within Twelve Hours.*—No history of this case was obtained. *Thorax.—Bronchial Glands* enlarged by old exudation of tubercle, partly crude and partly cretaceous. *Lungs.*—Healthy, with the exception of congestion posteriorly on both sides, and some (slight) effusion of blood beneath the pleuræ at the base of the right. *Condition of Mucous Membrane.*—General congestion, especially throughout Small Intestine. Old Dysenteric process in Colon. *Condition of the Glands.*—Tonsils enlarged; mucous follicles at posterior aspect of the Tongue, and between the pillars of the Fauces, loaded with white milk-like exudation. *Jejunum and Ileum.*—Peyer's Patches in a tumid and highly distended condition, of a white appearance from the exudation, with a marked ring of intense congestion defining the borders of the gland Patch in a very marked manner. At the lower portion of the Ileum the solitary glands were infiltrated with a similar white exudation to that in Peyer's Patches and the mucous Follicles. This infiltration extended to the Solitary glands throughout the Small Intestine, but was most abundant and remarkable at the lower portion of the Ileum, where the surface on section through the middle of some was as large as that of a pea.

TABLE II.—CHOLERA—*continued.*

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their chief post-mortem Appearances.
Private Hugh Corr—*cont.* -	6th E.K. Dgs.	- -	*Colon.*—In the Colon the Solitary glands in the vicinity of the caput cœcum had been distended, but were flaccid and empty, with their orifices patent and obvious. *Kidneys.*—Cortical substance pale and coarse, and greatly enlarged; pyramidal portion greatly congested, especially round the margins of the pyramids. Mesenteric glands enlarged nearly throughout the entire mesenteric folds; some were of a white colour externally, others highly congested. All of them on section were of firm consistence.
—— Manning - - -	49th	- -	*Death within Ten Hours.*—Sixteen years' service in his regiment. A well-built, strong, and robust man. Served in Chinese and Bulgarian campaigns. He had been much addicted to drink. Did duty in trenches on day previous to death, being exposed to sun all day (August 2d, thermometer 82°). He was seized with symptoms of Cholera soon after return to camp, about 8 p.m., and died within ten hours. Sectio cadaveris was made about eight hours post mortem. There was partial cyanosis, with persistent cramped condition of the extremities. All the tissues were remarkably dry. *Lungs:*—normal, with only some hypostatic congestion. *Heart:*—normal, and containing much black semifluid blood. *The Small Intestines* exhibited externally a pale rose-pink colour. *Jejunum.*—The same appearance was found on the mucous surface throughout. *Ileum.*—The lower part presented the "sago-grain" appearance from the whitish intumescence of its Solitary Follicles. *The Colon* likewise presented numerous enlarged Solitary Follicles; the mucous surface throughout showed the peculiarly marked clean aspect. *The Intestinal Contents* were the so-called rice-water fluid. *The Liver* presented the nutmeg appearance to a marked degree. *The Spleen* was enlarged to two volumes. *The Kidneys* were much congested.
——— aged 18* - - -	- - -	- -	*Death within Twelve Hours.*—A robust and healthy looking lad; eyes sunken; countenance and conjunctiva livid. Muscles red and dry. *Thorax.*—Heart's blood dark and tar-like. *Lungs.*—Irregular collapse of their parenchyma; excessive congestion in parts; carnified-like appearance of the pulmonary tissue in some places, but without any inflammatory exudation being present. Blood existed in great quantity throughout the remaining substance of the lung. *Condition of the Bronchial Membrane.*—Intense congestion throughout, especially from the bifurcation downwards. A viscid glairy exudation filled the Bronchi and finer air tubes. *Condition of the Mucous Membrane.*—General vascularity throughout, but more especially marked at the following places, namely, greatly increased round the Glottis, the Tonsils and mucous glands at the root of the Tongue, and the mucous membrane of the Œsophagus at its lower third. Bright pink roseate congestion of the Small Intestine; dark blue congestion of the Colon. The margins of Peyer's Patches were surrounded with a vascular circle. Bare, washed, sodden-like appearance of mucous membrane of Small Intestine generally.

			Condition of the Glands.—Turgid condition of the Tonsils and mucous glands at the back part of the Tongue, with white milk-like exudation. Turgid state of œsophageal glands, with similar deposit, and the Gastric glands were very prominent in the cardiac region of the Stomach; white matter distended the Solitary glands of the Small Intestine, and also Peyer's Patches, which, on microscopic examination, exhibited fine cells and granules, apparently mucous or changed secreting gland cells. The Solitary glands of the Colon were in a similar intumescent state, but here and there some were empty, collapsed, and with flaccid walls. Some of Peyer's Patches were also reticulated and empty. *Omentum and Mesentery* excessively vascular. *Contents of Alimentary Canal.*—In the Stomach the contents were fluid and of a dark colour, and the reaction acid. The contents of the Small Intestine were also fluid, of a white and pinkish hue, of neutral reaction, but tending to be slightly acid at the upper portion of the bowel. The colon contained dark-coloured fluid contents, with neutral reaction. *Kidney.*—Congestion generally; tubes loaded with epithelial exudation in the more congested portions. *Mesenteric Glands* enlarged generally; of a white colour on the surface, with a tendency to soften in the centre, but without any marked vascularity. * This case was one of a number which occurred during a sudden outburst of Cholera amongst the Osmanli Horse Artillery and the British German Legion, on November 14th, 1855. This epidemic was preceded by heavy rains since November 10th, to which the Osmanli troops were much exposed in their tents. Arrangements were immediately made to quarter them in the Barrack Hospital. The form of Cholera which appeared, with a sudden invasion on the evening of the 13th November, was very severe as regards the cramps, the vomiting, the dyspnœa, and anxietas, the suddenness of the attack, its rapid course (six or seven to twelve hours commonly), and its fatality. Its victims were apparently healthy, full, and robust men.
Private Jas. Shearman - -	31st	2,453	*Death within Twelve Hours.*—Temperature 79°. Body robust. Muscles dry and red; livid appearance of skin over feet and ankles. *Cranium.*—Membranes of the Brain congested; Cerebellum and Fornix especially soft. Veins filled with blood. *Thorax.*—Pericardium dry. Heart's cavities filled with dark-coloured fluid blood, in which the red corpuscles appeared abnormally numerous when the blood was mixed with a little water; decolorised clots in both ventricular cavities. *Abdomen.*—The Peritoneal aspect of the Small Intestine, together with the Omentum, appeared greatly congested. *Condition of the Glands and Mucous Membrane.*—Peyer's Patches were tumid with white exudation. Similar exudation, consisting microscopically of clear minute cells, filled numerous Solitary Follicles in the lower part of the Small Intestine. The Intestinal Villi appeared clean, and as if washed; their ends were abraded, and softened, as if in a state of partial solution. *Colon.*—The Solitary Glands of the Colon had been apparently in a condition of intumescence similar to that of the Small Intestine, but had collapsed; they were found empty, with the central dot well marked. *Contents of Intestine*—Gaseous distention throughout to a moderate degree. Contents, otherwise fluid, of a pinkish white colour and neutral reaction. *Kidneys.*—Small, vascular on the surface, dry internally, and highly congested.

TABLE II.—CHOLERA—*continued.*

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their chief post-mortem Appearances.
Orderly Cook of the Kitchen at the General Hospital.	- - -	- -	*Death within Twenty Hours.*—General appearance robust; countenance livid; muscles dry and red. *Thorax.*—Heart's blood dark and tar-like. *Lungs* collapsed, with red patches at the edges; carnified state of portions of the pulmonary substance, in irregular patches of a bright vermilion colour; there was no exudation, but the carnified parts were surrounded with tissue highly congested with dark blood. A viscid clear secretion filled the Bronchial Tubes, and penetrated the finer air passages. *Condition of the Glands and Mucous Membrane.*—The Gastric glands were more than usually obvious throughout, resembling the distended solitary glands of the Small and Large Intestines. *Jejunum and Ileum.*—Peyer's Patches were enlarged and tumid, with white milk-like exudation, and the exudation throughout the Solitary glands of the Small Intestine, became especially abundant towards the lower part of the Ileum. *Colon.*—In the Colon the glands were all in a collapsed, empty, and flaccid state. A considerable deposit of melanotic matter existed on the mucous membrane here and there, while the apertures through the mucous membrane to the gland vesicle were very obvious as a central dot over the gland. *Kideys.*—The Kidneys were much congested, their tubules loaded with epithelial secretion throughout the cortical portion, which was greatly tumified.
Jas. Brown - - - -	Medical Staff Corps.	- -	*Death within Twenty-four Hours.* *Cranium.*—There was extreme congestion of the vessels of the Pia mater, with limpid sub-arachnoid effusion. Congestion of the choroid plexuses was also observed. *Spinal Cord.*—Extensive congestion of the vessels of the cord was found in this case. *Abdomen.*—Numerous patches of congestion were here and there scattered over the surface of the Jejunum. *Condition of the Glands and Mucous Membrane.*—Peyer's Glands were prominent, but not congested. Throughout the Ileum the solitary glands were in a state of intense intumescence, giving the "sago-grain" appearance to the surface of the mucous membrane. *Rectum.*—The mucous surface was pale, and exhibited some few small circular ulcers, but without any surrounding congestion. *Mesenteric Glands* enlarged, but not softened or congested.
Private Jas. Gibbs - -	56th	4,184	*Death on the Fourth Day.*—He was admitted, on arrival from England, to the Barrack Hospital at Scutari for venereal chancre; was seized with Choleraic symptoms October 19th, and died on the 22nd. Duration of the disease about three days. *Thorax.*—Great pulmonary congestion. *Small Intestine.*—Much increased vascularity throughout the mucous surface. Vascular circles well marked round the border and margins of Peyer's Patches, which were tumid with white secretion. *Large Intestine.*—Evidence of old Dysenteric process in the Colon. Flaccid condition of the solitary glands throughout, the orifices in the mucous membrane leading to the gland vesicle being well marked in the form of a central dot. *Contents of the Intestine.*—Fluid, and of a yellow colour throughout; its reaction neutral.

			Mesenteric Glands enlarged, those of the Ileum especially.
Private Wm. Niemark - -	B.G.L. 1st Jäger Corps	- -	*Death on the Fourth Day.* *Small Intestine.*—General injection of mucous surface; prominence of Solitary glands; Peyer's glands loaded throughout with a white milky-like exudation. The lowermost of the Patches had commenced to ulcerate. Vascularity existed round their margins, especially round the lowermost. *Stomach.*—The Gastric glands were prominent throughout, with a similar milky-like deposit. *Colon.*—Evidence of old Dysenteric process towards lower part of this Intestine; the solitary glands at the upper part were in a collapsed, flaccid state, with the central dot well marked. *Mesenteric Glands* enlarged.
Private John Ludbrooke -	13th Lt. Dgs.	1,769	*Death on the Fourth Day.* *Brain.*—Vessels of the pia mater greatly injected; Arachnoid thickened and opaque, irregularly; congestion of choroid plexuses and venæ Galeni. *Jejunum.*—Patches of bright red congestion throughout the gut, with "sago-grain" appearance marked at its termination. *Ileum.*—Entire tract thickly studded with the "sago-grain-like" deposit; great congestion of Peyer's Patches. *Colon.*—Mucous surface pale and dotted over with small ulcers, having a white centre and dark edges. *Kidneys.*—Extreme congestion. *Mesenteric Glands* enlarged and congested.
Van Katt, aged 30 - - -	B. G. L. 1st Jäger Corps	- -	*Death on Seventh Day.*—Incomplete collapse; but blueness well marked; pulse fair; sinking gradual; without evacuations. *Cranium.*—Venous congestion in cranial cavity; dark clot in basilar artery; choroid plexus loaded with blood; brain highly vascular. Specific gravity of white substance 1·035; of thalamus opticus, &c. 1·038. *Thorax.*—Blood fluid and black. *Lungs.*—Numerous vermilion patches on lungs; pulmonary substance carnified in irregular masses. *Small Intestines.*—Intestinal contents highly bilious, reaction neutral; tumid state of Peyer's Patches; exudation white and creamy; Solitary Glands tumid; ulceration in the lowermost two of Peyer's Patches; vascular ramifications passing into the ulcerating gland tissue; great congestion round loaded glands generally; white secretion consists of clear nucleated minute cells, like secreting epithelial element. *Spleen* large, weight twelve ounces. *Heart* flabby, sp. 1·045.
Private James Pike - -	12th Lancers.	- -	*Death on Thirteenth Day.* *Cranium.*—Great congestion of the meningeal vessels, with sub-arachnoid effusion; congestion of all the sinuses. *Pulmonary tissues* on both sides affected extensively with lobular pneumonia and bronchitis. *Jejunum.*—Mucous surface congested in patches; Peyer's glands enlarged and congested, of a dark red colour. *Ileum.*—Similar to Jejunum; Peyer's glands in some places seemed on the point of ulceration. *Large Intestine.*—Small ulcers near the Cœcum; mucous surface pale but otherwise healthy. *Kidneys.*—Highly congested; weight, right 8 oz., left 8¾ oz. *Mesenteric Glands* enlarged.

We have no other observations of any importance to communicate respecting the clinical characters of Cholera besides those already given. We shall, therefore, proceed to the detail of certain pathological appearances, determined post mortem in a considerable number of cases.

Pathological Anatomy of Cholera.

We shall consider this subject under the following heads :

1. The Pathalogical Anatomy of true Cholera, or that of the Asiatic form.
2. The Pathological Anatomy of the form of the disease known as European, Sporadic, and sometimes Bilious Cholera.
3. The Pathological Anatomy of Cholera as presented in cases in which it supervened on some antecedent disease.

The subjoined Section exhibits a summary view of the chief abnormal conditions which we have observed.

It will be here necessary to premise, that as the results of our inquiries into the anatomico-pathological conditions found to attend on Cholera go little further than to support many of the numerous observations on this subject already communicated to science, we think it proper to dwell but briefly, and in a summary way, on the greater part of what has been presented to us in our post mortem examinations of this disease.

Anatomico-Pathological Conditions observed in Fatal Cases of Cholera.

External Appearances.—Many of the subjects were apparently in robust health. There was great general lividity of the extremities and of all dependent parts ; the cramped state of the fingers, and more especially the shriveled state of their integument, persisted after death for a considerable time. In some instances blue discoloration of the abdominal surface was present. The semi-cyanosed condition of the face, and the sunk eye, but with congested conjunctiva were often well observed. The muscular structure was firm, but of a dark red colour. No rupture of muscular structure has been noticed by us as a post-mortem appearance. As well as all the other tissues, the muscles presented a remarkable feeling of dryness. The adipose tissues also had a singular dry but greasy granular feel, giving the impression that the normal amount of moisture of the tissues was much diminished.

Cavity of the Cranium.—General congestion of the vessels of the cerebral meninges has been found in several cases, the blood being of a dark colour, with escape of the colouring matter in some parts ; the choroid plexuses also were often congested. Bloody serum in the ventricles, and considerable sub-arachnoid effusion, especially towards the base, have been found pretty often. Sections of the substance of the brain showed in one instance the vessels in the interior of the organ greatly congested. The basilar artery was occasionally filled with semi-coagulated blood.

Brain.—Little abnormal was observed in this organ ; in one instance, in which the specific gravity of the brain was determined, that of the white substance was ascertained to be 1·035 ; that of the mixed grey and white substances of the great central ganglia, 1·038.

Spinal Cord.— Considerable vascular congestion of its membranes has been noticed, but no characteristic change.

Cavity of the Thorax. Heart.—In some cases both ventricles contained fluid blood of dark colour ; and occasionally a coagulum was found in the right side, but dark-coloured coagula were sometimes met with in both cavities. Blood, very dark and tarry, has been also sometimes obtained, both from the heart and the great vessels. In one instance, the substance of the heart was very flabby, and its specific gravity was determined as 1·043.

Lungs.—In some cases these organs were observed to collapse irregularly, being excessively and irregularly congested. In some parts the parenchyma appeared as if carnified, but no inflammatory exudation was present. A general red hue and bright vermilion tint was to be noticed on some of these carnified parts. In a few cases a very remarkable bright vermilion hue of the anterior edges only of these organs was observed. Intense congestion of the Bronchial membrane from the bifurcation of the Trachea, downwards, with copious viscid glairy exudation extending into the finer tubes, existed pretty generally. Much blood generally exuded from the pulmonary structure on section in these cases. It is needless to observe that these were not constant or even general conditions of the pulmonary organs ; but taken in connexion with the phenomena of marked dyspnœa and "anxietas" already alluded to, they are worthy of consideration.

Cavity of Abdomen, General Conditions of Parts.—On opening the Abdominal Cavity in these cases, it was generally evident that there had been a marked and excessive determination of blood to this region. The Peritoneum was frequently found of a clear pinkish hue, its surface was still glossy, but remarkably dry to the touch. Considerable difference was observed in the amount and character of the vascularity of the surface of the various Abdominal Organs at different parts.

The Omentum was often highly vascular, exhibiting dark venous congestion.

The *Mesentery* also was of a deep venous blue, and in some cases presented in this respect a remarkable contrast with the almost colourless Mesenteric Glands. These organs, though pale on the surface, generally presented on section a vascular appearance, and their consistence varied a good deal. They were sometimes of a bright pink colour internally, at others, gorged with dark venous blood. They also occasionally exhibited a tendency to softening. The Stomach and Small Intestines were often of a roseate pink

hue, and contrasted strongly with the dark blue tint of the Colon. The calibre of the Small Intestine, as a general rule, was much diminished, but opposite conditions were also observed.

The Bladder was usually contracted, and contained little, if any, urine.

Mucous Surface of Alimentary Canal. - Commencing with the mouth, the first parts which exhibited decided change were the Glandular structures about the entrance of the Pharynx. We have sometimes noticed an enlarged condition of the Labial and Buccal Glands. The entire structures at the base of the Tongue, and including sometimes those about the Epiglottis, and in one or two instances this organ itself, were affected to a marked degree. We have noticed considerable increased vascularity and turgescence of the glosso-epiglottidean folds, even to within the rima glottidis. The Tongue itself was generally coated with a dirty cream-like exudation. Towards the base of the organ the fungiform and circumvallate papillæ were thrown prominently forward; but on minute examination, this prominence was found to be owing to the stuffing or infarction of the Mucous Glands around their base, with a milky white secretion distending their vesicles, which consisted of the natural secretion somewhat altered and increased in quantity. In one well-marked case, the Tonsils were much swollen, their mucous Follicles and those between the pillars of the Fauces being much loaded with secretion, while the mucous membrane generally was tumid and vascular.

Œsophageal Glands.—Passing downwards through the Pharynx, the Œsophageal Glands were in some instances observed to be turgid with accumulated exudation, and the mucous membrane in this situation was seen to be in several places soft, disorganized, and easily detached.

In the Stomach the Gastric Follicles occasionally presented marked prominence and enlargement, especially towards the cardiac end; they much resembled in this condition the distended Solitary Glands of the remaining portion of the Intestines, which we shall have presently to notice. The condition of the mucous surface of the Stomach generally varied a good deal. The colour was sometimes pinkish, indicating great increased vascularity, but this was seldom to the same extent as that to which we have found it to reach throughout the greater part of the Small Intestine. We have known the Stomach to present features of an opposite character, the cardiac mucous surface being blackened, and in some parts emphysematous, and showing evidences of altered extravasations of blood under the mucous coat. Many of our examinations were made at a pretty early period post mortem (often within six hours); consequently the normal Histolytic changes were but little advanced. This may account for our finding but very rarely the state of softening and detachment of the epithelium, and the general glairy gelatini-form softening of the mucous membrane which has been noticed by some authors. It may perhaps be as well to state here, that we are hardly disposed to attach any special importance to the conditions of the Gastric Mucous Membrane, as observed post mortem in cases of Cholera. Not only were they of the most opposite kind, but it may be fairly questioned, in some instances at least, how far they were attributable to the action of certain medicines or stimulants often very liberally employed till within a short period of death.

Duodenum.—The condition of the Glands of this portion of the Intestine is so subject to variety that we know not what exact value to give to the appearances which they presented in some cases of Cholera brought under our notice. It may be well to state, however, that we have seen some very well marked examples of enlargement and infarction of the Glands of Brunner in Cholera cases, in which a similar state prevailed to a greater or less extent throughout the remaining portion of the Alimentary Tract. Where these Glands are most thickly set in the mucous membrane, viz., in the first inch and a half or two inches of the Duodenum, the enlarged condition was most particularly obvious and remarkable.

Small Intestines.—Throughout the Jejunum and Ileum two distinct Anatomico-Pathological Lesions deserve notice. The first has reference to the vascular distribution in these organs; the second to certain remarkable states of their minute Glandular Apparatus. Under the first head we have to notice the very common, and in the cases of true Asiatic Cholera, the almost constant occurrence of a uniform rose pink coloration engaging the whole tract, but varying a good deal in intensity in different cases, as well as in different parts in the same case. It will be necessary here to bring to mind again the similar condition of vascularity found to prevail on the Peritoneal surface in these cases, and which, as we have said, by its bright pink colour, offered such a contrast to the deep blueish red congestion of other parts of the Intestine and also of the Mesentery. This pink vascularity, so uniformly distributed on any given portion of the mucous surface, we cannot but consider as an evidence of a very active hyperæmic condition. How far this increased vascular action may be separated from a true inflammatory process we know not; but it seems to us to bear some very close relation to the production of one at least of the most marked phenomena of the disease, namely the serous evacuations. It is to be observed, that the vascularity in question was not transient, nor did it admit of being removed by any amount of washing of the mucous surface.

With this uniform pink vascularity, there occasionally co-existed more or less well defined isolated patches of vascular injection, presenting distinct ramifications, and either surrounding certain groups of the Glands or confined to portions of the Valvulæ Conniventes; and in this respect resembling a good deal the abnormal conditions of vascular distribution already noticed by us under the head of Diarrhœa. A second distinct form of

vascular injection in Cholera cases was that in which the already engorged Glandular Apparatus, especially Peyer's Patches, were surrounded by a network of vessels from which minute arborescent branches shot inwards towards the middle of the patch.

Intestinal Villi.—The condition of these little organs was remarkable; they were more than usually prominent and apparent, and in some instances softened and finely frayed at their free ends. The natural velvet-like appearance of the mucous surface was thus much increased.

The condition just noticed might, perhaps, be also further accounted for by the thoroughly clean washed state of the whole Alimentary Tract; the naturally viscid Intestinal juices being carried away by the abundant watery secretions of the disease.

The Large Intestine especially was often washed most perfectly clean, and its sacculi cleared of the least possible particles of fæcal matter. This portion of the Intestine very often presented a shining aspect, and a blueish slate-coloured tint, and was entirely devoid of its ordinary disagreeable smell. In fact, no artificial preparation short of the destruction of the elementary parts of its mucous surface could give to the whole Alimentary Tract so thoroughly cleansed an appearance as that which we have often seen produced in a very few hours in some of these rapidly fatal cases of Cholera.

Contents of Intestinal Tube.—These have been found to vary much. When most characteristic they were fluid, of little density, of a milky appearance, and sometimes with a slight rose tint, and of neutral reaction. When the patient survived for some days, admixture of the biliary and other secretions took place, and at later stages fæcal matter was found as usual.

Neither the Mucous Membrane nor the Serous Surfaces of the small or large Intestines at any time presented, during our examination in Cholera cases, any of the forms of gelatinous or diphtheritic exudation noticed by various writers. No œdematous state, nor anything approaching to it, was ever observed by us in the mucous membrane.

Solitary and Aggregate Glands.—The condition of these structures next deserves attention. In a very large number of cases, so often, indeed, that we are almost warranted in considering it as a constant character, we have observed a peculiar prominence and enlargement of the Solitary Glands, more especially throughout the Small Intestine, but to some extent in the Large Intestine also. In the best marked cases, the pale rose pink surface of the whole tract of the Jejunum and Ileum presented the appearance of being thickly powdered over with sago grains or other similar minute white particles. The number of these little bodies increased very obviously as the termination of the Ileum was approached.

This condition was sometimes, but in a much less marked degree, continued throughout the large Intestine. There is nothing new in this observation, though we believe it is one to which sufficient attention has not been generally devoted. This condition of the Glands has been well figured and described by our eminent friend Professor Gluge; and, since first noticed, this state of the minute glandular apparatus of the Intestine has been often verified in Cholera epidemics. M. Casselas, already alluded to, has observed it very constantly during the prevalence of epidemics of Cholera at Oran in the Algerian campaigns of the French Army.

As an important limitation to any pathognomonic significance which it might be attempted to assign to this condition, it may be worthy of note that M. Casselas states, that he has observed during the prevalence of Cholera epidemics the almost constant presence of this condition of the Minute Glands of the Alimentary Tract in *all* fatal cases occurring at such a time, though in many of them Cholera was not the cause of death, nor was there reason to believe that it had existed within any recent period. To some extent our own observations will confirm this statement. In reference, therefore, to its interpretation in Cholera cases, we might, perhaps, be justified in concluding, that it constitutes *one*, but *one only*, of certain pathological conditions, the concurrence of which has some intermediate relation to the production of the Choleraic phenomena; that, in fact, during the prevalence of the Epidemic constitution of Cholera, many present this affection of the Intestinal Glands, each individual case being then in the predicament, that, if the other necessary concurrent causes are brought into operation, the disease shall be developed in the system; but that failing the active operation of these other causes, be they what they may, the Cholera state is not produced. How far considerations arising out of this view of the subject may be capable of explaining many anomalous conditions, and, as they are termed, abortive cases of the disease, often found to prevail during Cholera Epidemics, we shall not discuss at present.

Aggregate Glands.—The condition of the Aggregate Glands observed by us in Cholera was very similar to that of the Solitary; the same filling and general intumescence of them existed in many instances. Most usually, these minute structures exhibited a milky colour, and granular prominence, and in this respect contrasted in a marked degree with the state presented by them when engaged in the Typhoid process.

Throughout Peyer's Patches much variety was observed in the amount as well as in the position of this accumulated cream-like exudation or deposit. In some of the Patches it occupied but a small part, being confined to one or other of the extremities, or a central spot of the Patch; in others again, the whole Patch was engaged. This white viscid exudation consisted for the most part of clear nucleated minute cells, representing, as it were, the epithelial element in an unripe condition.

Large Intestine.—Throughout this organ, in very many cases, a condition of its Solitary Follicles somewhat similar to that above noted was often found to prevail; and as might be expected, it was most especially observable towards the neighbourhood of the Cœcum.

In the tract of the Colon, however, this difference might be commonly noticed, Whereas, (death usually supervening in the acute stage of these cases,) the minute glands in the Small Intestine were generally in a state of turgescence, at the period at which the post-mortem examination was conducted, which was at variable intervals after death, and with various degrees of temperature; the Vesicular glands of the Colon at the same time, in the same case, and under the same physical conditions, were most commonly found flaccid and empty, and with the dark central spot showing the aperture leading to the evacuated Follicle very clearly defined. If, then, these little Glands of the Colon really participate in the Choleraic lesion, it must be in its very earliest stages, and in a less permanent manner than those of the Small Intestine. It is not improbable that from the more superficial position and relations of the Follicles of the Colon, the evacuation of their contents takes place more easily, and therefore at a more early period, than that of the Glands of the Ileum.

In both the Solitary and Aggregate Glands, but much less distinctly in the latter, three periods or stages of the exudation could be defined; first, that in which the glands were visibly prominent, the mucous surface distinct and unbroken, and the exudation still in the white cream-like state. In the next condition, the evacuation of the contents of the vesicle had taken place, whether by rupture from distention, by absorption, or by actual ulceration. When the patient survived sufficiently long, these changes appeared to progress to a still more marked degree; thus in cases of death on the seventh day, we have found some of the lowermost of Peyer's Patches in a state of softening and ulceration, with considerable vascularity enveloping and passing through the Patch, while vascular rings surrounded others.

In the Glands of the Large Intestine it was very commonly noticed, as already stated, that complete evacuation of their contents had taken place, so that the recently distended cavity presented a flaccid state, and its still patent orifice was recognizable as a minute dark spot on the mucous surface. This is the only evidence of any marked participation in any of the Choleraic processes that we have noticed in the Large Intestine. We have not, in any case, found œdema of the mucous surfaces in any degree, however small, and we cannot, therefore, admit any such state as the cause of the prominence of the Solitary or Aggregate Follicles, as has sometimes been supposed to be the case. We may further note that we have not observed in the Liver, or any other organ, any such minute spherical bodies, resembling in size and general appearance the turgescent Solitary Follicles, as Virchow has in some instances described to exist in these situations.

What precise relation this remarkable glandular exudation, and the Enteric irritation which must necessarily be connected with its subsequent elimination, by either rupture or ulceration of the Intestinal Follicles, may have to the so-called "Cholera Typhoid," we are not in a position to determine; but we think that our own observations, combined with those of others, as to the very general, though not absolutely constant occurrence of this lesion in Cholera, points to some more than accidental connexion. Should such be found to be very commonly the case, a considerable resemblance would thus be manifested between the Typhoid and the Choleraic Dyscrasis, at least in one very essential point of their Pathological Anatomy.

It will be almost needless to call attention to the important practical indications which are furnished to us by the knowledge of this tendency to secondary Enteric lesions during the prevalence of Cholera Epidemics.

Solid Viscera. Liver.—Of the state of the Liver we have nothing characteristic to remark.

Spleen:—Enlargement of the Spleen to three, four, or more volumes has been found in some few cases, but by no means constantly.

Kidneys.—In most cases, extensive congestion of these organs has been found to exist, and sometimes with considerable increase of volume and density. For the most part, the cortical substance was found enlarged, its substance tumid, coarse, granular, and often friable. The tubes were very commonly loaded with desquamated epithelial secretion, fine cells and granules.

The appearances enumerated above are the most remarkable which have been observed in our post mortem examinations of Asiatic Cholera fatal in its early stages, and chiefly in cases which have terminated within twenty-four hours.

While we do not wish to be understood as insisting that all or any of them are to be regarded as necessarily connected with this disease, two at least of the appearances just described have been so constant that we cannot but consider them as to some extent essential phenomena, though by no means the exclusive or pathognomonic conditions of Cholera. We allude to the marked state of Vascular injection of the Small Intestine on both its Peritoneal and Mucous aspect, more especially the latter; secondly, the remarkable state of turgescence, and repletion of the minute Glandular Apparatus of this part of the Alimentary Tract, often, as we have reason to believe, produced within a remarkably short space of time, within, in fact, a few hours in some cases. While undoubtedly this condition has been observed in other cases than Cholera, it was never by any means to so marked a degree. We may also state that it was not nearly so well developed in any form of Cholera as in the true Asiatic.

Secondary Pathological Conditions observed in Cholera Cases.—What may be the usual mode of elimination of the creamy deposit in the Follicular Apparatus of the Intestines in Cholera cases, we have little means of ascertaining. The cases were usually fatal while the state of intumescence was at its height. Where, however, the patients have survived until the third or fourth day, both the Follicles and Patches have been still found tumid

with this exudation, and they have always presented well-marked vascular rings round their margins. In the early stages the "sago-grain" appearance existed independent of any special vascularity round the tumid Follicle. The presence of this vascular turgescence in the secondary stages undoubtedly indicated the approach of an ulcerative and eliminative process in the gland, which, at a still farther stage, was found actually established. We have seen it as early as the fourth day. In some instances, pretty extensive ulcerations of the lowermost of Peyer's Patches have been found, with vascular ramifications passing into the ulcerating gland tissue; this has been at a somewhat later period. It is by no means improbable that the irritative action, and the generally intense vascular congestion, with occasionally actual ulceration of these Intestinal Glands, has some connexion with the remarkable state presenting the Typhoid characters, above alluded to.

With regard to the second and third heads under which we have considered the pathological anatomy of Cholera, that of the European or Sporadic, and that of the combinations of Cholera with other diseased processes, it is exceedingly difficult to determine what part, if any, of the lesions found to exist post mortem in such cases is to be attributed to the Cholera state.

Of the European or Sporadic Cholera we shall take but little notice. Of its actual occurrence, we have had sufficient evidence. Its Pathological Anatomy embraces many of the conditions just described; some of them, however, especially those connected with the minute Glandular Apparatus of the Intestine, were less constant, and, when present, were much less marked in the European than in the Asiatic variety. As a general rule, the cases were more prolonged, the bilious secretion, if entirely or materially checked at any time, was usually re-established before death, and hence the egesta, both by the Mouth and Anus, exhibited no deficiency of the biliary colouring matter, but often the contrary; and the contents of the Intestines post mortem were usually fæcal.

It may be worthy of note, that in many of these cases it has been observed that, coincident with the re-establishment of the biliary secretion, a certain general amendment of the system seemed to take place; but this was only fallacious, for death in many cases ensued very soon after, without aggravation of any particular symptom whereby the fatal issue could be immediately anticipated, or accounted for when it occurred.

The question of the supervention of one disease upon another, during the full manifestation of the essential pathological condition of that first in order of time, is one of great interest, especially when, as in some of the cases we have observed, the two forms of diseased action took place in the same organs, and, it may be, actually engaged the same structures. Though the doctrine of the incompatibility and mutual exclusion from the system of certain diseases has, we believe, not many advocates at present, some additional proofs of its want of consistence with actual results of pathological observation may not be without value.

The combinations of Cholera with other diseased conditions which we have observed are the following:—

1. With Diarrhœa, the Diarrhœa *per se* as defined by us in a former section.
2. With Dysentery in one or other of its several forms.
3. With certain forms of Enteric disease, which were most probably to be regarded as the Sequelæ of Fever.
4. With miscellaneous and nondescript morbid conditions.

When Cholera was found to supervene on any of the forms of Diarrhœa, such as we have defined them, and this was very frequently the case, the Anatomico-Pathological appearances were chiefly confined to the minute Solitary Glands of the Small Intestine, the state already fully noticed; the prominence and cream-like appearance of the contents of these little organs were, it is probable from what has been already said, to be referred to the Choleraic state, and not to the pre-existent Diarrhœa.

In the second class of combination, Cholera has been found associated with:—(*a*) a subacute form of Dysentery; (*b*,) with certain more or less ill-defined anatomical changes, the results of antecedent Dysentery. (*c*,) It deserves to be noted that, in one case at least, we have known severe symptoms of Acute Dysentery to supervene upon Cholera.

Under the third head are included cases of Cholera supervening on Fever at a more or less distant date.

The fourth subdivision embraces those cases in which Cholera attacked patients suffering from diseases not having their seat in the Abdominal organs, as Pneumonia, &c.

The following propositions exhibit a résumé of our observations on Cholera:—

1. We recognized, properly speaking, two distinct forms of Cholera, corresponding (*a*) to the Sporadic or European Cholera, (*b*,) to the Cholera proper, Asiatic or Spasmodic.
2. The occurrence of Cholera in the Army of the East has been marked by sudden and violent outbursts of the disease, in all probability connected with meteorological changes; not very extensively invading many portions of the Forces simultaneously, but decidedly of a very severe, and fatal type, and exhibiting a high per-centage of mortality wherever it has occurred.
3. Certain Anatomico-Pathological conditions have been so generally observed by us in fatal cases of Cholera, that while we do not pretend to regard them as constituting the pathognomonic lesions of the disease, we think that some or all of them are essentially engaged in the production of its chief clinical phenomena.

4. The most remarkable of these Anatomico-Pathological conditions were as follows:—
   (*a.*) Congestions amounting in parts to active hyperæmic states of the various Abdominal Organs.
   (*b.*) Special and extensive vascular determinations to the Mucous Surface of the Small Intestines, amounting in some instances to bright pink coloration.
   (*c.*) A remarkable condition of intumescence and repletion with a creamy substance of the minute Glandular Apparatus of the whole Intestinal Tract, most marked in the Ileum, and constituting what we have called the "Sago-Grain Appearance."
5. In the cases not directly fatal at the outset, a very marked tendency was shown to the development of a secondary disease, exhibiting the characters of a well marked Typhoid Fever, but of short duration.
6. The development of this secondary Typhoid Fever in Cholera cases deserves a special attention in a clinical point of view, as there is some reason to believe that, if not dependent on, it is certainly often connected with a secondary Enteric lesion.
7. Lastly, we have observed the occurrence of Cholera in cases in which other diseased processes were in actual operation.

DYSENTERY.

Dysentery, otherwise formerly known as the "Bloody Flux," appears to have been at all times a severe scourge of Armies in the Field. The old Writers on Military Medicine have deemed it necessary to devote much of their attention to it, and many of them have given descriptions of more than one form of the disease, which even in the present day will be found most faithful pictures, and true in all essential details to what is still met with in the practice of the army Surgeon.

Next to Fever in its various kinds, the Bloody Flux will probably in most Campaigns be found to be the predominant, and certainly the most important disease. It has sometimes prevailed to such an extent that, in the number of cases affected, and in their fatality, it exceeded all other forms of disease in importance. This we believe to have been the case for a considerable period in the Crimean Campaigns.

Of the bowel affections, the prevalence of which in the Army of the East has been so constantly dwelt upon, we have reason to think that the Bloody Flux formed by far the greatest proportion. That Diarrhœa, limited in the strict sense which we have assigned to this term, was (if ever a very extensively prevalent disease) a largely fatal one, we have shown good grounds to doubt.

One of the terms very commonly employed to designate a form of Diarrhœa, namely the so-called "Dysenteric Diarrhœa," is to a certain extent evidence that some at least of the cases of Diarrhœa should in strict pathological language be referred to the same group as Dysentery. For, as we have before observed, Diarrhœa is often but a conventional term for ill-defined disease; and hence, when the Dysenteric or other symptoms are at all clearly pronounced, the disease should be at once referred accordingly to its proper category.

In our treatment of this subject we shall discard any such indefinite phraseology, and consider all such cases as those just alluded to, under the one common head of Dysentery; a term which, though in itself not in strict accordance with the requirements of pathological science, is too well known, and has received too extensive a recognition in medicine, to admit of change at present.

Dysentery appears to have prevailed from an early period of the history of the present Expedition, and it may be almost said to have been a constant attendant on the Armies in the East, raging at one time, and under conditions favourable to its production, with considerable violence and fatality. As the general condition of the Troops improved, this disease assumed a milder type, and became both less frequent and less fatal; but we believe, we shall be justified in saying that at no time had it entirely disappeared from the camp. What the precise conditions which determine its presence may be we are not in a position to define. Very favourable general hygienic conditions, with abundant, good, and varied food, and only moderate exposure and fatigues, seem not inconsistent with its production. With even all these requirements simultaneously realised in an army, the occasional occurrence of the Bloody Flux, and even to some considerable extent too, may be anticipated. In this respect its occurrence and persistence present some analogy, and it may be some connexion with Scurvy.

Under such circumstances, however, the disease is not often found to prove so fatal as when the general conditions are avowedly bad. Though we are not strenuous advocates of the doctrine of contagion in regard to Dysentery, it seems to us, nevertheless, that when its presence in an army is declared, the utmost possible precaution is necessary; and every attention on the part of medical officers and others in authority should be given to the investigation of any probable causes of its production or continuance. Perhaps it is hardly possible that in camp, and amongst large masses of men, brought together indiscriminately,

as soldiers are, what may be called the normal conditions of life, and all those most requisite to the due maintenance of health, can be fully realized; even in civil life they seldom, perhaps never, wholly are. The experienced eye of the scientific physician will generally, however, be able to detect and suggest the remedy for any active causes of this disease; and such, if properly understood, is one of the highest duties of the medical officer in the field. That such duties were well interpreted, and fully exercised by many of the able surgeons now on service in the Crimea, we have had many most marked and excellent proofs. And if the just and timely representations of this class of officers in all cases met with the consideration they deserved, we have reason to know that, in more instances than one, active causes of disease could have been removed.

Dysentery, as observed by us, admits of division; firstly and mainly, into the Acute and Chronic forms. Under these two heads, however, it will be necessary to make a more particular subdivision of the cases of this disease, many of which presented important special Clinical features and marked anatomico-pathological peculiarities, often of a complex kind.

Dysentery has likewise exhibited certain relations of association, in connexion with other diseased processes which will require notice; while also various Secondary Lesions attendant upon it must receive examination.

No detail, we trust, can be thought unimportant, or undeserving of the most careful consideration which can be given to it, if it be at all probable that its study will throw any light on the Pathology of a disease which has often so fatally and so extensively invaded masses of Troops.

The accompanying table exhibits a classified view of the several forms of Dysentery which have been presented to our observation

SUMMARY TABLE V.—FORMS of DYSENTERY.

I. ACUTE.

A.

Subacute.

(*a.*) Exudative.
(*b.*) Pustular Dysentery, or Follicular Colitis.

II. SIMPLE CHRONIC.

III. COMPLEX CASES.

A.

With Lesions of Small Intestines.

(*a.*) With Inflammatory Lesions of the Mucous Membrane.
(*b.*) With Ulcerative Lesions of the Minute Glandular Apparatus.
(*c.*) With Atrophic Lesions of the Mucous Membrane, and of the Glandular Apparatus of the Jejunum and Ileum.

B.

With various Secondary Lesions.

(*a.*) In certain Serous Membranes.
(*b.*) In certain Viscera of the Abdomen.
(*c.*) In certain Viscera of the Thorax.

C.

With certain Dyscrases.

(*a.*) Scorbutic.
(*b.*) Tuberculous.
(*c.*) Typhous.

Of Acute Dysentery, with severe, violent, and rapidly fatal symptons, scarcely any examples have come under our notice. The type of constitution prevalent amongst the Troops, and due to the operations of so many concurrent causes, has, as already remarked tended, in the production of diseased phenomena, to the manifestation only of those of a *sub*-Sthenic character.

Thus, with regard to the form of disease now under consideration, we have hardly ever known it to be manifested in that sudden, violent, and highly sthenic character, with full inflammatory pulse, intense abdominal pain and tenderness, distressing tormina and tenesmus, so frequently manifested in the forms of this disease found to prevail during Epidemics of Dysentery in these countries, especially in Ireland and in Scotland.

During the Epidemics last referred to, attacks of the disease were as sudden as violent; imflammatory fever ran high, and the patient, if unrelieved by the most active treatment, was soon prostrated by its effects. Death frequently took place within the first ten or twelve days, or if the violence of the disease were got under by treatment, an amelioration began to be manifested at this date, or very soon after. This form of Dysentery was essentially Sthenic and Acute in the highest sense of these terms.

Judged by such a standard, the forms of Dysentery presented to our observation amongst the Troops in the East, were, in the great majority of cases at least, of a decidedly *sub*-Sthenic and *sub*-Acute type. We have, however, seen some few examples of the true Acute Sthenic Dysentery, but, in our experience, this form was decidedly the exception, and not the rule.

Generally speaking, the disease commenced in an insidious way, it being often found, on questioning the patients, that Diarrhœa, in some form, had been previously present. It is to be stated, however, that we have known some few cases in which men on duty in the Trenches have been attacked with the Dysenteric symptoms. Usually, the invasion of the disease was gradual, its progress slow, and its symptoms comparatively mild. The pulse was moderate in frequency and fulness, the tongue coated; abdominal pains, sometimes definable over the tract of the Colon were pretty frequent; tormina and tenesmus were sometimes severe, but by no means constant. Stranguary, procidentia ani, and other of the occassional more severe attendants on the disease did not come under our notice. Bloody mucus and slime, with little flocculent masses, and the well known jelly-like appearances, have been constantly observed in the egesta. Matters resembling the so-called "corpora pinguia" we have seen, but they were very rarely found. The frequency of the stools was often a very distressing symptom, and much harassed and weakened the patient; especially when, as in the chronic forms of the disease, it was continued for months with but few hours' intermission, either by day or by night. In no case have intestinal hæmorrhages of any importance, or the ejection of any considerable tubular fragments of exudation been seen by us.

With these *sub*-Acute, and *sub*-Sthenic symptoms, a good deal varied, however, as to intensity in different cases, the disease was brought to a termination either gradually and spontaneously, or as the result of appropriate treatment, by the end of the third or fourth week. Too often, however unhappily, a marked and obstinate resistance to treatment was evinced; the disease progressed unchecked, the patient became gradually wasted and emaciated, till assuming its well-marked chronic characters, this form of Dysentery became one of the most hopeless and intractable diseases which have ever been brought under our notice. No care, no medical skill, no attention to diet, nor the most judicious exhibition of the most appropriate stimulants and nutriment seemed to avail anything, and the patient sank, sometimes at the expiration of several months, completely worn out by the malady.

In the progress of these cases, various intercurrent pathological conditions were presented, some more or less directly connected with the primary affection, and constituting Secondary Lesions proper to it. Others there were which seemed to take an independent origin, and were connected either with antecedent diseased forms, or with independent morbid actions set up in the system during the progress of the Dysentery. As these various Contingent Lesions of Dysentery present most importance in an anatomico-pathological point of view, we shall not consider them farther at present; they will be found detailed under their proper headings in the section devoted to the Pathological Anatomy of Dysentery which follows.

Having defined the Dysentery of the Camp, such as it was submitted to our observation as a *sub*-Acute and *sub*-Sthenic disease, previous to its assumption of the chronic form, we have little farther to add to what has been already given in reference to its clinical features. That such a form of disease should not have been more completely under the control of medicine, we can only attribute to its occurrence in a state of system in which the constitutional powers were far below par; such a state as we believe prevailed for a considerable time, and to a large extent, amongst the Troops in the East. How far the Scorbutic taint so long manifested may have conduced to this result, we shall afterwards inquire.

Of the clinical history of the chronic forms of Dysentery, we have nothing to observe of interest. Their course was slow, often extending over several months. Wasting of the system continued with a steady progression unaffected by medical treatment, stimulation, or generous nutrition. We have seen few such pictures of the living skeleton as in many cases of these forms of the malady. The skin very often acquired a dry, branny furfuraceous aspect, and the epithelium desquamated readily in scales and powdery particles. Sloughing of parts subjected to pressure at the nates was often produced, in some instances to a large extent. Œdema to a slight extent at the ankles was also observed in some cases, but dropsy (abdominal effusion) was not known by us to supervene. As will be afterwards considered, a tendency to association of Dysentery in the chronic form with other Lesions, and also with certain general Dyscrasic states has been very decidedly manifested, the pathological appearances in fatal cases presenting Lesions attributable to each of these morbid processes.

The accompanying abstract contains brief summaries of the most important pathological features presented in about fifty cases of Dysentery submitted by us to very careful and minute examination, and for this reason selected from a much larger body of examples of this disease observed by us.

TABLE III.—DYSENTERY.

I.—Acute Dysentry. Form A.

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their chief post-mortem Appearances.
Alfred Lock, aged 23 -	R. A.	- -	Ten days ill; post-mortem examination on day of death. Thermometer, 65°. Body robust; blood dark and fluid. *Large Intestine:—Dysenteric process* throughout the whole extent of the Colon: three stages obvious;—1, ulceration towards Rectal end;—2, exudation on mucous membrane in middle part;—3, commencing exudation seen in vesicular glands towards caput cœcum, consisting of deposits in different stages; engorgement of glands and softening of the exuded mass. Exudation poured out from sub-mucous blood-vessels. The ulceration and exudation were greatest between Sigmoid flexure and upper third of the Intestine. *Specific gravity* of the mucous membrane of the Colon varied from 1·039 to 1·042. *Small Intestines* healthy. *Spleen:*—Old deposit in Spleen, sp. gr. 1·055 to 1·044. *Meso-colic glands* alone enlarged.
Private James Smith, aged 18 -	L. T. C.	11	Thermometer, 65° at time of examination. Fair complexion, large size, robust; great development of muscles. Great congestion of peritoneal aspect of Small Intestines and Omentum; pus-like exudation in folds of transverse Meso-colon. *Colon:* upper half highly vascular, with tumid deposits distending the Solitary glands; diphtheritic exudation covers the mucous surface in irregular patches, surrounded by patches of vascularity. Fungating masses of exudation of a warty-like tuberculated appearance in the lower part of Intestine; these had commenced to soften, and exhibited bloody exudation in spots on their summits. *Small Intestines:*—Exudation of the diphtheritic form extended into the lower portion of the small gut; ulceration of the Solitary glands; general vascularity throughout this part of the Intestine. *Microscopically;* the exudation consisted of cellular and granular elements, with much blood and crystals. Sections with Valentin's knife shows the exudation resting on the mucous surface and filling the gland cavities. Fine blood vessels were seen to shoot up in loops through the molecular substance of the exudation above the mucous surface. *Reaction* of the contents of gut and of its mucous surface was neutral. *Spec. gravity* of mucous membrane of Colon 1·044; of apparently healthy part of Small Intestine 1·030. „ „ of Mesenteric glands 1·044. *Mesenteric glands* attached to meso-colon greatly enlarged—some firm, others (the largest) of pulpy consistence on section.
Sampson Strickland, aged 26 -	13th Lt. Dgs.	- -	Thermometer, 36°. Body robust; no emaciation. *Peritoneal effusion*, with vascularity throughout peritoneal surface of Intestine and Mesentery, more especially connected with the Small Intestine and most marked towards the Colon; Omentum generally vascular and adherent to pelvic wall on right side

			Colon :—Exudation excessive throughout the whole extent of the bowel; ulceration on the summits of large cauliflower-like masses of exudation, which gave a tuberculated appearance to the mucous surface in some parts; *Rectum* thickened. *Small Intestine :*—Exudation extended through a considerable portion of the Ileum; mucous membrane throughout highly vascular. *Mesenteric glands* enlarged. *Microscopic examination :*—Exudation consisted of granular fibre-like elements, with masses of crystals; the Follicular glands where visible loaded with exudation; excessive vascularity round them in the sub-mucous tissue. Specific gravity of mucous membrane where the exudation was not broken up 1·050; sp. gr. of Mesenteric glands 1·042.
Chaplain - - -	- -	- -	From on board ship from England with acute Dysentery; died suddenly while on night-stool. *Large Intestine :*—Excessive fungoid exudation and ulceration throughout Colon, sp. gr. 1,044. The gut was greatly thickened from the presence of exudation on the mucous membrane, and the fungoid masses existed at irregular intervals, appearing to be due to infiltration of the sub-mucous tissue beneath, which on section appeared more dense and swollen than the rest of the substance of the Intestine. The fungoid masses were elevated considerably above the rest of the exudation, which covered the mucous membrane throughout, and their summits were highly vascular, their surface soft and cauliflower-like. The exudation generally was of a green colour, with spots of intense vascularity here and there.
Private G. Fuller, aged 22 -	2d Bat. R. Brig.	4,228	Four to eight days ill; examined on day of death. Thermometer, 81°. Numerous points of congestion were found in the Small Intestines. *Large Intestine :*—The descending Colon was in a state of congestion also; ulcers existed in the Sigmoid flexure, with edges red and much thickened. *Rectum :*—In Rectum, larger and more numerous ulcers were found, but of the same character as those in Colon. Heart, Lungs, and Liver, healthy.
Private Geo. Wildsmith, aged 20	95th	3,39	Eight to ten days ill. Thermometer, 82° at the time of examination. Some congestion of the pia mater was found. *Great Intestine :*—Upper half of Colon covered with large ulcerations; in lower half the mucous membrane was entirely destroyed; the sub-mucous and muscular tissues being exposed, and the peritoneum laid bare in some places; edges of ulcers of a bright red colour with dark sloughs in centre; thickening of mucous membrane where it remained. *Mesenteric glands*, enlarged. *Liver :*—Enormous enlargement of left lobe; excessive decomposition and infiltration of air, so as to resemble the tissue of a lung.
Colour-Serjeant Sullivan, aged 39	48th	- -	Admitted to hospital on 5th June for "diarrhœa" contracted in camp. On the 15th June the stools became bloody, with considerable tenderness of abdomen; no remission of these symptons took place, but on 28th June he was attacked with well-marked symptoms of Cholera, and died after twenty-three and a half hours' illness. The body was a good deal emaciated. *Abdomen :*—The Stomach and Intestines were much distended with gas. There was a general pale pink vascularity of the Small Intestines; their contents like the rice-water fluid. The Solitary Follicles near the Ileo-

TABLE III.—DYSENTERY—*continued.*

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their chief post mortem Appearances.
Colour-Serjeant Sullivan—*cont.*	48th	- -	colic valve were enlarged, but "not sago-grain-like;" Peyer's Patches were prominent, but not ulcerated. It was in the *Large Intestine,* however, that the condition most deserving of note was found. The surface of this part of the gut was clean, but had not the *washed* appearance so often noted in Cholera. Here and there on its surface were to be observed numerous dark prominent little masses from the size of a pea upwards. These little masses broke readily on pressure, giving exit to well-formed pus. In some parts, patches of the mucous membrane of a hand's breath were found, which exhibited a rich rose colour, and contained these little "pustules" in abundance. At several points excavations were to be observed corresponding to these little cavities, evacuated of their contents and ulcerated at their borders; in others the mucous membrane was, as it were, punched out in square or round holes down to the sub-mucous tissue. Throughout the large Intestine the Solitary Follicles could be seen in all stages of diseased action, from primary engorgement to the state of ulceration and complete destruction of their walls and of the adjacent mucous membrane, similar to that last described. So that no doubt could exist that the explanation of this morbid process was to be sought in the changes occurring in the Follicles of this Intestine. The morbid process constituted then a kind of Follicular Colitis, or Pustular Dysentery, a name justified by the appearance which the enlarged Follicles filled with pus presented, and their resemblance to a crop of pustules on the surface of the Colon. The Mesenteric Glands were enlarged, soft, and cream-coloured.

II.—SIMPLE CHRONIC DYSENTERY.

Private John Hall, aged 38 -	49th		Thermometer, 78°. Emaciation excessive; Brain bloodless, its substance firm; bloody serum in the ventricles. *Peritoneal* surface highly vascular in some parts at irregular intervals, and of a very dull hue over the Colon. *Mesenteric glands :*—Much enlarged throughout the whole extent of the meso-colon, and of a dark congested aspect. *Colon :*—Substance thickened to the extent of nearly one quarter of an inch. Entire mucous surface from Caput cœcum to Rectum showed a black and gurmous, carbonified-like mass of exudation; towards the upper part it had a clear bloody appearance; extensive gelatinous ramollissement existed in the middle part, with vascular points on the surface of the exudation, surrounded by a vascular halo of a dark lake colour. Towards Sigmoid flexure masses of the exudation had separated in lines across the gut, leaving a red, raw ulcerated surface beneath. General infiltration of tissues of the Intestine.
Private Patk. Panton, aged 28-	17th	3,751	Thermometer, 79°. Emaciation; brain firm, with slight congestion of the membranes. *Peritoneal* surface of the Intestine and Mesentery generally vascular. Contraction of the Colon throughout. *Mesenteric glands :* Enlargement and dark-coloured congestion throughout the whole of them. *Colon :*—Extensive ulceration throughout; mucous surface generally covered with black gelatinous exudation, with softening; melanic deposit in areolar tissue with general infiltration; towards the lower end of the Intestine in region of Sigmoid flexure and Rectum, the Dysenteric process was most marked and severe. *Kidneys :*—Irregular tumefaction; surface congested; cortical substance increased, and that unequally in relation to pyramidal portions.

			Thermometer, 91° at time of examination. Excessive emaciation of the body, with dry and scurfy skin. *Colon* contracted throughout; exudation covered its entire mucous surface; diphtheritic exudation was abundant towards Caput Cœcum, with great vascularity; the mucous membrane was of various degrees of thickness lower down, with vascular diphtheritic patches and warty tuberculated masses alternating. Towards the lower part of this Bowel and also of the Rectum, numerous and extensive ulcers, with sharp and defined borders, had penetrated the mucous tissue. *Microscopically* :—The exudative substance showed much dark-coloured granular matter, with cells and crystals. *Small Intestine* :—Thin and worn; microscopic examination showed the mucous Follicles irregularly distended with dark melanotic-like granular and fatty matter; Follicles of very various size, and much fibroid tissue encroaching on the glands. *Mesenteric glands* enlarged and softened.
Private Jas. Nugent, aged 23 -	41st	2,691	This case was of about three months duration; body much emaciated; skin dark and dry. *Cæcum* :—Mucous membrane of a blueish black hue; soft pulpy exudation, with large and deep ulcers through the mucous membrane. *Colon* :—Mucous membrane black, soft, and pulpy; patches of ulceration extending throughout the entire Intestine into Rectum; ulcers from one to one and a half inches in size, deeply excavated, and with raised edges. *Rectum* : In the same state as Colon.
Private W. Callen, aged 18 -	77th	3,267	Thermometer, 83° at time of examination. *Colon* :—Mucous membrane of a greenish black colour; with numerous ulcerations towards Rectum. In some parts the mucous membrane was entirely removed by the ulcerated process. *Rectum* : Sloughy-like state of the mucous membrane from exudation, and a general black colour of it; numerous ulcers of a large size throughout its tract. *Liver* :—First stage of cirrhosis. *Mesenteric glands* enlarged.
Private Peter Denahy, aged 30	31st	2,045	Thermometer, 82°. *Large Intestines* :— Extensive ulceration of the mucous surface, laying bare in many places the submucous tissue; much thickening of texture from exuded material. *Rectum* : Entire tract covered with recent ulcers of a bright red colour; sloughy black (exudative) state of surrounding mucous surface; texture of the Rectum almost in a state of gangrene, tearing on the slightest tension. *Liver* :—The nutmeg state was found in this organ.
Private L. Quirke, aged 31 -	L. T. C.	- -	Thermometer, 83°. *Small Intestine* :—Isolated patches of congestion over site of Peyer's Glands. *Colon* :—Numerous large ulcers, with thickened edges and dark central sloughs; thickening of remaining mucous tissue. *Rectum* :—Entire mucous membrane obliterated by exudation and enormous ulcers.

TABLE III.—DYSENTERY—*continued.*

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their chief post-mortem Appearances.
Private Geo. Hopkins, aged 27	17th Lan.	1,380	Thermometer, 50°. *Large Intestines :*—Entire mucous surface covered with large irregular ulcers; peritoneum laid bare in some places; remaining mucous membrane thickened, soft, and black with exudation. *Mesenteric glands* enlarged.
Private James Brown -	34th	3,674	*Colon :*—Exudation, with large ulcerations in Cœcum; whole of Colon and Rectum the seat of exudation and ulceration. *Mesenteric glands* enlarged.

III.—COMPLEX CASES OF DYSENTERY.

ORDERS A. B.—*Association with various Lesions of Small Intestines and Secondary Deposits.*

Peter Holden, aged 31 -	62nd	2,765	Thermometer, 76°—80°. There was great emaciation; belly shrunken, skin dry. *Brain :*—Shrunken; meninges wrinkled; surface of the brain bloodless. Opacity of the Arachnoid, with deposit and fluid effusion. General softening on the surface of the fourth ventricle, also in the third and the lateral ventricles. Exudation of a granular appearance and pinkish hue over the ventricular aspect of the valve of Vieussens, and on the membranes. General softness and non-vascularity of the substance of the brain. *Lungs :*—Left pleural cavity filled with bloody serum containing upwards of 100 ounces, which coagulated after removal. Lung contracted to about a third of the capacity of the chest. Its substance was healthy. *Small Intestines :*—Contracted; Colon distended, black discoloration visible through peritoneal coat. *Mesenteric Glands :*—Enlarged, softened, and highly vascular. *Colon :*—Contained the remains of ulcerations, all of which were healed, and their site was marked with melanotic deposit; and there was great thickening of the Rectum. *Rectum :*—Lymphy exudation existed on the peritoneal coat.
Jas. Higgins, aged 26 - -	88th Foot	3,782	Thermometer, 80°. Emaciation to a marked degree. *Colon :*—Extensive ulceration was present throughout; the ulcers being generally clean and of a raw red appearance. Great amount of melanic deposit at irregular intervals throughout the Colon and towards the caput cœcum; congestion excessive, with commencing ulceration; the exudation commencing to soften. *Small Intestine :*—General vascularity; Follicles distended with secretion, of a granular fatty appearance. *Liver :*—Soft and fatty. *Kidneys :*—Fulness, vascularity, and bulging of cortical part at irregular intervals; tubes loaded with fatty deposit. *Lungs :*—Softened posteriorly. *Bronchial Membrane :*—Red, and exuding a watery secretion; air-cells distended in some parts with granular exudation, of a clear substance, (an epithelial exudation, the result of low inflammatory action.) *Mesenteric Glands :*—Enlarged; vascularity of the Intestine in its peritoneal aspect.

[illegible]	Rifle Brig.	- -	*Mesenteric Glands* :—Enlarged; general congestion of the Omentum and Mesentery. *Colon and Rectum* :—Extensive exudation, with ulceration throughout its mucous membrane. *Small Intestines* :—Vascular injection towards Jejunum. Peyer's Patches ulcerated throughout, with softening and breaking up of the exudation. *Kidneys* :—Large, round, and highly vascular; cortical substance tumid and swollen. *Lungs* :—Exudation, with hypostatic congestion of the pulmonary substance, which was dense and friable. The exudation was apparent on the pleural surface, with a bounding line of a livid hue, and opacity of the pleuræ. *Microscopically* :—The exudation consisted of broken down cells, granules, and epithelial secretion.
Michael Delaney, aged 23 -	48th	3,082	Thermometer, 81°. Congestion of *Pia Mater*. *Ileum*:—Congestion of mucous membrane; Peyer's patches infarcted with deposit. *Cæcum*:—Congestion of mucous membrane existed throughout. *Colon*:—Solitary glands infarcted; mucous membrane congested. *Sigmoid Flexure*:—Exudation and ulceration present. *Rectum*:—Mucous Membrane softened and pulpy, with exudation and deep ulcerations.
Jas. Davis, aged 20 - -	1st Drgs.	- -	Thermometer, 70°. *Brain*:—Sub-arachnoid and ventricular effusion; thickening and opacity of the Arachnoid. *Ileum*:—Large ulcers with raised edges at ileo-cœcal valve. *Colon*:—Ulceration throughout, with a thick coat of exudation, and a red vascular surface. Ulcers large, thickly set, and circular, involving all the tissues. *Rectum* :—In a similar condition to the Colon.
Private Alexander Duff, aged 21	L. T. C.	2,013	Thermometer, 50°. *Lung*:—Hepatization of posterior part of the left lung and inferior part of the right. *Spleen*:—Studded with small round masses of exudation, like tubercle. *Large Intestine* :—Entire tract of the mucous membrane covered with ulcers, varying in size from a small circular depression, with bright red edges to a large irregular sloughy ulcer, surrounded by great exudative thickening of the mucous membrane, to the extent of half an inch in some parts. *Mesenteric Glands* enlarged.
Driver Geo. Lines, aged 21 -	R. H. A. A. Troop.	- -	Thermometer, 65°. *Lungs* :—Capillary Bronchitis, with lobular Pneumonia. *Peritoneal Cavity* :—This Cavity was filled with straw-coloured exudation, with shreds of lymph floating in it. *Small Intestines* :—Ulcerations toward the ileo-cœcal valves. *Great Intestine* :—Extensive exudation and ulceration nearly throughout.
James Leister, aged 22 -	R. A. 3d Batt. 6th Com.	- -	*Lungs* :—Severe vesicular Bronchitis in both lungs. *Liver* :—Commencing cirrhosis present. *Small Intestine*:—Large patch of ulcerating gland substance close to ileo-cœcal valve; three inches of gut involved; ulcer of oblong shape, with raised edges and sloughy centre. *Colon and Rectum* :—The entire tract one long series of ulcers, laying bare the peritoneum in some places. Exudation of a blackish green colour. *Mesenteric Glands* enlarged.

TABLE III.—DYSENTERY—*continued.*

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their chief post-mortem Appearances.
Private Solomon Scott, aged 37	97th	879	Thermometer, 82°. *Cranium* :—Pia Mater greatly congested. *Lungs* :—Extensive pneumonic exudation in both Lungs, in its second stage; no purulent deposits. *Large Intestine* :—Ulcerations of Cœcum extending towards Sigmoid flexure; extensive blackish green exudation throughout. *Mesenteric Glands* enlarged.
Private Joseph Chandlon, aged 24	1st. Ryls., 2nd Bat.	- -	Thermometer, 59°. Slight emaciation; surface pale. *Mesenteric Glands* greatly enlarged; their specific gravity, 1·059 to 1·052. *Colon* :—As high as the transverse part this viscus was the seat of a diphtheritic exudation, more marked towards the upper part of the Intestine, while in the exudation lower down the ulcerative process was completely established. In some places the mucous membrane was entirely gone, the ulcers presenting a clean chipped-out-like edge. At the lower part of the gut congestion was extreme, and the exudation presented itself in large ulcerating masses. *Small Intestine* :—Much congestion towards lower part of the bowel; intus-susceptions existed here and there. Thin-wasting of substance of the Intestine. *Microscopic* examination showed the Follicles loaded with secretion, and in many parts they were obviously vascular to the naked eye; the vascularity was seen to be among the looped vessels round the Follicles in the sub-mucous tissue. The exudation was chiefly granular, with large yellow masses. Thinness and wasting of the Ileum extending into the Jejunum. Sections showed the Follicles very irregularly filled. The secretion was composed of granular fatty-like and sometimes cellular particles. The cellular element predominated where the Follicles appeared distended (normal); granular, and in some places fatty-like matter was found, where the Follicles had become irregularly wasted. *Peyer's Patches* presented a reticulated and wasted aspect; no gland-cells were visible, fibroid tissue only remained with vascularity round the reticular spaces.
Private Bentham Fuller, aged 20	L. T. C.	1,470	Thermometer, 65°. Emaciation, with pale anæmic surface; had been only two days in hospital from the Crimea. *Mucous* membrane *of mouth*, thin, transparent, and bloodless; the *sub-mucous glands* of the Lips and Cheeks were especially obvious, shining through the wasted mucous membrane. They appeared to be small and firm, and contained much granular contents. *Colon* :—From the Sigmoid flexure downwards, excessive exudation existed in large protuberent tubercular masses. From softening and ulceration on the summits of these, a sloughy, gangrenous-like appearance was communicated to the mucous membrane. The rest of the Colon upwards to the Caput was the site of solitary vesicular deposits, irregularly scattered over the surface, with considerable congestion of the mucous membrane. In some of these softening and ulceration, with Follicular sloughs, had formed. *Small Intestine* :—Lowermost patches of Peyer were reticulated with fibrous tissue, no gland substance visible, but a large amount of melanotic deposit existed in the site of the gland tissue.

			General Mucous Membrane, thin, wasted, pale, and bloodless. *Microscopic Examination :*—Showed the glands in various stages of atrophy and degeneration, with granular fibroid replacement. *Mesenteric Glands throughout*, enlarged and vascular; softening had commenced in the centre of those connected with the meso-colon; specific gravity of denser glands 1·042; of larger and softened glands 1·040. *Specific gr.* of mucous membrane of Colon (in part loaded with exudation) 1·048; of Small Intestine (atrophic part) 1,037. *Kidneys :*—Flabby generally; cortical substance turgid, five and a half and five and three quarter oz. respectively; sp. gr. 1·047. *Lungs :*—General engorgement posteriorly.
Private Jas. O'Brien, aged 28 -	L. T. C.	1,861	Thermometer, 70°. Emaciation; wasted, pale, bloodless aspect of the mucous membrane of the mouth. *Muciparous glands* of the lips and cheeks showed through the wasted mucous membrane, as firm, small bodies, containing *microscopically* dry granular contents, of a sebaceous fatty-like aspect. *Colon :*—Of a leaden hue on its peritoneal aspect; internally it was almost black throughout, with a dark grumous exudation, commencing in some parts to soften and ulcerate. Ulceration completely established at the Rectum for about three inches from the anus. The whole of the Colon was in the exudative stage of the Dysenteric process, and the softening was most marked across the transverse part. Redness and congestion, with engorgement of the solitary vesicles, was most obvious towards the Caput Cœcum. *Small Intestine :*—The engorgement of the solitary vesicular glands extended up the small gut for about three or four feet, with extensive vascularity over the mucous membrane generally. *Microscopically :*—The Follicular gland tissue had undergone the fatty-like degeneration and wasting of substance. *Mesenteric glands* enlarged, especially those connected with the transverse meso-colon. Specific gravity of mesenteric glands, 1·042. " " mucous membrane of Colon, 1·046. " " " " thin part of Small gut, 1·036.
Serjeant Hugh M'Fall, aged 29	R. A. 5th Comp. 12th Bat.	- -	Excessive emaciation. *Colon :*—Studded with old ulcers, all tending to contract; much melanotic deposit surrounds them, and the orifices of the solitary glands are also surrounded by much of this pseudo-melanosis. *Small Gut :*—Peyer's glands healthy, and in various conditions as to fulness. Mucous membrane generally thin wasted, and bloodless. *Microscopically :*—Mucous membrane of the great gut thickened with fibroid deposit (granular). Atrophy of gland substance, with granular, fatty-like degeneration of the tubes; small gut similar, except as to thickening. *Mesenteric glands* enlarged. *Kidneys :*—Five and three quarters, and five ounces respectively; paleness of substance, with the cortical part increased; tunics thickened and adherent, tearing up of the cortical part on attempts at removal of tunics. Specific gravity, 1,060. *Specific gravity :*—Mucous membrane, *Colon*, 1·040. " " " " *Small Intestine*, 1·037. " " Peyer's Patches, 1·042.

TABLE III.—DYSENTERY—*continued.*

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their chief post-mortem Appearances.
Sergeant Jas. Smeath, aged 31	R. A. 4th Comp. 4th Bat.	- -	Thermometer, 65°. Surface pale; body emaciated. *Colon* throughout greatly thickened. On section near the Rectum the calibre of the gut remained patent, and showed the great comparative thickening of the walls of the tube. The thickening appeared confined to the sub-mucous areolar portion; and seemed a true hypertrophy of the areolar tissue part, a great portion of which was composed of granular fibroid matter. The Mucous Membrane of the Colon was covered with a warty, tuberculated exudation, especially at the lower third, and thence downwards. Ulcerations existed, so as to expose the muscular substance of the Intestine. *Small Intestine:*—Had a thin, worn-like appearance. Peyer's patches nearly removed throughout. No evidence of active disease, such as ulceration. Black deposit round margin of Patches; granular matter had replaced Peyer's gland tissue. *Lymphatics and Glands* connected with the lower part of the Colon and Rectum very much enlarged, the glands commencing to soften centrally. *On microscopic examination, the Dysenteric exudation* consisted of cellular and much dark granular matter, with crystals and elongated fibroid cells. A thick layer of similar exudation covered the mucous surface, which remained highly vascular below it. The gland Follicles were filled with this exudation, and the blood-vessels ramified in large and numerous masses close to the surface of the mucous tissue. The mucous membrane of the *Small Intestine* presented irregularly formed Follicles of unequal size, and loaded with dark granular fatty contents, surrounded by fibroid deposit. There was much melanotic-like deposit round the solitary vesicular pits, in granular masses.
Private Jas. Braham, aged 19 -	R.A.	- -	Thermometer, 61°. *Lung:*—Extensive Bronchial congestion. *Pericardium:*—Serous effusion within its cavity increased. *Small Intestine:*—Enlargement of Peyer's Glands close to Cœcum. *Colon and Rectum:*—Exudation upwards so far as to involve whole of transverse Colon, greatly increasing the thickness of the gut tissue; extensive ulceration throughout the entire tract.
Private —— - - -	14th	- -	The history of this case presented nothing of note. The disease was chronic, and obstinately resisted all treatment. On post-mortem examination the Ileum and Colon were found extensively engaged in the Dysenteric process. *Small Intestines:*—Intense congestion existed in the upper part of the Ileum; the two lower thirds of this part of the gut were thickly coated with a dense semi-organized and vascular exudation, which was in parts red, in parts of a dark-green colour, firm and consistent, capable of being raised in flakes, red on its under surface, and exhibiting points of broken vessels; the mucous surface beneath was rough and highly vascular. The Solitary Follicles and Peyer's Patches were scarcely discernible. *Large Intestines:*—The Colon presented one uniform coating of Dysenteric exudation, reddish in colour generally, but in no part of the usual dark olive green colour. Irregular excavations, with some ulcerative processes, could be observed in the exudation, and in the mucous surface beneath.

			Lungs :—A very extensive and well-marked form of lobular infarction of the lungs existed on both sides. The condensed masses gave the idea of distinct tumours scattered through the pulmonary structure. The Heart and other organs were normal.
Private Wm. Carter, aged 31 -	- - -	- -	Great emaciation. *Colon* :—The seat of the Dysenteric process in all its stages; mucous membrane greatly thickened towards the lower part, where there were ulcers tending to heal; towards the upper portion great vascularity existed, with exudation on the surface of the mucous membrane, not yet broken up. *Lungs* :—Right much larger than the left, both consolidated; vesicular masses visible on pleural surfaces, consisting of air cells distended with exudation; isolated deposits of the same kind were scattered through the substance of the pulmonary parenchyma, and some of these appeared to be passing into purulent softening; the finer Bronchial tubes were filled with pus-like exudation. *Kidneys* :—Soft and flabby; weight of each 4¾ ounces. *Spleen* :—Enlarged; adherent to parietes by a condensed white exudation of fine texture.
Corporal Wm. Bouskill, aged 19	17th	3,440	Thermometer, 76°. Emaciation considerable. *Pleuræ* :—Both cavities the site of sero-purulent exudation, the left side more especially. *Pericardium* :—Distended with sero-purulent fluid, its surfaces thickened by exudation; extensive adhesions seemed to have existed for some time, and these bands of false membrane appeared to be now in a state of suppuration by grdaual softening and degeneration into a pus-like fluid; substance of Pericardium thickened throughout. *Areolar Tissue* of mediastinal spaces infiltrated with sero-purulent fluid. *Colon* :—Had undergone the Dysenteric process; ulceration still remained at lower part of Rectum. *Liver* :—Capsule of Glisson much thickened; nutmeg appearance and some fatty degeneration of this organ. *Spleen* :—Enlarged, substance soft, of a dark mulberry hue; trabeculæ thickened here and there by a granular deposit.
Private Geo. Gunnay, aged 20	77th	2,025	Thermometer, 79°. Emaciation to a great extent. *Colon* :—Ulceration had existed from the descending portion downwards to the anus; active congestion was present in the upper portion of the Intestine towards the Cœcum. In the Rectum the ulcers had healed, and the tissue was free of vascularity. In the upper part of the descending Colon the ulcers were open and vascular, and so large as nearly to involve the whole calibre of the gut; in nearly all of them the tissues had ulcerated away as far as the peritoneum, and on this membrane a pyogenic layer of exudation appeared to lie, and formed the surface of the ulcer. The peritoneum corresponding to the ulcerated spots was opaque and thickened. *Kidneys* :—Enlargement of cortical part; white creamy exudation infiltrated in and among the tubes; section of the kidneys anæmic; great stellate congestion of the veins on the surface of the organs; the tunics were adherent, and granular degeneration appeared to be commencing. Microscopic examination showed fibrine in granules and hyaline masses enclosing the nucleated secreting cells of the tubules; fatty granular degeneration here and there of the exuded material and cells. *Liver* :—Enlarged generally; right lobe the seat of an abscess, which took the place of the substance of nearly all the lobe; the remaining substance enclosing the wall of the abscess was soft and friable, and the abscess itself was limited by a well-formed pyogenic membrane, with shreds of lymph and pus adherent to it.

TABLE III.—DYSENTERY—*continued.*

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their chief post-mortem Appearances.
Private Geo. Gunnay—*cont.* -	77th	2,025	*Stomach.*—Great congestion towards the pylorus, the region of the lesser Omentum, and in the gastro-hepatic connexions generally; the mucous membrane towards the Pylorus was of a dark melanic-like appearance; no change of mucous substance otherwise; glands healthy.
Private Chas. Kenneth, aged 24	2 Bat. R. B.	3,325	Thermometer, 75°. Much emaciation. *Colon.*—Great vascularity about the region of the Caput Cœcum. Three or four large ulcers existed here. The mucous membrane, where it was not ulcerated, was very much worn and thinned. *Small Intestine.*—Mucous membrane extremely thin; glands and Follicles loaded with an abundant black deposit; increased vascularity on the edges or summits of the valvulæ conniventes. *Kidneys.*—Imbedded in a mass of areolar tissue, infiltrated with creamy purulent exudation, adherent to the capsules of the organs, and mixed up with more concrete yellow matter exuded upon and underneath the capsules. The right kidney was much broken up by the softening of this exudation, and was mixed up with shreds of vascular tufts. A section showed the membrane of the pelvis, thickened and opaque. Scattered abscesses occupied the pyramidal portions of the organ, and the cortical substance was greatly enlarged, and irregularly vascular, appearing as if dotted over with tufts of blood vessels and yellow deposit. *Microscopically*, this exudation consisted of granular fat-like matter, mixed up with pus cells. *Lungs.*—Anterior edge of right lung consolidated, and the site of several abscesses, varying in size from a pea to a large mass of broken down exudation. Some of these masses, as large as a walnut, were not limited by any margin or membrane of a pyogenic kind, but were broken up in the centre into a soft pulp, while the more consistent edges were friable, and gradually merged into the congested and healthy parenchyma. *Microscopically*, the exudation consisted of broken down cells and purulent exudation.

III. COMPLEX CASES OF DYSENTERY—*continued.*

ORDER C.—*Dysentery, with General Dyscrases.*

			Name not known; examined May 25th. There was great emaciation in this case. Shell wounds existed in the calves of both legs, presenting a form of phagadenic ulceration, with fatty degeneration of muscles underneath the ulcers. Some evidences of *Scorbutus* were presented during life. *Cavity of Peritoneum.*—Increased vascularity of the Intestines generally was shown through the Peritoneum and the walls of the Gut. There was opacity of Peritoneum in some parts, with effusion of straw-coloured serum. The vermicular appendix was adherent to the pelvic wall, and contained pus-like exudation in its vicinity. *Ileum.*—Throughout its whole surface exudation was apparent, in the form of a semi-transparent gelatinous deposit, irregularly scattered over the mucous membrane in form of minute particles. *Peyer's Patches* were atrophied and empty, probably from elimination of deposit at the expense of the gland substance. The general mucous surface was much congested; the vascularity running to the margins of Peyer's patches, where it ceased. There was no ulceration in Small Intestine, nor any softening of the exuded matter.

			Colon:—The lesions in this gut were advanced to the last stage of Chronic Dysentery. The mucous membrane was elevated slightly at different points, corresponding to small abscesses, which were indicated on the surface by a circle or patch of black melanotic deposit and slight elevation. These abscesses were not much larger than a pea, and appeared to occupy the sites of the Solitary Glands; their contents could always be emptied through the small orifice of the Follicle on the mucous surface, enlarged by ulceration, which leads in the natural state of parts through the mucous membrane to the Solitary vesicular gland below. The exudation being thrown out into the gland cavity, softened, and ulcerated the gland and surrounding submucous tissue, which, becoming condensed, formed the little abscesses described. *Mesenteric Glands:*—Enlarged. *Kidneys:*—Softened, with considerable enlargement of their cortical part. *Pleuræ:*—Cavity of left side filled with fluid exudation. *Lungs:*—Apex filled with tubercular exudation, and closely attached to thoracic wall; much congestion of pulmonary substance round the exudation.
Private John Clipps, aged 25 -	3rd	3,278	Thermometer, 69°. Scorbutic marks externally and much emaciation were observed. *Cavity of Peritoneum:*—Evidence of former tubercular peritonitis, with firm transparent adhesions; adhesion of viscera by peritoneal surfaces. *Mesenteric Glands:*—Much enlarged. *The Ileum*, in its lower part, was the seat of Diphtheritic exudation, which extended also to some of the ridges of the valvulæ conniventes. *Peyer's Patches* were worn away; melanotic deposit existed in their site. *Colon:*—Throughout, the seat of extensive exudation, in parts in a state of ulceration; Rectum thickened and ulcerated. *On Microscopic Examination*, this exudation was seen to fill the follicles of the Mucous Membrane, and each little white speck of exuded diphtheritic matter on the surface appeared to be associated with the destruction of a number of Follicles beneath, which had sloughed out. *Lungs:*—Extensive Tuberculosis; vomicæ existed in the right Lung. Miliary deposit throughout the parenchyma of the left.
Jas. Partridge, aged 27 - -	L. T. C.	- -	Great emaciation with Scorbutic discolouration of skin round ankles. *Mucous Membrane* of the mouth thin, wasted, and transparent. Labial and buccal glands, small, firm, and obvious through the mucous membrane. *Small Intestine:*—Thin and worn, with irregular congestion of mucous surface. *Stomach* in a similar condition, with much congestion towards Cardiac end. *Colon:*—The seat of an extensive Dysenteric process; ulceration established throughout The ulcers were surrounded with condensed mucous tissue; all the ulcers appeared contracting and healing, with clean surfaces; some still had raw edges. On microscopic examination, a section showed irregular size and atrophy of the tubular mucous glands, with granular degeneration of the tissues in the Large and Small Intestine. *The Kidneys* weighed five, and four and three-quarter ounces, respectively. There was enlargement with degeneration of the cortical substance, which was of a coarse granular appearance.

TABLE III.—DYSENTERY—*continued.*

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their post-mortem Appearances.
Richard Sully - -	23rd	- -	Excessive emaciation; abdominal walls very much drawn together. *Peritoneal Cavity:*—Viscera contracted, especially the Colon. Omentum drawn upwards upon the Liver; Viscera generally dark-coloured. *Mesenteric Glands* enlarged, especially those connected with Caput Cœcum and Ileum. A cretaceous mass occupied the site of one of these glands; others seemed in process of similar change, effected through the creamy exudation with which they were loaded. The Lymphatic vessels passing to and from the morbidly softened and enlarged glands were distended with a bloody-coloured lymph. *The Peritoneum* was infiltrated with a clear semi-transparent deposit of a granular form, imparting a sandy sensation to the touch. *Colon*·—Mucous surface greatly altered by diphtheritic exudation in patches. The solitary glands were distended here and there, and in some parts ulcerated patches occupied their site. *Kidneys:*—Both enlarged, and their tunics easily separable; surface of right highly congested, forming firm adhesion with ascending Colon. Its inferior end was the seat of small scrofulous-looking abscesses, with deposits here and there on its surface, of a creamy-yellow colour. A dark purple margin, with excessive vascular reaction surrounded these deposits; and the whole surface presented an irregularly tuberculated appearance. A section showed both kidneys extensively degenerated. Cortical substance enlarged, and of a coarse appearance from irregular distention of the tubes. *Microscopic Examination:*—The diphtheritic deposit on the mucous surface consisted of fine cells and nuclei, with elongated nuclear cells and exudation resembling in its general aspect that of the kidney. The exudation in the kidneys consisted of very large exudation cells of irregular form, combined with smaller cells resembling pus corpuscles, and in general appearance presenting the characters of tubercle. The tubes were here and there filled with similar exudation; they also contained solid moulds of a hyaline substance, holding together the fine epithelial cells of the tubes. In the Mesentery the deposit consisted of fine filamentous fibres, and from the physical properties of this exudation, the curling together of these fibres had doubtless given the granular appearance to the peritoneal membrane as visible to the naked eye, both on the surface of the viscera and in the parietal layer; naked nuclei were here and there scattered amongst the fibres. The contraction and curling of these exudative fibres may to some extent account for the drawing up (by a slow contractive process) of the Omentum over the transverse Colon. This case was of more than four months' duration.
Geo. Munroe, aged 28 -	5th Bat. 1st Comp. R. A.	- -	Thermometer, 75°. Much emaciation existed in this case also. *Mesenteric Glands:*—Variously enlarged. *Colon:*—A layer of lymphy exudation had been poured out on the mucous surface of the Colon, especially towards the Cœcum. Much tumefaction, injection, and reddening of the mucous membrane generally existed beneath the exuded matter. Circular ulcers, with a yellowish red base, were also found. Some of the ulcers were small, contracted, and as if tending to heal. Ulcerations were also found in the Vermiform Appendix.

			Small Intestines :—Some solitary ulcers existed in the lower part of the Ileum, surrounded by highly congested textures. The whole mucous surface was deeply injected. *Lungs:*—On both sides, and throughout their whole substance, the lungs were the seat of tubercular exudation in all its stages. A large loculated cavity existed on the left side, beneath the clavicle. On the right side, the tubercle was in a more crude state, and here and there exhibited a tendency to softening. *Pleuræ:*—Lymph of whiteish appearance in left cavity, forming a bounding wall to a smaller cavity between the base of the Lung and the diaphragm, which was filled with purulent fluid. *Kidneys:*—Swollen, turgid, and softened; pale from extensive yellow deposit in cortical parts; much congestion of pyramids: membrane of pelvis and calices highly injected. Coarse granular appearance of cortical portion; no softening or vascular reaction in these parts.
Sergeant John M'Lean, aged 28	9th Bat.	R. A.	Thermometer, 68°. Emaciated to a marked degree. *Mesenteric glands* enlarged throughout. Specific gravity, 1,035. *Colon* :—As far as Sigmoid flexure, it was the seat of the Dysenteric process. The substance of the Intestines was much thickened towards the Rectum, with ulcerations on the mucous surface, small in size, and covered with white exudation. Mucous surface irregularly vascular, with here and there the solitary Follicles enlarged. Some were commencing to soften and to separate as a slough. Small irregular masses of exudation on mucous tissue formed here and there diphtheritic patches. Colon comparatively healthy above, except from the distention of numerous solitary Follicles, vascularity existing in patches round clusters of them. Specific gravity of apparently healthy part 1·028. Ulcers of small circular and irregular forms on and about the mucous membrane of ileo-colic valve. *Small Intestine* :—For about two feet at the lower part, its solitary glands were much distended; some were empty and flaccid, with much surrounding vascularity and melanotic deposit on the mucous membran. Specific gravity of diphtheritic and dysenteric parts, 1·038; at ileo-colic valve, 1·040. One of Peyer's glands showed the remains of a healed ulcerated spot, the cicatrix distinct, circular, firm, white, and smooth. Gland substance normal round cicatrix, but worn away at upper part of Patch. Patches generally were atrophied, and the mucous membrane generally was thin, wasted, and bloodless. Specific gravity of a Peyer's patch (atrophic part), 1·032. Microscopically, sections showed tubular glands of irregular diameter, variable in size; their contents were composed of dark granular masses, or clear fine cells (normal), and granular fibroid deposit. *Kidneys* :—5¾ and 7¾ ounces respectively; irregular congestion on surface in the stellate venous form. White granular exudation, most obvious in right. Turgid and coarse condition of cortical substance, which was tumid. Specific gravity, 1·038. *Lungs* :—Left large and emphysematous. Right condensed at its uppermost half, with crude tubercular deposit. Inflamed spots existed here and there throughout the condensed part. *Pleuræ* :—Old pleuritis, with firm adhesions. This patient had been ill more than four months.
Private Geo. Mullings, aged 24	Gr. Gds.	6,777	Thermometer, 70°. Excessive emaciation. *Mesenteric Glands* enlarged. *Colon* :—Congestion, with melanotic deposit, exudation softening. Thickening of substance of gut towards Rectum. Exudation infiltrating the Follicular and sub-mucous tissue.

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their chief post-mortem Appearances.
Private Geo. Mullings—*continued*	Gr. Gds.	6,777	*Small Intestine:*—Remains of ulceration of Peyer's Patches. Ulcers confined to the ends of the Patch. Remainder of the mucous membrane thin, bare, and bloodless. *Lungs:*—Consolidation of upper lobe of left throughout. Red hepatization, friability, and a gangrenous condition of upper portion obvious through the pleuræ, and composed of dirty, fluid, fœtid débris of the pulmonary substance. Vomicæ in apex of right Lung.
May 24th. Name not known -	- - -	- -	Dysenteric symptoms of four months' duration. *Large Intestines:*—Remains of ulceration visible throughout Colon, but tending to heal; mucous membrane removed in many places; towards the Caput cœcum there was much blackening, with cicatrised and cicatrising ulcers still visible. *Small Intestines:*—Congestion of their mucous surface, with effusion of gelatinous exudation of a bloody appearance on the mucous surface of the Jejunum. *Pleuræ:*—On left side of chest filled with fluid effusion, limited by a deposit of lymph; Pulmonary tissue infiltrated throughout with a semi-transparent gelatinous exudation in the form of a miliary deposit, corresponding in general appearance to the distension of the ultimate pulmonary air cells, by the secretion from their lining membrane, or by new exudation. *Lungs:*—At two portions of the Lungs sloughs of the pulmonary texture had taken place, involving the pleural surface to the extent of a half-crown piece, and penetrating to nearly a corresponding depth. A line of demarcation, composed principally of a circle of enlarged and congested blood-vessels marked off the dead from the living parts, and a bronchus opened directly into the dead portion, which was traversed by membranes and vessels forming septa amongst the débris.
Private Wm. Hubbard, aged 26	33rd	- -	Thermometer, 72°. Body emaciated, with Scorbutic patches visible round the ankles. *Intestines:*—Mucous membrane of a dark colour, in some places approaching to blackness, with irregular patches of gelatinous-like exudation in the Ileum and Colon especially. *Rectum:*—Exudation thick, and firmly attached to the mucous surface, of a fibrinous nature, and composed microscopically of blood, fibrous masses, and cellular elements; no ulceration existed. The blackness was most marked at the Caput Cœcum and lower part of the Ileum. Peyer's patches free of deposit. *Small Gut:*—Mucous membrane throughout appeared thin and worn; follicles irregular, and abounding in dark granular matter here and there. *Stomach:*—Contracted; the mucous membrane congested with venous blood, its colour dark. *Kidneys:*—Soft and swollen, with cortical part highly vascular. *Lungs:*—The seat of extensive lesion; blood-like masses visible on the pleural surface of both; towards the upper and lateral parts they presented, on section, pneumonic exudations, composed of granular matter, commencing to soften, and giving a dirty grey purulent-like appearance to the lung.
Rich. Owen - - . -	L. T. C.	159	Excessive emaciation. *Colon:*—Seat of extensive deposit, partly as exudation of usual form and partly diphtheritic; with ulceration here and there in the ordinary exuded material. *Small Intestine:*—Excessive congestion towards lower part, with ulceration of Peyer's patches.

			Lungs:—Infiltrated with miliary Tubercle throughout; in some places calcareous. *Kidneys:*—Commencing to undergo the granular degeneration.
Robert Johnston, aged 25 -	R. A. 11th Bat.	- -	Thermometer, 63°. *Brain:*—Congestion of its membranes. *Lungs:*—Its tissue infiltrated throughout with tubercular masses, some of which were softening centrally. A cavity of about half an inch diameter was found in the apex of the left lung. A few masses of crude tubercle were scattered throughout the right lung. *Spleen:*—About double the usual size; substance normal. *Small Intestine:*—Ulcerations of five of Peyer's Patches, the last being close to the ileo-cœcal valve, of an oblong shape, about one quarter of an inch long and one eighth of an inch in breadth, thick at the edges, and covered with a tawny-coloured slough. *Large Gut:*—From cœcum to anus, one mass of exudation; numerous ulcerations likewise were present. The exudation was of a dark green colour. The ulcers were deep, involving all the tissues down to the peritoneum, of a deep red colour, and irritable looking. Walls of the gut thickened, and hard under the knife.
Private Edward Pratt, aged 25	L. T. C.	- -	Thermometer, 63°. *Lungs:*—Congestion, with capillary Bronchitis, and masses of crude tubercle existed throughout; some of these were hard and gritty to a degree, surrounded by condensed pulmonary tissue, some were encysted. *Large Intestine:*—Numerous small circular ulcers throughout the whole tract of mucous membrane; its surface pale, and free from exudation; the ulcers were colourless, with clean, sharp, punched-out-like, well-defined edges. *Kidneys:*—Weight, right, 6 ounces 7 drams; left, 6 ounces 10 drams. *Mesenteric Glands:*—Enlarged.
Private Robert Robshaw, aged 21	19th	3,529	Thermometer, 65°. *Cranium:*—Membranes congested, with sub-arachnoid and ventricular effusion. *Lungs:*—Extensive capillary Bronchitis, with patches of lobular Pneumonia in Left; crude tubercle at the apex of the same lung. *Colon:*—Ulcers throughout, of a large size, with sharp edges; free from congestion and great thickening of the tissue of the Intestine. *Mesenteric Glands:*—Enlarged.
Private John Gregory, aged 20	6th Dragoons	- -	Thermometer, 58°. *Cranium:*—Large quantity of semi-opaque serum underneath arachnoid and in the ventricles, with congestion of the membranes. *Lungs:*—Some Pleural adhesions. Deposit of crude tubercle in both lungs. Pulmonic tissue greatly congested. *Small Intestine:*—Several circular patches of a bright scarlet colour; general congestion. Peyer's glands congested. *Great Intestine:*—Patches of exudation, 1½ inch in diameter throughout; congestion at Sigmoid flexure.
Private Thomas Cooney, aged 19	19th	3,228	Thermometer, 82°. *Brain:*—Healthy. *Lungs:*—General infiltration, with tubercular deposit; cavity at apex of the left. *Small Intestine:*—Mucous surface studded with grain-like deposit, probably of tubercle. *Colon:*—Scattered ulcers in upper portion,—some new, some old,—exposing the peritoneum in some cases. *Mesenteric Glands:*—Enlarged.

Pathological Anatomy of Dysentery.

We shall now consider in some detail the anatomico-pathological states observed by us in the several forms of Dysentery enumerated in Summary Table No. V., page 28.

As the result of our investigations, the immediate Anatomico-Pathological conditions of Dysentery resolved themselves into;—

1. Various forms of exudation from the Mucous Surface of the Colon and Rectum.
2. Certain conditions of the Mucous Surface itself of these parts, in which a true ulcerative process was set up in the mucous tissues, and sometimes in the exuded and partly organized material.
3. To certain changes in the exuded material, whereby it assumed the condition of an independent false membrane, and then became liable to ulceration of its own structure, which sometimes involved the mucous membrane, and occasionally extended nearly to the Peritoneal surface of the Intestine.
4. Certain changes observable in the Minute Glandular Apparatus of the Great Intestine.
5. In the Complex Cases, various changes in the Mucous Membrane and the Glandular Apparatus of the Small Intestine, together with lesions of an inflammatory type, involving the structures of the Intestinal coats, the valvulæ, and their villi.
6. Various Secondary Lesions.
7. Conditions more or less directly connected with co-existent Dyscrases.

Pathological Anatomy of Acute Forms of Dysentery.

In the Sub-Acute forms of Dysentery, the exudative process has been found to extend in some cases through a very considerable portion of both the Colon and Rectum; in other instances, and those not few, engaging not only the whole tract of the Large Intestine, but involving likewise the lower portion of the Ileum. Most commonly, however, it has been confined to the Descending Colon, the Sigmoid Flexure, and the Rectum. The exuded material formed a layer, varying in thickness, of a homogeneous substance, sometimes jelly-like, at others tolerably consistent, and capable of being readily detached and raised in flakes from the subjacent Mucous Membrane; which, at least during the earlier stages of the disease, was to be found unchanged beneath, except as regards increase of vascularity, which was often considerable. The colour of the exudation varied, being sometimes,—probably in all cases when recent,—red, or pink and white, in patches. It was soon, however, discoloured by the intestinal gases and secretions, and also by the admixture of blood elements. Its most common colour was a very dark olive green, occasionally passing into a blueish black. Not infrequently the Vermiform Appendix was found to participate to a marked extent in the Dysenteric process. Perforation of it has, however, never occurred in our experience.

In some instances the exudation assumed a very peculiar appearance. In place of a uniform surface, it presented an irregular mammillated aspect, with fungating wart-like masses. These masses were surrounded by dark-coloured fissures, and their surfaces were soft towards the centre, with numerous red vascular points scattered here and there. On section, the textures beneath these fungating masses appeared thickened and firm; to this thickening and increase of substance, especially in the submucous tissue, the prominence of the fungated masses was in all probability due.

Considerable thickening of the mucous membrane was generally to be observed in these cases, but never to the same extent in the Acute as in the Chronic forms of the disease. It was by no means common, however, to find the post mortem appearances in the Colon confined to one order of changes. The Dysenteric process had usually advanced farther in one part of Intestine than in another, which could be recognized by tolerably well-defined states of the exuded material.

Thus, in some very well marked cases, the entire mucous surface, from the Caput Cœcum to the Rectum, exhibited almost all the possible states of the Dysenteric process. Towards the upper part, the exudation was tolerably consistent and firm, but coloured from admixture with blood. In the middle of the Intestine, there was often extensive gelatinous ramollissement, with numerous vascular points on the surface of the exudation, these points being surrounded by a vascular halo of a dark red colour. About the Sigmoid flexure of the Colon, masses of the exudation had separated in lines around this part of the gut, leaving a red raw ulcerated surface beneath. There was besides a general infiltration of the tissues of the mucous membrane in these cases.

In other instances we have been able to define very clearly three stages, namely,—1, Ulceration more or less advanced at the Rectal end; 2, Exudation in various forms at about the middle of the Colon; 3, Exudative processes exhibited in the Vesicular and Tubular glands towards the Caput Cœcum.

In some cases we have found the exudation excessive throughout the whole gut, forming at numerous points large projecting cauliflower-like masses, in other places producing the tuberculous appearance, with distinct ulcerations on the summits of some of these masses.

Examined microscopically, this exudation was found to consist of cellular epithelial elements and granular matter, with masses of crystals and blood discs. The exudation not only rested on the mucous surface, but was found also to pass into the gland cavities, which were filled by it.—(For more minute details of the Pathological Histology of Dysentery, *see* the Anatomico-Pathological Section of this Report.)

As the disease assumed the true Chronic form, the Dysenteric exudation underwent various changes; in parts, it appeared to be thrown off altogether, leaving the mucous surface bare and raw, and giving the false appearance of ulceration, often mistaken for the result of this process. In other parts, it seemed to undergo a considerable amount of organization; and then appeared capable of originating, within itself, a true ulcerative action. In this stage we have known the ulcerative process to extend through the substance of the exudation, and engage the structures of the Intestine, which it destroyed close down to the peritoneal coat. It may be remarked, however, that neither in this nor any other form of the ulcerative process in Dysentery, have we known actual perforation of the Peritoneum produced.

As proofs of the organization of the exuded product, we may state that in microscopic examination of vertical sections made through the exudation down to, and through the mucous membrane, fine blood-vessels were to be seen shooting upwards in loops above the mucous surface, and through the molecular substance of the exuded matter. It may be also noticed that when the exudation was removed from off the mucous surface, the membrane beneath appeared highly vascular, and showed numerous points of ruptured vessels, distinguishable by minute spots of exuding blood.

In some chronic cases we have found the mucous membrane of the Colon thickened to the extent of one quarter of an inch.

Another form in which ulceration took place was that in which it commenced in some part of the mucous surface itself; very probably, in the majority of cases, originating in the Follicular glands. These little organs have been constantly found filled with matter similar to that of the exudation on the general mucous surface. The presence of this foreign matter within the cavities of the Follicles must be a source of irritation. No such exudation can long exist without undergoing certain internal, either organic or hystolitic, changes. These changes are in themselves sufficient to set up an abnormal action within the Follicle, leading finally to ulcerative absorption in its parietes, and then, in a secondary way, engaging the adjacent mucous surface. Ulcerative action set up in the mucous membrane will have the result of either detaching and finally throwing off the superjacent exudation; or if that material be sufficiently organized, of involving it in the same morbid process.

Follicular Colitis.—As illustrative of the way in which the Minute Glandular Apparatus is concerned in the ulcerative process, we may here adduce some remarkable cases, presenting the usual clinical Dysenteric phenomena during life, but in which, on post mortem examination, the essential lesion was found to be confined to the Follicles of the Large Intestine, and to circumscribed adjacent portions of the mucous membrane.

This class of cases, in a clinical point of view, may be grouped with the Sub-Acute forms of Dysentery; but as regards its morbid anatomy, we think it deserves to be considered as a separate variety of the disease; and from certain characters which it presents in a marked manner, we venture to assign to it the distinctive term of "Pustular" Dysentery, or, from its chief anatomical character, "Follicular Colitis."

As we have observed it, the surface of the Large Intestine, devoid of the ordinary Dysenteric exudation, has been its seat. The Colon presented here and there small dark rounded prominent little masses, generally about the size of a pea. These little bodies broke readily on pressure, and gave exit to a small quantity of well formed pus. In some parts of the Intestine, patches of the mucous membrane were to be observed, some three or four inches in length, which presented a rich rose colour, and contained these little pustule-like bodies in great abundance. In several parts, without, as well as within these red patches, a number of holes, some square, some round, was to be observed as it were punched out of the mucous membrane. The borders of some of these little excavations were jagged, irregular, and apparently in the actual process of undergoing ulceration. The little masses themselves varied a good deal in size, and were to be found in different stages of development. They seemed to originate in the Solitary Follicles of the mucous membrane, into which some form of exudation probably at first took place, subsequently undergoing a purulent transformation, and bursting when the pus came to maturity. The square punched-out holes on the mucous membrane are to be considered as the result of ulceration set up in these little glandular cavities after their purulent contents have been evacuated. In other cases we have seen this condition of the vesicular glands associated with the ordinary Dysenteric exudation in a more or less advanced degree of change, the contents of the vesicles in such cases not being in so advanced a stage of purulent transformation, but for the most part being tolerably firm and consistent.

That the vesicular glandular Apparatus of the Large Intestine often participates immediately in the Dysenteric process is not only very probable, but we think that such participation is more common than is usually supposed. We think that there can be little doubt that the condition of intumescence of these glands, which we have just described, well illustrates and explains the nature of the so-called "Tubercles," to which attention was first directed by Hewson and Pringle; and that they are not to be confounded, as would seem to be done by some Authors, with the mammillated appearance already noticed, which has quite another origin. Rokitansky notices a very similar state of the Follicles of the Colon as occurring in some kinds of Intestinal Catarrh. The minute abscesses, in connexion with Dysentery, described by this Author as opening *through* the Follicles, we think it most probable will often, if not *generally*, be found to originate within them in the

manner we have explained. That some such appearance as that which has led us to give the name of "Pustular" to this form of disease was presented in the cases seen by Hewson and Pringle, may be deduced from the statement of these distinguished observers, that they "had never seen anything so nearly resembling small-pox, of a flat sort, at the height of the disease," a similarity obvious in the cases described by us.

That this form of affection may be attended with symptoms during life very similar to those of Dysentery of the usual kind, with pain, bloody stools, &c., seems sufficiently established, from consideration of the cases we have given. If it is to be regarded as an independent form of disease, it may be perhaps not inaptly styled Pustular Dysentery, or, from its chief anatomical character, Follicular Colitis.

Melanic Deposit.—A marked evidence of the chronicity of the Dysenteric process was frequently found in the more or less extensive occurrence of Melanic deposit in various parts throughout the Large Intestine. This appearance is probably to be generally regarded as the result of excessive vascular action with deposit, and subsequent change in extravasated blood elements at the site of each melanic spot.

The process of healing in the Intestine affected by the Dysenteric exudation and ulceration has been well exemplified in some of our cases. The process of reparation was best marked in the Rectum, which, as before observed, has been constantly the seat of the earliest, most advanced, and most destructive ulcerations. In old cases tending to a favourable issue we have found the ulcerated excavations partly filled in, their borders ceasing to be well marked, and no longer raw or jagged; all extra vascularity in the neighbourhood of these spots had disappeared, often, however, leaving traces behind, long visible in the melanic spots and patches already alluded to. In no instances have we met with any forms of constriction of the gut in this situation as the result of textural contractions in the seat of old ulcers, or of the union of contiguous folds by the fusion of adjacent and subsequently organized deposits of exudation.

Mesenteric Glands.—Various conditions of these glands, from extreme congestion to simple enlargement, and the formation of purulent deposit, and finally to the state of calcareous transformation, have been found.

Pathological Anatomy of Complex Cases of Dysentery.

A. Lesions of Small Intestines.

We have now to consider the various lesions found in connexion with the Dysenteric process in the class of cases which we have called Complex.

The first we shall notice are those connected with the Small Intestines.

As already stated, three varieties of Lesion in the Small Intestine have been observed.

In one form, associated with the Acute or Sub-Acute Dysentery, the inflammatory action which gave origin to the Dysenteric exudation seemed to extend beyond the Ileo-cœcal valve, and induced a similar action in the mucous membrane of the Small Intestine. In some instances the process had involved a considerable extent of the Ileum, sometimes as much as its two lower thirds. The commencement of this Intestine has been found, in such cases, intensely congested. Passing downwards, a thick coat of exudation, commencing sometimes at the middle third of the gut, invested its mucous surface. The colour of this exuded matter has been seen to vary from a deep red to a dark olive green. It has been found pretty dense, granular, and giving to the touch the "cat's tongue feel." The deposit was firm and consistent, could be removed in flakes, and when scraped off exhibited the mucous surface beneath, rough, intensely red, and vascular. The under surface of the exudation itself was also of an intense red colour in many instances.

This description corresponds with an extreme case; but similar appearances in a less degree and extent were noticed in others. The exudation was similar to that seen in the Large Intestine, and also to what, under other circumstances, was found limited to the Small Intestine in some marked cases of pure Diphtho-Enterite. It may be well to notice that in the most marked case of this Entero-Colitis observed by us, neither the Solitary Follicular Glands of the Small Intestine nor Peyer's Patches seemed in any way to participate in the diseased process; so far from being tumid with exudation, though carefully looked for, they were scarcely discernible, not excepting even the last large Patch. On the analogy of the condition presented in the Solitary Follicular Glands of the Large Intestine a similar state might be expected in those of the Small Gut, when this part of the Alimentary Tract is engaged in the Dysenteric process. It has not, however, been observed by us that any such state of these Follicles occurred. In the two next forms, however, of association of the Dysenteric process with lesion of the Small Intestine, it was in the Follicular Glandular Apparatus of the Ileum more particularly, though not exclusively, that the morbid action was manifested.

These two forms, as seen by us, have been found in combination with cases of Chronic Dysentery only. Whether they were the result of a morbid action, propagated to the structures of the Small Intestine, and in any way necessarily connected with the Dysenteric process, or whether they are rather to be considered as the effect of some antecedent or co-existent independent diseased action, the changes of which in the Small Intestine advance *pari passu* with those of the Dysenteric process in the Large, we shall not pretend to determine. Perhaps in the absence of careful clinical histories of such cases, extending over long periods, it is not possible to determine this question in an absolutely positive manner.

The observations bearing on this subject which we have to communicate are the following:—In cases of Chronic Dysentery, on examining the mucous surface of the Small Intestines, its Follicular Glandular Apparatus has been found in various stages of morbid action. Thus Peyer's Patches have been sometimes found full and prominent. In other cases large Ulcers, with well-defined raised edges, have been met with close to the Ileo-cœcal Valve. In very well marked cases there was general dark coloured congestion of the Ileum, and towards the Ileo-cœcal Valve ulcerated Patches of Glands involving some three inches of the Gut were to be seen. These ulcers presented raised edges, with a brown central slough. The states here indicated were usually associated with very extensive Dysenteric changes in the Colon and Rectum. Though not common by any means, they have occurred sufficiently often in our examinations to induce us to regard them as deserving of particular attention.

Atrophic States.—The next state of the Small Intestine, to which we would direct attention in connexion with Dysentery, has been more commonly found than that last described. It seems to be essentially a process of Atrophy, and as such may not, perhaps, improperly be associated with the general Marasmic processes taking place throughout the system in Chronic Dysentery. In this form the Mucous Membrane of the Small Intestine has been found pale, thin, and worn. A similar state has been seen in some cases to prevail through a large part of the Alimentary Tract, especially obvious in the mucous membrane of the Mouth, by the prominence of the glands, which could be seen distinctly projecting through the thin pale labial and buccal membrane. Two conditions of the minute Follicular Glands of the Intestine have been noticed. In one both the Solitary Follicles and Peyer's Patches were wasted; their structure degenerated, and but an imperfect fibroid tissue remaining in their place. Peyer's Patches often presented a reticulated and wasted aspect; no Gland Cells were visible on microscopic examination, and the fibroid tissue alone remained, with some vascular injection round the empty reticulated spaces. In other instances a marked deposit of black pigment has been observed round the margins of these glands, which may so far be taken as evidence of a long continued process of irritation with vascular injection in their vicinity. Another apparently opposite state was that in which the Solitary Follicles and Follicular Patches were irregularly distended and engorged. Their contents on examination were found to be undergoing a molecular, melanotic, and generally fatty degeneration, probably preparatory to their complete evacuation, and the final destruction and disappearance of the proper gland element. These two states, that, namely, of complete atrophy of the Solitary Vesicles and Peyer's Patches, and that of greater or less distention of these little glands, often existed together in the same case; and though apparently distinct forms of morbid action, it is highly probable that the one is but the antecedent of the other; the atrophy and degeneration of these little structures being the last result of the series of morbid processes.

In connexion with this subject, it may be interesting to contrast the physical state of the Mucous Membrane of the Large and Small Intestine, which in some cases exhibited the very opposite conditions of extreme hypertrophy and extreme wasting. Thus in one case, the Mucous Membrane of the Colon was found to have a specific gravity of 1·046, while that of a thinned and wasted part of the Small Intestine was only 1·036.

B. Secondary Lesions associated with Dysentery.

In coming to deal with this part of our subject, it would seem well to premise that we in no way wish to be understood as indicating or supposing any necessary pathological dependence one upon the other, or relation in the manner of cause and effect between the Dysenteric process, which forms the main feature in these cases, and the various Lesions which we have found to co-exist with it; and this statement will apply in a great measure to what precedes as well as to what follows in this section.

The more or less frequent occurrence of certain so-called Metastatic or Secondary diseased processes in connexion with Dysentery, under certain climatic and other conditions, has led to a pretty generally received opinion as to the existence of some immediate and direct connexion between the Primary and the Secondary affection.

This supposed connexion has, in the case of Dysentery, been most usually confined to the explanation of the occurrence of a certain morbid action in the Liver, leading to the formation of abscesses in that organ. That some such connexion has been shown by tolerably well-established proofs to exist, we do not deny; but if it is to be hence assumed, that the formation of abscess in the Liver constitutes the exclusive expression of the tendency to secondary pathological engagements of parts or organs in Dysentery, we should deem it necessary to withhold our assent from any such conclusion.

We think it is extremely probable, and by no means inconsistent with the results of pathological inquiry to believe, that Dysentery, like many other morbid states, especially when operating on the system for a protracted period, produces not only a general low physiological tone, but actually predisposes many, if not all organs to the invasion of disease; so far only, perhaps, is it to be strictly considered as operating in the production of Secondary Affections; some special causes, either of internal or external origin, being, it may be supposed, requisite to call into play a definite morbid process in any particular organ or part. It is in such connexion, and in such connexion only, that we are inclined to view the several Secondary Affections in Dysentery observed by us.

This mode of considering the subject has at least one advantage, and in so far it is true to the less restricted doctrines of Pathology as now interpreted. It enables us to understand how, in diseases producing general systemic impressions, we may have under one set

of climatic and other conditions, a certain preponderance of one kind of Secondary or associated Lesions, and in another kind of climatic or constitutional states, a group of Secondary Affections in quite other organs and parts.

(*a.*) *Lesions of Serous Cavities.*—Of lesions connected with the Great Serous Cavities in Dysenteric cases we have observed morbid action in the cavities of the Arachnoid, the Pleuræ, the Pericardium, and the Peritoneum.

In the Arachnoid, the changes have been confined to opacity, associated with fluid effusion over the convolutions and in the ventricles of the Brain. Congestion of the Pia Mater has been also observed to a morbid degree.

In the Cavities of the Pleuræ, the Pericardium, and also in the Mediastinal Spaces, we have found extensive sero-purulent effusions.

In the Peritoneal cavity we have on some occasions found evidence of extensive inflammation.

As before observed, in no instance, however marked, of Dysenteric ulceration, have we ever seen actual perforation of the visceral Peritoneum, though it is by no means improbable that it has sometimes occurred. Actual perforation does not, however, appear to be absolutely essential to the production of serous inflammation. The ulcerative process extending through the exuded material invades the textures of the mucous membrane until the subserous tissues are reached. Irritation is sometimes in these cases set up in the contiguous serous surface, which may finally spread so as to engage the whole Peritoneal cavity in intense inflammatory action. But this seems not to be a common accident, for though we have repeatedly found Ulcers of greater or less extent, deeply invading the Mucous Textures, and in some instances giving the appearance as if all but the peritoneal coat were punched out, we have rarely found Peritonitis as an attendant result in Dysentery. Some marked cases have, however, occurred. In one we have found general inflammatory action through the whole Peritoneal Cavity, with extensive sero-purulent effusion, free lymph-flakes, and agglutination of the viscera. In other cases we have noticed thickening and opacity of the serous membrane at points corresponding to deeply excavating ulcers on its mucous aspect, but in these cases the irritation seemed not to have been sufficient to induce actual inflammation of the general Peritoneal Membrane.

Pleuræ and Pericardium.—In connexion with Dysentery, we have met with some cases in which lesions of these Serous Cavities occurred independently of other affections of the Thoracic Viscera. They have been found, however, associated with extensive engorgement, or actual exudation into the Pulmonary structure.

In one well marked case, both Pleural Cavities were the seat of abundant sero-purulent exudation, more especially that of the left side; both Lungs were compressed. The areolar tissue of the Mediastinal spaces was infiltrated with Serum. The Pericardium was distended with sero purulent fluid, similar to that in the Pleural Cavities; the serous surface was covered with deposit of a denser kind, and extensive adhesions seemed to have existed for some time, which appeared to be gradually softening down, and degenerating into a pus-like matter; the Serous Membrane was thickened throughout, in both the parietal and cardiac layers.

(*b.*) *Viscera of the Abdomen.*—Secondary engagements of the Liver, the Spleen, and the Kidneys have been met with.

Liver.—In one example, an abscess of enormous dimensions was found to occupy the substance of nearly the whole of the right lobe of this organ. On section, it gave exit to more than a pint of well-formed pus, mixed with numerous flakes; but there was not observed any débris of hepatic tissue, which was in all probability not present, as the abscess was limited on every side by a well-developed pyogenic membrane. The hepatic substance surrounding the abscess was soft and friable; considerable congestion was observed towards the Pylorus, and of the vessels of the gastro-hepatic omentum generally. The mucous membrane of the Stomach, towards the pyloric end, was of a dark melanotic appearance, but the gastric surface was otherwise healthy.

We shall here only incidentally notice a very singular state of the Liver in one Dysenteric case of the Sub-Acute variety, in which rapid and extensive decomposition, marked by general gaseous development within its structures, was observed. No other organ presented any evidences of similar early decomposition. We pretend to indicate no relation whatever between this state of the Liver and Dysentery, but simply notice its existence. At another time, in dealing with the general question of hystolitic changes, we shall again consider it.

Kidneys.—In the same case as that in which abscess of the Liver was present, there was marked enlargement of the cortical portion of both kidneys, which on section exhibited a white creamy exudation infiltrated in and amongst the tubules. The renal substance generally was anæmic, but great stellate congestion of the veins existed on the surface, and the capsules were adherent. Granular degeneration appeared to be commencing throughout the organs.

Microscopic examination showed deposit of fibrine in granules and hyaline masses, enclosing nucleated secreting cells of the tubules, with here and there granular fatty degeneration of the exuded material and of the cells.

In another well-marked example, the kidneys were found diseased, in combination with extensive lesions of the Thoracic Organs. The kidneys were imbedded in a mass of areolar tissue, infiltrated with creamy purulent exudation, in actual contact with the capsules of these glands. A more dense yellow matter was exuded upon and underneath the capsules. The right Kidney was much broken up by the softening of this exuded matter,

which was mixed up with shreds of vascular tufts. Section through the organ showed the membrane of the pelvis thickened and opaque. Scattered abscesses occupied the pyramidal parts, and the cortical substance was greatly enlarged, and irregularly vascular, appearing as if dotted over with tufts of blood-vessels and little masses of yellow deposit; this exudation consisted of granular fatty matter, mixed up with pus-cells.

The state of the Dysenteric lesions was investigated with great care in this case. It will be as well to cite here the details given in the account of the *post mortem* examination, though we confess it does not throw much light on the connexion between the condition of the Colon and the states of both Liver and Kidneys.

Ulceration had existed from the descending portion of the Colon downwards to the Anus; active Congestion of the Mucous surface was presented in the Cœcal end of the Intestine. In the Rectum the Ulcers had healed, and the tissues of this part of the gut were free of vascularity. In the upper part of the descending Colon the ulcers were still open and vascular, and so large as nearly to involve the whole calibre of the gut. In almost all of them, the tissues had ulcerated to within a short distance of the peritoneal surface, and on this membrane a pyogenic layer of exudation rested, which appeared to form the base of the ulcers; at the corresponding serous surface were found considerable opacity and thickening.

(*c.*) *Thoracic Viscera.*—The Lungs have been the organs which, in accordance with the results of our investigations, appear to have exhibited the greatest tendency to Secondary engagements in Dysenteric cases. And this, be it observed, is all the more remarkable that the experience of the past Campaigns showed a very marked and considerable immunity from Pulmonic Lesions amongst the Forces in the Crimea; an immunity which, as already observed, has been found to prevail not less in the camps of the Allies than in the English.

Two forms of engagement of the Pulmonary organs have been observed in the present order of morbid associations; (1,) more or less extensive Lesions of the Bronchial Membrane; (2,) engorgements or actual exudations into the Pulmonary Parenchyma. These conditions have, however, been rarely found to exist alone.

In the first form, the Bronchi in their finer ramifications have been found filled with frothy mucous and pus like exudation; extensive vesicular Bronchitis has also been observed. Usually accompanying these conditions there existed well-marked spots of Lobular Pneumonia.

In some cases both Lungs were extensively consolidated; the right in some instances was much more voluminous than the left. Solid little masses, the result of vesicular infiltration, formed distinct elevations, and were found scattered on the Pleural surfaces. They were doubtless terminal air cells distended with exudation. Similar isolated deposits were disseminated throughout the substance of both Lungs, and some of these masses appeared to be passing into purulent softening; the finer Bronchial tubes being filled with a pus-like exudation. In another example, the Lungs were intensely congested throughout, and exhibited scattered globular masses of considerable density disseminated through their substance. When felt through the Lung tissue, these masses gave the idea of so many distinct globular tumours invading the organs, and in this respect resembled somewhat the disseminated form of cancerous deposit in the Lung (of course only so far as the idea of *tumor* is concerned). This condition was most remarkable in the left Lung, in which some of the masses were a couple of inches in diameter. In colour they were of a dark red, and on section exhibited a spotted appearance, the result of cut vessels. A small quantity of purulent-like matter mixed with blood could be scraped from their surface on section. They appeared limited all round by a line of pulmonary areolar tissue. These masses are in all probability to be regarded as an extreme form of isolated and much condensed Lobular infarction.

The last case we shall notice may be considered as a somewhat more advanced stage of Pulmonary Lesions similar to those just described. The anterior edge of the right Lung was consolidated, and this Lung was the seat of numerous small false abscesses, varying in size from a pea to a walnut. The false abscesses consisted of masses of broken down exudation, and did not seem limited by any definite margin, or by any form of pyogenic membrane. They were broken up in the centre into a soft pulp, while at the circumference they exhibited greater consistence, and were here friable, merging gradually into the contiguous highly congested parenchyma.

On Microscopic Examination, these masses of exudation were found to consist of broken-down cells, granular matter, and pus elements. It may be observed that it was in this case the kidneys presented the somewhat similar condition as to deposit in their structure already noticed under its appropriate heading.

The state of the Colon in these cases of Secondary or Associated Pulmonic engagement was carefully inquired into. It can only be stated, however, that the cases were in general very chronic, and the Ulcers which remained in the great Intestine were few, and exhibited a tendency to heal; in other parts the mucous membrane appeared thin and worn, but nothing characteristic or specially deserving of notice was found. The Ulcers in all essential characters were precisely similar to what we have repeatedly found in other chronic cases of Dysentery not presenting secondary lesions.

Before leaving the subject of the Secondary engagements of the Lung in this order of morbid associations, it may be necessary to notice that we have also met with certain cases

of intercurrent pulmonary disease, which may be considered, to some extent at least, as constituting independent morbid processes. They presented the characters of simple pneumonic exudation, much as it occurs in the idiopathic form of the disease. Such affections invading an already weakened system, were much marked by an insidious commencement, a very obscure expression of the usual physical signs and symptoms, and they constantly proved fatal at an early period after their invasion.

C. Pathological Anatomy of Dysentery with Dyscrases.

It will be worth observing here, that while, as a general rule, at least during the primary stages of disease amongst the patients of the hospitals in camp, unity of morbid processes, and the confinement of diseased action to one organ primarily and essentially engaged, were commonly to be noticed, the opposite seemed to prevail amongst the sick at Scutari, where plurality of diseased states, and various complex associations of morbid actions in different parts and organs, were almost invariably found in fatal cases. And this, perhaps, may be considered as the most constant and also the most differential character between the pathology of disease, as observed in the Secondary Hospitals of the Bosphorus, and in the Primary Hospitals of the camp. It is needless to remark that when cases remained in hospital in camp till they acquired all the essentials of chronic disease, the appearances found post mortem much resembled those ascertained to prevail at Scutari.*

The observations just made will be found to be especially well exemplified in the forms of Dysentery we are now about to consider; and also in the complicated cases of Fever, many of which will be noticed in a subsequent section.

Dysentery as observed in the camp, except when it assumed its most chronic forms, was not often attended by marked secondary changes; nor, with one exception, was any disposition shown by this disease to ally itself with the Dyscrasic constitutional states. The exception we allude to is that of the Scorbutic Dyscrasis, which, to some extent, modified the characters of all prevailing diseases.

The third order of our complex cases of Dysentery, embracing those associated with general Dyscrases, has in general been found fully illustrated only in those instances in which the disease has proved fatal in the Secondary Hospitals on the Bosphorus. These cases were generally of very protracted duration. The associated morbid lesions which they presented, were not only complex as to the number of morbid processes developed, and the organs invaded in any particular case, but the most marked variations were exhibited as to the degree and extent of these co-existent affections. In some of these cases we have found the complexity of lesion to amount to a quadruple, and in even rare instances to a quintuple, alliance of diseased processes. Dysentery, Scorbutus, Tuberculosis, and evidences of the Typhoid process, have co-existed in more than one instance. Again, Dysentery, Scorbutus, Tubercle, the Typhoid process, and a Gangrenous action in the pulmonary textures have been associated in another case. In an anatomical point of view the complexity was still greater, when we take into account the co-existence, in the same case, of the exudative and the ulcerative stages of the Dysenteric process, the affections of Peyer's Patches, and of the Follicular apparatus of the Small Intestine, the affection of the Peritoneum, Kidneys,

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* These statements are of interest in connexion with, and are not without support from the observations of some very able investigators of disease amongst the physicians of the French Army. Observations on the differential characters of disease presented by the soldier were made by some of these gentlemen. Classification of the sick was carried out by them to a far greater extent than we have had opportunities of observing elsewhere in the East. Separate *salles* were maintained in some of the French hospitals at Constantinople for the sick arriving from the front, and for those of the troops encamped as reserve in the neighbourhood of the Bosphorus, or arriving sick *in transitu* to the seat of war; and, as might be expected, very marked differences were noticed in the diseased phenomena presented in these two classes of cases. Our attention was more especially directed to this subject by our distinguished friend M. Casselas, already alluded to.

The type and characters of disease amongst the sick of the troops recently arrived from France, or of those in reserve at the various camps on the Bosphorus, were in general Acute and Sthenic; while in those who had undergone the wearing effects of the fatigues and exposure of the camp, and the labours and hardships of the operations of the siege, a low and Asthenic tone of diseased action declared itself. In further corroboration of these observations, it may be added that amongst the Sardinian troops, who had undergone but a moderate share of the exhausting effects of the Crimean Campaign, a much more Sthenic Type of constitution prevailed than amongst either the French or English troops in camp. And the characters of the diseases which they presented partook also of a more sthenic nature; though after a residence in the Crimea of some few months (four to five) the accomplished Medical Officers of the Sardinian Army (Signors Nicholais, Sclaverani, and Ravelli more especially) had already begun to notice a sensible depreciation of the constitutional tone of the Sardinian soldier; and these acute observers had further satisfied themselves that neither was the type of disease so decidedly sthenic amongst the Sardinian troops in the Crimea, as it was known to be in Piedmont or Savoy; nor, on the other hand, were depletory measures as much or as fully called for, or borne to the same extent, as when the patients had been under the influences of disease in their native land.

occasionally the Spleen, and very commonly of the Lungs, and sometimes the Pleuræ. The variations of these lesions in extent and degree have not been less remarkable; thus tubercle has been presented in its crude state; and again actual sphacelus of the pulonary tissue has been produced.

Scorbutus.—That at a period previous to the commencement of our investigations, Dysentery was often modified by the Scorbutic Dyscrasis, there is great reason to believe. But in our inquiries, marked Anatomico-Pathological evidences of Scorbutus were not very commonly found in Dysenteric cases. It is highly probable that the peritoneal effusions found in some of our cases were attributable to this cause. Hæmorrhagic patches not readily referable to any other cause were also not infrequently observed.

Tubercle.—The development of Tubercle has been frequently observed in chronic Dysenteric cases. In some instances its dissemination through the system was pretty general. Thus we have found, associated with a condition of extensive diphtheritic exudation, and ulceration in the Colon and Rectum, miliary deposit disseminated through the parenchyma of one Lung, and the formation of complete vomicæ in the other. An imperfect semi-transparent gelatinous deposit, scattered over the Ileum in other cases has, probably, been of a tubercular nature also. Tubercle has likewise been pretty often found in the Kidneys. In the Mesenteric glands tubercular deposit also was found infiltrating their texture.

The clinical and pathological relations of Dysentery and Tubercle were obscure in the highest degree. From the great chronicity which the Dysenteric process assumed in the cases presented to our observation, marked constitutional effects were induced. It is not improbable that the cachectic state thus brought about was highly favourable to the development of Tubercle, in systems naturally predisposed to it. Some of the cases were undoubtedly of a Scrofulous type of constitution, and perhaps only required the stimulus of a chronic disease like Dysentery to call the latent process into action.

Typhoid process.—In some cases it is not certain, in the association of Dysentery with this process, which had actual precedence in point of time. Extensive changes, attributable to both, have been found to co-exist post mortem; allied, in some instances, with even further morbid states, originating either in the Scorbutic or the Tubercular Dyscrasis. It is highly probable that, in the majority of instances, Dysentery was the first disease established, and that during convalescence from this affection, the patient was attacked with the Typhoid Fever, which subsequently produced its own characteristic lesions. Well marked diphtheritic and ulcerative Dysenteric processes have been found associated with the Follicular intumescence and ulceration of Peyer's Patches, and also of the solitary glands both in the Small Intestine and in the Colon.

The Mesenteric glands and the solid Abdominal viscera, likewise presented characteristic Typhoid changes. But it was in the Lungs that the most advanced states of this exudation were found. In one remarkable instance both the pleural cavities and the lungs were engaged. One side of the chest was filled with fluid effusion, partly limited by the deposit of lymph. The pulmonary tissue presented throughout a semi-transparent gelatinous exudation in the form of a miliary deposit, which consisted of an exudation into the ultimate pulmonary air cells. At two portions of the same lung a gangrenous condition existed, the pulmonary substance being converted into a semi-fluid dirty fœtid débris. In another case a similar state of the lung was presented.

It is not to be doubted that in several of such cases death was directly attributable to the Typhoid process, and some one or other of its secondary lesions, rather than to any immediate effect of the Dysenteric disease. One case bearing on this point will be found worthy of observation. The Dysenteric symptoms had been of four months' duration; remains of the ulcerative process were visible throughout the Colon, but they were evidently tending to heal; the mucous membrane was removed in many places, and towards the Caput cœcum there was evidence of a process of cicatrization in some of the ulcers. But a sloughing process became established in the secondary Typhoid exudation in the Lungs, and the pulmonic complication was obviously that to which death was directly attributable. Similar, but less marked conditions, have been found in other cases.

It will be seen that this class of affections, in which the Typhoid and Dysenteric processes are extensively associated, admit of their pathology being discussed under a twofold aspect, and we shall have to revert to them again when we come to treat of the morbid processes found to complicate the Typhoid state. To this section, therefore, we must refer for further observations on this important subject.

DISEASES OF THE SMALL INTESTINES.

Under this, as a distinct heading of Disease, we shall have but few observations to communicate. Though, as already so frequently noticed, lesions of the Small Intestines formed such a prominent feature in the Pathology of the Diseases of the Army in the East, it was in but very rare and exceptional cases that independent primary affections of the Jejunum and Ileum were found to exist.

Enteritis.—Of true Idiopathic Enteritis we have not met one perfectly well defined case. Under the Complex Forms of Dysentery we have placed several examples of both Acute and

Chronic Exudative Lesions of the Ileum; in some of which this process existed to a marked degree, and engaged a large portion of this Intestine. In many instances the exudation was of a dense, firm, diphtheritic character, tending to organization, and with evidences of intense inflammatory action in the subjacent mucous membrane.

In connexion with Surgical cases, we have met with some well marked examples, in which death appeared to be immediately owing to the surpervention of an intense inflammatory process established, as it ultimately proved, exclusively in the Small Intestine. Profuse suppuration, with the formation of a large pyogenic sore, took place in one instance in the stump of a knee-amputation case, which much wasted the patient. Towards the end of the second month, he was attacked with symptoms somewhat resembling those of Dysentery; pain in the abdomen, frequent calls to stool, with evacuation of blood in considerable quantity, and occasionally of fibrinous shreds and flakes. On post mortem examination, the Ileum, throughout a large part of its course, was found coated thickly with a firm diphtheritic exudation, of a deep brownish red colour, dense, and removable in flakes.

Follicular Enteritis, so called.—Marked forms of diseased action in the Glandular Apparatus of the Small Intestine have been constantly found by us associated with other morbid affections, chiefly Fever and Dysentery, but of the independent existence of any such lesion as that supposed to occur as a distinct disease, and recognized by some writers under the head of "Follicular Enteritis," we have no proof whatever. No case properly referable to this category has been met with in our investigations.

Infarction, Ulceration, and Atrophic Changes in Follicular Apparatus.—Of the numerous forms of Follicular Lesion of the Small Intestine, including tumefaction by various exudations, ulceration, discharge of their contents, and, in some cases, final atrophy and degeneration of these structures, descriptions will be found under the heads of Cholera, Fever, and Dysentery. To the two last sections likewise we must refer for full information as to the remarkable atrophic changes in the mucous membrane of this part of the alimentary canal.

FEVER.

Fever in its various forms was the disease which most extensively invaded the Armies of the East. With its various complications, the diseased processes associated with it, and the important, often fatal Lesions arising more or less directly out of it, Fever embraced some of the most grave questions in Pathology and Practice.

We shall now proceed to consider the several varieties of Fever which have come under our observation. They may be classed thus:—

Summary Table No. VI.—Forms of Fever.

I. Intermittent Fever.
II. Remittent Fever.
III. Simple Continued Fever.
IV. Relapsing Fever.
V. The Typhous Fever Proper.
VI. The Typhoid Fever.

Intermittent Fever.

In one respect the Forces in the Crimea were particularly favoured, owing no doubt, in a great measure, to the physical peculiarities of the country they occupied. That class of Fevers called "Intermittent," and which has so often committed extensive ravages amongst Armies, was all but unknown.

In the English camp, but very few examples of Intermittent were to be found. Within one part of the lines occupied by the French and Sardinian Troops, the conditions requisite for its development seemed to exist. The site of the Allied Camps was remarkable. The tents of the chief divisions of the besieging Forces were pitched on a series of irregular heights, deeply intersected by ravines, which were grooved by numerous water channels. The formation of these heights was worthy of note. On a basis of igneous formation a pretty uniform stratum of oolitic limestone had been deposited, which was covered by a ragged and scanty coat of soil, through which the limestone cropped up at intervals. The vegetation on such soil was necessarily poor and scanty.

In the valley watered by the Tchernaya there were to be found some low flat meadow lands, parts of which were marshy and unwholesome.

Amongst the French Troops guarding the lines of the Tchernaya, especially those posted in ambuscade on the southern banks of the river, and thus, particularly at night, much exposed to the damp exhalations of the meadows which surrounded them, Intermittent

Fever was not uncommon. But in no other part of either Camp did it, so far as we are aware, prevail to any extent, though some few isolated cases have come under our observation. It may be stated that we have not ourselves known more than two or three cases in which the disease seemed to be of undoubtedly Crimean origin.

In general the agencies of climate and soil which prevailed throughout the Allied Camps, with the above exception, appeared incapable of originating, to any extent at least, a true Intermittent Fever. But we have witnessed, in the case of both officers and men who had been victims of the disease in other countries, a re-awakening, as it were, of the latent affection. This applies to men who had served either, a short time previously, in Bulgaria, or, at a more remote period, in China and other places, where malaria is known to prevail.

In the few cases which actually came under our observation, the type of the disease which presented itself was the Tertian. The same type was that which prevailed amongst the French and Sardinian troops. Having no observations worthy of record to make on this subject, we shall pass it over, merely stating that the results above given were confirmed by the experience of many medical officers, as well in the French and Sardinian, as in the English Camps.

Remittent Fever.

Remittent Fevers cannot be said to have been common, or, even when they did occur, well marked; but a tendency to a remittent type of disease modifying the action of other abnormal states was sufficiently often to be observed.

It is to the type of Remittent Fever that we must refer that nondescript class of cases which became popularly known by the name of "Crimean" Fever.

That no uniform, well-defined, or generally acknowledged diseased process was recognized under this name we have had very convincing evidence.

In cases which were called "'Crimean' *par excellence*," we have found, on post mortem examination, extensive ulceration of Peyer's Patches, and general intumescence of the Follicles of the Ileum, and other appearances which left little doubt that the disease could only be properly referred to the Typhoid type of Fever so commonly found to prevail.

Occurring as a distinct affection, the form of Remittent Fever observed in the Crimea was usually attended with great nervous disturbance and general irritability; it frequently also presented much and long continued Gastric irritation. Vomiting of bilious matter, varying much in colour,—sometimes yellow, sometimes green,—was a constant and most distressing symptom. We have known it to continue for more than a week, with scarcely any intermission by day or night, being induced at every moment that the patient attempted to swallow the simplest fluid, while it resisted every possible means of treatment. Gastric pain or tenderness was not necessarily present in such cases.

Diarrhœa was not uncommon, but seemed to have no necessary connexion with the disease, as, though a troublesome symptom in some cases, it was absent in others.

The symptom from which the disease derives its name, that of remission, was, in few cases, very distinctly or decidedly marked.

In some instances there seemed to be two pretty well-marked periods of exacerbation and two of remission of the chief and most urgent phenomena of the disease, during the day of twenty-four hours. Thus, a morning exacerbation, lasting till near mid-day, was followed by a more or less perfect remission till evening, when restlessness, feverish excitement, and renewal of the chief symptoms, sometimes with delirium, supervened. At or about midnight another remission of the more urgent symptoms took place, when the patient obtained rest and sometimes sleep till morning.

The course of the disease was extremely irregular; it was often much protracted, and, after apparent convalescence, relapse was not infrequent. Great debility generally resulted, and perfect convalescence was not accomplished till after the lapse of a considerable period, in some cases extending over months. It was in this respect chiefly that it was to be considered as a serious malady. It was seldom directly fatal; but it was important and worthy of attention for the reason that it was usually intractable to treatment, and seemed most influenced by change of climate.

As this disease affected considerable numbers of men, the observations already made as to the advantage of largely extending the system of sick and convalescent leave, here again apply with considerable force.

It may be well to notice that the testimony of medical officers with regard to the prevalence of this form of Fever was by no means uniform. Some had no experience of it in the Crimea. Others, again, have been able to appreciate, very constantly, modifications in other diseases and diseased processes attributable to its influence.

It is highly probable that in no Division of the Army in the Crimea has any form of Remittent Fever of a very decided type extensively prevailed at any time.

It is certain, at all events, that in the past Campaigns this disease has not by any means played so important a part as it has been known to do on former occasions. No fatal cases came under our observation, and consequently we can contribute nothing to its pathological anatomy.

Of any class of cases properly deserving the name of Bilious Remittent we have seen but few well-marked examples.

Simple Continued Fever.

We use this term to indicate a class of simple Essential Fevers unattended by any special Anatomico-Pathological Lesions.

Of this class of Fevers, one form, presenting varieties only as to intensity and duration, has been observed by us. It had generally a brief but determinate course, not marked by any great severity of febrile symptoms, seldom presenting Visceral complications of any importance, and most generally issuing favorably in the second or third week. Little material constitutional injury seemed to be incurred by the patient; and convalescence, though not rapid, was ultimately complete.

The general type of this Fever may be said to have been *sub*-acute and *sub*-sthenic. Depletory measures were seldom called for, and a very mild treatment seemed all that was requisite to conduct the patient safely through the attack.

Relapsing Fever.

The next variety of Fever we have to notice, is that which may be called Relapsing.

During the summer months, this form of disease was pretty common. The primary attack commenced with or without diarrhœa, often with pretty sharp symptoms, so that by the second or third day the febrile state was very well established. Headache was very general, and often severe; the pulse was full and quick, and "calor mordax" of the skin was constant. The tongue was loaded, some gastric irritation and also diarrhœa were often present through the course of the disease.

Sometimes, so early as the fifth or sixth day, these symptoms had entirely subsided, a more or less perfect crisis, usually by sweating, taking place. The patient felt well, was soon able to get up, and in a few days convalescence was apparently complete; so much so, in some instances, that the men returned to duty, often, at their own request. But after a variable period, a new invasion of febrile symptoms took place, often with increased severity. The patient again sought admission into hospital, and soon presented a much more fully developed febrile state than in the first attack.

Two, three, four, or more days, sometimes a much longer period, intervened between the first and second attacks. No definite period of intermission was, however, observed. In some cases the patients had convalesced for but a day or two, when the second attack began to show itself. In others, as we have said, the intermission was such that they were able to return to their duty. It did not appear that there was anything definite as to the *times* of occurrence of remission and relapse, and we have failed to notice anything that would warrant the idea of actual *periodicity* throughout the course of these Fevers.

The type of Fever which was established in this relapse varied very much in different cases, and there did not seem to be any constancy, either in the characters or in the duration of this Second Fever.

In general the Fever of relapse assumed a sufficiently grave type. Pyrexia, expressed by more or less nervous excitement, high pulse, hot skin, loaded tongue, and often diarrhœa, became well established; and in some instances the disease lasted for a full period of twenty-one days; in rare cases, still longer. We have, however, known very many cases in which the second Fever was of a slight character and of brief duration, terminating in from seven to ten days; but the febrile state never seemed to be thus completely thrown off, and in cases of this kind we have seen a third and even a fourth relapse.

Perhaps the most remarkable feature of this class of Fevers was the almost total absence of any constant or very definite characters. Neither in the pyrexial phenomena, the duration, or the modes of termination of the first attack, was there anything of a very fixed nature. The short primary attack not infrequently terminated with a pretty well-marked crisis by sweating. But in the second attacks it was exceptional to find any approach to a definite crisis of any kind. The period of intermission was inconstant, varying from two to many days. The characters of the second, or, when it occurred, of the third attack had, in many instances no necessary relation or similarity whatever to those of the first. In many instances, they differed most widely, so much so that it seems fair to assume that, in some cases at least, the first disease stood only in the relation of an accidental not a cognate antecedent to the second.

It will be well to observe here, that during a period embracing the months of July and August it was a very common character of the Fevers which prevailed, that in the great majority of instances, a patient, instead of being attacked with one defined Fever, progressing in a uniform way from its invasion to its final issue, exhibited usually one short first febrile state, from which he convalesced more or less completely, but was soon again the victim of a second, perhaps graver attack.

Within the period here assigned, this mode of invasion of febrile disease was the general one; before and after it, unity of attack was the rule.

Of the Fever occurring within this order of association, be it accidental or otherwise, within the time above specified, we have known both the Typhus and Typhoid types to have been well exemplified. In some fatal cases, the characteristic Enteric lesions of the Typhoid Fever were seen to be fully developed. In a clinical point of view, as a possible antecedent to fatal forms of disease, this relation of the short primary Fever deserves to be borne in mind.

As to the other clinical characters of the Simple Continued, and the Relapsing variety of Fevers, just noted, they differed in no important respect from those elsewhere presented in similar forms of disease. No fatal cases came under our observation, and we can, therefore, contribute nothing to illustrate their Pathological Anatomy.

During the period now under consideration (the months of July and August), we have reason to believe that the types of Fever which prevailed amongst the French and Sardinian Troops corresponded in all essential features to those presented in the English Hospitals. Petechial eruptions were uncommon in this period, and remission was pretty often observed. Death was comparatively rare in Fever cases.

It may be interesting here to draw attention to some forms of Fever found to prevail amongst the mixed class of Turks and Hindoos of the Land Transport Corps. The Fever observed in those people was of the Continued Type, but generally of short duration. It was, in some instances, attended by a biliary derangement. The pyrexial state was generally well established, and exhibited a decided sthenic character. Stimulation seemed quite contra-indicated, as in these abstemious people the use of wine appeared to increase the febrile symptoms, and was even by some thought to dispose to local inflammations. Mild evacuants were generally found sufficient to conduct the case to a favourable termination. In not a few instances, a febrile state, often accompanied by maniacal excitement, seemed directly traceable to the irritation produced by worms, on the expulsion of which almost immediate relief was procured.

In the Turkish Military Hospitals at Scutari, Miliary Fever was for a time very common. It was characterised by an eruption on the chest and abdomen of innumerable minute elevations with white shining summits, on a more or less reddened base. Rank fœtid sweats attended the course of the disease; there was also considerable respiratory oppression. The cases generally ran a course of about three weeks, terminating after successive crops of the eruption, which continued evident for from three to seven days each. In bad forms of the disease, a tendency to ulceration at the angles of the mouth was observed.

As far we are aware, no similar disease prevailed at any time amongst the French, Sardinian, or English Troops.

Fevers of Typhous Type.

In entering here on the immediate consideration of the great class of disease embraced under the Typhous Type, we beg to refer, for our more general views on this subject, to what has been already stated in the Introduction.

As fatal forms of disease, the Typhus and the Typhoid Fevers have been those most particularly deserving of attention, though, for a time at least, they have been numerically inferior to the milder types of disease last noticed.

Of both the Typhus and the Typhoid we have, however, determined the existence to a large extent; and from the opportunities which we have had for the examination of fatal cases, little doubt can exist as to the precise nature of the forms of these Fevers which prevailed in the Army of the East.

Typhous Fever Proper.

The occurrence of the Maculated, Petechial Fever, or Typhus Proper, has been determined by the clinical and post-mortem examination of well-marked cases, both in the Camp and at Scutari. Within our experience, however, it has not been either so common or so fatal as the Typhoid. In general the disease was not of a malignant character. Cases, however, of great severity have occasionally occurred, of a low type, and presenting many of the great secondary affections common to this disease.

In some well-marked examples of Typhus which we have observed, the following were the most marked phenomena which they presented:—That general aspect of the face, partial injection of the conjunctiva and suffusion of the eyes, sordes on the lips and teeth,

and the dark mottled appearance of the skin, the low, nervous, and half-insensible state of the patient, all of which symptoms may, for brevity sake, be grouped under the head of the Typhous condition, were well expressed. The cutaneous eruption varied much, being sometimes confined to a light efflorescent rash, which, though characteristic, is only appreciable to the well-practised eye. In some cases, however, much more marked, both petechial and maculated eruptions existed. Occasionally minute irregularly-shaped hæmorrhagic patches, probably the result of a Scorbutic Dyscrasis, obscured the characteristic eruption of the Fever, which was, however, not the less constantly present. Cerebral symptoms not infrequently occurred, but never so as to indicate profound lesion of the brain, and they were generally rather of a functional character.

The phenomena connected with the Circulating system were a quick, soft, and compressible pulse, various in volume, usually large, but weak at the outset. The cardiac action was rapid, but feeble, and the impulse sensible over a large surface, but often much weakened. Failing power of the heart was indicated in many cases by decrease in the tone and strength of the first sound, but we have not known the heart's action diminished to such an extent as to give to the cardiac signs the fœtal character which is presented so well in the severer forms of the disease.

The Respiratory organs seemed prone to engorgement; and this was the more remarkable that, as we have already noticed, a certain immunity from Thoracic lesions generally, prevailed. Bronchial congestion and engorgement of the Lungs have, however, frequently occurred in connexion with this form of Fever, and we have known death to be directly attributable to this cause. These affections were, however, much masked in their symptoms during life in many instances. How far the associated nervous lesions already noticed may have influenced the production of these thoracic affections, we shall not stop to inquire.

The Abdominal organs were, as a rule, not largely or prominently engaged; diarrhœa sometimes preceded, and was sometimes present as an intercurrent symptom throughout the attack. Distention of the Abdomen and occasionally Tympanitis were met with, but it was only in very exceptional cases that any well-marked or important Lesion of the Abdominal Viscera occurred.

We have treated these several points only in a passing manner, and chiefly with the view of presenting such of the characters of this Fever as will allow of its recognition, and of a ready comparison with those elsewhere presented.

With regard to the severity of the type of this disease, though decidedly low in our experience of it, it has not been of that very formidable and fatal nature which we have been familiar with under other circumstances. Its clinical characters, and especially those deduced from a study of the cardiac phenomena, gave unquestionable indications of the necessity for the free exhibition of stimulants. No point in the pathological characters of the disease was more fully appreciated, or more successfully acted upon by the medical officers of Her Majesty's Forces than this. That their views on this subject were in accordance with the clearest dictates of Pathology and the best results of experience, we have already given it as our opinion; while we have not hesitated to express our conviction of the incorrectness of other views, urgently insisted on, and the acceptance of which would have required an opposite, and in our minds, to say the least of it, a highly dangerous system of treatment.

Typhoid Fever.

Of the Fevers prevalent in the Army of the East during the period of our investigations, the Typhoid was undoubtedly the most important, and the most fatal.

Not only has this form of Fever been immediately and directly fatal in several cases, but even after an apparent convalescence, formidable Secondary Lesions were very frequently developed as a consequence of it. After a more or less protracted course, and often with great suffering to the patient, these Lesions not infrequently brought about a fatal issue.

It was from this tendency to the development of Secondary Lesions, and also from their very frequently latent character, that this variety of Fever derived its chief importance. It was not uncommon for the febrile symptoms entirely to disappear, a certain amount of convalescence to take place, and the patient in many instances to return to duty, while, as the issue showed, a diseased action was slowly but steadily progressing in his system; the course of such secondary disease being, perhaps, not uninfluenced by the exposures and irregularities of the soldier's life. At a period more or less remote from the primary attack, a fresh invasion of symptoms took place, liable to be mistaken for a new attack of disease, when due attention was not paid to the previous history of the case. In many instances, however, no such period of intermission was observable, and the patient, with imperfect attempts at convalescence, followed by almost immediate relapse, passed from the primary to the secondary or tertiary stages of the disease. Such attacks we have known to be extended in some instances even over a period of some three or four months, before a fatal issue took place.

It is obvious that when such a form of disease is ascertained to prevail, the utmost precautions are necessary, not only during the primary attacks, but also during periods of apparent convalescence. Whether or not medical or other means are capable of much influencing the course and issue of these cases, we are not quite prepared to say, but there

can be little doubt that exposure, irregularities of diet, and excess in the use of intoxicating drink, during such fallacious periods of convalescence, when they occurred, largely deprived the patient of his best chances of a permanent restoration to health.

It cannot be said that the Typhoid Fever was at any time absent from the Camp. The general tendency of all serious febrile states was decidedly more to the assumption of the Typhoid type than to that of the Typhous proper. Thus we have known very fatal forms of the Typhoid disease with profound Intestinal Lesion to occur as the second attack in the group of so-called Relapsing Fevers, already noticed. In other instances, the Typhoid has been the third, and even the fourth in the group of febrile attacks. On no occasion, however, within our experience, has there been any extensive or epidemic invasion of the disease. At one or two periods (end of October and commencement of November), we have known it to present itself in a very severe and rapidly fatal form, but happily it ceased to spread before it had engaged any large numbers of men.

Cases of this disease, such as we have seen them, admit of division into two broad and practically useful classes; namely, *first*:—those which were immediately fatal, and *second*:—those in which longer or shorter periods elapsed between the first attack and the final issue.

Of the first class of cases, we have met some well-marked examples, presenting the most full development of the characteristic Abdominal Lesion. These cases on admission presented the usual characters of the pyrexial state. The face was flushed, the skin hot, and the pulse frequent. The complete "Typhous" aspect was soon assumed; sordes formed on the lips and teeth; the skin presented a general dusky aspect, with indistinct mottling of the surface. It was also, as in other cases, often closely covered with minute hæmorrhagic and often Scorbutic spots, which appearances doubtless served much to mask any characteristic eruption. Be it from this, or whatever other cause, we have but very rarely been able to determine the presence of a well-marked or characteristic eruption in cases subsequently fatal by the Abdominal Lesion. We cannot state that any such eruption was positively absent; but, when present, it was obscure, very difficult of recognition, and frequently, in consequence, overlooked. On the whole, we think we are warranted in saying that the Typhoid eruption was much less marked and much less characteristic in the disease as presented in the Crimea, than we have been accustomed to find it under other circumstances; and we think it is not impossible that this may have been to some extent a differential character of the form of the disease which prevailed in the Army of the East.

Much variety was observable in the other clinical characters of the disease. With regard to those referable to the Abdominal Organs, very opposite conditions seem to have been presented. Thus, in a case, fatal within from ten to twelve days, with a most profound Lesion in the Small Intestine, proceeding in some points to actual perforation, complete sphacelus of several of the Patches of Peyer, and extensive general peritonitis, it is stated in the clinical history furnished to us that during the greater part of the patient's illness, the bowels were regular, and he complained of no pain the abdomen till a short time before death. Such a case, however, is decidedly to be regarded as exceptional; but it well exemplifies the necessity for the utmost care in diagnosis, and the most scrupulous precautions in treatment; where such a type of disease is suspected to prevail, it is needless to observe that drastic purgatives are wholly inadmissible. Gastric symptoms were not uncommon in this Fever. In some cases irritability of the stomach, with frequent vomiting, was an obstinate and troublesome symptom. Diarrhœa, more or less abdominal tension and pain, have been very commonly present. Evacuations of blood per anum have also occurred in the early stage in some cases; in the later stages of the chronic forms of the disease, tarry evacuations have occasionally been present, but these have been by no means constant or even general characters. When perforation occurred, a new set of symptoms was of course developed, of a character which could seldom be mistaken; and they usually preceded the fatal issue by only a short period.

Thoracic complications occurred pretty often, more especially in the chronic forms of this Fever, but during the primary Fever we have not observed Pulmonic lesion so commonly or to so important an extent, as when it occurred in connexion with the Typhus Proper; in the Typhoid, in its early stage, we have not known more than two or three cases which proved fatal directly by the Thoracic complications.

Symptoms referable to the Nervous system have presented themselves in the Typhoid to a less extent than in cases of Typhus proper. In very low forms of the disease, while in its acute stage, we have known bed sores to be formed; these affections were more common, however, during the secondary periods; considerable, and even sometimes excessive, emaciation was likewise often presented in these latter cases.

The general character of this disease, with the early prostration of the patient's strength and his long continuance in a low state, bring it clearly under the great Typhous type, the chief features of which we have already delineated; and the general observations we before made, as to the Therapeutic indications furnished by a consideration of its Pathology, apply here again.

The following Table exhibits the chief Pathological characters of some of the most marked forms of Typhoid Fever which have come under observation. The cases are selected from a much larger body of examples with a view to illustrate the several conditions of the Enteric Lesions, and also the various morbid processes associated with this Fever in its advanced stages.

TABLE IV.—TYPHOID FEVER, 1 AND 2, WITH FOLLICULAR INTUMESCENCE AND ENTERIC ULCERS.

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their chief post-mortem Appearances.
Private John Stockton -	20th	- -	This patient presented Diarrhœa at the commencement and throughout the course of his illness. There was also some gastric irritation, and vomiting occurred from time to time. Pain on pressure and gurgling were observable in the ileo-cœcal region. There was much nervous irritability, attended, towards the close of the case, with violent and almost constant subsultus tendinum. Bed sores became established, and death took place on the fourteenth day after admission. This case was reported as "Crimean" Fever. The chief morbid appearances were confined to the Small Intestine. *Ileum.*—Enlargement and prominence of the Solitary Follicles existed at the upper part; in the lower, the glands were ulcerated. Very extensive ulceration of Peyer's Patches existed throughout. *Mesenteric Glands.*—These glands were much enlarged and greatly congested. *Kidneys.*—The glands were enlarged by about one volume. No other morbid appearances were found.
Private James Jones, aged 20	28th	4,258	This patient, aged twenty, was an English labourer of unhealthy aspect. On admission the symptoms were pains in the limbs, flushed face, and hot skin. The tongue is, however, stated to have been clean, and the bowels regular. Much thirst was complained of. The pulse gradually became more rapid and feeble; there was great restlessness and delirium, especially at night. The bowels continued regular, and it is said that no pain in the abdomen was complained of. Three days before his death slight mucous diarrhœa supervened. The weakness increased till the tenth day after admission, when vomiting set in, and death supervened. The disease was returned as Common Continued Fever. The morbid appearances were chiefly confined to the Abdominal Cavity. *Abdomen.*—Extensive Peritonitis, with effusion of recent lymph and serum, and a general agglutination of all the viscera was found on opening the cavity. *Ileum.*—The whole of this Intestine was most intensely congested, and of a deep bluish black colour. On opening it, similar appearances presented themselves. The whole of the minute Glandular Apparatus was in a state of extreme and extensive ulceration. Several of the Patches of Peyer were in the last stage of sphacelus, destruction of the intestinal tissues down to and inclusive of the Peritoneum having taken place; in some parts the sloughs dropped out, leaving large oval holes, on an attempt being made to hold up the Intestine. Perforation had occurred at several points.
" "	14th	- -	This patient had had Short Fever, from which he convalesced imperfectly. A second attack supervened within a short period, and was attended by a fatal issue on the eighth or ninth day. The chief morbid appearances were confined to the Small Intestines, which were deeply congested, and together with the Mesentery presented a bluish red tint. *Ileum.*—This portion of the Intestine was most engaged, and chiefly in its lower half. Some of the upper Patches of Peyer were a little prominent, red, and swollen; these characters became gradually developed towards the termination of the Ileum. In the lower third the Solitary Follicles were immensely enlarged;

			they were conical, greatly elevated above the surface, and some of them as large as the biggest peas. They were of a mixed reddish and yellowish colour, and presented the same appearance on section. They were of considerable consistence, and presented no evidence of any tendency to softening. The lower sets of Peyer's Patches were from one-eighth to one-quarter inch prominent, of a deep brownish red colour, and their individual glandulæ were much swollen. *Colon.*—Some of the Follicles of the large Intestine were similarly filled with deposit, but in no instance were they ulcerated. *The Mesenteric Glands* were universally enlarged, some to the size of large kidney beans, and deeply congested within.
Private Cusack, aged 19 -	49th	- -	This patient, aged about nineteen, arrived in the Crimea only a couple of months previous to the illness which proved fatal to him. He was of a strumous aspect, with sandy hair. He got a short Fever, which lasted about seven days, when he convalesced sufficiently to be able to leave hospital. He was obliged to seek admission again in two or three days, when a continued Fever of low adynamic type developed itself. No maculæ were observable. It was stated that he had bloody stools on admission: he had diarrhœa for a couple of days in the mid period of the disease, but this symptom was not constant or troublesome afterwards. On the thirteenth day of his second illness he was very low, with sordes on the teeth; the pulse was 140, large, but very soft and compressible. The face was highly congested, and much Bronchitis was found over both lungs posteriorly. Bed sores formed soon after, but death did not take place till the twenty-fourth day of the disease. Sectio Cadaveris was made five hours post mortem. Thermometer about 80°. *Abdomen.*—Considerable congestion of the Abdominal Viscera was found. The Small Intestines were contracted, at numerous points, to one fourth of their normal calibre; in parts they assumed the cubical or quadrilateral form. *Ileum.*—This Intestine was deeply congested on its mucous surface, and presented numerous deeply eroded ulcerations, chiefly corresponding to Peyer's Patches, which were completely eaten away down to the muscular coat. This state of erosion was most extreme in the last three or four Patches near the ileo-colic valve; the muscular coat lay bare, red, and dry at the base of these ulcers. The borders were thick and elevated, but exceedingly irregular and angular. There were several minor erosions, corresponding to the site of the Solitary Follicles. The intervening mucous membrane was thick, and of a dark bluish red. *Colon.*—More regular oval-shaped ulcers existed in this Intestine, the mucous surface running level to the edge of the ulcer. The lower parts of this gut showed some Dysenteric change. *Lungs.*—Extensive bronchitic congestion existed; the terminal tubes were filled with a viscid glary fluid.
Private Josh. Wilton - -	82nd	3,438	Arrived at Scutari from Cephalonia with a draft of troops on the 30th of August, in a low, prostrate, and nearly comatose condition. The pulse was rapid and feeble. There was no eruption of any kind visible. He remained in this low typhoid state throughout, and gradually sunk, without any well-marked local complication other than oppression of the Thoracic Viscera and the vital functions generally. This case was returned as Common Continued Fever. Examination was made on 7th September. Thermometer, 79°. The body was soft and flabby, the flesh dry and of a dark red colour.

TABLE IV.—TYPHOID FEVER, 1 and 2, with Follicular Intumescence and Enteric Ulcers—*continued.*

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their chief post-mortem Appearances.
Private Josh. Wilton—*cont.*	82nd	3,438	*Cranium.*—The cortical portion of the brain appeared somewhat softened, and the pia mater was in a highly congested state. *Thorax.*—The lungs were engorged throughout, and more especially in the posterior and lateral parts; their substance generally was soft and friable; there was no definite condensation; the friable condition was more remarkable in some places than in others. *Abdomen.*—The mucous membrane of the Small Intestines in the upper part generally appeared in a healthy condition, but towards the lower part of the Ileum it was remarkably thin and wasted. Throughout the lower portion of this Intestine the Patches of Peyer were in a state of active turgescence, partly from exudation into the gland Follicles, and partly from greatly increased vascularity in and around the individual Patches. The exudation, though soft, had not commenced to break up or to ulcerate. *Colon.*—The mucous surface of this Intestine was dotted over in a very marked manner, with the dark minute orifices leading to the Solitary vesicular Glands. For the most part, these glands were in a state of intumescence, and felt hard under the finger. They were filled with an exudation consisting chiefly of very fine minute cells and granular matter. *The Spleen* was much enlarged, softened, and friable, exhibiting on section a pulpy consistence, and a deep mulberry hue. *The Kidneys* were highly congested and swollen; this state was especially remarkable in the comparative increase of the cortical substance and its coarse fibrous appearance. Mesenteric glands greatly enlarged throughout.
Col.-Serg. Joseph McGill, aged 32	33rd	2,263	No history accompanied this case, it was returned as Febris C. C. Examination on July 12th. Thermometer, 80°. Petechial spots were visible (post mortem) over the iliac regions, the feet, the legs, and the arms; no papular eruption existed; the superficial veins appeared to contain decomposing blood. *Thorax.*—The Heart was flabby and soft, with fluid blood in its cavities and in the large vessels. In the *Lungs* hypostatic congestion existed in the lower lobes. The pulmonary substance was softened and friable throughout; an exudation of a dirty—half gelatinous, half grumous—material, was confined to lobar masses. The Bronchial glands were enlarged, particularly those at the roots of the lungs. *Abdomen.*—The Intestines throughout were distended with fœtid gas, developed more especially in the Colon. The mucous membrane of the Small Intestine was livid, intensely congested and coated with mucus. Peyer's Patches were extensively infiltrated with a dirty white exudation, and were surrounded with zones of excessively congested blood-vessels. This condition of the glands extended throughout the lower third of the Ileum; and in the Colon, the solitary glands appeared to be in a similar state of intumescence. The Mesenteric Glands were enlarged throughout, and some of them were commencing to soften in the centre.

			On *Microscopic* examination, the deposit presented the usual appearances of the imperfectly developed exudation in the Typhoid condition, large clear irregular cells, with a greater preponderance of granular and molecular débris.
Private Jas. Vahez, aged 27 -	88th Gren. Com.	- -	This case was returned as Febris C. C. Inspection was made on July 8th. Thermometer, 78°. *Thorax.*—The lungs on both sides were much enlarged; the amount of blood contained in them was excessive. Posteriorly they were softened, and much engorged with a bloody serum, and their texture throughout was very friable, with entire absence of air in the posterior parts. The Heart was flabby, and the blood dark and fluid in its cavities and in the large vessels. *Abdomen; Intestines.*—Congestion of a dark livid character existed throughout the mucous membrane of the Ileum. Peyer's Patches and the solitary glands were filled with a whitish tawny exudation, which raised the Patches considerably above the mucous surface. Neither softening nor ulceration had commenced, but circles of intense vascularity surrounded both the Patches and the solitary glands. *Kidneys.*—Both of these organs had a tumid appearance; their tunics separated with ease, exposing a granular and highly congested surface. On section, the cortical substance was comparatively increased in bulk, its appearance coarse, fibrous, and granular. *Spleen* large, with deposits visible over its surface, of a dark purple colour. On section, its substance appeared granular but firm, and of a dark mulberry hue. The Mesenteric Glands were enlarged, with surrounding vascularity, and in some places were commencing to soften.
Private Geo. Symes - -	19th	3,420	In this case the only account to be obtained showed the chief characteristic features of the Typhous state; but the patient had been only four days at Scutari from the Crimea before his death. This case was returned as Febris C. C. Post-mortem examination on July 9th. Thermometer, 76°. *Thorax.*—The pleural cavity on the left side of the chest was filled with purulent effusion, so as to compress the lung to about two-thirds of its bulk. Both lungs were gorged posteriorly with dark-coloured blood, and the pulmonary texture throughout was in a softened and friable condition. On the anterior aspect of both lungs, on section, there were deposits of exudation marked on the surface of the pleuræ by considerable opacity of that membrane. Small pus-like exudations were here and there diffused throughout its substance. *Abdomen.*—The mucous surface throughout the Small Intestine was in a highly congested state, and the Patches of Peyer were intumescent from exudation, but not ulcerated.
Sergeant-Major Thos. Madden, aged 28.	L. T. C.	990	This patient arrived from the Crimea on the 28th October, with Fever of two months' date; no farther account being obtainable of his condition. Examined the day after his arrival; his pulse was small, weak, and wavering; well expressed maculæ were observable over the chest, back, and arms. The tongue was dry, leathery, brown, and excessively furred. Three days after admission his condition seemed to improve, his tongue and mouth becoming naturally moist, and some sleep was obtained. On the following day, however, sudden and violent purging commenced, with rice-water evacuations, but no cramps, coldness, nor sinking, and urine was passed in small quantity. The purging continued more or less during the two following nights and days, and he died on the 4th November, having been seven days in Hospital at Scutari. This case was returned as Common Continued Fever.

TABLE IV.—TYPHOID FEVER, 1 and 2, with Follicular Intumescence and Enteric Ulcers—*continued.*

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their chief post-mortem Appearances.
Sergeant-Major Thos. Madden, aged 28—*cont.*	L. T. C.	990	The body was much emaciated; the muscles were of a dark red. *Thorax.*—The lungs were bloodless generally, although congested behind. Fluid and dark blood was found in the heart and great vessels. *Abdomen; Intestines.*—There was excessive congestion throughout the mucous membrane of the Ileum. Peyer's Patches were highly congested and turgid with exudation, so also were the solitary glands; but neither ulceration nor softening was yet established. The specific gravity of one of Peyer's Patches was ascertained to be 1·035. The contents of this part of the Intestine were of a dark tar-like aspect. The Colon contained evidence of old ulceration from the Dysenteric process, its substance towards the lower part and in the rectum being greatly thickened and condensed. Small punched-out Ulcers remained with sharp edges and pale base, irregularly disposed on the mucous surface near the Sigmoid flexure. Vascular patches existed here and there throughout the rest of the mucous membrane, more especially expressed at the caput cœcum, where numerous solitary glands were found filled with exudation. The specific gravity of the mucous membrane of the Rectum was 1·044. Spleen weighed 5¾ ounces; its specific gravity was 1·058; three masses of condensed dark-coloured exudation existed along the anterior border of this viscus, the exudation consisting of granular matter and changed blood. The Kidneys were large, tumid, and friable, with comparative increase of the cortical substance. Weight, respectively, right 5¾, and left 5½.
Private Hugh Love, aged 25 -	L. T. C.	1,301	This patient arrived on the 28th October from the Crimea; it was ascertained that he had been in hospital since the 4th of June. The febrile condition, with considerable thoracic oppression, was well marked on his arrival at Scutari. He died three days subsequently. The case was returned as Febris C. C. There was considerable emaciation of the body. *Thorax.*—The left Lung was condensed throughout, and was of a bright red colour on section, and non-crepitant, except a small portion of the apex. The lower and posterior parts of the inferior lobe were in a similar condition, and the texture of both was friable. The Bronchial mucous membrane was highly vascular; its secretion tenacious, and in some parts purulent. The pulmonary artery contained a coagulum ramifying to its third and fourth divisions through both Lungs. The Bronchial Glands were much enlarged. *Abdomen.*—The mucous membrane of the Small Intestine was of a moist, velvety, not unhealthy appearance, but with considerable congestion here and there round Peyer's Patches. These were firm and prominent, but not unnaturally loaded. The specific gravity of a full firm Patch was ascertained to be 1·040. That of the mucous membrane of the Ileum, 1·036. The Jejunum was pale and bloodless; its specific gravity was 1·030. The mucous membrane

			of the Colon and Rectum was universally red, but there was no ulceration, except in the Rectum near the anus, where there were remains of a Dysentric process of old standing. The ulcers appeared to be in a contracting healing state. The mucous membrane of the Colon had a specific gravity of 1·037, that of the Rectum 1·038. The Mesentric glands were highly vascular. Their specific gravity was 1·037; that of a pale bloodless one, 1·033. The Parotid gland was in a state of suppuration, with excessive congestion amongst the interstitial tissue of the lobules; its specific gravity was 1·040. The Spleen was of very large dimensions, weighing 20 ounces. On section a softened exudation enclosed in a cavity with condensed walls was shown, extending over about two inches of surface. This exudation was of a yellow colour, and consisted of small cells and granular elements, chiefly of broken down exudative material. The rest of the substance of this viscus was firm in consistence, and of a mulberry aspect, with here and there little deposits of exudation in the crude state, similar to more crude portions of the large yellow softened mass. The capsule was smooth, opaque, and firm. The specific gravity of the organ was 1·046. *The Liver* was of a large size; weight, 96 ounces, of flabby œdematous fatty consistence, with congestion of the hepatic veins, which gave it a mottled appearance: its specific gravity was 1·043. *Kidneys.*—The left weighed 9½ ounces, the right 7 ounces; their tunics peeled off readily, leaving a mottled surface beneath from the stellate patches of venous congestion irregularly distributed over it, the intervals being extremely pale. Sections showed white fat-like deposition here and there in the cortical substance, which was greatly tumified. A piece much infiltrated with exudation had a specific gravity of 1·034; a piece less so was 1·036. Microscopically, this exudation was made up of epithelial cells, and of a large quantity of dark granular matter, with crystals of phosphates. The cells appeared to be the proper secreting cells of the gland altered by condensation and granular degeneration.
Private John Gregory, aged 20	6th Dragoons	- -	This case was admitted on the 6th, and died on the 28th of December. It was returned as Febris C. C. Examination on the day of death. Thermometer, 58°. *Cranium.*—The Arachnoid was opaque, with effusion underneath; the lateral ventricles were filled with serum, and the choroid plexuses much congested. *Thorax.*—Crude tubercle was deposited in both lungs to a limited extent. There was besides much congestion of the pulmonary tissues. *Abdomen.—Intestines:*—Irregular congestion of the mucous membrane existed. Peyer's glands were congested and intumescent, but there were no ulcerations. The entire mucous surface was speckled over with small spots of a vivid scarlet colour; some of the aggregate patches exhibited similar spots. The Sigmoid flexure of the Colon was much congested; there were no ulcerations, but in the upper part of the Rectum there was a called large isolated patch of lymphy exudation. This case was one in which, probably, the Scorbutic and Tubercular Dyscrases co-existed, the latter, probably, into operation by the influence of the Fever.
Private George Nicholas, aged 21	7th	3,735	Admitted on the 8th of July from the Crimea, and died on the 12th August, having been 34 days in hospital. This case was returned under the head of "Diarrhœa." The examination was made on the 12th August, the Thermometer being 70°.

TABLE IV.—TYPHOID FEVER, 1 and 2, with Follicular Intumescence and Enteric Ulcers—*continued.*

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their chief post-mortem Appearances.
Private George Nicholas, aged 21 —*cont.*	7th	3,735	*Cranium.*—There was slight congestion of the membranes of the Brain. *Thorax.*—The lungs were healthy, but their pleuræ exhibited old adhesions. *Abdomen.*—The Intestinal mucous surface generally was congested, and of a dark red colour. Peyer's Patches were deeply ulcerated, especially in the lower part of Ileum. These ulcers had greatly thickened edges with sloughy centres. The Spleen was greatly enlarged, hard, but easily broken up. Mesenteric glands were enormously enlarged.
Geo. Gray, aged 20 - -	2nd Bat. R. B.	4,457	Admitted to Hospital on 23d July, and died three days afterwards. This case was reported as one of "Common Continued Fever." Post-mortem examination, July 24th. Thermometer, 83° in dead house. *Cranium.*—Great congestion of the Pia Mater existed. *Thorax.*—Old adhesions of the pleuræ on the right side were found, with emphysema of the left lung. *Abdomen.*—Peyer's Patches throughout Jejunum and Ileum were in a state of softening and ulceration. In the Ileum, the softening and ulcerations were most extensive; in many of the ulcers, a brown slough in the centre, and well-marked raised edges were observed. The Mesenteric glands were much enlarged.
Driver James Corry, aged 21 -	R. H. A. C. Troop.	- -	Admitted to the Hospital on the 7th, and died on the 11th December. This case was returned as "Diarrhœa." Examination on day of death. Thermometer, 56°. *Thorax.*—Hypostatic congestion of both lungs. *Abdomen.*—The Small Intestines were most prominently the seat of disease. At the lower end of the Jejunum Peyer's Patches were very prominent, and surrounded with a well-marked ring of congested vessels. Throughout the Ileum the Patches of Peyer were largely ulcerated; these ulcers, in the majority of cases, being nearly an inch in diameter, with raised edges and brown central sloughs, and close to the cœcum the ulcerative action had laid bare the Peritoneum. The Solitary glands were prominent throughout the great Intestine, with some circular ulcers near the Cœcum. The Mesenteric glands were much enlarged.
Farrier John Eaton, aged 32 -	1st Dragoons	1,136	This patient was admitted to Hospital on 1st December, and died on 3d January 1856. The case was reported as one of Common Continued Fever. *Thorax.*—On Sectio Cadaveris there was found hepatization of the upper and posterior part of the right lung, the texture of which was generally congested and friable. The Bronchial tubes were filled with bloody frothy mucus. *Abdomen.*—Prominence and congestion of the Aggregate and Solitary glands were observable throughout the Small Intestine, and at lower portions of gut half the glands were ulcerated.

			The Colon and Rectum contained ulcers, and other remains of an old Dysenteric process. The Spleen was large and soft, and of a dark red colour, and its substance pulpy. Weight, 7½ oz. The Kidneys were of a dark red colour, with great congestion of their substance generally, and of the membranes of the calyces, pelvis and ureter especially. Weight, right, 5½ oz.; left, 6 oz.
Private William Foot, aged 28	13th L. Dgs.	133	Death and examination on 7th December. Thermometer, 56°. This case was returned as "Dysenteria Chronica." *Cranium.*—Nothing of note. *Thorax.*—Extensive vesicular Bronchitis pervaded both lungs, with scattered spots of lobular Pneumonia principally situated at the base of the left. *Abdomen.*—The Mucous Membrane throughout the upper portion of the Small Intestine was generally pale, with a few isolated patches of bright red congestion. In the lower portion prominent ulcers prevailed in the site of Peyer's Patches, covered with a tawny slough. Towards the Cœcum they increased both in number and size, varying from 1 inch to 1½ inches in diameter. No ulceration was found in the Large Intestine; its mucous surface was pale. Spleen, soft and dark-coloured, with friable tissue. Mesenteric glands enlarged.
Private David Prior, aged 20 -	17th Lancers	1,205	Admitted to Hospital on 21st July, and died three days subsequently. Reported as a case of "Common Continued Fever." *Cranium.*—Nothing of note; parts comparatively healthy. *Thorax.*—There was considerable Lobular Pneumonia of the right lung, and also some old pleural adhesions on the left side. *Abdomen.*—Peyer's Patches in some parts of the Jejunum, and throughout the whole of the Ileum exhibited various stages of softening and ulceration. The Mesenteric glands were much enlarged.
Private James Lindsay, aged 19	93rd	3,583	Contracted Fever in the Crimea about the latter end of August; he was admitted to Hospital at Scutari on 7th October, and died five days after; Thoracic oppression being the most urgent feature of the case. The disease was returned as "Pneumonia." The body was considerably emaciated. The mucous membrane of the lips presented a livid aspect. Within the mouth it was soft and turgid, the submucous glands being obscure, of soft consistence, and cellular in contents. *Thorax.*—The Lungs were adherent at both sides, collapsed unequally and insufficiently, the right remaining about double the volume of the left. Towards the lower part of the left lung the texture was œdematous, with excessive congestion of the Bronchial membrane, and frothy mucus filling the tubes. The right lung was consolidated throughout, and friable. The exudation appeared on section to be very uniformly infiltrated throughout its substance, consisting, microscopically, of granular and fibrinous elements, with abundance of exudative corpuscles, breaking up into molecular matter. A thin layer of yellow lymph covered the serous surfaces, and glued the lobes together. The specific gravity of the condensed and friable lung was 1·042.

TABLE IV.—TYPHOID FEVER, 1 and 2, with Follicular Intumescence and Enteric Ulcers—*continued.*

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their chief post-mortem Appearances.
Private James Lindsay, aged 19 —*cont.*	93rd	3,583	The Heart appeared normal; its specific gravity was 1·042. *Abdomen.*—The Mesenteric glands were enlarged, but not softened, except those connected with the Rectum. Their specific gravity was 1·040. *Small Intestines.*—In this part of the gut there were several ecchymosed spots and masses of gelatinous-like exudation, in patches scattered here and there over the mucous surface. Peyer's Patches were more or less loaded with exudation, the two lowermost being extensively ulcerated. The Solitary glands of the Ileum, also those in the vicinity of the Ileo-colic valves, were the seat of exudation, and some of them were in a state of slough, the mucous membrane throughout being generally thin and wasted. *The Colon* was the seat of numerous small ulcers arranged in regular lines throughout the sacculi of the gut. An extensive deposition of black matter existed throughout the mucous membrane, and was especially remarkable round the Solitary glands. The ulcers appeared in a healing state, the mucous membrane around them being soft and free from vascularity. No Dysenteric exudation existed. Towards the Rectum there was much thickening of texture with some exudation and ulceration, the result of a Dysenteric process. On Microscopic examination, the gelatinous exudation was found to be composed of hyaloid elements, enclosing numerous blood discs, while the exudation in the glands was, for the most part, made up of granular amorphous matter, no cellular elements being visible. The specific gravity of the mucous membrane not affected with exudation, both in the Colon and in the Small Intestine, was 1·038. *Kidneys.*—They were large, turgid, and soft, the cortical portion comparatively enlarged, and of a coarse granular appearance. Weight respectively, right, 6 oz.; left, 5½. Specific gravity, 1·040. *Spleen*, weigt, 5 oz., condensed with irregular masses of exudation, of a bloody appearance. Specific gravity, 1·052 to 1·059.
Private Robert Irvine, aged 19	93rd	3,560	Admitted under the head of Febris C. C. Death and examination on the 9th December 1855. Thermometer, 56°. *Cranium.*—Much congestion of the Cranial Sinuses was found to exist. *Thorax.*—Extensive vesicular Bronchitis of both Lungs throughout. *Abdomen.*—The mucous surface of the Small Intestine was covered with patches of bright red congestion; Peyer's Patches were prominent in the upper portion of the gut, and extensively ulcerated towards the Cœcum. These ulcers were large, with dark edges, and many of them covered in the centre with a tawny slough. A few small ulcers existed in the Rectum.
Corporal Fred. Sargent, aged 25	13th	1,746	Admitted on the 1st December, and died on the 10th of same month, having been nine days in hospital. Reported under the head of Common Continued Fever. Examination on day of death. Thermometer, 56°. *Cranium.*—Nothing of note; Brain and membranes healthy.

			Thorax.—Scattered spots of lobular Pneumonia existed in both Lungs. The Pulmonary tissue generally was affected with vesicular Bronchitis. *Abdomen.*—The mucous membrane of the Intestines, from the lower third of the Jejunum down, was highly congested, with marked prominence of Peyer's Patches. Throughout the lower third of the Ileum these Patches were all ulcerated, with great congestion of the mucous membrane surrounding them. The Mesenteric glands were much enlarged. Spleen much enlarged, soft, and easily broken down.
Trumpet-Major Thos. Johnston, aged 34.	12th Lancers	1,458	Was admitted to Hospital on the 30th November 1855, and died on the 22d of December. The case was reported as Common Continued Fever. The body was examined on the day of death, the Thermometer being 52°. *Cranium.*—There was much congestion of all the Sinuses of the Cranium, opacity and thickening of the Arachnoid, with considerable effusion of serum underneath it; congestion of the vessels of the pia mater, and some fluid in the lateral ventricles. *Thorax.*—A few old adhesions existed in the pleuræ of the left side. The mucous membrane of the Bronchial tubes was greatly congested. *Abdomen.*—General livid congestion of the Intestinal mucous membrane generally. Peyer's glands were prominent, but no ulceration was found. The Mesenteric glands were enlarged.
Private Luigi Calaptesta, aged 25.	L. T. C.	- -	Admitted on the 12th, and died on the 27th of December. Examination of the body on the same day. Thermometer, 58° in shade. *Cranium.*—A cyst like cavity existed in the anterior lobe of right cerebral hemisphere, about an inch cube, and filled with a yellow gelatinous fluid, some dense ligamentous bands running across it. The surrounding cerebral structure was healthy, and there was no affection of the contiguous bone. The Arachnoid was opaque, with effusion underneath. Pia mater congested; excess of serum in the ventricles, and congestion of the choroid plexuses. *Thorax: Lungs.*—Extensive sero-purulent effusion into the cavity of the left pleura; left lung bound down by partially organized lymph. Patches of lobular pneumonia throughout right lung. *Abdomen.*—General congestion of the Intestinal Mucous Membrane existed. Peyer's Patches were extremely ulcerated, the ulcers being large and circular, with dark coloured bases and raised edges.
Private Nicholas Flint, aged 28	13th Lt. Dgs.	1,758	This case arrived at Scutari from the Crimea on 16th September. On admission Diarrhœa was the most urgent symptom, combined with great Thoracic oppression. The marked features of Typhous Fever, with a papular eruption over the abdomen, chest, and thighs, rapidly expressed themselves; and delirium, with extreme prostration, preceded death, which took place suddenly five days after admission. The case was returned as "Catarrh." Examination on 21st September. Thermometer, 63°. The body was not much emaciated; but the sub-cutaneous veins were very marked throughout their course, from the changed and decomposing blood which they contained. *Cranium.*—The Brain and its membranes were highly vascular. Weight of Brain, 51 ounces. The specific gravity of the cerebellum and pons Varolii was 1·040, of central ganglia 1·035.

TABLE IV.—TYPHOID FEVER, 1 and 2, with Follicular Intumescence and Enteric Ulcers—*continued.*

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their chief post-mortem Appearances.
Private Nicholas Flint, aged 28 —*cont.*	13th Lt. Dgs.	1,758	*Thorax.*—The lungs were œdematous, and did not collapse to the usual extent; they were crepitant throughout, but irregularly congested through their substance; in some places the congestion amounted to actual engorgement, accompanied with softening and great friability of the tissues. The Bronchial membrane, through its whole course, was red and moist from the larynx to the ultimate ramifications, and the mucous glands of the larynx and trachea were loaded with exudation. The Tonsils were greatly enlarged, their follicles being distended with an exudation in all respects similar, in general and microscopic appearance, to that in the glands of Peyer, consisting of granular and cellular elements of very irregular forms and variable size. Their specific gravity was 1·047. *Abdomen.*—The mucous membrane of the Small Intestine exhibited a highly livid congestion throughout. *Peyer's Patches* were the seat of the most extensive morbid processes. They were loaded and even distended with exudation, throughout their whole extent. Their follicles were prominent with soft exudation, and loaded blood-vessels were seen ramifying through the substance of the Patches. The exudation consisted of very fine granular matter, with coarse cells of irregular shape and size. *The Spleen* appeared of the usual volume, but was soft; its section showed the parenchyma of a pulpy consistence and dark mulberry hue. *The Kidneys* were enlarged, and weighed respectively, the right 4¾, the left 5 ounces. Their surfaces were congested, and the cortical part appeared tumid and coarse. The pyramids were compressed, and had a bloodless whitish appearance towards the calyces, while the mutual margin of the tubular and cortical portions was highly congested. A granular fatty exudation was seen, on microscopic examination, to fill the tubes, which were irregularly varicose. The specific gravity of the cortical portion was 1·053, of the pyramidal, 1·051. The Mesenteric glands were enlarged and softened within their capsules. Their microscopic elements consisted of granules, cells, and softened molecular matter. Their specific gravity was 1·050.
Private Peter Skinner, aged 28	71st	3,375	This patient arrived with a number of invalids from the Crimea on 4th July; died on 7th. This case was returned as Febris C. C. Examination on 7th. Considerable emaciation existed, with marked change in the blood of the superficial veins. *Cranium.*—The parts were normal. *Thorax.*—The Lungs were highly congested posteriorly, and the pulmonary substance friable throughout, no limited exudation being apparent. The blood in the Heart and great vessels was fluid, and dark in colour; and the heart itself was soft and flabby. The *Bronchial glands* were enlarged, and the Bronchial mucous membrane of a red hue, and coated with viscid frothy mucus. *Abdomen.*—General enlargement of the Mesenteric glands, with livid congestion of the Mesentery and Intestines. The glands were surrounded with an increased quantity of blood-vessels tending towards them in a highly injected state.

			The Small Intestines appeared contracted, and of a dark hue. There was general vascularity over the mucous surface, and all of Peyer's Patches were in a state of intumescence with exuded material. In three of the Patches the exudation had softened, and ulceration was established. The Kidneys were congested, and the cortical substance enlarged.
Col.-Serg. Wm. Warrens, aged 31	77th	1,806	This patient had arrived some time previously from the Crimea, where he was said to have had Fever. Death took place suddenly. The case was returned as Febris C. C. Examination on June 18th. The Body was comparatively robust. The course of the superficial veins was marked on the skin by the fluid and dark-coloured blood which they contained, and which had undergone change. *Cranium.*—The Arachnoid membrane was much thickened, it was also opaque, and there was considerable increase in the subarachnoid fluid, both among the convolutions and at the anterior and posterior subarachnoid spaces. The substance of the Brain was firm and healthy. *Thorax.*—The areolar tissue throughout the mediastinal spaces, and especially that surrounding the great vessels passing to and from the heart, was infiltrated with an abundant sero-purulent exudation. *Lungs.*—The right lung was adherent to the parietes, more especially towards the apex. The pulmonic substance was in parts condensed, and in parts softened; the posterior portions were greatly congested. A section through the pulmonary substance showed granular exudation of a dull grey appearance, which in some parts seemed to be purulent. The left lung was healthy in texture, but much compressed upwards and inwards, towards the dorsal vertebræ and angles of the ribs. A cavity, circumscribed by new formations, extended across from the pericardial reflection at the root of the lung to the opposite costal wall of the left side, containing a large quantity of purulent fluid. Purulent and lymphy exudation coated the pleural surface of the lung. *Heart.*—This organ was healthy, and contained firm decolorized clots of fibrine. *Abdomen.*—In the Small Intestine remains of ulceration were visible throughout most of Peyer's Patches; a few of them were surrounded with a highly vascular ring of congested blood-vessels. Where ulceration had not destroyed the texture of the gland Patch, its surface was marked with distinct rings of black deposit, giving the appearance of a number of black dots, corresponding to the follicular apertures to the gland vesicles. A lens of low power rendered this opening visible. The mucous membrane of the gut appeared otherwise healthy. *Kidneys.*—The tunics were easily separable from the surfaces of these organs, exposing a soft, flabby, granular surface, marked with stellate congestion. The Kidneys were not increased in size, but relatively the cortical substance was much swollen, and had a coarse granular texture, with here and there a deposit of yellowish substance in the tubes.
Samuel Tannahill, aged 26 -	5th D. Gds.	1,285	This patient arrived from the Crimea in a very weak and emaciated state on the 20th of September. He continued in a low feverish condition for some time after admission, and suffered much from vomiting of an almost purely bilious fluid. For the most part he lay on his face, and appeared not to be sensible to pain on pressing any part of the abdomen. A Scorbutic-like eruption was visible on the legs. He remained much in the same state, the vomiting being the most troublesome symptom, till the 7th of October, when severe Diarrhœa set in, with aggravation of the febrile condition, and he gradually sank. Death took place on the 12th of October, twenty-two days after his arrival at Scutari. The case was returned as Febris C. C.

TABLE IV.—TYPHOID FEVER, 1 and 2, with Follicular Intumescence and Enteric Ulcers—*continued.*

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their chief post-mortem Appearances.
Sameul Tannahill, aged 26—*cont.*	5th D. Gds.	1,285	Examination on day of death. Thermometer, 63°. The body was greatly emaciated. Scorbutic marks and blood stains appeared on the skin in the course of the superficial veins. *Thorax.*—The Lungs were nearly crepitant throughout. The right was engorged posteriorly and friable. The Heart was small; the blood, fluid and dark, both in its cavity and in the great vessels. *Abdomen.*—The Mesenteric glands were enlarged throughout the whole extent of the mesentery; their specific gravity was 1·013. Intus-susceptions existed at three different places throughout the course of the Small Intestines, but no lesion of an inflammatory type was to be seen, either on the peritoneum or in the substance of the Intestine at these parts. These appearances, probably, came on at the moment of death, or immediately after it, and they have always been seen in those cases in which there has been great pain during life, and ulcerations in the bowel have been found post mortem. The Intestinal mucous membrane throughout was thin and wasted, congestion with ecchymosis being visible at different parts on its surface; its specific gravity was 1·037. The Stomach also was similarly congested, thin, and worn. *Peyer's Patches* looked as if abraded, showing ecchymosed spots on the site of the gland substance, with melanotic deposit and ulceration. The specific gravity of Peyer's Patches, when congested and turgid, was 1·044. *The Colon* throughout was studded with small ulcers, confined chiefly to solitary gland spots, while the general substance of the mucous membrane was thin and worn. No evidence of the Dysenteric process existed. The specific gravity of the mucous membrane of this Intestine was 1·039. On *Microscopical Examination*, the mucous membrane of the Small and Large Intestines was in a state of atrophy from wasting of the follicular glands, whose contents appeared granular; there was also general granular and fibroid degeneration of the mucous tissue. Kidneys, weight respectively, right 5¼ and left 5¾ ounces. Venous congestion on the surface. The capsule peeled off easily at some points, and there was also congestion of the general parenchyma. The cortical part was tumid, but without any definite deposit.
Private Jos. Cutts, aged 22 -	38th	3,583	This case was received into hospital at Scutari on the 26th September 1855; having been three weeks in hospital in the Crimea, where he is stated to have had diarrhœa. After admission he had occasional epistaxis, with much fever and hurried respiration. On admission increased heat was appreciable over the abdomen, with tympanitic distention. About three days after admission pneumonic symptoms were manifested, the sputa presenting the "rusty" appearance for one day. The thoracic oppression became more severe, and during four or five days before death the fæcal discharges were of a black and tar-like nature. His pulse became tremulous, rapid, and thready; the abdomen continued hot, but the patient was unconscious of pain. He replied to questions by short, abrupt answers. His countenance became pale, pinched, and anxious, and he died on the 14th October. Post-mortem examination about six hours after death. Thermometer 65°.

				There was great emaciation, with rapidly advancing decomposition of the body, the blood being greatly changed in the superficial veins; air or gas was already present in the areolar tissue. *Thorax.*—The pericardium contained an increased quantity of bloody serum. *Lungs.*—Extravasation of blood had taken place into the pulmonic tissue of the right side to a very marked degree. On the left side the lung was adherent, and the substance of both was greatly gorged, especially on the posterior aspect. They were soft and friable throughout. A dark clot of blood was found in the heart; decomposition of the blood had rapidly advanced, and the tunics of the large arteries were dyed from ts colouring matter. *Abdomen.*—The Mucous Membrane of the small Intestine was thin and wasted, the lowermost Patches of Peyer being ulcerated to a great extent, while the remainder throughout the Ileum and Jejunum were in various states of infiltration and softening, with great injection of the blood-vessels round the margins of the Patches. The specific gavity of three was taken; they were respectively 1·032, 1·036, 1·039. *The Liver* was soft, with marks of degeneration irregularly scattered over the greater lobe. The weight was 43 ounces; its specific gravity, 1·020. Spleen large; specific gravity, 1·048, with extensive subcapsular deposit, of a yellow, soft texture, and granular. The Kidneys were in the state of cortical engorgement, and weighed respectively, the left 5½ ounces, the right 5¼ ounces.
Corporal Richard Toogood, aged 28.	4th L. Drgs.	-	-	Only nine months service, sent sick from the Crimea, and admitted to hospital on 2nd Sept. 1855. The case was entered as one of "Diarrhœa." The day after his admission he voided five or six thin but fæculent stools, without blood or mucus. There was great general weakness and emaciation. By a medical board of the 16th September, he was invalided and ordered to be sent to England, but on the 21st feverish symptoms were again established with marked severity; frontal headache, delirium, and rapid pulse were the most marked features; Coma supervened, and death took place on the 24th, three days after this febrile accession. Examination was made on the 25th. Thermometer 65°. The body was greatly emaciated. *Thorax.*—Extensive pleural adhesion existed at the right side. There was much general engorgement of the pulmonary tissue, its substance being friable. The Lung was crepitant throughout, a small portion towards the apex and anterior edge alone excepted. *Heart.*—Healthy; blood fluid and dark in the heart and great vessels. *Abdomen.*—The Spleen was enlarged, soft, and of mulberry-like hue. The Kidneys were congested, and presented great relative enlargement of the cortical substance. They weighed respectively, the right 4¾, and the left 5 ounces. Excessive enlargement of the Mesentric glands, with softening in some of them, was observed. An intus-susception existed in the small gut, without any inflammatory action. The general surface of the Mucous Membrane was highly vascular. Peyer's Patches throughout were in various stages of morbid action. Towards the lower part of the Ileum more especially, ulceration had advanced in the Glands to a considerable extent, leaving in some parts a clear reticulated appearance, like what remains after the apthous sloughs of follicles have separated. Towards the upper portion of the Intestine the Patches were gorged with exudation, but had not yet commenced to break up or ulcerate.

TABLE IV.—TYPHOID FEVER, 1 and 2, with Follicular Intumescence and Enteric Ulcers—*continued.*

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their chief post-mortem Appearances.
Lance Corporal Geo. Euston, aged 26.	90th	2,587	This patient was said to have had Dysentery after Fever in the Crimea; died at Scutari, October 16th; case entered as Common Continued Fever. Examination on day of death. Thermometer, 68°. *Thorax.*—Pleural adhesions on the right side; the posterior half of this lung was consolidated, and the bronchial tubes were filled with fluid exudation. In the left lung the ultimate air-cells appeared to be distended so as to form lobular nodules, filled with exuded matter, throughout the substance of the lung tissue. The pulmonary artery contained a fibrinous coagulum, extending to the finer ramifications of the vessel. *Abdomen.*—The omentum was adherent by extensive old vascular connexions. The stomach was highly vascular on its peritoneal surface. The mesenteric glands throughout were excessively enlarged, and some of them softened: their specific gravity was 1·039 to 1·042. *Small Intestine.*—Peyer's patches were universally implicated, and had commenced to ulcerate at the lower part of the gut. The specific gravity of these patches was ascertained to be 1·038 to 1·042. Partial peritonitis had existed, corresponding to one of Peyer's patches in the Jejunum, where perforation had almost taken place. A thin and worn condition of the mucous membrane, both in the Colon and Small Intestine, was found associated with a general atrophy of the Follicular glands. The specific gravity of the thinned portion was 1·037. *Colon.*—There existed extensive ulceration, the remains of an old dysenteric process, in this intestine. Its mucous surface was sprinkled over with a considerable amount of melanotic deposit. *The Spleen* was soft and flabby, weighing 8 ounces. Its specific gravity was 1·058. *The Liver*, was of large size, was soft and flabby, and weighed 60½ ounces. Its specific gravity was 1·054. *Kidneys.*—The right weighed 5¼ ounces, the left 5½ ounces. There was a great enlargement of the cortical substance, and much congestion around the pyramids, with venous congestion on the surface, and softening and adhesion of the tunics. Their specific gravity was about 1·037.
Private Joseph Hewins, aged 30	10th Hussars	1,168	Admitted to hospital on the 2nd August, and died on the 24th of the same month. He was reported as a case of Common Continued Fever. The examination was made on the day of death. Thermometer, 81°. *Cranium.*—The brain and membranes healthy. *Thorax.*—Heart and lungs healthy. The lesions were chiefly intestinal *Abdomen.*—The Mucous Membrane of the Small Intestines, and especially the Ileum, exhibited numerous scattered points of depressed ulceration, about one-sixteenth of an inch in diameter; on the outside of these ulcers a deep ring of congestion, of a blackish red colour, was observable. Towards the Cœcum these ulcers increased in size and frequency. Posterior to the cœcum there was a large abscess filled with fœtid grumous pus, which extended from the Vermiform process (which itself adhered to the Cœcum) to the middle of the ascending Colon, being imbedded in the sub-peritoneal tissue.

Private Moses Ewens, aged 23	44th	2,929	This patient had but recently arrived from the Crimea, where he had been long sick. The case was returned as "Diarrhœa." Death and examination on September 14th. Thermometer 69°. There was general yellowness of the skin and viscera. *Thorax.*—The Pulmonary tissue was œdematous, but presented the usual collapse of the lungs on opening the cavity of the Pleuræ. There was also much congestion towards the posterior part of the lungs, which presented here and there blue livid patches over the suface of the Pleuræ. Exudation of blood has occurred here and there into the tissue, and constituted large so-called Apoplectic clots. The Heart was soft and flabby. *Abdomen.*—The peritoneal surface of the Ileum was of a dark purple colour, especially remarkable towards the Cœcum. Peyer's Patches throughout were for the most part bare and worn away. In one a small circular mark, with a smooth skin-like surface, showed the remains of a perfectly healed ulcer. Extensive congestion existed round the margins of all the Patches, and the mucous membrane generally exhibited on section a good deal of follicular wasting. Patches of ecchymoses also covered the surface of the stomach, which was thin and worn, and much contracted. The Colon was thin, its solitary follicles distended with exudation, which consisted of fine clear nucleated cellular elements, surrounded with great vascularity. *Kidneys.*—The left increased to nearly twice its volume, weight 10 ounces; the left less, but weighed 8½ ounces. The enlargement was considerable, but irregular in both, the cortical substance being excessively swollen, with a coarse granular appearance and great congestion of the pyramids. The Mesenteric glands throughout were enlarged.

TABLE IV.—*continued.*—TYPHOID FEVER, 3, ASSOCIATED WITH OTHER DISEASED PROCESSES.

Private Frank Osborne, aged 24	13th L. Drgs.	- -	Admitted 4th September, and died 27th of same month, having been 23 days in hospital; case reported as Common Continued Fever. The body was examined on the day of death. Thermometer, 63°. *Cranium.*—Some serum was found effused under the Arachnoid; the vessels of the pia mater were greatly congested. The Lateral and third ventricles were distended with serum. *Thorax.*—Capillary Bronchitis prevailed throughout both lungs, with spots of lobular Pneumonia, and a few miliary tubercles in the apex of the left. *Abdomen.*—Ulcerations of Peyer's glands were common throughout the gut, involving all the tissues, and extending close to the peritoneum; the ulcers increased in size and number as they approached the Cœcum. In the Large Intestine, small ulcers with dark red edges were dotted through the entire tract of the mucous membrane.
Private William Revil, aged 19	3rd Bu s	3,017	Admitted on 10th September, and died on 3rd October, having been 22 days in hospital; reported to have Common Continued Fever. Examination on the day of death. Thermometer, 62°.

TABLE IV.—TYPHOID FEVER, 3, associated with other Diseased Processes—*continued.*

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their chief post-mortem Appearances.
Private William Revil, aged 19 —*cont.*	3rd Buffs	3,017	*Cranium.*—Much serum was effused under the Arachnoid; and the vessels of the pia mater greatly congested. The ventricles were also found greatly distended with serum, about 6 ounces. There was considerable congestion of the choroid plexus. *Thorax.*—The anterior and superior portions of both lungs were affected with vesicular Bronchitis, the posterior and inferior parts being in a state of hepatization, the exudation extending to the centre of either organ. *Abdomen.*—Throughout the upper half of the Small Intestine, Peyer's Patches were greatly congested, and of a dark red colour; in the lower half, these glands were converted into large ulcers, with thickened edges of a brown colour, depressed centres, and reddish sloughs at the base, the tissues being destroyed in some instances down to the peritoneum. Some old Dysenteric ulcers existed in the Colon.
Gunner James Leister, aged 22	R.A. 3rd Bat. 6th Company.	- -	Admitted to hospital December 10, and died December 29. This case was returned as "Dysenteria Chronica." Sectio Cadaveris on the day of death. *Thorax.*—The Lungs showed extensive vesicular Bronchitis, with general hypostatic congestion. *Abdomen.*—The lower fourth of the Ileum exhibited a state of very livid congestion, and close to the ileo cæcal valve there was one large patch of ulcerated glands, involving at least three inches of the gut. These ulcers had raised edges, with a brown slough in the centre, and were of an oblong shape. Throughout the Colon and Rectum the entire mucous tract was studded with numerous ulcers, laying bare in some places the peritoneum. The Mesenteric glands were much enlarged.
Driver James Cooke, aged 25 -	R. H. A. A. Troop.	- -	Admitted to hospital on July 28th, and died three days after admission. The case was reported as "Febris Remittens." The body was examined August 1st. Thermometer, 81° *Cranium.*—Parts healthy. *Thorax.*—Parts normal. *Abdomen.*—In the Small Intestines the upper portions of the Jejunum and Ileum appeared healthy, but the mucous surface of the rest of the Ileum was congested, especially in the vicinity of Peyer's Patches which were in a state of extreme ulceration, and of a dark red colour. The ulcers varied from one quarter to two-thirds of an inch in diameter, had greatly thickened edges, and in many places had destroyed the muscular coat, and on the peritoneal aspect of the gut yellow lymphy exudation was effused. *Colon.*—Ulcers, the remains of an old Dysenteric process, were visible in the lower part of this Intestine. The Mesenteric glands were considerably enlarged.
Private Edward Booley, aged 20	19th	3,303	Admitted on the 28th August, and died on the 12th September, fifteen days after admission; case reported as Common Continued Fever. The body was inspected on the day of death. Thermometer 81°. *Cranium.*—Parts healthy.

			Thorax.—At the posterior part of the upper lobe of the right lung the pulmonary tissue was extremely hepatized, numerous spots of lobular Pneumonia being also here and there scattered through the substance of the organ; much congestion, with frothy serum, pervaded the lung generally. *Abdomen.*—Throughout the Ileum there were numerous and extensive ulcerations of Peyer's glands, very various in dimensions, pale in colour, and with thickened edges. They were covered with a yellow tenacious slough. In the Colon large ulcers existed throughout its whole tract; they were of old standing, pale, and as if punched out of the mucous membrane. The Mesenteric glands were enlarged, and of a blueish red colour.
Private James Walton, aged 26	18th	3,372	Was brought to Scutari from the Crimea, a convalescent from Typhoid Fever. At that time his stools contained a great deal of blood and mucus, were frequent, copious, of a liquid nature and brown colour, "pea-soup" coloured. This condition was partially checked, but, returning with more or less violence at irregular intervals, he at last sunk, about four months after his arrival from the camp. The case was returned as Febris C. C. Sectio Cadaveris was made on the 19th July. Thermometer, 74°. The body was excessively emaciated, and large bed sores existed over both trochanters. *Cranium.*—The Brain appeared somewhat shrunken under its coverings, which were wrinkled over the convolutions, notwithstanding an extensive sub-arachnoid effusion of clear serum. The pia mater was injected to a great extent, and not easily separable from the cerebral surface. *Thorax.*—The lungs were healthy, but the heart was small and atrophic. *Abdomen.*—The Patches of Peyer throughout the Small Intestine were the chief seat of morbid action. The upper sets bare and atrophied, those in the middle part still tumid with exudation, while those lower down in the Ileum, especially towards the Colon, were in various stages of ulceration, and surrounded with rings of great vascular injection. *The Colon* throughout was very much contracted. Extensive ulceration prevailed at the lower part of the Sigmoid flexure, combined with diphtheritic exudation towards the Caput cœcum. There was also great thinness and wasting of the mucous membrane of the Large Intestine, with intumescence of the Solitary Glands, surrounded by a highly vascular circle of congested vessels. The Mesenteric glands throughout were greatly enlarged, with much congestion of those in the region of the Ileo-colic valve and head of the cœcum.
Private James Gillings, aged 24	1st Batt. R.B.	- -	Arrived from the Crimea on the 27th July; this patient died nine days after admission into hospital. This case was returned as "Diarrhœa." Examination on day of death. Thermometer, 80°. The body was much emaciated. *Thorax.*—The Blood in the heart and large vessels was fluid and dark. The heart was flabby and soft. *The Lungs* were marked throughout with much congestion, more or less hypostatic. The pulmonary substance was generally friable. Exudation of large and dense masses was scattered here and there throughout the substance of the right lung, and some of these masses were apparent on the pleural surface by a bounding line of irregular shape and livid hue, and by opacity of the pleura. Microscopically, this exudation consisted of large irregular, broken-down cells and granules, with granular epithelial-like secretion. *Abdomen.*—There was much congestion of the Omentum and Mesentery, with general enlargement of the mesenteric glands.

TABLE IV.—TYPHOID FEVER, 3, associated with other Diseased Processes—*continued.*

Name of Patient.	Regiment.	Regimental Number.	Summary of the History of the Cases and of their chief post-mortem Appearances.
Private James Gillings, aged 24 —*cont.*	1st Batt. R.B.	- -	The mucous membrane of the Small Intestine was highly injected, especially throughout the Ileum; Peyer's Patches were ulcerated throughout, those of the upper part of the Intestine being more in the softening than in the ulcerating stage, while in the lower part the process of ulceration was completely and extensively established. The Large Intestine also was the seat of ulceration in its whole extent, which seemed to be more or less the result of an old Dysenteric state. The Kidneys were enlarged, and highly vascular; their cortical substance was soft and swollen.
Private Fred. Pike, aged 22 -	L. T. C.	2,997	Admitted on the 11th December and died on the 16th, having been only five days in hospital, the most urgent symptoms being Dysenteric. Examined on day of death. Thermometer, in shade, 39°. *Cranium.*—There was much congestion of the membranes of the Brain, with effusion into the ventricles. *Abdomen.*—Peyer's Patches were prominent throughout with exudation, but ulceration was only established in those of the lower half of the Ileum. In this part all the ulcers were extensive, surrounded with greatly congested vessels. They were generally large, circular, and shallow; of a brown colour, with elevated margins. They were most numerous close to the Colon. The entire tract of the mucous membrane of the Large Intestine was covered thickly with large deeply excavated ulcers, of a greenish black hue, and with a red centre. The mucous membrane generally appeared to peel off without any difficulty. In the Rectum extensive large black ulcers were found; but little trace of the mucous membrane was left. The Mesenteric Glands were much enlarged.
Sergeant Wm. Jeaffrey, aged 22	72nd	2,766	Admitted on the 2nd December 1855, and died on the 22nd of the same month, having been twenty days in hospital. The case was reported as Common Continued Fever. Post-mortem examination on the day of death. Thermometer 52° in shade. *Cranium.*—There was great congestion of the vessels of the Pia Mater, of the Sinuses, and of the Choroid Plexuses. The lateral ventricles were distended with serum. *Thorax.*—A few old adhesions of the pleuræ existed on the left side. The posterior part of the right lung was hepatized, and the left was affected extensively with vesicular Bronchitis, the tubes being filled with frothy serum. *The Heart* was large, pale, and flabby. *Abdomen.*—Peyer's Patches were in various states of morbid action. They were prominent above and towards the lower portion of the Ileum; they were extensively ulcerated, the ulcers being of circular form, and of a glossy red hue, with now and then an ash-coloured slough at bottom. The Colon and Rectum were the seat of numerous long fusiform dark-coloured ulcers. *Kidneys* greatly enlarged; weight of right 10½ ounces, of left 13 ounces. They were soft, mottled on the surface, of a mixed red and yellow hue, the capsule easily detached; cortical portion, coarse, granular, and enlarged; tubular part deeply congested. The spleen was large, soft, and easily broken down.

Pathological Anatomy of Typhoid Fever.

In considering the evidences which have been presented to us in regard to the Pathological Anatomy of Typhoid Fever, the following subdivisions of the subject seem proper :—

1. The Pathological Anatomy of Typhoid Fever fatal in the earlier periods.
2. The Pathological Anatomy of Typhoid Fever fatal in the more advanced periods.
3. The Pathological Anatomy of Typhoid Fever complicated with other diseased processes.

Pathological Anatomy of Typhoid Fever fatal in the early Stages.

The earliest period at which we have known characteristic changes to be presented in the Abdominal Organs was about the 8th or 9th day. One case occurred during the period at which the Relapsing Fever was prevalent. The patient had had a short Fever. This was succeeded by a second attack which terminated fatally by the 8th or 9th day. The Intestines were found deeply congested, and together with the Mesentery, presented a general blueish red colour. The Ileum was chiefly engaged, and more especially in its lower half. Some of the upper Patches of Peyer were a little prominent and swollen. These characters became gradually more developed towards the termination of the Ileum. In the lower third, the solitary glands were immensely enlarged, conical, and prominent, some of them being as large as the biggest peas; they were of a mixed reddish and yellowish colour. The lower Patches of Peyer were from an eighth to a quarter of an inch prominent, of a deep brown red colour, and their individual glandulæ were much swollen. Some of the glands of the Colon likewise were enlarged. On section the intumescent Follicles of the Ileum still presented the mixed reddish and yellowish colour; their contents were of pretty firm consistence, and nowhere presented any indication of commencing softening. The Mesenteric glands were greatly enlarged, some to the size of kidney-beans, and deeply congested with lymph. This may be looked upon as perhaps an extreme case of glandular infarction with the secondary deposit, proving fatal before any attempt at elimination and consequent ulcerative action could take place.

In the next case the still more advanced condition will be found, in which the eliminative and ulcerative process had proceeded to the entire destruction, and even sphacelus of the glandular textures.

The most marked case of fatal result at an early period is that already partially alluded to. Death took place on the tenth day after admission into hospital, and in all probability within twelve or fourteen days from the first invasion of the disease; the great effects of the morbid process were found in the Abdominal cavity. Throughout the Ileum the most extensive ulceration of Peyer's Patches existed, in some with total destruction of all the tissues of the Intestine. In two or three of the lowest of the Patches the sphacelus of the tissues was so complete, that after opening the Intestine the ash-coloured sloughs corresponding to the site of the glands became detached, large oval apertures being left. Perforation had occurred, (probably two or three days before death,) and extensive peritonitis existed, the viscera being glued together by recent lymph. It may be worth while to recall here again the statement furnished in the clinical history of this case, to the effect that the bowels were regular, and that there was no complaint of pain in the abdomen till within two or three days before death. In some few other cases we have met with this intense destructive process in the tissues of the Aggregate Glands, but it was as the result of a much more chronic process of disease. Of the very low type of the disease, a good example was presented in a case which occurred during the month of August. The patient was admitted on the 2nd and died on the 16th. Diarrhœa was present from the first, and continued throughout; there was also some vomiting. Much nervous irritability, attended towards the close with violent and almost constant subsultus tendinum; pain and gurgling were observed in the Ileo-cœcal region, and bed sores were already established. On post-mortem examination, general enlargement, prominence, and frequent ulceration of the Solitary Glands of the Intestine were found. There was very extensive ulceration of Peyer's Patches. The Mesentric Glands were enlarged, and much congested. The other viscera of the Abdomen were not characteristically affected.

The particulars of another case are worthy of being specified. The patient had short Fever of seven or eight days' duration, from which he convalesced sufficiently to enable him to leave hospital and return to duty, but he was re-admitted on the third or fourth day, when Fever of low form became developed. It is stated that he had bloody stools on admission, and about the 10th, 11th, and 12th days of his illness he was affected with diarrhœa, but without the least attempt at crisis. Henceforward in the disease, this symptom, though present, was not constant or marked, nor were there any particular symptoms to draw attention to the abdomen. A very extensive bronchitic affection became developed subsequently, assumed a very formidable character, and was probably the more direct cause of death, which occurred about the 25th day from the date of the second admission. Bed sores had formed sometime previous to death.

On post-mortem examination, circumscribed Pleuritis, with recent lymphy exudation, was found in both Pleural Cavities. The Bronchial tubes were filled with copious viscid secretion, extending throughout their minutest branches. Intense congestion was found in the abdominal cavity, both in the omentum and in the serous surface of the Alimentary Canal. The Small Intestines were deeply injected, in several places greatly contracted,

presenting a quadrangular form, and in some points diminished to fully one-fourth of their natural calibre.

The Ileum was much congested, and presented numerous deeply eroded ulcerations, chiefly corresponding to Peyer's Patches, which were completely eaten away down to the muscular coat. This was most remarkably the case in the last three or four Patches; the erosion being complete down to the muscular structures, which lay bare, red, and dry; the borders of these ulcerations were thick, and in some parts elevated, generally exceedingly angular and irregular. There were besides several minor erosions, corresponding to the site of the Solitary glands; the intervening Mucous Membrane was thickened, and of a dark bluish red. In the Colon, numerous but more regular oval-shaped ulcerations were found, the mucous surface remaining flush to the edge of the ulcer. Towards the Sigmoid flexure there was some evidence of a Dysenteric process. The Mesenteric glands were much enlarged, and many of them had undergone a process of cheesey softening. The Kidneys, Spleen, and Liver were somewhat enlarged and congested, but presented no characteristic change.

These cases, few, but well marked as they were, will serve as a type of those which have been observed by us; but it must be stated that there were but few in which changes of so advanced a character were found at such an early stage.

The first case is, perhaps, that which illustrates best, though in a very exaggerated degree, the primary character of the special Lesion which accompanied this form of Fever. In few examples of the disease, under any circumstances, have we seen the secondary Enteric affection developed to so marked an extent within so short a time; while the next case showed the rapid and profound character of the ulcerative action connected with the elimination of the deposit, presented occasionally in others. Perhaps few more marked examples than these could be readily adduced.

It was not commonly, however, that the changes connected with the Secondary Lesion of Typhoid Fever were observed to take place with such rapidity. It is probable that the deposit in the Follicular Apparatus of the Intestines chiefly occurred, as seems usual under other circumstances, during the primary stages of the disease; but that the changes connected with its elimination and the consequent processes of ulceration were not set up till a subsequent period. The occurrence of these changes was more or less distinctly separated by an interval of time, and of partial convalescence, from the primary attack. A distinct re-establishment of febrile symptoms, with or without diarrhœa, and occasionally with abdominal pain or tenderness, seemed to indicate and to be connected with the immediate occurrence of this ulcerative process.

We now proceed to consider the—

Pathological Anatomy of Typhoid Fever fatal in its more Advanced Periods.

Death has not infrequently occurred at advanced but variable periods after the primary Fever, in cases which, on post mortem examination, showed a still comparatively early and immature condition of the secondary deposit in the Intestines. In these cases the morbid appearances were chiefly confined to the Ileum, and most commonly the lower part of this Intestine only was engaged; more or less extensive congestion of a dark livid character existed throughout the mucous membrane of this Intestine, visible both on the peritoneal and the mucous surfaces. The solitary Follicles and the Patches of Peyer were found in a state of active turgescence, partly from exudation into the Follicles, and partly from much increased vascularity in and around individual Follicles and Patches.

The infiltration into the Follicles varied a good deal in appearance; it was sometimes of a creamy white colour, while in other instances it was much darker. In this stage it was generally pretty consistent, and showed no disposition to soften or break up; consequently no traces of ulceration were visible. It was found on microscopic examination to consist of imperfect cells and granular matter.

We have met with some instances in which the Follicular Glands of the Colon participated in the condition presented by those of the Ileum. The mucous surface of this Intestine has been found dotted over in a very remarkable manner with the minute dark orifices leading to the solitary vesicular glands. For the most part these little organs were in a state of intumescence, felt hard under the finger, and on microscopic examination were found to be filled with an exudation consisting chiefly of very fine minute cells and granular matter.

There is reason to believe that in many of these cases the Typhoid action had been pretty generally diffused in the system, though it had not advanced in what may be termed its seat of election, namely the Follicular Glandular Apparatus of the Small Intestine, to a very marked degree. Thus, though the deposit in the solitary and aggregate glands had not proceeded beyond the conditions of intumescence and infarction just noticed, we have found in many such cases affections of the Mesenteric Glands, the Spleen, the Kidneys, and in some instances the Lungs.

Mesenteric Glands.—Enlargement of the Mesenteric Glands, as has been more than once before observed, was so commonly found as a post-mortem condition, that it is deprived of at least some portion of the interest which it might otherwise have in these cases. In Typhoid cases the glands have been invariably enlarged, sometimes to the extent of three

or four times their ordinary volume. They were usually deeply injected, highly vascular on section, and occasionally softened within.

Spleen.—In some few instances of the class of cases now under consideration (infarction of the Follicular Intestinal Glands, but without ulceration), deposit has been found in the Spleen. More commonly in this stage the changes in this viscus have been confined to enlargement and increased vascularity, with a deep mulberry tint, and pulpy consistence of its texture.

Kidneys.—In the Kidneys, increase in size and vascularity, with friability of the textures, have been commonly produced, even thus early.

Lungs.—In the Thorax, engorgement, with friability of the substance of the lungs, extensive Bronchial affections, and sometimes actual exudation into the pulmonary texture, have accompanied the intumescent state of the Solitary and Aggregate Glands of the Intestine.

In these cases, the exudation into the Lung has been very different in character from that of ordinary inflammatory origin. It has been soft, sometimes of a dirty, half gelatinous, half grumous, material. There has been no uniform condensation of any of the lobes. The pulmonic texture exhibited in some places a sanguineous engorgement, with general infiltration of a bloody serum. In other cases the anterior aspect of both lungs on section exhibited deposits of exudation, the site of which was indicated on the surface of the pleuræ by considerable opacity of the membrane. In the neighbouring tissue, in such instances, portions of the exuded material seemed passing into a gangrenous state; in other parts pus-like exudations were here and there diffused throughout the substance of the Lung. In similar cases considerable pleuritic effusion existed on one or both sides. In other parts, imperfect exudations, as already noticed, were to be found; but, neither in any one case, nor in a series of cases, did the pulmonary complication present in either or both Lungs, or even in contiguous parts of the same Lung, any uniformity of character, or anything well defined either in its nature or extent. Ill-defined pleural exudations of low type have likewise been found, usually connected with some of the forms of pulmonic engorgement just mentioned. So far the absence of special character lends support to the view which associates the pulmonic lesion in these cases with the other secondary diseased processes due to the Typhoid Dyscrasis.

Pathological Anatomy of Typhoid Cases with Enteric Ulcerations.

State of the Follicles and Patches.—It would be difficult, if not impossible, to define the periods during which the state of intumescence and infarction of the Minute Glandular Apparatus of the Intestines existed without proceeding to ulceration. Very remarkable cases will be found in the accompanying Table (Table IV.), in which complex processes of disease, and amongst them the deposit in question, seemed to have extended over several months. In one instance, in which sudden death took place from rupture of an aneurism, towards the end of the second month from the first attack of Fever, Peyer's Patches were found remarkably tumified; but the deposit was not uniformly disseminated in the individual gland Patches. Thus, towards its extremities, and in irregular little masses in its centre, a Patch would be found to present groups of its vesicles excessively distended with milky contents. Other portions of the same Patch were found completely bare, the numerous little vesicular cavities seemed as if evacuated and collapsed; and this portion of the gland was in an atrophic state, but presented numerous melanotic spots, evidencing its previous engagement in a process probably similar to that which still occupied the remainder of the Patch.

From appearances resembling those here described, and which we have not infrequently met with, taking into account more particularly the indications of pre-existent states of vascular activity furnished by the melanotic deposit, there seems very good reason for believing that an elimination of the Typhoid deposit occasionally occurred independently of ulcerative action. Whether this was brought about by the absorption or internal softening, with partial solution of the contents of the vesicles, and the subsequent expression of the exudation from the gland cavities, either by a process of contraction in their walls, or by the aid of the contractions of the contiguous parts of the muscular coat, we know not. It is possible, however, that some such process takes place. It may be farther observed, that an atrophic state, with melanotic spotting of some of the Patches, was not uncommonly associated in the same case, and it may be even in different parts of the same Patch, with advanced ulcerative action in other parts. Whichever process be adopted in the elimination of the deposit, the function of the Solitary Follicular gland or the Aggregate Patch affected with the Typhoid matter, seems in all cases to be permanently destroyed. At least, we have constantly found any traces which could at all probably be regarded as the result of a process of elimination which had occurred independently of ulceration, to be attended with complete collapse, degeneration, and atrophy of the Glandular Apparatus concerned.

There can be little doubt, however, that such atrophic and degenerative changes are accompanied by far less danger to the patient than those of the ulcerative kind; for it is at least highly questionable that any considerable proportion of cases in which this form of Enteric Ulceration has been once established, ever admits of a complete cure. As will be subsequently shown, it is only in the very rarest instances that the cicatrices of such ulcers have been found by us on post-mortem examinations.

The Therapeutic indications arising out of the above Anatomico-Pathological considerations, are as invaluable as they are unmistakeable.

Enteric Ulcerations.—The next class of cases we shall notice embraces those in which actual ulceration of the Intestines has been established. And it is to be observed, that in by far the greatest number of examples of this disease which we have met with, they have presented this condition.

The precise period requisite for the full development of the ulcerative process does not seem to admit of being definitively determined, and is probably not constant. It is possible that no two cases are alike in this respect. We have already adduced an example in which the most destructive ulceration, in some parts advancing to complete sphacelus, was known to have taken place within from twelve to fourteen days. On the other hand our Tables furnish cases in which, from the symptoms during life, the passing of blood, and the tarry evacuations, it is probable that the ulcerative process was in operation for many weeks, and even in some instances for months. In these cases, even when most chronic, extensive dark bluish red congestion has existed throughout the Abdominal Organs, more especially observable, however, in the Small Intestine and its Mesenteric appendages. In the Ileum this condition has been observable, as well on the mucous as on the peritoneal aspect. The ulcerative process has been found to engage both the Solitary and Aggregate Glands indiscriminately. Its point of election seemed, however, to be the lower Patches of Peyer. Thus we have found advanced ulcerations in the large Patch close to the Ileo-colic valve, while the Solitary and Aggregate Glands in the upper portions of the Intestine were still intact. The ulcerations varied in amount, in the extent of the destruction of tissue they had caused, in the characters of their base and of their edges, whether thickened or sharp and ragged, in their colour, whether ashy, slough-like, or of a red and irritable appearance, and in the intensity of vascular action in their immediate neighbourhood, and in various other characters. The extent of the individual ulcerations has varied much; they seldom had very definite shapes. They sometimes, however, presented an irregular oval outline, varying from an inch to an inch and a quarter in the long axis of the ulcer, and half to three quarters of an inch in the short. The long axis was usually in the direction of the Patch, and, of course, coincident with that of the Intestine. The most regular in form were those which presented the raised and thickened borders. These were sometimes circular, and larger than a shilling piece.

Two chief subdivisions of the form of Ulcer could be made, namely, first those with sharp defined edges, ragged borders, more or less deep base, and in which the erosive process seemed still to be in active operation; and, secondly, those in which the edges were thickened and rounded, their borders elevated, sometimes into fungating masses, and the base more or less filled in.

The final issue of the process of ulceration was generally anticipated by the death of the patient, hastened in many instances, doubtless, by the co-existent pulmonic and other complications. Considering the number of cases we have examined, it may be said that complete destruction of the tissue to peritoneal perforations has been uncommon.

The Patches of Peyer have been in one instance found in a state approaching to a healing process. They were brown, with extensive congestion around their margins; in the centre of one Patch a small circular mark showed the remains of an apparently healed ulcer. It was covered over with a thin clear membrane of pale colour, and with a wrinkled contracted border. Signs of a healing process to this extent have, however, been of great rarity.

Typhoid Lesion in Colon.—Evidences of the extension of the Typhoid process to the Colon have been sufficiently often presented.

As already observed, the Solitary Follicles of the Large Intestine have been often found tumid with exudation; in still more advanced cases, chiefly associated with the similar condition in the Ileum, more or less extensive ulcerations have been seen in the site of these glands. Even in the absence of clinical history, this state of the Follicular glands in the Colon could not readily perhaps be assigned to any other than the Typhoid condition. Somewhat similar appearances have, it is true, been presented in the early stages of the Pustular Dysentery, or Follicular Colitis, already described, but the associated condition of the Ileum was in all cases sufficiently characteristic in the Typoid affection.

When least abundant, Typhoid ulcerations of the Intestine were more commonly to be found in and about the Cœcum, whereas, it may be remembered, that in the Dysenteric process, the seat of election seems to be in the lower portion of the Great Intestine; for we have found that when of a limited extent, both the exudation and the ulcerative processes in Dysentery were generally confined to the Sigmoid flexure of the Colon and the upper part of the Rectum.

Other Secondary Lesions.—While in the cases of glandular intumescence of the Intestine we have not infrequently met with Lesions of a Typhoid character in the viscera of the Abdomen and the Thorax, it may be stated that in the cases in which the Enteric Lesion had proceeded to actual ulceration, we have seen no instance in which on post-mortem examination more or less extensive affections of some, and often of all these parts did not exist. Thus Lesions of the Mesentric Glands, the Spleen, the Kidneys, and the Lungs, may be said to have been constant, while the Liver also was sometimes engaged. Affections of the Peritoneum, from the condition of circumscribed inflammation, limited to the immediate neighbourhood of an ulceration which had approached to, but not perforated the Serous membrane to that of general sero-purulent effusion with exudation of recent lymph, have

also been met with. But these must be regarded probably in the light of accidental, not of necessary occurrences. Actual perforation of the Serous membrane has, however, not been found very commonly; in rare instances, the morbid action set up by the ulcerative process, has been found to engage the areolar tissue near the Caput Cœcum, resulting, in one marked instance at least, in the establishment of a pretty extensive Pericœcal Abscess (Perityphlitis of Authors). In this case the Ileum presented, scattered over its surface, numerous small points of ulceration, about one-sixteenth of an inch in diameter, with a depressed centre, and surrounded by a deeply congested vascular ring. These ulcers increased in size and frequency towards the Cœcum. A large Abscess, filled with fœtid grumous pus, was found behind the Cœcum, extending from the vermiform process to about the middle of the Ascending Colon.

With regard to these various Lesions, as found associated with actual ulceration of the Intestines, it may be said that they differed in no respect, except in degree and amount, from what we have already described in connexion with the intumescent state of the Follicular and Aggregate glands.

Cranium.—The Cranial cavity has been frequently examined by us in Typhoid cases. In the advanced stages of the disease, more or less extensive congestion of all the Membranes of the Brain have been met with, but we have not found any special or characteristic changes. Atrophic states of the brain have been observed in chronic complex cases.

Thorax.—It will hardly be necessary, with reference to the thoracic complications, to do more than state, that they have been constantly present, and have been similar to the conditions already described, the only difference being as to degree and extent. Extreme turgidity and congestion of the bronchial mucous membrane, frequently with Capillary Bronchitis, general engorgement of the pulmonary substance, more or less extensive Lobular exudations and condensation of tissue, and various changes to purulent transformation in the exuded matter, have frequently been presented, and seldom in an isolated form. Pleural effusions and occasionally circumscribed exudations have been associated with some of these changes.

The Mesenteric Glands were in some instances found excessively enlarged, and they were occasionally filled with a softened deposit.

Spleen.—Considerable enlargement of the Spleen, with a variable amount of deposit in its substance or beneath its capsule, has been observed. In some instances the weight of the organ reached 14 ounces. The specific gravity of its substance was sometimes as high as 1·059. Beneath the capsule of the organ there was often an extensive deposit of yellowish soft matter. In other instances, although the Spleen did not exceed from five to six ounces in weight, yet its parenchyma was irregularly condensed with exudation, and in these cases the amount of the change was best indicated by the specific and not the absolute weight of the organ; thus, with a weight not exceeding six ounces the specific gravity of the Spleen in several parts varied from 1·052 to 1·059.

Kidneys.—The Kidneys have exhibited very marked change. We have found them increased by more than two volumes. In one instance they weighed respectively, the right 10 ounces, the left 8½ ounces. In another case the enlargement was still more excessive; the right was found to weigh 10½ ounces, and the left 13 ounces. The organs were soft, mottled on the surface, of a mixed red and yellowish hue, the capsule easily detached, and the cortical portion, coarse, granular, and comparatively greatly enlarged. The enlargement was generally irregular, usually, however, most considerable in the cortical substance, which was tumid and coarsely granular, often with excessive congestion of the pyramids.

On Microscopic Examination the tubuli uriniferi have been found loaded with epthelial secretion.

Liver.—Changes in the Liver have occurred pretty often, but with rather variable characters. Thus it has been found soft and flabby, with marks of fatty degeneration, while both the absolute and specific weights were reduced. In one instance the weight of the organ was only 43 ounces, and its specific gravity, 1·020. In the same case the Spleen weighed 14 ounces, and had a specific gravity of 1·048.

Association of the Dysenteric Process with Typhoid Fever.

In another class of cases, the Typhoid Enteric Lesions have been found associated with more or less extensive Dysenteric Changes. As far as post-mortem appearances went, the Dysenteric process might be said to be only one superadded to the several other co-existent Lesions. But the Thoracic and Abdominal complications were almost invariably present in the same order of morbid association and to the same extent as in the class of cases last considered. The extent to which the Dysenteric lesion existed was, in some cases, extreme. The mucous membrane of the large Intestine has been found covered thickly with large and deeply excavating ulcers of a greenish-black hue. The ulcerated process largely engaged the Rectum in these cases. In some instances traces of the characteristic diphtheritic exudation still remained: ulceration, though extensive, has been sometimes confined to the lower part of the Sigmoid flexure; and it may be generally stated, that when a limited amount of ulceration was present, its most common seat was in the Sigmoid flexure or upper part of the Rectum. This corresponds with what we know generally of the anatomical habitat of Dysentery, and may so far be used (should any doubts arise on the matter) to identify the nature of the process now under consideration, as found associated with the Typhoid state. We look upon it as probably the remains of a Dysenteric attack

antecedent to the febrile invasion. We already know how general, for a long period was the disposition to disease of the Large Intestine; and we are not without evidence from the actual observation of cases, of the direct supervention of Fever on Dysentery.

DISEASES OF THE RESPIRATORY SYSTEM.

Of independent idiopathic lesions of the Respiratory system, we have scarcely any observations to communicate. Cases of this kind were of exceedingly rare occurrence, and, as before stated, a certain immunity from Pulmonic disease seemed to prevail amongst the Allied Troops in the Crimea.

This is not a little remarkable when the vicissitudes of temperature, as well as the great daily range of the Thermometer, are taken into account.

Catarrhal Affections were, it is true, occasionally induced, and sometimes in a severe form, after extreme and sudden changes of temperature, accompanied by high winds. And winds, it may be remarked, especially if accompanied by heavy rains, seemed far more active in the production of disease than mere changes of temperature, however sudden or excessive.

Pneumonic Engagements of the Lungs, with or without Pleural complications, were likewise rare and exceptional as independent forms of disease.

We have met with some few instances of effusion into the pleural cavities, but such cases were uncommon, and they offered no features of sufficient interest to require us to dwell on them farther.

Secondary Lesions of the Respiratory Organs.—It was under this head that lesions of the pulmonary texture, and also of the pleural cavities, came to possess any high degree of importance. In connexion with the Typhous, Typhoid, and the Dysenteric processes, and also in some instances with certain Dyscrasic states, as the Scorbutic and the Rheumatic, very extensive secondary engagements of the Lungs were commonly found. Indeed, it may be said that in the extreme forms of any of the great processes just enumerated, secondary Pulmonic lesions were present as a constant rule. And in some of these cases it will be found that the pulmonic lesion was of an extreme type, actual sphacelus of the lung tissue having occurred in some instances.

It might have been expected that Tuberculosis would have formed a considerable and important class of disease, deserving separate notice at our hands. As presented to us, however, except in most rare instances, Tuberculosis was found rather as a complication, often very extensive, it is true, in other diseased processes, than as an independent affection. Tubercular degenerations will be found to have extensively invaded several organs in connexion with Fever of the Typhoid Type, and also with Dysentery in its chronic complex forms. We have even met with a triple association of these diseased processes. But it may be safely said that, with some few exceptions, Tuberculosis in the form of Phthisis Pulmonalis did not occur as a fatal disease during the prosecution of our inquiries.

The Pathology of these Pulmonic lesions, in their several orders of morbid association, will be found fully discussed under the sections appropriated to the types of disease with which they were associated.

DISEASES OF THE CIRCULATING SYSTEM.

This class of cases may be dismissed with still more brief notice than the preceding.

Cardiac disease:—either in its acute or chronic forms, organic disease of the Heart, its membranes, valves, and other appendages, has been of very uncommon occurrence. Some rare instances of Endo-pericarditis have been met with by us.

In Typhus Fevers we have devoted careful attention, in not a few instances, to the clinical examination of the cardiac phenomena, being fully impressed with the value and importance of the Pathological and Therapeutic indications thus furnished. We have already described the weakened condition of the first sound of the heart in such cases. In the Typhoid state soft and flabby conditions of this organ, with more or less atrophy of its muscular structure and diminution of its specific gravity, has been found. Some few cases of aneurism, fatal in one case by rupture into the pericardium, in another by rupture into the left bronchus, have been presented in our examinations. But neither this nor some other forms of lesion of the Circulating apparatus which came under our notice, seem to warrant any more detailed accounts of them in this place. Neither by the frequency of their occurrence, nor by the special features which they presented, are they worthy of a place in this Report.

With regard to any other classes of diseases which came under our observation, we think it quite unnecessary to offer any observations. Though occasionally occurring, they did not form any important proportion of the morbid conditions presented in the Army of the East. This statement applies to Ophthalmic, Cutaneous, and all other classes of disease not specially noticed in this Report.

Part II.

PATHOLOGICAL ANATOMY OF THE DISEASES OF THE ARMY IN THE EAST CONSIDERED IN THE ORDER OF ORGANS AND TISSUES.

In this part will be found detailed the various Anatomico-Pathological conditions observed by us in our post-mortem investigations. It is intended to exhibit in this part, at one view, the precise nature of the several Lesions developed in the diseases of the Troops in the East. The details about to be given will further show the extent of such diseased processes; also, how far they existed in isolated forms, and how far some of them co-existed in certain orders of morbid association. They will also clearly demonstrate the comparative frequency of morbid states in certain organs and parts, and the immunity from disease enjoyed by others.

Cavity of the Cranium.

The Cavity of the Cranium was very constantly examined, but it was only in exceptional cases that any well marked lesions were found. The chief of these were the following:—

Brain.—In some instances, obvious atrophy, with diminution in the bulk of the substance of this organ, existed. It occurred, to a remarkable extent, in a case of Chronic Dysentery of several months' duration. The patient gradually passed into a state of mania, but the case proved fatal by sudden effusion into the pleural cavity of the left side. The Brain was shrunken, its substance bloodless, and its coverings were wrinkled. The arachnoid was opaque, with deposit on its surface. There was general softening over the surfaces of the third, fourth, and the lateral ventricles. A granular exudation of a pinkish colour was spread over the ventricular surface of the valve of Vieussens, and the general substance of the Brain was soft; it was also deficient in blood.

In another instance, where Fever of the Typhoid type succeeded to the Dysenteric state, the Brain participated in the general atrophy; excessive emaciation was the result of long continued disease, which extended over four months. The Brain was shrunken, its coverings wrinkled, and appearing as if too large for it; there was extensive sub-arachnoid effusion of clear serum; the pia mater was injected, and not easily separable from the convolutions.

In cases of long continued Dysentery, a bloodless condition of the Brain was a very common and marked condition.

In some cases of Cholera, the Fornix and substance of the Cerebellum were softened, the substance of the Cerebrum being pale and bloodless.

In Typhous cases, the cortical portion of the Brain was generally soft and highly vascular.

In a case of Fever with ulceration of Peyer's Patches, a cyst-like cavity was found in the Brain, about one inch in depth. It was situated in the anterior external portion of the anterior lobe of the right hemisphere, and contained a yellow gelatinous fluid, with some dense fibrinous bands running across it; the surrounding cerebral structure was healthy. In this case there was general inflammation of the serous cavities, especially of the Pleuræ and Pericardium.

It may be generally stated, that the Encephalon partook, to a greater or less extent, in the general atrophy which ensued in cases of long continued disease. It is also worthy of note that the results of observations on the specific gravity of the different central parts of the Brain show that it was uniformly low in those who died at Scutari, when compared with the average specific gravity of similar central parts of the organ as found in those who have died in these countries.

For example, the average specific gravities of the Central Ganglia of the Brain of those dying at Scutari was 1·039; and from data in our possession, the average specific gravity of similar parts in those who have died in these countries is about 1·043.

The specific gravity of the Cerebrum (grey and white matter mixed), in our observations at Scutari, was found to be	- - - -	1·033
,,	in these countries	1·037
,,	Cerebellum, at Scutari -	1·036
,,	,, in these countries	1·043

The average in the cases observed in these countries was taken from numerous mixed cases which were not chronic. The diminution in the specific gravity of the Brain, as observed by us in the cases of Chronic Disease above alluded to, were probably of only an atrophic nature, and still within the physiological limits, as no derangement of nervous function had been obvious during life.

Dura Mater.—In cases of Cholera, especially if prolonged beyond 24 hours, a very loaded condition of the sinuses of the Dura Mater became very obvious; it was always associated with excessive congestion in patches of the Pia Mater, and also of the Choroid plexuses.

Arachnoid.—Opacity of this membrane was an almost constant condition in the long continued Typhoid states, and in many cases of chronic Dysentery. It was sometimes associated with marked thickening, most evident over the superior surfaces of the cerebral hemispheres, and at the anterior and posterior sub-arachnoid spaces. With such states there was always more or less increase of the sub-arachnoid fluid. In many cases also this increased sub-arachnoid effusion was co-existent with general wasting and diminution in the bulk of the brain. At the base of the brain sub-arachnoid effusion was sometimes to be observed in Cholera cases.

Membrane of the Ventricles.—In Cholera cases bloody serum has been found in the lateral Ventricles, and also in the third, which has on one occasion been observed to be excessively distended.

Pia Mater.—Increased vascularity of the Pia Mater has been, as just stated, not infrequently found in Cholera cases. Partial hæmorrhagic effusions, implicating the convex surfaces of the hemispheres, have also been observed.

Vertebral Canal.

Spinal Meninges.—General increased vascularity of the membranes of the Spinal Cord has been found in Cholera, likewise in some cases of Tetanus, but nothing characteristic has been determined in this respect.

Spinal Cord.—Diseased conditions of this portion of the Nervous centres have been rarely met with. In a case of Tetanus, a portion of the Cord occupying the lower part of the cervical, and the upper part of the dorsal regions, exhibited a remarkable state of varicosity. The whole canal was deeply congested, and on slitting up the membranes, the nervous tissue for the extent of some three or four inches in the situation stated, was found to present a well marked varicose condition, alternate constrictions and enlargements being observable throughout the part implicated. The constrictions amounted to from a sixth to a fourth of the diameter in several places. No further abnormal appearances could be detected on section. It will be as well to state that in this case the injury was in the lower extremity.

Cavity of the Thorax.

Areolar Tissue.—The Areolar connective tissue surrounding the great vessels and mediastinal spaces has, in cases of long continued disease, especially in those in which the morbid lesions were of a complex kind, been found infiltrated with fluid; sometimes this fluid was of a sero-purulent character; it was for the most part associated with effusion and exudation in the contiguous serous cavities.

Pleuræ:—Idiopathic Acute Inflammatory Affections of these membranes have not been met with in our examinations; and there is reason to think that if any such existed, they must have been of the very rarest occurrence.

Pleuro-Pneumonia.—Examples of pleuro-pneumonia have occurred, but were infrequent.

Pleural Adhesions.—The cases of pleural adhesions which came under observation were of old standing, exhibiting more or less defined bands or cords, and seldom much limiting the play of the Thoracic organs.

Pleural Exudations.—More or less circumscribed patches of exudation have been constantly presented on the pleural surfaces in chronic cases. Limited exudations of this kind we have seen to occur in connexion with engorgement or condensation of the contiguous pulmonary structures in Typhoid Fevers, in complex Dysenteric cases, and in Tuberculosis: partial adhesions to the parietes, with the formation of loculated spaces enclosing circumscribed effusions, have been found in Dysenteric cases.

Sero-purulent Effusions have occurred in Dysenteric cases, complicated with Tuberculosis, and also in connexion with the Scorbutic Dyscrasis.

Excessive serous effusion into the cavity of the pleuræ was not an uncommon mode of termination of cases of long continued disease, such as chronic Dysentery. In one such case, upwards of 100 ounces seemed to be suddenly effused into the left Pleural cavity, and was the more immediate cause of death. It was of sero-sanguineous nature, and coagulated in a few minutes after removal from the cavity.

In another case of chronic Dysentery, preceded by repeated attacks of Rheumatism, both the Pleural cavities and the Pericardium were the seat of fluid effusion. In both Pleuræ the

effusion was of the sero-purulent kind. The areolar tissue of the mediastinal spaces was also infiltrated with sero-purulent fluid.

Empyema.—True Empyema, as the result of Idiopathic Pleuritis, has been very uncommon. We have seen it associated with the Dyscrasic processes last named, and also as the result of external injury with perforation.

Lungs.

Idiopathic affections of these organs have been of great rarity. The Secondary exudations attendant on the Typhoid and other Dyscrasic processes are those which we shall have chiefly to notice. Their characters were generally much modified by the dominant type of disease with which they were associated.

Infiltrations.—Infiltration of the pulmonary tissue by semi-transparent gelatinous exudation, taking the form of a miliary deposit, was often observed. This form of the deposit resulted, (1) from its having exuded into the terminal air vesicles, or (2) because it was deposited in that form as an interstitial exudation. In the first form, the deposit for the most part consisted of altered epithelial secretion, as in prolonged Dysenteric cases, or in those in which the Typhoid state existed; irregular, withered, collapsed, and compressed cells constituted the chief microscopic elements.

Softening and friability of the pulmonary texture was an almost constant post-mortem state in cases of Typhoid Fever; it was associated sometimes with exudation as a marked and well defined-deposit.

Typhoid Consolidations.—In the condensation of the Lung from Pneumonic exudation, the pulmonary Artery was generally filled with a fibrinous coagulum, extending through the minuter subdivisions of this vessel. This state was sometimes obvious only in the immediate neighbourhood of a condensed part.

The specific gravity of Lung in these forms of pneumonic exudation was occasionally as high as 1·050. The exudation of the liquor sanguinis into the pulmonary substance in the Typhous states was not infrequently seen in a consistent and gelatinous like form. Such exudations were generally confined to lobular masses of the Lung, and a section through such masses presented a dirty grumous aspect, with hypostatic congestion in the posterior parts of the lower lobes. In connexion with such exudations, the Bronchial Glands were very commonly enlarged.

The exudation in the Lungs during the Typhoid state was not, however, of a constant form. It was sometimes diffused generally throughout the Lung, often as a miliary deposit in the ultimate air vesicles; at other times, a tolerably well-defined mass of dark brown exudation was found, varying in extent from the implication of a few lobules to that of a whole lobe, or even a still greater part of the Lung. Exudations of the former type presented, on sections of the Lung being made, a granular appearance of a dirty grey colour; and sometimes these little masses had softened into a pus-like fluid. Such exudations were, for the most part, found to be composed of the retained, compressed, irregular, and otherwise altered epithelial secretion of the air cells and air passages. This accumulation appeared to result chiefly from the inactive and depressed state of the pulmonary function associated with the Typhoid condition.

The specific gravity of this form of the solid Typhoid lung was about 1·042 to 1·043.

Friability.—The general softening and friability of the texture of the Lung in the Typhoid state was always associated with an engorged condition of the pulmonary tissue. This engorgement consisted partly of blood, and partly of exuded bloody serum, the result of the tendency which the blood of such cases has to part with its colouring constituents and watery elements. The friable nature of the parenchyma was most marked in those non-crepitant parts which no longer contained air. The texture generally was softened, without any defined condensation, but some parts were more friable than others.

Sloughs.—Sloughs of the pulmonary texture were not uncommon; sometimes they were symmetrical, as in cases of old Dysentery, involving and showing themselves on the pleural surfaces, and penetrating to considerable depths in the pulmonary substance. A line of demarcation, presenting a congeries of enlarged and congested minute blood-vessels, marked off the dead from the living part. In cases of Typhoid, likewise, Sloughs of the pulmonary substance were sometimes well marked, and rapidly tended to a fatal result.

Gangrene.—Exudations of the Typhoid type were sometimes seen in the Lungs, associated with purulent exudation in the pleural cavity, in cases where Peyer's Patches were only in an intumescent state, and vascular round their borders. In such cases the pulmonary lesion was evidently the one which led to the fatal result, and it often underwent rapid changes from extensive exudations to almost complete gangrenous conditions. The broken down gangrenous matter was mixed with elements of a purulent character.

In a well marked case of Typhoid, subsequent to a Dysenteric process, and prolonged over a period of more than three months, the greater part of both Lungs was found to have passed into the condition of complete gangrene. This state was associated with other lesions of the abdominal viscera characteristic of the Typhoid condition. In the left Lung, consolidation of the upper lobe existed throughout, with partial red hepatization. A gangrenous condition of an extensive portion of the Lung was obvious through the pleural covering. A cavity was found filled with a dirty fluid, and the fœtid débris of the pulmonary substance.

Bronchial Membrane.—In severe and long continued cases of Typhoid, the Bronchial membrane was generally highly vascular and softened. These conditions sometimes ex-

tended upwards into the Trachea and Larynx, the mucous glandsin these parts being loaded with exudation.

Condition of the Lung in Cholera.—In some Cholera cases, especially those in which the anxietas and dyspnœa were well marked, a peculiar state of the Lungs was observed post mortem. They collapsed irregulariy and imperfectly; considerable congestion existed throughout their substance, but was very irregularly distributed. Blood exuded in great quantity on section; there was no inflammatory exudation into the parenchyma, but parts of the lung tissue exhibited a bright red vermilion colour, distributed in irregular patches. A condensed state of the pulmonary substance approaching to carnification was observable in some of these parts. This state appeared to consist in an absence of air, with lobular collapse. The bronchial membrane was intensely injected and coated with a viscid glairy exudation, which filled all the finer tubes.

Conditions of Lungs in Dysentery.—In cases of long continued Dysentery, the posterior aspects of the Lungs were often found in a highly congested and softened condition, although no definite exudation could be observed. In this respect the Lung resembled that in Typhoid state, but there was not the characteristic dark discolouration. In some cases of chronic Dysentery, consolidation existed with small abscesses, varying in size from that of a pea to a considerably larger mass of broken down exudation, while some were nearly as large as a walnut, and not limited by any margin, but they were gradually broken up in the centre, while the friable edges mingled with congested and healthy parenchyma.

In some cases of Dysentery associated with the Scorbutic state, the Lungs were the seat of extensive Lesion, in connexion with marked Scorbutic conditions of the Intestine. Blood-like masses of effusion were seen to discolour the pleural surfaces of both Lungs, and towards the upper and lateral parts both organs presented pneumonic exudations, consisting microscopically of granular matter, with scarcely any cellular formations. Towards the base of each Lung the texture had begun to soften, and was somewhat friable, giving a dirty grey appearance to the pulmonary tissue; a tendency to gangrene was obvious.

Tuberculosis.—A few cases of Tuberculosis have been met with, which presented the characteristic exudation into the substance of the Lung in various stages of its metamorphosis. It was observed in concrete miliary particles, and in masses as large as filberts, and in all possible conditions as to softening. Vomicæ were occasionally found, but were of variable size.

As an independent pathological condition, Tuberculosis was rare, but it formed a marked complication, which materially and constantly modified the Dysenteric and Typhoid processes.

Heart and Great Vessels.

In cases of Typhoid the Heart was uniformaly flabby and its texture soft. Its specific gravity in one instance was as low as 1·042.

Valvular and other idiopathic organic affections of the Heart have been of such rarity that we have met scarcely any well marked case of the kind.

Pericardium.—The white or milk spots on the pericardial surface of the Heart were not uncommon; but they did not seem to be associated with any one particular morbid state. They were observed pretty constantly in the following class of cases, namely, in cases of Dysentery with Tuberculosis. In such cases the milk spots were found in the usual situation on the anterior aspect of the right ventricle. New substance was exuded underneath the serous coat, and in some places was fully one-eighth of an inch thick; no other signs of textural change appeared to be associated with the Lesion. In some instances it occurred in cases in which a tuberculous exudation prevailed in many organs, and in which deposits on the peritoneum of a fibrinous character were abundant. No evidence of Pericarditis was apparent in the reflections of the Pericardium on the vessels.

As a result of the Rheumatic diathesis and the previous existence of Rheumatic fever, exudation into the cavity of the Pericardium has been seen to prove fatal in a few instances. In one case, a rheumatic attack, established during the voyage out to the East, and which was preceded three years before by a severe Rheumatic Fever, was followed by excessive and severe Pericarditis, which rapidly proved fatal. There was found to be great injection of the serous membrane of the pericardium. In some parts its tissue was dry, and adherent to the surface reflected over the heart. The adherent exudation was still in the soft plastic state, so that the layers could easily be pulled apart, leaving the surfaces which had been adherent to each other largely granular. In connexion with this condition of the pericardium, the endocardial surface of the heart is worthy of notice. The left auriculo-ventricular and the aortic semi-lunar valves were thickened with exudation in the form of organized vegetations; the substance of the heart itself was in a softened condition, and of a dirty brown colour. The endocardium was generally opaque, and somewhat vascular towards the valves. In another case the heart was softened in its ventricular substance, and the pericardium was adherent to the cardiac surface by bands, with blood-vessels developed in their substance. This new substance was composed of healthy and newly-formed lymph cells, with a fibrillated matter, through which blood-vessels were beginning to penetrate, and ramify in loops. The endocardial membrane over the semi-lunar valves was also the site of vegetative exudation. Not more than two or three other instances of Pericardial inflammation were met with.

Serous effusions have occurred into this cavity in connexion with the Scorbutic Dyscrasis, and also in complex cases of Chronic Dysentery. In a case of Chronic Dysentery sub-

sequent to repeated attacks of Rheumatism, the Pericardium presented a peculiar condition of morbid action. Adhesions of old standing and extensive connexions had in many places commenced to soften; there was also extensive sero-purulent exudation, which seemed to be thrown out from the whole surface of the greatly thickened membrane.

In one instance the cavity of the pericardium was opened into by ulcerative action in an aneurismal sac, death following the sudden effusion of blood which took place.

The following was a remarkable example of secondary opening of the pericardium as the sequence of morbid action in the mediastinum. The patient had been struck by a ball on the right side of the Sternum, between the third and the fourth rib, which passed out below the left nipple without opening the pleural cavities. Comminution of the sternum took place. The anterior mediastinum became subsequently filled with pus. Two days before death a small oval aperture was observed at the bottom of this mediastinal chamber. The cardiac action became attended with a peculiar sound, attributable to the mixture of air and fluid in the pericardium. On post-mortem examination the anterior mediastinum was found completely limited on both sides towards the pleuræ; its walls were much thickened, and its cavity filled with pus; the little aperture above noticed, about a quarter of an inch in diameter, corresponded to the level of the right auricle. The pericardium was much thickened, and adherent over two-thirds of the anterior surface of the right ventricle, and a small part of the left. Both the cardiac and parietal layers were much thickened, coated with lymph, and bathed in pus, a couple of ounces of which lay in the pericardial cavity. The auricles and great vessels were similarly coated. The interior of the heart was healthy.

Aneurism.—This disease was uncommon. Two cases proved fatal by bursting of aneurismal sacs connected with the great vessels.

In one, the right lateral sinus of Valsalva was distended into an aneurismal cavity. It filled up the space below and behind the right pulmonary artery as it passed to the right lung, and projected about the size of a large walnut from the side of the Aorta. There also existed extensive adhesions of the pericardium as far as the roots of the great vessels. On the anterior surface of the sac, just at the fold of the pericardium, where its serous part is reflected from the aorta and pulmonary artery, an ulcerated opening communicated with the sac and cavity of the aneurism. The aorta was generally dilated through more than half the arch, and to more than twice its bulk near the heart, and gradually diminished to the dorsal region, where it became of natural size. A soft yellow deposit was thickly set underneath the inner coat, but no cretaceous or bony exudation existed. The mitral valves were thickened by a hardened exudation. In another case, death took place by rupture into the lung. Other cases of this disease have been met with, but they do not require special notice.

Alimentary Canal.

The following morbid states of the Alimentary Canal and its appendages have been met with:—

Cavity of the Mouth.—Pale, thin, and wasted conditions of the Buccal mucous membrane have been observed, often to a very remarkable extent in chronic cases; the glands showed prominently through its thin and pallid substance. Such conditions were associated with general atrophic appearances in other parts, especially those found to such a remarkable extent in the Small Intestine.

Mucous Glands.—The solitary glands of the mouth and back part of the tongue, known as the mucous follicles, were commonly in a state of intumescence in the well expressed Choleraic state, and appeared to be much under the same conditions with regard to secondary change as the solitary glands of the Intestines. Increase of vascularity was always a marked condition surrounding them, especially in cases prolonged beyond the third day. An enlargement and prominence of the circumvallate papillæ at the back of the Tongue was very obvious in some cases of Cholera, but this was found to be chiefly due to an engorged state of the glands which surround them. Microscopic examination showed infarction of the glands, but no change in the papillæ.

The Parotid and Submaxillary Glands were the seat of morbid action occasionally in Fever cases; and in some instances suppuration took place.

Œsophagus.—A tendency to softening, with epithelial desquamation, and deposit in its glands, have been not infrequently observed in Cholera cases.

Stomach.—The morbid conditions of the Stomach were of a very varied and often doubtful nature. Its most common and obvious abnormity was congestion, but how far such a state could be connected with disease, or depended on the stimulant nature of substances introduced previous to death, was not easy to determine. One opposite state, amounting in some cases to actual whiteness of the cardiac surface, has been found not infrequently.

In one case where the morbid conditions were chiefly developed in connexion with Dysentery and abscess of the liver, the Stomach was found to be highly congested, especially towards the pylorus and the region of the lesser omentum. Its mucous surface was of a dark melanotic hue towards the pylorus.

The Gastric glands were often marked and prominent in Cholera cases, participating in the general condition of the minute Glandular Apparatus of the Intestine observed in the Choleraic state. In the Stomach this appearance was confined to the cardiac end, and the deposit took place principally in the solitary Follicles.

A very extraordinary instance of hypertrophy of all the tissues of the Stomach, with a kind of diphtheritic coating extending also into the upper part of the Duodenum, was on one occasion met with.

Distention of the Stomach to a very large size was once met with. The organ extended as low down as the iliac regions on both sides, but was more dependent on the left. The Duodenum also was much enlarged. The mucous surface of both was pale even to whiteness. The Small Intestines were greatly contracted, and had assumed a peculiar quadrangular form. The membrane was extremely soft, and peeled off quite easily in large slimy flakes. It may be stated, that the solitary glands in the Ileum were prominent and red, as also the lowest of Peyer's Patches, and there were some evident remains of an old Dysenteric process in the Colon.

General States of Intestinal Surfaces.—More or less extensive hyperæmic and congestive states of these surfaces have, it may be said, been invariable in all our examinations. These states were obvious not only in the Intestines themselves, but throughout the Mesentery and the Omentum. On the whole, stasis throughout the tributaries of the Portal system has been both the more generally diffused and the more common condition of the two. The disturbances in the balance of distribution of the total blood mass, and the excessive preponderance of the amount thrown on the various organs of the Abdominal cavity, were perhaps the most constant general conditions which we have met with. Congestions of the Stomach, the Liver, and Spleen, and their connecting Omenta, have been very general. Stasis throughout the whole Mesentery has also been common; congestions of special parts of both the Intestine and Mesentery were also very frequently met with. The state of these surfaces presented in Cholera cases was very remarkable, and so far as our observations go, constant. The Small Intestines presented throughout a uniform bright pink coloration, which contrasted very remarkably with the deep bluish red tinge of the Large Intestine in the same cases, and also with the same tint more usually presented in almost all other cases, in the Jejunum and Ileum. To avoid repetition, we may refer for farther account of the various states of vascularity of the mucous surface of the Small Intestines to page 11 *ante*.

In some instances, generally connected with excessive Enteric irritation, sometimes with extensive Typhoid ulcerations, a peculiar, very contracted quadrangular form of the Small Intestines was met with; it was associated with intense vascular injection, and in one case with extraordinary distention of both the Stomach and Duodenum.

Pneumatic Exudation.—Remarkable, excessive, and very fœtid pneumatic exudation into the cavity of the Small Intestines was not uncommon in cases of Typhoid. In such cases the Intestine was generally largely coated with mucus, and the substance congested and often highly livid, while circumscribed patches of congestion were most marked round the Aggregate glands.

Extraordinary distention of both the Small and Large Intestines with highly fœtid gases has been observed in certain remarkable cases of gangrene, and also in some cases in which a peculiar and unaccountably rapid process of decomposition, with advanced histolytic changes, has been set up within an unusually short period after death.

Peritoneum.—Fluid Effusion into this serous cavity was not uncommon, but it was chiefly in connexion with chronic states of complex disease; for example, in complex cases of Dysentery, with Tuberculosis and Scorbutus. In such cases, opacity of the membrane, and sometimes purulent exudation, showed the active nature of the morbid process, the opposed surfaces being often glued together.

The peritoneal coat of the Intestine, especially of the large gut, generally appeared of a very dark hue in cases of chronic Dysentery; the appendices epiploicæ were infiltrated with gelatinous-like serum. This appearance was not constant; the peritoneal aspect of the Large Intestine was quite healthy-looking, in some instances which exhibited profound Dysenteric Lesion within. In such cases, however, the morbid process did not seem in a state of activity. A deposit of a clear semi-transparent appearance, and in a granular form, was, in some instances in which the Tuberculous Dyscrasis prevailed, scattered over the Peritoneum, on its parietal and visceral layers, giving the surface a sandy feel. On microscopic examination this deposit exhibited fibrinous elements.

In cases in which ulceration of Peyer's Patches, with old Dysenteric ulcerations, was presented, extensive peritonitis, with the effusion of a large quantity of lymph of a bright yellow colour, was often found. This effusion was in some instances most marked over the Colon and the Rectum, but the entire mass of the Intestines were bound together by lymph.

Morbid States of the General Mucous Membrane of the Intestines.—Blackening of the mucous surface was often obvious, especially about the Caput cœcum; it was probably connected with a long continued previous existence of vascular action. It depended chiefly on a change in the blood effused, or on the simple exudation and alteration of the colouring matter. It was a most common feature in cases of chronic Dysentery, and was almost never absent. It was well marked round the solitary glands. This black condition is to be distinguished from that sometimes present in the mucous membrane of the Stomach in cases of Cholera, an effect probably accidental in this organ.

In those cases in which the Scorbutic state had been more or less marked, the mucous membrane of the Small Intestine was the principal seat of Lesion; but this state was often associated with the Dysenteric or the Typhoid process. The mucous surface

throughout was frequently of a dark colour, sometimes approaching to blackness, not from deposit of pigment, but from the intensity of the turgescence of the vessels.

Combined with this state, irregular patches of gelatinous-like exudation were here and there to be seen, especially in the Ileum and Colon.

The Villi.—In most of the Cholera cases the surface of the Villi had a washed, softened, frayed, and abraded appearance. Examined minutely, they were seen to be highly granular and softened, tending to split up, or rather to break up, as if by a process of solution.

Exudations.—Various forms of Exudation were seen on the general mucous surface of the Intestines. There were two kinds, those in which the structure of the mucous membrane beneath was intact, and those in which more or less change was observable in the mucous tissues. Both these forms were usually associated with some of the Dyscrasic processes. A gelatinous exudation, mixed with blood, and of a red jelly-like appearance, was observable in the Small Intestines in a considerable number of Dysenteric cases. Gelatinous deposit, sometimes assuming a miliary form, was not infrequently found in the Ileum in complex cases of associated Tuberculosis and Dysentery. This exudation usually consisted of minute granular elements and imperfect cells.

A true Diphtheritic exudation, occupying a considerable extent of the Ileum, has been found in some few rare cases. The exuded matter was of a deep red colour, tolerably firm and consistent, probably partially organized. It was removable in flakes, and showed the mucous surface beneath intensely vascular. This state constituted a true Diphtho-Enterite. A condition similar in many respects to that just described has been found to a variable extent in the Ileum, at its lower part, in connexion with the characteristic Dysenteric state of the large Intestine.

In the Large Intestine it was chiefly in the cœcal region that we had most frequently opportunities of examining the Diphtheritic exudation in its early stage, and previous to the occurrence of the changes more commonly observed on the lower part of the gut in Dysenteric cases. In some few cases with the Dysenteric process in an early condition, the exudation, though in parts gelatinous, could be observed in a less crude and consistent form as the Rectum was approached, and even to some extent in that part of the gut it had already become adherent to the mucous tissue on which it rested, so as not to be separable without destruction to both. Such exudation was found to be chiefly fibrinous, and mixed up in the more soft gelatinous parts with abundance of blood corpuscles in various states of change, and also of the colouring matter, cellular elements, and crystals. Blackness was often marked towards the lower part of the Ileum, and into the Caput cœcum.

The Diphtheritic Exudation on the mucous membrane has been found microscopically to be composed principally of fine cells and nuclei, with elongated nuclear cells (fibroid), and in tuberculous cases it presented characters resembling the exudation of tubercle, consisting chiefly of granular matter and small imperfect cells.

Its particular anatomical site, and its connexions with the mucous membrane, were sometimes readily traceable. It has been observed, 1st and chiefly, in the various regions of the Colon as the first stage of the Dysenteric process; 2nd, in the lower part of the Ileum, sometimes as an extension of the Dysenteric state upwards into the Small Intestine; and, 3rd, on the summits or margins of the valvulæ conniventes in complex morbid processes, such as Scorbutus and Tuberculosis, and associated with follicular degeneration.

Microscopic sections showed that the deposit was chiefly exuded into the follicular and tubular apparatus of the mucous membrane, and was gradually, as it accumulated, pushed up to the surface of the gut, which it finally overspread as a uniform whitish coat. In its earliest stage, several little white specks were observable, which on close examination were found to be associated with the destruction of a number of Follicles and Tubes, which had sloughed out and left a little ulcer beneath, resembling the aphthous ulceration of the buccal membrane.

Glandular Apparatus of Intestines.

The Solitary Glands of the Intestines were observed to be in a morbid condition under three different sets of circumstances:—

(1.) As a marked and almost constant lesion, both in the Small and Large Intestine, in cases of Cholera.

(2.) As a lesion of the great Intestine, chiefly in cases of Dysentery.

(3.) As a lesion associated with a similar condition of the Aggregate glands of Peyer in the small Intestine, in cases of Typhoid Fever.

Brunner's Glands.—These glands have been found remarkably enlarged in some cases of Cholera: their prominence and intumescence were the more obvious, from the general clean, washed appearance of the mucous membrane presented in this disease.

The principal and almost constant lesion of the Solitary Glands, in the cases of Cholera, consisted of an intumescence and infarction of the vesicles, with a white exudation, varying in amount from the bulk of a pin's head or small sago grain to that of a pea or large particle of tapioca. In such cases the exudation was always most marked and most abundant at the lowermost part of the Ileum. It was always so abundant, and so uniformly distributed in this situation, as to give the mucous membrane the appearance of being powdered over with numerous particles of sago grains or other similar minute bodies. In cases of great and marked severity, the glands became most excessively surcharged with this exudation, and when life was prolonged, a halo of vascularity soon surrounded the

turgid solitary gland; ulceration of the Follicle, with elimination of the exuded product, was set up, and ultimately formed the ulcerated spots constantly found associated with the secondary Fever or Typhoid Choleraic state.

The solitary glands of the Colon in this disease also presented appearances which left no doubt of their having been filled with an exudation similar to that found in the solitary glands of the Small Intestines. In the Colon the vesicles were for the most part nearly empty, no matter at how early a period after death they were examined. The opening leading to the vesicle was always patent, and the walls of the gland cavity flaccid; a condition remarkably obvious where the gland cavity had been very much distended. The opening to the cavity of the Follicle was always visible in the form of a dark opaque spot, not from the presence of any melanotic deposit, as has been sometimes supposed, but from its being actually an opening in the mucous membrane. When blackness did exist from deposit, it was always round the border of the gland, and was due to the causes which we have considered in a special section on similar conditions of the mucous membrane, generally. Combined with the Diphtheritic exudation over the mucous surface of the Colon, and also in cases of the Tuberculous Dyscrasis, the Solitary Glands below were often observed to be distended with exudation to various degrees of turgidity; and in some places they were actually ulcerated.

Follicular Colitis.—Under this name a peculiar condition of the Solitary Follicles of the Colon has been observed by us. It is elsewhere more fully described. The Follicles and a neighbouring limited part of the mucous membrane became affected with an inflammatory process, terminating in the formation of so many little purulent foci, which burst, and subsequently ulcerated.

Peyer's Patches.—It may be said that in no case, taking indiscriminately all those submitted to careful post-mortem examination, has a perfectly healthy state of the minute Glandular Apparatus of the Intestines been found. Peyer's Patches participated largely in the various morbid changes observed.

In the Choleraic state, they were generally tumid, and often loaded to excess with a remarkable whitish creamy exudation, similar to that which filled the solitary Follicles in the same cases. The process of elimination attempted when the patient survived for some days, appeared to be the same in both these structures.

In the Typhoid condition, Peyer's Patches presented states varying from marked and prominent intumescence of their Follicles to destructive ulceration of the whole glands. They were often filled with a tawny-coloured exudation. In some cases ulceration, intumescence, and atrophy were present in one and the same case, clearly showing that the elimination of the Typhoid deposit was effected in several different ways. The total destruction to complete Sphacelus of the entire gland Patch has been found to occur as early as about the twelfth day of the disease. The process of change was, however, in the majority of cases, very chronic.

These glands were all but invariably found affected to a greater or less extent in the sequel of the graver Fevers which prevailed both in the Crimea and at Scutari.

In a case of sudden death from the rupture of aneurism into the Pericardium, an opportunity was afforded of observing the condition of Peyer's Patches about two months after an attack of Fever.

The tumid condition of Peyer's Patches was peculiar in this respect, that towards the ends of some the vesicles of the glands were excessively distended with milky contents, and little masses of the vesicles were similarly distended in the midst of the Patch, the rest of the Patch being completely bare and dotted over with melanotic deposit. The solitary glands of the Colon were in a similar state of turgidity and intumescence. In this case there appeared good reason to believe that the elimination of the Typhoid deposit in the glands had taken place without any ulcerative action, but at the expense, through atrophy, of the gland substance.

In some cases in which the Dysenteric process was established subsequent to a Typhoid attack, and ultimately proved fatal, it was interesting to observe the condition of the glands of the Intestine as regards the progress of development or the elimination of the deposit. For the most part, Peyer's Patches were found bare and atrophic, without any evidence of an ulcerative process having taken place. Towards the Cœcum, however, the remains of ulceration was sometimes well marked, gland Patches being found with high pulpy edges and dark grey central sloughs, the metamorphoses being generally confined to isolated portions of a Patch, the remainder of which appeared either natural and full of secretion, or bare, atrophic, and worn away. In the vicinity of these Patches, great congestion existed, especially around those which were the seat of ulceration. Where the sloughs had separated, a clear mucous-looking base covered the muscular layer beneath.

An intense state of intumescence prevailed in many cases of Typhoid, without having gone on to ulceration, or even to softening.

The specific gravity of Peyer's Patches varied greatly, according to the nature and stage of the exudation. The highest specific weight observed by us was 1·044; the lowest, 1·032.

Even in the same case, considerable latitude was to be observed in the range of the specific weights of the glands; thus, in one case, three Patches were respectively 1·032, 1·036, and 1·039.

These glands presented very varied chronic states. 1st. An atrophic reticulated condition, in which the gland substance was not only empty, but devoid of all glandular element

This condition may have arisen from the natural wearing away of the gland, or from efforts for the elimination of deposits or exudations; the process of elimination taking place, as we have reason to think it did, in some rare cases without ulceration, but being accompanied with the destruction of the gland vesicle. This process was observed to leave a reticulated appearance in the gland, arising from the natural interlacement of the inter-glandular texture around the empty cavities being rendered more prominent. 2nd. Remains of previous ulceration of the Aggregated Glands were sometimes obvious with various degrees of distinctness. Congested and thickly distributed blood vessels could be seen in the vicinity, or even in the gland patch itself, and marked the increased vascular action which had accompanied the morbid changes. 3rd. The follicular spaces were, in other instances, covered over on their mucous surface with a dark granular matter; the mucous membrane was in some places removed, and the opening of the follicles lay bare, prominent, and open. 4th. In some instances, the reticulated appearance described above was the only remnant of the gland patch to indicate its former site; while, in the more obvious examples, there was a well marked cicatrix, for the most part limited to a circular spot, in the midst of an otherwise comparatively healthy gland. This was covered over with a thin clear skin-like membrane of pale colour, and with a wrinkled contracted border. Extensive congestion existed round the margins of the Patch in these cases.

Tuberculosis.—In cases of the Tuberculous Dyscrasis Peyer's Patches have been observed prominent, but with no definite exudation or ulcerations. When it occurred Tuberculosis was generally associated either with Dysentery or Typhoid, or both; and in the latter cases it would be, perhaps, impossible to determine what part of the morbid action was specially attributable to Tuberculosis.

Glandular Atrophy of Small Intestines.—A remarkable condition of the Mucous Membrane of the Small Intestine, very commonly found as a result of prolonged morbid states of a complex kind, requires some special notice here.

The general appearance presented by the Mucous Membrane and substance of the gut in the condition referred to, was such as at once to attract attention.

Attenuation of the substance of the Intestine was the most marked feature which presented itself; the mucous membrane was easily broken down, and as if friable. This condition was found to consist in an atrophy of the glandular substance of the mucous membrane.

This atrophic state was rendered apparent by thin sections of the mucous substance of the Intestine made by Valentin's knife, and submitted to microscopic examination.

The regular and usually turgid Follicles and Tubes which compose the great body of the mucous tissue were in a condition of more or less complete atrophy or degeneration.

The tubes were irregular in form and size. They did not lie close together, but were separated from each other, and as if imbedded in a matrix composed of granular particles. Their bulbous extremities seemed to have disappeared, or were encroached upon and obliterated by the fine granular fibroid-like material which now formed the chief substance of the gut; and the contents of the glands were chiefly composed of fine granular or melanotic particles.

In cases of long continued complex disease, as when one set of lesions succeeded upon another, as, for example, when Dysentery occurred subsequent to Typhoid Fevers, or vice versâ, we have frequently found this atrophic condition well marked. The Small Intestine in such cases appeared thin and wasted; the tubes towards the upper portion of the gut being obviously degenerated. They were of very unequal size—some abnormally distended, and that at irregular intervals, giving them a varicose appearance; their contents consisting of granular and molecular matter, with clear cells interspersed; others seemed to contain fatty granules and fibrine. This Follicular disease of the Intestine seemed, in some instances, to be intimately associated with the Diphtheritic process. In the Colon, for example, the ulcerative process has been seen to be established beneath the diphtheritic exudation, the ulcers presenting a clear chipped-out like appearance. Microscopic examination showed the Follicles loaded with secretion (*see* Diphtheritic Process, p. 91); and in parts these Follicles were obviously highly vascular to the naked eye. This increased vascularity was seen to be especially remarkable amongst looped vessels round the Follicles in the submucous tissue. Microscopically the exudation was granular. Large yellow masses (like changed blood after extravasation) were enclosed in areolar spaces in the submucous tissue. The Ileum was thin and wasted towards the upper part; this atrophic change extended into the Jejunum, where it gradually disappeared. Sections showed the Follicles irregularly filled, the secretion granular and fatty, and sometimes cellular, but the appearances were not uniform. Cellular exudation existed where the Follicles were most distended: granular, and, in some places, fatty matter where the Follicles had become irregularly shrunken or wasted.

Some morbid conditions of other parts have been observed associated with this Intestinal atrophy.

In the cases in which this atrophic washing or degeneration of the mucous membrane of the Intestine occurred, it was constantly also observed that the mucous membrane of the mouth was thin, transparent, pale, and bloodless: the mucous glands of the lips and cheeks were especially obvious, shining through the worn buccal membrane, and appeared small and firm, containing much granular contents, sometimes of a dry appearance and

sebaceous fat-like aspect. At other times the contents were cellular, with a marked softness to the feel.

Congestion over the Small Intestine, with spots of ecchymosis, was sometimes also present with this wasted state of the gut.

Ulceration of Peyer's Patches, with infiltration, sometimes softening and vascular injection round their margins, has likewise been found.

The diphtheritic state of the Large Intestine has likewise been associated with atrophy of the Small.

The specific gravity of the mucous membrane in this atrophic state did not appear to be so low as in the healthy state, probably from the fact that the fibroid material which replaced in the granular form the cells and substance of the healthy gland Follicles, was of a greater specific gravity than their natural contents. In the atrophic state the specific gravity of the Small Intestine varied from 1·030 to 1·038.

In the tuberculous state the Small Intestine has been found thin and worn, with Peyer's Patches also worn away and thin; their places being only marked by the bare appearance and melanotic deposit, which was generally in such cases excessive towards the Ileo-cœcal valve.

The various affections of the Solitary and Aggregate Glands just noticed may be summed up as follows :—

Their various states were,—1, infarction and intumescence, with different kinds of deposit; 2, softening and ejection, in various ways, of these deposits; 3, ulceration, sometimes leading rapidly to intense and complete Sphacelus of whole Patches of Glands; in other instances, being attended with excessive fungating growths on the borders of the ulcers, reaching, in extreme cases, to a quarter of an inch in thickness; 4, several states and conditions of atrophy of both the Solitary and Aggregated Glands, leading to collapse and final degeneration of the vesicles, with the deposit of melanotic matter as a characteristic of pre-existent and long continued vascular action; 5, cicatrices of healed ulcers were occasionally but rarely found.

The minute characters of these various deposits were :—1st, in the states of infarction and milky intumescence, chiefly observable in Cholera cases, variously metamorphosed epithelial elements; 2nd, in the Typhoid cases, minute granular, fibrinous, and imperfectly developed nuclear and minute cellular elements.

Conditions of Colon.—Small abscesses sometimes existed, associated with an advanced Dysenteric process. The exudation being first deposited in a solitary gland vesicle, the gland cavity was gradually distended: ultimately the exudation commenced to soften, and combined with the condition of an increased vascularity in its vicinity, an abscess was formed, which opened upon the mucous surface through the little canal which leads from the surface to the gland. Such little abscesses freely distributed on the mucous membrane often gave a peculiar character to the Dysenteric process. They were sometimes arranged in symmetrical double rows through the Colon, and were often associated with true Dysenteric exudations; but we have met some cases in which the condition existed isolated, and we have ventured to term it "Follicular Colitis" or "Pustular Dysentery." The Dysenteric process was not infrequently established in the Tuberculous Dyscrasis. In such cases, the exudation for the most part assumed the diphtheritic form in the first instance, the mucous membrane underneath being red, swollen, and deeply injected. The solitary glands became gradually infiltrated with exudation, and ultimately began to soften and to ulcerate, till numerous small circular ulcers were established throughout the mucous surface.

The Sigmoid Flexure was perhaps the most frequently diseased part of this Intestine, and in general the lower part passing into the Rectum was that most severely implicated. At the upper part, as if preceding the confirmed Dysenteric process, where thickening of the substance of the Intestine was rapidly going on, a superficial form of diphtheritic exudation was not uncommon, which, passing off either by ulcerative absorption or by desquamation, gave place to the true Dysenteric exudation, with thickening of the submucous tissue. In this way the process gradually advanced upwards towards the Caput Cœcum. The thinness of this latter part often contrasted in a very marked degree with the thickened substance of the gut in its lower portions.

Sometimes the Dysenteric exudation extended completely throughout the whole extent of the mucous surface of the Colon, presenting in some places black, grumous, carbonized-looking masses of exudation, even at the upper part. Ulceration in some instances had taken place in the region of the Sigmoid flexure, destroying at once the exudation and the mucous membrane, so as to expose the muscular tissue, which was red and irritable. Appearances of ulceration often extended in lines across the gut, so as to embrace its whole calibre in some parts. The appearance here alluded to is a very deceptive one, and requires to be particularly examined. It has usually been found in cases in which a very thick and uniform coating of exudation was present. On opening the Intestine, deep fissures were observed extending in parallel lines across the gut. They were sometimes single throughout, and sometimes forked, and they seemed to correspond to the natural folds and sacculi of the Intestine. A very contracted state of this gut was not uncommon in extreme cases of Dysentery, and it is probable that in such cases the appearances in question were

produced by a forcible distention of the Intestine while being examined post mortem; but there is no reason why a similar distention may not have taken place during life in some cases, and we can readily suppose that in such instances fissures of the exuded material were produced, the edges of which were subsequently attacked with ulcerative action. The entire tissue of the gut was often infiltrated, even its peritoneal surface being of a dull hue, and in some parts highly vascular. The whole substance of this Intestine was thickened to the extent of fully half an inch in some instances, and here and there the exudation had a clear bloody appearance, and presented numerous vascular points surrounded by a dark lake-coloured halo and extensive red gelatinous ramollissement.

In one case of Chronic Dysentery, terminating fatally by abscess of the Liver, the condition of the Colon with reference to the state of the exudation and the ulcerative process, was especially worthy of observation. In this instance the Colon was ulcerated throughout the descending portion, the Sigmoid flexure, and the Rectum. Active turgescence and congestion existed in the upper part, but the ulcers had healed in the Rectum, which was free of vascularity. The ulcers in the upper portion were still open and vascular, and so large as nearly to surround the whole Colon. They had destroyed all the tissues except the peritoneum. From this membrane they appeared to be separated merely by a lymphy exudation, which formed a pyogenic layer on the visceral surface or base of the ulcer; the corresponding part of the peritoneum was opaque and thickened.

The exudation has in some instances assumed the form of thickened prominent fungating masses, of very remarkable appearance, sometimes in tubercular nodules, sometimes in transverse lines across the Intestine.

The Colon was not infrequently implicated in the Typhoid process, its solitary glands being chiefly the parts engaged; but in a few instances deposits in the neighbourhood of the Cœcum have been found.

Rectum.—This part of the great Intestine most frequently showed the evidences of diseased processes. It was the part in which the most severe Dysenteric lesions were to be found, and in long continued chronic cases it was generally filled with small punched-out looking ulcers, with bloodless bases, and thin anæmic edges. Melanotic deposit was here also to be seen in greatest abundance. The substance of the gut was usually greatly thickened, chiefly by a fibrinous deposit in the sub-mucous tissue, which generally, from increased condensation, rendered it difficult to dissect off the mucous from the sub-mucous textures. It was in this part that the fungating masses before alluded to were most constantly found. Evidences of healed ulcers were not infrequent in this portion of the Intestine.

Affections of the Vermiform Appendix have been pretty common, but in no instance have we known perforation to take place in this situation. Creamy exudations into its follicular glands, and also ulcers in various stages, have been found. In one case, however, in which ulceration of the glands of the Large Intestine, with lesion of the vermiform appendix, existed, associated with Fever, there was found behind the Cœcum a large abscess, filled with fœtid grumous pus. It extended from the vermiform process (which was adherent to the Cœcum) to about the middle of the ascending Colon, and was imbedded in the sub-peritoneal tissue.

Omentum, Mesentery, and Mesenteric Glands.—The blood-vessels of these membranes were frequently highly congested, a state most often associated with Cholera. This congested state was most marked in the Venous system, and gave a peculiar dark livid blue appearance to the parts when first presented to view. In some conditions, as in various stages of the Typhoid and Choleraic states, with enlargement of the Mesenteric Glands, the mesenteric arteries passing to these glands were highly congested, ramifying over the membrane or capsule of the gland.

In cases of Chronic Dysentery the Omentum was generally wasted and drawn up amongst the viscera towards the Stomach. Sometimes this was associated with the existence of a deposit in its substance of a granular form to the naked eye, which was composed chiefly of fine curling elastic filaments, with naked nuclei scattered here and there among the fibres.

Mesenteric Glands.—A diseased state of these organs, and of the Lacteal Absorbent system generally, may be said to have been one of the most constant features in the morbid anatomy of the Diseases observed by us. The most obvious and prominent state was simple enlargement of the gland substance, depending (1) upon a loaded state of the sinuses of the gland, with the fluids passing through them; (2) upon an obvious morbid deposit in the gland substance; (3) upon congestion of the blood-vessels; and (4) upon a combination of all or some of these conditions.

In some instances, as in many of the Cholera cases, these glands appeared perfectly colourless and white externally, while at the same time they were greatly enlarged, and on section the deep red coloration in their centres showed the amount of irritation that had been established within.

Particular sets of glands were more engorged than others in several well-marked forms of disease. In Dysentery, for instance, the glands associated with the Colon throughout its course were those commonly affected. In Cholera, the glands most markedly enlarged were those connected with the Small Intestine; and in Typhoid Fever, with the lesions of the Glands of the Intestines well developed, it was generally those connected with the

Ileum and lower part of the Jejunum which were engorged. The Glands connected with the Caput Cœcum were also very obvious and prominent. The period of softening of the glands seemed not very determinate.

In cases where the Tuberculous Dyscrasis prevailed, infiltration of the Mesenteric gland substance, with exudation and subsequent cretaceous degeneration, was sometimes to be observed in various stages of metamorphosis. The whole gland substance has been found replaced by a cretaceous mass half an inch in diameter.

In some cases the Mesenteric Glands were turgid and enlarged with bloody lymphy fluid exudation, or altered contents; the Lymphatics leading to and from these glands were in a distended state, their valves prominent, and their tubes varicose throughout their course, with the altered and discoloured lymphy contents visible through the thin coats.

The softening of enlarged Mesenteric glands in the Typhoid state generally commenced in the centre of the glands; the deposit was then found to consist microscopically of large cells, with granular and molecular débris.

In general, although the whole of the Mesenteric glands were in a morbid state in any given case, they did not appear to be in similar stages of morbid action. Some were enlarged and softened within their capsule; others were pale, bloodless, enlarged, and hard. Some were highly vascular, with much lividity and general softening throughout.

In disease of long continuance, especially where the Typhoid and the Dysenteric states were associated together, the Mesenteric glands were generally softened as well as enlarged, the process of softening evidently commencing in the centre part of the gland, or at several different points in its substance.

In chronic Dysentery the condition of the Mesenteric glands as to density varied greatly even in the same case. It was as high as 1·050 to 1·052 in some instances.

In very severe cases of the Typhous Dyscrasis, where the Mesenteric glands were greatly enlarged and softened, and with microscopic elements similar to those above described, the specific gravity of the gland substance was 1·050.

The condition of the Lymphatics to and from these glands was remarkable; sometimes they were greatly distended and obvious from infarction of lymphy material, especially those leading to the loaded glands.

In some cases the Tonsils also were greatly enlarged, and their Follicles distended with exudation, consisting of cellular and granular elements, of irregular form and variable size. Their specific gravity was, in such cases, about 1·047.

Liver.—Morbid conditions of the Liver did not occupy a very prominent place. In some cases, however, this organ was affected to a considerable degree, and more or less associated in its morbid state with the general development of Dyscrasic processes.

Abscess of the Liver was found in one case only of Dysentery, which was evidently of long standing; ulcerations existed in the descending Colon, the Sigmoid flexure, and the Rectum. While active congestion and turgescence were visible in the upper part, the ulcers had healed in the Rectum, but were still open and vascular in the remainder of the gut, some of them being so large as nearly to embrace the whole periphery of the Colon. A large abscess was found in the right lobe of the Liver. It had replaced most of the hepatic substance which was softened round the enclosing walls of the abscess; it possessed a well-formed pyogenic membrane. The connexions of the Liver with other parts in the neighbourhood, especially through the gastro-hepatic Omentum, were highly vascular.

In some cases in which the Rheumatic diathesis was well marked, the Capsule of Glisson throughout the substance of the organ, was considerably thickened, as the result of a fibrous deposit. The subsequent contraction of this new matter had caused the Liver to assume a shrunken appearance. But true Cirrhosis has not been met with. The hepatic substance was often softened, and the seat of fatty degeneration.

In other cases, combined with repeated Rheumatic attacks, a similar thickening of the binding tissue composing Glisson's capsule, together with venous and biliary congestions, gave to the section of the Liver the characteristic nutmeg appearance. This nutmeg appearance of the organ was not uncommon.

In a case of Dysenteric ulceration, and in which the mesenteric glands were tumid, the left lobe of the Liver was found to be enormously enlarged. Its colour was of a pale yellow, and the hepatic tissue was infiltrated with air througout, so as to be highly crepitant. (The temperature was 82°, and the case was examined within twenty-four hours after death.)

Spleen.—In the Typhoid state the Spleen was generally enlarged; deposits were sometimes, but not constantly, observed in its parenchyma, and obvious on its surface through its capsule; they were of a dark purple livid hue. The substance of the organ varied much in consistence, being sometimes firm, and at others soft and friable: it was always of a dark mulberry colour.

Extensive deposit, with excessive enlargement of this organ, was a very common occurrence, resulting from the combined influence of co-existent morbid states, such, for instance, as the development of Dysentery after Typhoid Fevers, or vice versâ. In such instances the Spleen was usually the seat of secondary exudations. Its size and weight were much increased, and reached from ten, fourteen, to even twenty ounces.

The enclosing capsule was generally tense and smooth, and sometimes thickened and adherent to the abdominal wall where the deposit prevailed. Much congestion existed around the organ. The microscopic elements were molecular and granular matter, with nuclei and imperfect cells.

Kidneys: Increase of cortical substance.—This was a most common and remarkable morbid feature, without of itself originating active disease or being necessarily associated with any constitutional morbid state or Dyscrasis. It consisted, for the most part, in a packing or infarction of the minute Tubuli Uriniferi, with altered and compressed secreting cells. Going on to an extreme degree, as this infarction sometimes seemed to do, just before death, there was usually co-existent with it a deficiency of the urinary secretion; such kidneys were found to be highly congested at the margins of the cortical and the pyramidal parts, with increased vascularity over the pelvic membrane. The relative size of the cortical substance was thus nearly doubled in some instances; so that sometimes the pyramidal portions of the organ were compressed and dislocated by the turgid cortical substance. The intertubular blood-vessels were deprived of blood by this compression preventing its flow, and the external surface of the kidney became congested, chiefly in the stellate form, from the turgid condition of the venous radicles distributed upon its surface and among the convolutions of the cortical tubuli. Effusions of blood were sometimes seen at the junctions of the cortical and pyramidal parts.

In Cholera, extensive and excessive congestion always prevailed; for the most part the tunics were easily separable. The tubuli were densely loaded with desquamated epithelium.

In a case of chronic Dysentery terminating in Cholera, a cyst was seen in the right kidney, of the size of a small bean, lined with a false membrane, and filled with grumous matter. In another case of Cholera, the kidneys were found filled with cysts, obvious on the exterior, and containing straw-coloured matter.

Kidneys in the Typhoid state:—The kidney was generally highly congested throughout its substance, and in the stellate form on the surface; its cortical part was relatively enlarged, with great congestion in the vicinity of the pyramidal masses; a coarse granular condition of the Tubuli Uriniferi being associated with a deposit in these tubes. A rough fibrous tumid appearance on section was also seen in the cortical substance, associated with a granular and congested condition of the surface.

In some Typhoid cases, the kidneys have been found enormously enlarged, in one instance to more than double their ordinary volume. In an extreme case the left weighed ten ounces, the right eight and a half. The tumid condition was very irregular in both, the cortical substance being, as usual, the part in which the swelling was most marked; it presented a coarse granular appearance, and was accompanied with great congestion of the pyramids.

Kidneys in Dysentery.—In cases of long continued Dysentery, terminating fatally in one instance by abscess in the Liver, the kidneys were found to be infiltrated with a white exudation, which gave them an anæmic appearance on section. The surface was commonly found in a state of excessive stellate congestion, their tunics adherent, and granular degeneration was obviously established.

Microscopic examinations showed this white deposit to be composed of fibrine, chiefly in granular and hyaline masses, sometimes enclosing the nuclear secreting cells of the kidney; in some places fatty degeneration was observable.

In cases of long continued Chronic Dysentery, the areolar tissue surrounding the kidneys has been found infiltrated with purulent exudation, while the capsules of these organs were adherent to the surrounding parts, and the whole mixed up with concrete yellow tubercular looking masses, exuded upon and underneath the capsule. The softening sometimes extended into the substance of the kidney, and the degeneration became mixed with the vascular tufts which pervaded the organ. The thickened state of the pelvis showed the chronic character of the disease. The cortical substance was greatly enlarged, and vascular in appearance.

The deposit in these cases was composed of granular and fatty matter, mixed up with pus-like cells. In some rheumatic cases also deposit has been found in the kidney.

TABLE V.—Table of Specific Gravities.

No. of Case.*	Specific Gravity of Brain Substance and Spinal Cord.								Specific Gravity of Solid Viscera.						Specific Gravity of Mucous Membrane.						Specific Gravity of Glands.	
	Cerebrum.		Cerebellum.	Convolutions of Cerebrum.	Central Ganglia.	Pons Varolii.	Pineal Gland.	Spinal Cord.	Lung.	Heart.	Liver.	Spleen.	Kidney.		Small Intestine.			Large Intestine.			Peyer's Patches.	Mesenteric Glands.
													Cortical.	Pyramidal.	Exudative.	Atrophic.	Healthy.	Exudative.	Atrophic.	Healthy.		
	White Matter.	Grey Matter.	Mixed.	Mixed.																		
1	- -	- -	1·040	- -	1·035	1·034	- -	1·034	- -	- -	- - -	- - -	1·053	1·051	- -	- - -	- -	- - -	- -	- -	- -	1·050
2	1·037	1·035	1·036 1·037	- -	- -	1·038	- -	1·035	- -	1·049	- - -	- - -	1·047	1·047	- -	1·037	- -	1·048	- -	- -	- -	1·050 1·052
3	1·034	1·034	1·036	- -	1·033	1·035	- -	1·036	- -	1·046	1·047	1·046	1·040	1·040	- -	1·036	- -	1·046	- -	- -	- -	1·040 1·042
4	1·028	1·030	1·038	- -	1·031	1·036	- -	1·036	- -	- -	1·054	1·050	1·040	1·040	- -	1·034	- -	- - -	- -	1·038	- -	1·049
5	1·031	1·030	1·034	1·034	1·036	- -	- -	- -	1·042	1·042	- - -	1·052 to 1·059	1·040	1·040	- -	1·038	- -	- - -	- -	1·038	- -	1·040
6	1·037	- -	- -	- -	1·038	- -	- -	- -	1·043	1·060	- - -	- - -	- -	- -	- -	1·037	- -	- - -	1·039	- -	1·044	1·043
7	- -	- -	1·038	1·036	1·036	1·036	- -	1·035	- -	1·058	- - -	1·043	1·060	1·060	- -	1·037	- -	- - -	1·040	- -	1·042	1·042
8	1·036	- -	1·039	1·033	- -	- -	- -	- -	- -	- -	1·020	1·048	- -	- -	- -	- -	- -	- - -	- -	- -	1·032 1·036 1·039	—
9	- -	- -	1·039	1·034	1·034	1·036	- -	1·034	- -	1·040	1·049	1·044 to 1·055	- -	- -	- -	- -	- -	1·039 to 1·042	—	—	—	—
10	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- - -	- - -	- -	- -	- -	- -	- -	1·050	- -	- -	- -	1·042
11	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	1·044 to 1·048	1·050	1·048	1·044	- -	- -	- -	- - -	- -	1·033	—	—
12	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- - -	- - -	- -	- -	- -	- -	- -	1·044	—	—	—	—
13	1·036	1·032	1·037	1·034	1·038	1·036	1·050	1·034	1·050	1·047	1·047	1·054	—	—	—	—	—	—	—	—	—	—
14	1·038	- -	1·036	1·030	1·036	1·036	1·047	1·034	- -	- -	1·054	1·058	1·047	1·047	- -	- -	- -	- - -	1·037	- -	1·038 1·042	1·039 1·042
15	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	1·032	1·050	1·042	1·042	—	—	—	—	—	—	—	—
16	1·034	1·032	- -	- -	1·036	- -	- -	- -	- -	- -	- - -	- - -	- -	- -	1·040	1·030	- -	1·038	- -	1·028	1·032	1·035
17	- -	- -	1·036	1·033	- -	- -	- -	- -	- -	- -	- - -	- - -	- -	- -	- -	- -	- -	1·038 to 1·037	- -	- -	1·040	1·037
18	- -	- -	- -	1·034	- -	- -	- -	- -	- -	- -	1·043	1·046	1·034	1·036	- -	- -	1·036	1·044	- -	1·036	- -	1·033
19	1·033	- -	1·035	1·035	1·036	- -	- -	- -	- -	- -	- - -	1·058	- -	- -	- -	- -	1·030	1·044	- -	1·030	1·035	—
20	1·028	- -	1·034	- -	1·036	1·034	- -	- -	- -	- -	- - -	- - -	- -	- -	- -	- -	1·030	- - -	- -	1·030	- -	1·044
21	1·035	- -	- -	- -	1·038	- -	- -	- -	- -	1·043	—	—	—	—	—	—	—	—	—	—	—	—
22	1·034	- -	1·032	- -	1·036	- -	- -	- -	- -	- -	- - -	- - -	1·038	- -	1·040	- -	1·030	1·038	- -	1·028	1·032	1·035

* See page 99 for details of these cases.

TABLE VI.—MAXIMUM AND MINIMUM SPECIFIC GRAVITIES OF VARIOUS PARTS.*

	Maximum.	Minimum.	Mean.
Brain and Nerves :—			
(*a*) White Matter	1·038	1·028	1·034
(*b*) Grey Matter	1·035	1·030	1·032
(*c*) Mixed (Cerebral Convolutions)	1·036	1·030	1·033
(*d*) Central Ganglia	1·038	1·031	1·039
(*e*) Pineal Gland	1·050	1·047	1·048
(*f*) Pons Varolii	1·038	1·034	1·035
(*g*) Cerebellum	1·040	1·034	1·036
(*h*) Spinal Cord	1·036	1·034	1·035
Tonsils (in a Typhoid case)	1·047	—	—
Parotid Gland	1·040	—	—
Heart	1·060	1·040	1·048
Lungs. Pneumonic Consolidations, uniform and miliary	1·050	1·042	1·045
Liver	1·054	1·020	1·044
Spleen	1·059	1·043	1·055
Kidneys	1·060	1·034	1·047
(*a*) Cortical Part	1·053	1·034	1·042
(*b*) Pyramidal Part	1·051	1·044	1·047
Mesenteric Glands	1·058	1·033	1·042
Small Intestines :—			
Peyer's Patches	1·044	1·032	1·039
(*a*) Parts with Glandular and Exudative deposit	1·040	—	—
(*b*) Parts in atrophic state	1·038	1·030	1·035
Apparently healthy	1·036	1·030	1·032
Great Intestine :—			
(*a*) Colon, with Dysenteric Exudation	1·050	1·037	1·043
(*b*) Rectum „ „	1·044	1·038	1·041
Atrophic degeneration	1·040	1·037	1·038
Apparently healthy	1·038	1·028	1·033

* It was originally intended by me that a very extended series of observations on the Specific Gravities of morbid parts should be made in connexion with our other investigations, as I have long been impressed with the great value of this means of determining alterations in parts and organs in a definite manner not otherwise attainable. A suitable set of apparatus was accordingly ordered by me before my departure from this country; but on their arrival in the East, after more than three fourths of the time assigned for our inquiries had elapsed, it was found that the apparatus was entirely unsuited for our purpose, and in fact perfectly useless. It is to the zeal of Dr. Aitken, therefore, that I am indebted for such observations of this kind as we can communicate; he succeeded in making determinations of a considerable number of specific gravities under circumstances of more than ordinary difficulty.—R. D. L.

NOTES on the general Conditions of the Cases in which the Specific Gravities of the parts were determined.

Case 1. A case of intense Typhoid intumescence of glandular parts; weight of Brain, 51 ozs. There was much congestion, especially of the membranes. The patient was aged 28.

2. A case of Follicular wasting, with atrophy of Peyer's Patches; likewise, Dysenteric exudation in the large Intestine. This patient was aged 20.

3. Dysenteric exudation with ulceration in Colon; general intumescence of Solitary Glands, with atrophy of small Intestine, chiefly in the Ileum. This patient was aged 28.

4. Atrophic degeneration of the mucous membrane of the Small Intestines; general wasting. This patient was aged 19.

5. Typhoid exudation and ulceration of Peyer's Patches, &c.—
Consolidation, with friability of the Lung.
Irregular condensation of Spleen; weight, 5 ozs.
Mucous Membrane generally was thin and wasted; Colon, where free of ulcers, healthy.
Gelatinous exudation over Small Intestine, great.
Kidney soft and turgid.
Mesenteric Glands enlarged. This patient was aged 19.

6. A Typhoid case, with atrophic state and wasting of Large and Small Intestines; Heart, small and firm. The patient was aged 26.

7. Chronic Dysentery; excessive emaciation.
Atrophic wasting of Gut; Peyer's Patches, healthy.
Heart, normal.
Spleen, small and normal.
Kidneys, pale; increase of cortical part; combined weight, 10¾ ozs.
Small Intestine, thin and wasted; atrophy of tubes; pale, bloodless state of Large Gut, with melanic deposit, and some ulceration; atrophy of tubes, fibroid degeneration, with thickened state of submucous tissue. The patient was aged 29.

8. A Typhoid case; ulceration, with softening of Peyer's Patches; large softened Spleen; weight, 14 ozs. Liver, soft; weight, 43 ozs. The patient was aged 22.

9. Acute Dysentery; excessive dysenteric exudation; old deposits in Spleen.
Heart, soft and flabby. The patient was aged 23.

10. Acute Dysentery; excessive exudation; Mesenteric glands enlarged. The patient was aged 26.

11. Exudation in Lung, Liver, and Kidney: Case returned as Common Continued Fever. The patient was aged 26.

12. Acute Dysentery in Colon in case of Chaplain, with excessive fungoid exudation.

13. Pneumonia; case of a Bashi Bazouk, aged about 18 or 19.

14. Dysentery subsequent to Fever:
Ulceration and melanotic deposit in Colon; wasting of tubes in Small Intestine; tumid condition of Peyer's Patches.
Spleen soft, flabby; weight, 8 ozs.
Liver, soft and flabby; weight, 60½ ozs.
Mesenteric glands enlarged, and in some parts softened. The patient was aged 26.

15. Case of Follicular atrophy. Case of a Bashi Bazouk, aged about 21.

16. Chronic Dysentery. The patient was aged 27.

17. Typhoid and Dysenteric states of five months' duration; mucous membrane of small Intestine apparently healthy. Patches of Peyer, prominent, normal, and firm. The patient was aged 25.

18. Pneumonia and Pleurisy: Brain congested, its substance firm. The patient was aged 22.

19. Returned as Common Continued Fever. Dysentery, with intumescence of Peyer's Patches. The patient was aged 28.

20. A case of Sub-acute Dysentery. The patient was aged 18.

21. A case of Cholera, death on seventh day, after Typhoid Symptoms. The patient was aged 30.

22. Dysentery. Intumescence and vascularity of some of Peyer's Patches, others ulcerated, one cicatrised, with wasting of the Patch. The patient was aged 28.

GANGRENE.

THE following observations will be found to embrace some very remarkable Pathological conditions developed in the sequence of operations, and as the result of injury. They are based chiefly on cases which occurred after the occasions of the 18th June and 8th September, and are introduced here principally with the view of illustrating the effects of certain low constitutional states already adverted to.

During our experience of the Diseases of the Army of the East, no diseased action deserving the name of Hospital Gangrene has largely presented itself; at least, no affection of an epidemic character, or prevailing to any large extent, similar to that described under this name in the works of the classical writers on Military Surgery has been observed by us.

The disease known as Pourriture d'Hopital has, however, prevailed largely in the French Hospitals, both in the field and at Constantinople, after important actions, as those of the 18th June, 16th August, and 8th September, while at the same time, and under general climatic influences all but identical, the English Hospitals remained free from the invasion of any such diseased action to any considerable extent. The larger cubic space allowed to patients in the English Hospitals, the freedom of ventilation in the huts, the abundance of all necessary means and appliances, the rigorous attention to cleanliness, and the greater division of medical and surgical labours during the field operations of the past summer and autumn, doubtless contributed largely to these favourable results. In the Castle Hospital at Balaklava, the success obtained in the treatment of some classes of wounds of an important nature has been of a kind not often surpassed.

It cannot, however, be said that the process of healing in the more severe wounds took place generally in what we may designate as the normal manner; suppuration was frequently very profuse, often directly of itself leading to exhaustion of the patient, and an ultimately fatal issue. In other cases, chiefly of injury or operation in the thigh, the suppuration and subsequent destruction of parts was such as almost to deserve to be considered as a form of Gangrenous action; areolar tissue, muscle, and other structures being rapidly destroyed down to the bone, while the integument retained a comparatively healthy appearance. In extreme cases, such as those last described, we have seen a limb in which all the structures, with the exception of the integument, were converted into a black, putrid, fœtid, semi-fluid mass. As already observed, these appearances were most often found in the thigh; sometimes in cases in which the femur had been fractured by a Minié ball or other projectile, and in which quite justifiable attempts had been made to save the limb. But this condition has been the cause of death at no advanced period in cases of amputation likewise. The irritation of fractured bone does not, therefore, seem essentially necessary to the production or setting-up of this fatal form of disease; we have seen extremely bad cases of it after the transit through or lodgment of balls in the soft parts, in which there was no reason to believe that the bone was primarily injured.

This diseased action is, in our minds, entitled to the term Gangrenous, though it is not in any respect identical with any of the forms of the so-called Hospital Gangrene. We can say nothing as to whether it possesses contagious or infectious properties, or not. In all the cases which have come under our observation particular attention was given to all precautions calculated to prevent the contamination of neighbouring wounds; and in no case have we known the disease to be propagated to wounds in the vicinity of an affected stump or limb. It seems that this process is properly to be ranked amongst the forms of Gangrenous Action. It may, perhaps, be not inappropriately termed Gangrenous Inflammation of Muscle.

Gangrenous Inflammation of Muscles.—This very remarkable low process of disorganization, generally commencing by the formation of ill-defined abscess, has been found to occur chiefly under the following conditions. It was principally, though not exclusively, confined to the lower extremities:—

(*a.*) In some of the cases in which a ball lodged in the soft parts.

(*b.*) In cases in which a ball grazed without fracturing a bone.

(*c.*) In cases in which Compound Comminuted Fracture of the Femur had occurred, and in which an attempt was, very justifiably, made to save the limb. The designs of Conservative Surgery were in many such instances frustrated by the fatal process in question.

(*d.*) In cases in which amputation of the thigh had been performed. It has likewise been known to occur after the operation at the line of the knee-joint; but it has not been seen by us as a result of operations lower down in the limb than the line of this articulation.

The process was generally of a chronic character, except when a fatal issue was brought about in a sudden and unexpected manner by the occurrence of hæmorrhage in a way to be more particularly described hereafter.

The precise mode of its origin is not clear, but it doubtless recognized general not local causes, and was in all probability connected with the low unhealthy states of the system already described. In some cases it was in a measure attributable to the irritation of the sharp fragments of a comminuted fracture; in others to low action set up in the periosteum and external shell of a bone grazed by a ball. In two or three instances a low form of Phagadenic ulceration in the flaps of amputated limbs had existed for some time previous to its occurrence, and may to some extent have been operative in its production. But it likewise occurred in stumps in which no such action was at any time observed, and in which also the bone and periosteum were found in a comparatively healthy condition.

In the several cases above defined, the characters of this process of disorganization were essentially the same in all, varying only in degree, and in the extent of the tissues involved.

Whatever may have been its point of departure, and we believe it was not constant in this respect, any more than in the period of a case at which it occurred, its establishment was indicated by increase in the usual discharge from the part; change of colour and a peculiar fœtid odour were soon observable. Pain was sometimes increased, but in many cases neither this symptom nor swelling of the limb was present to such an extent as to direct attention to the part; and no general symptoms excited any suspicion of the mischief which was subsequently found to have been progressing, often to a great extent. It must be candidly admitted that till familiarised from post-mortem examinations with the extent of the ravages thus produced in a limb, often with little corresponding external appearances, we did not in many cases suspect the degree to which the tissues of a part were being implicated. The general symptoms were obscure; the patient slowly wasted: in some cases indistinct febrile attacks, resembling those observed in Pyæmia, occurred from time to time; diarrhœa was not uncommon as an intercurrent symptom. During this time the external local appearances were not unfavourable; if a stump, complete union had probably taken place, except in one or two parts, through which moderate discharge, but sometimes, as above stated, dark-coloured and fœtid matter, was daily evacuated. But on careful manual examination, when attention was directed to this point, the extent of the diseased process in the limb could be made out, more especially in its advanced stages, when there was also much emaciation of parts; on steady pressure from above, large quantities of fœtid discoloured matter, with more or less shreddy remains of broken up tissue, could be thus evacuated. In one instance in which, owing to extensive Phagadenic ulceration of the flaps, a free exit was given to the matter, there was a daily discharge to the amount of several ounces of an ochrey thin sero-pus of a peculiar acid and fœtid odour.

In some cases the patients lingered under this process for two, and in one instance for nearly three months, sinking in the end emaciated and exhausted.

Though usually a chronic process, as just described, it has in some few instances come to an issue within a much shorter period. Thus, in a case of secondary amputation of the thigh a fatal issue was produced within twelve days after the operation. For several days the patient appeared to progress most favourably, and firm union of the edges of flaps took place. A few days before death, however, he became weak and low, with occasional wanderings and muttering delirium at night. Some hæmorrhage was observed at the external angle of the cicatrix, and on removing the dressings and proceeding to make a closer examination, pus and blood escaped in considerable quantity, and as it was found that the finger could be passed up on the outside of the limb into a large cavity, an incision was made to lay it open, when large quantities of pus and blood were turned out. Cones of charpie, steeped in tincture of matico, were passed in. The hæmorrhage was not, however, arrested, and the patient sank. On post-mortem examination it was found that complete and most firm union had been effected throughout two-thirds of the flaps, with the formation of a pretty dense cicatrix. Within this, however, and all around the extremity of the femur, and on the external aspect extending up to the Trochanter major, an immense sac had formed, to the entire destruction of the muscular structures. The bone was denuded for a couple of inches. Into this sac, which was of irregular shape, quite devoid of any limiting pyogenic membrane, and immediately bounded by the remains of the textures, to the destruction of which it owed its origin, a large hæmorrhage had taken place. The blood appeared to have escaped by exudation from many smaller vessels, rather than by the rupture of any one of considerable size, for no injured artery could be detected. What remained of the muscular structures was blackened throughout, and generally disintegrated. No secondary deposit existed in any part or organ. Partial hæmorrhages have occurred in other cases, but in none to quite the same extent as that here described. It will be readily seen that this morbid process differs very essentially from that of the ordinary suppurating process in amputated limbs, however extensive. In the latter, the

flaps are themselves much engaged in the process, and so far are prevented from contracting premature adhesions. In such cases it is, likewise, generally found that the abscess or suppurating cavity is more or less well defined.

The destruction of tissues in the class of cases above described is probably, in part at least, due to an association of a gangrenous process with other results of an intense inflammation. A very well-marked example of the chronic form of this affection was presented in the case of a lad, aged 19, struck in the left thigh by a bullet (probably of the heaviest conical variety) on the occasion of the First Assault on the Redan on the 18th June. The wound presented two openings, an anterior and a posterior; the latter offered greater facilities for examination than the former. The finger passed from behind detected several fragments, which were removed, and a tolerably uniform surface of bone was then felt. It was determined to make an attempt to save the limb. The injured extremity was accordingly bound up with a large splint in the most careful manner, and matters promised favourably for a time. The patient, however, complained of a good deal of suffering in the limb from time to time; gradually wasted, suffered from diarrhœa, and finally sunk on the 6th August. On examination, post mortem, the chief organs were found in a normal state; no deposits were anywhere to be met with. There was some congestion of the Ileum, and the Colon presented a few points of ulceration. But it was in the lower extremity that the most important and remarkable changes were observable. Beneath the integuments all the muscular and other textures, from the seat of injury (at the junction of the lower and middle thirds of the femur) to the groin, were converted into a broken-down, black, rotten mass. A vast cavity existed around the fractured bone, irregularly limited by dark greenish disorganised muscular structure. A peculiar and disagreeable fœtor was observable. No trace of pyogenic membrane, and no appearances of a true pus were to be found; nothing but the rotten, disorganized, greenish black débris of the tissues filled the cavity. The fractured bone was, perhaps, the best specimen which could be witnessed of the extremes of splitting and comminution produced by the heavy conical ball. The fragments were very numerous; some of them long and delicate; their vertical and cross impaction, and their partial union, with the numerous stalactitic particles of callus thrown out upon them, gave the specimen, an almost arborescent, and altogether a very remarkable appearance. It is not improbable that in this case, at least, the irritation of such numerous pointed and jagged fragments had some influence in inducing this destructive action. The case altogether was one of no ordinary value, and supplied several useful lessons.

The particulars of another case are worth being cited. The patient was aged 26, of unhealthy aspect. He had been wounded on the 22d June in the Cemetery. A ball entered about four inches above the left knee, fractured the femur, and passing upwards on the outer side of the bone, lodged and was subsequently cut out behind the Trochanter major. A very extensive sinus formed, which it was found necessary to open, when exit was given to a considerable quantity of pus. Contraction of the limb, with shortening to the extent of 1½ to 2 inches, subsequently took place. Discharge continued from the wounds; wasting of the muscles on the anterior part of the limb sensibly took place. General emaciation progressed to a great extent, and the patient became weak, notwithstanding the most generous diet and free stimulation: bed sores formed on the Sacrum, and the patient died on the 31st July, after large hæmorrhage into the whole sac and sinus. On post-mortem examination it was found that there had been no exact apposition of the fragments of the femur; little reparatory effort had taken place, but around the injured bone and throughout the greater part of the limb an extensive sac had formed, which was found filled with blood and the débris of the tissues in the condition of a black rotten fœtid putrilage. This cavity presented no defined limits and no definite pyogenic membrane; its walls being formed by the tissues which remained undestroyed. There was a small amount of cretaceous deposit at the apices of the lungs, but neither in these nor any other organs was any kind of secondary deposit to be met with. Several other equally remarkable cases of this affection have occurred in the lower extremity. In a very much mitigated form it has presented itself in the arm; and in some few cases wounds of the posterior part of the trunk have exhibited a similar destructive action. With one exception, it has been invariably fatal when once established.

The order of occurrence of the processes in these cases seems to have been—1st. A more or less ill-defined suppurative action in the immediate neighbourhood of the fractured bone, or in the flaps of a stump; 2d. The establishment of a low inflammation invading all contiguous parts, and terminating in the destruction and disorganization of their tissues. Muscles seemed especially invaded by it; and it is probable that the hæmorrhage which took place into the sac in some cases was to be accounted for by the destruction of arterial branches, as those of the divisions of the Profunda in the thigh. It may, probably, be regarded as a Gangrenous Inflammation of the muscular structures chiefly.

Hospital Gangrene, so-called.—There is reason to believe that under the head of "Hospital Gangrene" many forms of diseased action differing essentially from each other, are very often included; and it would seem that this term has not yet received by common interpretation a sufficiently strict and well-defined application. As already stated, no forms of diseased action deserving this name have, within our experience, been presented in the Hospitals of the English Army, in an epidemic manner, or to any large extent. But

cases have undoubtedly occurred which it seems necessary to refer to this category, though they wanted one of the greatest and most important characteristics of the disease, namely, that of spreading by contagion, or invading in an epidemic manner large numbers of wounded placed under similar circumstances.

The form of diseased action about to be considered is itself important, however it may be designated. In the cases which came under our observation, it chiefly attacked stumps, after operation in the lower extremity. In some instances it had destroyed the most carefully made flaps to such an extent that had the patient survived the immediate effects of the disease, further operative interference would have been required, as the soft parts, more especially the integument, would no longer have sufficed to cover the stump.

The process seemed two-fold; it usually commenced about three or four days, sometimes at a much longer period, after the performance of an operation. More or less pain and uneasiness in the part were felt, with occasionally piercing pains of considerable severity, and stinging sensations in the stump. On the removal of the dressings nothing unusual was to be at first noticed, but on close examination it would be found that the discharge was not healthy; it was deficient in some parts, and in others disposed to crust. The integument at the borders of the incisions appeared pale, sometimes of a dead, white, tallowy aspect, and were quite insensible. These symptoms and appearances continuing, in a day or two subsequently, considerable portions of integument at the borders of the flaps, sometimes two or three inches in length, and from half to three-quarters of an inch in breadth, separated spontaneously, or could be brought away with a little traction. At the line of separation of the integument, a new action now seemed to be set up; it commenced at this line, engaging chiefly the skin and subcutaneous areolar tissue, but was not confined to them, as there was reason to think that the muscles were engaged in a precisely similar action, and that in them, as well as in the integument, the process was two-fold. A portion of the integument died, separated, and an ulcerative action attacked the borders of the remaining parts; in the muscles a portion of muscular structure died, separated, and the remaining parts ulcerated. In one case, that of an amputation high up in the thigh, what remained of the vastus externus died, and was brought away with the forceps. Day by day the processes of ulceration now advanced, most rapidly in the integument, which presented here and there semi-circular excavations. On examining the muscular structure evidences of the ulcerative process were recognizable, the fibres appeared minutely frayed and ragged at their ends, and where a line of tendon existed an appearance of fine shaggy threads showed the effects of ulcerative action on this structure. A good deal of importance may be attached to this latter sign in advancing ulceration in muscle. The lines of tendinous intersection being, as it were, the longest to resist, are not destroyed to a uniform level with the proper muscular tissue. In a reparative process they are the last to be restored, and become soonest hidden in the surrounding granulations.

This process has in some cases advanced to a marked extent, involving two, three, or more inches of the flaps of an amputation, until in some instances the stump presented a conical aspect, with a line of ulcerating integument for its base, and protruding bone at its apex. It was sometimes accompanied with pretty extensive suppuration in the deeper parts. In two instances at least it seemed to originate the destructive process which ended in the disorganization of the tissues and the formation of a gangrenous sac in the greater part of a limb, as already noticed. It generally seemed to resist all modes of treatment, but in some few cases the extensive and repeated application of the strong nitric acid was successful in procuring its arrest. It may be stated that this process has been observed in amputations below the knee; in those at the line of this articulation, and in amputations at all parts of the thigh. In some few other instances it has been partially noticed. A process of a precisely similar nature prevailed largely in the Hospitals of the French, and in both the English and French cases it undoubtedly corresponded to the ulcerative form of the "Pourriture d'Hopital," or "Hospital Gangrene," of authors. Of the pulpy form of degeneration which constitutes the second important variety of this affection, we have not known any well-marked examples to be presented in the English Hospitals. Some few cases of a doubtful kind did however, we believe, occur, but we had not an opportunity of examining them in a stage when their features were characteristic, and we cannot therefore speak positively with regard to them.

Both in the primary and in the secondary Hospitals of the French Army, in the Camp and at Constantinople, the two forms of this affection, that of the painful ulcerative condition, and that of the pulpy degeneration, were most extensively and well exemplified. In the pulpy form, a large fungating mass of a dark ash colour was observed to project from the surface of the sore, giving to it a peculiar tumified and cauliflower-like appearance. The gaseous matters generated in and about the sore added much to this pulpy state. The fœtor was peculiar and most offensive. The part thus affected was immediately surrounded by an inflammatory exudation, which, in its turn, assumed the same form and mode of degeneration; and thus the morbid state progressed with rapid and destructive strides to the surrounding textures. In one remarkable instance we have seen a combination, to a fearful extent, of the sloughing, fungating, and ulcerative stages of this affection in a wound in the groin. In other instances we have seen the femoral artery

exposed, and the great muscles of the thigh undermined in a more advanced stage. We have also known large hæmorrhages to be thus produced. In one or two cases only have we seen any parallel to this condition of things in the English Hospitals. In one, an extensive phagadenic process laid bare some four or five inches of the anterior external surface of the tibia, with extensive destruction of the neighbouring muscles and other textures. In another instance of shell wound in the calves of both legs, extensive ulceration had been established. The muscles beneath these ulcers were found to have undergone the fatty degeneration. In this case the patient, though affected with Scorbutus and Dysentery, had apparently survived the first violence of the phagadenic process in his wounds, but the system did not possess sufficient power for the establishment of a reparative process. The long continuance of the diseased process and the inaction of the parts account for the fatty degeneration in the muscular structures.

While in the active condition, the microscopic appearances presented by the débris of tissue in this class of cases consisted of ill-formed cells, approaching, in the more perfect, to the form of the pus cell. They were, however, more generally elongated, or of an irregular angular form, sometimes caudate and clear, being void of central granular deposit. A large amount of granular matter was the most abundant element, and when the matter from the raw and marginal aspect of the sore was examined, a few exudation corpuscles were found. Vibriones were abundant, as might be expected.

In no respect do these appearances differ from those observed in Hospital Gangrene under other circumstances, and as it occurs in this country.

We cannot leave this subject without expressing grave doubts as to the propriety of applying the term Hospital Gangrene to any of the varieties of this form of disease. Its essential characters do not seem to be those of a true Gangrenous process.

True Local and General Gangrene.—The next class of cases which we shall notice embraces some very formidable and remarkable examples of disease. It includes instances of what may be termed local and general true Gangrenous processes. When once developed, the progress of this form of disease was rapid, and its issue invariably fatal. Treatment was utterly unavailing; and it is a process which, when once established, there seems no ground to hope will ever be under the control of art. With regard to its essential nature, we have been able to determine but little beyond that it most probably recognizes a general constitutional cause. As met with by us, it has been confined to cases of amputation, chiefly, but not exclusively, in the lower extremity, and most frequently to operations in the thigh. We have only known one instance in which the condition was but partially developed, and in which it did not prove directly fatal, but the patient did not ultimately recover.

The most rapidly fatal case of this affection which we have seen, occurred in a lad, aged 18, who received a compound comminuted fracture of the right leg on the 8th of September, for which amputation below the knee was performed on the same day. The patient progressed favourably, was in excellent, even hilarious spirits till within a few hours of death. On the third day, as the dressings were about to be removed for the first time, the patient, though apparently well as usual, was noticed to be somewhat pale, a little nervous, and with a peculiar expression of the eyes, which were preternaturally clear, exsanguinious, and lustrous. While the dressings were being taken off, he somewhat gladly remarked that this process gave him no pain. On their removal, the entire stump to the knee was found of a dark greenish black colour, disorganized and friable, and perfectly insensible. A slight oozing of blood commenced; and now, for the first time, the patient became suddenly and overwhelmingly alarmed with the idea of approaching dissolution. After a brief interval an extensive hæmorrhage gushed from the stump, and before it could be controlled by pressure on the femoral artery, a great loss of blood took place. Even the most careful pressure on the femoral artery did not entirely control the bleeding. The patient rapidly blanched, sank, and life was extinct within two or three hours.

It is to be observed in connexion with this case, that owing to the occurrence of hæmorrhage, death took place before the development of marked constitutional symptoms which in other cases were found to attend this form of disease. In no other instance have we known the affection to have been so early fatal (third day). It more commonly appeared about the fourth, fifth, or sixth day. It was generally preceded by pain, more or less severe, in the stump; there were also symptoms of general constitutional disturbance, sometimes violent, tumultuous, of sudden occurrence, and not easily explicable; but these were not constant, and in some of the very worst cases there was little to indicate the danger of the patient, and he was himself the last to suspect it. In several instances the morbid state fully developed, though previously unsuspected, was first indicated by a peculiar intense odour emanating from the parts and sensible at some considerable distance, and which though difficult to be described, could never be mistaken after it had been once recognized. To those familiarised with it, this odour was perceptible upon entering the ward where the patient lay. On examining a stump thus affected, the flaps were found discoloured and gaping; the whole limb, was immensely distended, and in parts distinctly emphysematous; vesications filled with discoloured serum were not infrequently found near the borders of the flaps; fœtid gas and a sanious dark-coloured fluid bubbled out from the wound; the areolar and adipose tissues, discoloured and apparently dead,

protruded between the sutures, where any of them remained. The upper parts of the limb were white and tallowy in appearance, and sometimes marked with a network of purple-coloured veins. The parts were insensible throughout, but exhaled a peculiar fœtid odour, as already noticed; the temperature was considerably diminished.

With a limb in this condition and death imminent, we have in more than one instance seen the patient perfectly unconscious of his state; at most, a slight amount of nervous excitement prevailed. There was, in some instances, an anxious expression of the countenance, the face being sallow and the eyes presenting the peculiar clear and somewhat lustrous aspect before alluded to; the action of the heart was feeble, and the pulse excessively rapid but weak. Death invariably supervened within a very short period; its occurrence was seldom protracted beyond twenty-four hours from the time at which the state was first discovered.

The pathological anatomy of these cases reveals but little. Nothing which could be said to be peculiar was found; the great characters being those of extensive and rapid decomposition throughout more or less of the entire system in all parts and organs.

The following case so well shows all the essential features of the disease that it seems worth being given in detail. The patient was a young athletic man, about 21 years of age. He had received an extensive compound comminuted fracture of the right leg below the tuberosity of the tibia, with the formation of a large cavity in this bone. The integument over the inner condyles of the femur and head of the tibia, had been removed by the same projectile, probably a large fragment of shell, but (as was subsequently ascertained) without actual injury to the joint. Considerable hæmorrhage took place at the time from the saphena vein. An attempt was made to save the limb, and apparently not without just reason, for when seen seven or eight days subsequently, on the occasion of some fragments being removed from the tibia, the patient suffered but little pain from examination or otherwise, and had very considerable power of flexing the joint and moving the limb. Unfavourable symptoms, however, set in, and it was found necessary to amputate the limb shortly afterwards, when the operation by double flaps was performed in the lower third of the thigh. On the third day after the removal of the limb there was a sudden accession of violent and extraordinary symptoms, the pulse rose to 140, and death took place on the fourth day after the operation.

The sectio cadaveris was made about twenty-two hours after death, the temperature having been from 80° to 85° in the shade. The gaseous distention of the body and the frightfully distorted condition of the face, made it utterly impossible to recognize the features, and would have put identification in any similar case, if necessary for medico-legal purposes, quite out of the question. The tension and distention of the abdomen were extreme. Numerous vesicles, filled with a blueish fluid, existed on its anterior wall. There was immense tumefaction, with extensive blue and purple discolouration, and large epidermic vesications of the whole of the upper part of the thorax and of the neck. The globes and lids of the eyes were greatly swollen and protruded, and discharged much sanies. Large arborescent veins were observable on the thorax, the arms, the groin, and upper parts of the thighs. The surface generally was emphysematous and crackled on pressure. The confined gas escaped with great violence from the abdomen when it was first opened, and all the tissues were infiltrated with gas, while the Intestines were distended to a great size. The lungs presented numerous large vesicles on their surface, and broked own immediately on the slightest pressure or traction. The fingers passed through their substance on the least attempt to grasp them, their parenchyma breaking down at once, but leaving a sort of framework of the vessels and tubes. The pericardium was much distended with gas; the fatty tissue of the heart was blown up. The heart itself was full-sized, round, and convex, being evidently filled with gas, and contained not a particle of blood, nor was there any blood in the great vessels. The liver was covered with blebs or vesicles scattered here and there under the peritoneal coat; its colour was blueish black, while its tissue was soft, putrilaginous, and broke into a granular pulp on the least pressure. The spleen was soft and rotten; the kidneys on their surface, and to the depth of half an inch, were soft and pulpy, the cones were a little more solid. The Intestines, both large and small, were of a dirty greenish black throughout, and were distended with very fœtid gas. The cava and iliac veins contained but little blood, but were full and round, being obviously distended with gas. A couple of transparent vessels crossed the lower part of the cava distended in knot-like or beaded particles. They were probably lymphatics. A small quantity of dark quite fluid semi-sanious blood was found in the external iliac veins, while a somewhat purulent-looking matter could be pressed with the edge of the knife from several distended veins in this situation, both the tributaries of the iliacs and those on the surface of the thigh. There was some deposit of lymph in the lower three inches of the femoral vein. The femoral artery was pervious to within a short distance of the point of section. In the stump very slight union had taken place at the external edge of the flaps; but within, the textures were converted into a greenish black putrilage. The smell of all the tissues was very peculiar rather than intense. Our researches on the curious subject of Histolysis have made us familiar with all the phases of decomposition, and we can state that never under the highest temperatures have we seen changes, such as were effected in this and some similar cases within twenty-two hours after death, produced till after the lapse of very many days, and never then to the same extent in many respects.

The case just described embraces all the features of this remarkable form of disease, but in their most exaggerated condition. Death of the parts more immediately concerned in the operation, gaseous distention of the limb, and more or less general emphysema of other parts of the body, almost total disappearance of the blood, and its replacement in the heart and vessels by gas, with more or less advanced decomposition in the viscera, have been the chief appearances found post mortem. The disease, as far as we know, has not recognized a connexion with any particular age or type of constitution. We have seen it in the lad of eighteen, of light and active frame, and we have also met with it in the robust, stalwart, and perhaps too plethoric artilleryman. It has shown no tendency that we could ascertain to spread by infection or contagion. But on the occasions of the 8th and 18th of June, the final assault on the Grand Redan on the 8th of September, and after the fatal explosion in the Right Siege Train on the 15th of November, and in rare instances in the intervals between these periods, well-marked examples of it have been presented. There seems no way of accounting for these very remarkable phenomena, except by the supposition that they are the result of a sudden and general decomposition. The immediate origin of this decomposition may, not without some probability, be referred to a local, suddenly developed, but intense gangrene of the parts at the seat of injury or operation, which by a sort of pathological catalysis from the effects of the local organic decompositions, determines in the first instance, a decomposition of the blood, and, through this medium, that of all the tissues with which it comes in contact. It is remarkable that the various tissues and organs did not present the appearance of being merely dead, and spontaneously undergoing decomposition as in ordinary cases, but they seemed to show, in the changes so rapidly and intensely produced, the effects of a peculiarly destructive agency. The explanation of this agency is probably to be sought in the sudden and as it were explosive decomposition of the circulating fluid, its chemical constituents assuming the gaseous form in a sudden and violent manner, and the resulting gases in their expansion causing a mechanical separation and disintegration of the particles of the tissues. The full elucidation of the nature of the changes thus effected will require the aid of Chemical Science.

It was originally intended to give some general account of the Surgical Pathology of the past campaigns; but as it was found that it would be hardly possible to deal adequately with this subject, without trenching on the limits of the Practical Surgeon, it has been deemed not quite consistent with our duties to enter upon it in this place.

ROBERT D. LYONS.

WILLIAM AITKEN, M.D., *First Assistant Pathologist*

In concluding this Report, I feel bound to express my best acknowledgments to both my Assistants, Drs. Aitken and Doyle. From the former, more especially, I have received such valuable aid on all occasions, that I think it due to him that his signature should stand next my own to the special section of this work.

ROBERT D. LYONS.

APPENDIX.

APPENDIX No. I.

It may be of interest, though doubtless complete scientific data will be elsewhere furnished on this subject, to give here a very brief summary of the most remarkable Meteorological Phenomena which have come within our own observation while resident in the Crimea.

In many respects the climate of the South-western Littoral of the Crimea, the site of the Allied Camps, may be considered as a comparatively healthy one. The temperature of the past summer rarely, if ever exceeded 95° in the shade; 90° has been pretty often reached during the months of June, July, and August, but not commonly on more than two successive days; 80° to 85° have been frequent, but when accompanied by a light fresh breeze from the sea, which was constantly the case, this temperature was far from oppressive. Very considerable and sudden depressions of the Thermometer were not infrequent in the above-named months. Thus, in the last four days of July (1855) the mid-day temperature fell to 65°—68°; heavy and continuous falls of rain occurring at the same time. Again, in the middle of August, the Thermometer, which was noted at 90° at 9 A.M. on the 14th, reached only 78° on the succeeding day at the same hour, and on the 20th August it had fallen to 70°. Towards the close of August it had again reached 85°. After the middle of September a very considerable depression took place, the instrument marking 50° on the 26th, at 9 A.M. On the 27th it fell, within three hours in the forenoon, from 50° to 46°. In the middle of October it was again pretty high, reaching 75° after mid-day on the 15th. For the first four days of November the temperature reached 70°, 73°, 65°, and 70°, at 9 A.M. on the 1st, 2d, 3d, and 4th, respectively. An oppressive hot wind from E.S.E. continued to blow on these days. From the 8th to the 20th Nov., the Thermometer gradually fell, till on the 21st it stood for the greater part of the fore and afternoon 1° below the freezing point. On the 23d and 24th it was again about 50°—55°, but on the 27th reached only 27° at 9 A.M. On the 4th December it fell from 54° at 9 A.M. to 30° at 6 P.M.; and on the 5th, from 38° at 9 A.M., it gradually rose to 54° at night, when heavy rain set in. It varied much from this to the 18th, when at 9 A.M. the mercury was at 35°, from which it fell to 28° at 11 P.M., and sank steadily during the night, marking only a little above 4° (within a wooden hut) at 9 A.M. on the 19th. From this it rose slowly but gradually, marking 11° about midnight of the 19th, 16° on the 20th at 9 A.M., and 23° at midnight. The changes here noted are sufficiently remarkable, and must, under any circumstances, have influenced health to a considerable extent.

The proximity of the sea on the one hand, and the Crimean Steppes on the other, offered abundant disturbing causes to the atmosphere, which consequently was all but invariably in motion. Light breezes from the sea sprung up in the forenoon, and served much to counteract the elevation of the summer temperature, and rendered it much more tolerable; they were very refreshing, and doubtless, much conducive to health. Occasionally, however, it blew with extreme violence both from the sea and from the steppes, large pillars of dust being borne along before the wind, raised to a considerable elevation, and then scattered in clouds with great force. The strength of the wind sometimes increased to a hurricane, and by the snapping of pole-tents much exposure and discomfort were occasioned to the men, especially when, as was not infrequently the case, heavy falls of rain occurred at the same time. A peculiar hot and oppressive wind was on some few occasions felt, moving with but little velocity, but constant for the greater part of a day; a dense haze, rendering objects at a moderate distance invisible, sometimes occurred with it. We have known this wind to come both from the direction of the sea and that of the steppes. It prevailed so late as the first three days of November. Its chief effects were a peculiar sense of oppression and difficulty of respiration. In the winter months, especially in December, piercing winds from the north made the cold much more sensibly felt. Sudden and continuous heavy rains were of very frequent occurrence during the months of June, July, August, and September; occasionally, as in the end of July, continuing for several successive days, and accompanied by a remarkable depression of the Thermometer. By the flooding of the Trenches, and even in many instances of numbers of tents and huts, we believe more suffering has been induced by these excessive rains than by almost any other cause, and instances were not uncommon in which outbursts of disease of a bad form could be traced to them.

In the accompanying Tables we are enabled to give a pretty complete account of the chief Meteorological Phenomena observed at Scutari during the period of our investigations. The observations embrace the results of the Thermometer at stated periods of the day, made by our direction, at the Barrack Hospital. For the maxima and minima, and the results of the Wet Bulb Thermometer, we are indebted to Dr. Lawson, Deputy Inspector-General, a gentleman to whose courtesy and kind assistance on all occasions we owe much. Dr. Lawson's observations were made at the General Hospital at Scutari.

Register of Meteorological Observations.

Barrack Hospital, Scutari.					General Hospital, Scutari.						
1855.	Common Thermometer.				External.		External, 9 A.M.		Winds.		Weather.
June.	6 A.M.	12 Noon.	8 P.M.	Mean.	Minimum.	Maximum.	Thermometer.	Wet Bulb.	A.M.	P.M.	
				°	°	°	°	°			
1	.	..	..	75·9	64·8	87·0	74·5	68·0	N.W.	N.W.	Fair A.M. P.M. fine.
2	..	..	..	76·6	63·3	90·0	77·0	69·8	N.W.	N.W.	Fine A.M. P.M. fine.
3	..	..	..	78·1	66·3	81·5	76·2	69·0	N.W.	N.W.	Fine A.M. P.M. fine.
4	..	..	..	73·7	66·6	80·8	77·5	70·0	N.E.	N.E.	Fine A.M. P.M. fine; fresh breeze.
5	..	..	..	71·2	65·0	77·5	75·5	68·0	N.E.	N.	Cloudy A.M. P.M. cloudy.
6	..	..	..	76·5	65·3	87·8	74·5	69·0	N.	N.	Rain at night. Cloudy.
7	..	..	..	70·2	63·4	77·0	75·6	69·2	S. by	S.W.	Cloudy A.M. P.M. cloudy.
8	..	..	..	67·1	65·3	69·0	66·2	63·0	S. Easterly	N.E.	Rain A.M. P.M. squally, rain.
9	..	..	..	74·4	61·5	87·4	69·0	62·0	N. Easterly	Northerly	Fine A.M. P.M. fine.
10	..	..	..	70·8	60·0	81·6	63·0	65·4	N. Easterly	N.E.	Fine A.M. P.M. fine.
11	..	..	..	73·7	65·4	82·0	74·4	65·0	E.N.E.	N.E.	Fine A.M. P.M. fresh breeze.
12	..	..	..	68·5	61·0	76·0	75·0	63·0	N.E.	N.E.	Fine A.M. P.M. do.
13	..	..	..	70·5	63·0	78·0	73·5	68·0	S.	N.E.	Fine A.M. P.M. fine.
14	..	..	..	70·3	61·6	80·0	78·0	68·0	E.	N.E.	Fine A.M. P.M. fine.
15	..	..	..	70·3	61·7	79·0	78·0	69·5	N.E.	Northerly	Fine A.M. P.M. fine.
16	..	..	..	72·2	62·2	82·2	76·7	68·6	E.N.E.	E.N.E.	Fine A.M. P.M. fine.
17	..	..	..	72·8	63·0	80·6	76·6	69·0	E.N.E.	E.N.E.	Fine A.M. P.M. fine.
18	..	..	..	74·1	66·3	82·0	79·5	70·6	E.N.E.	E.N.E.	Fine A.M. P.M. fine.
19	..	..	..	76·2	67·3	85·2	82·2	72·0	S.W.	N.N.E.	Fine A.M. P.M. fine.
20	..	..	..	76·7	65·6	87·8	81·0	71·0	S.W.	N.E.	Fine A.M. P.M. fine.
				Maxima and Minima of the Decades of Month.							
21	71	76	80		67·0	85·7	80·0	72·8	S.W.	Variable	Fine A.M. P.M. fine.
22	72	76	78	Morning Maxima 74°	68·0	84·4	79·5	72·0	S.S.W.	..	Fine A.M. P.M. fine.
23	71	77	76		68·8	89·0	81·5	72·4	S.S.W.	N.E.	Fine A.M. P.M. fine.
24	72	+82	+86	Morning Minima 60°	70·0	98·0	84·0	73·0	S.W.	S.W.	Fine, hot A.M. P.M. hot, fine.
25	+74	76	72	Noon Maxima 82°	72·2	78·0	76·2	68·3	W.S.W.	W.	Fine A.M. P.M. fine.
26	62	72	70	Noon Minima 66°	63·0	77·0	73·0	62·8	W.S.W.	S.	Fine A.M. P.M. cloudy.
27	−60	−66	70	Evening Maxima 86°	60·5	74·5	68·0	60·0	W.S.W.	W.S.W.	Fine, rain at night. P.M. cloudy.
28	66	70	70		64·5	79·0	75·0	67·7	Calm	N.E.	Cloudy A.M. P.M. cloudy.
29	68	67	−66	Evening Minima 66°	66·0	73·5	71·5	65·0	N.E.	N.E.	Cloudy A.M. P.M. cloudy.
30	62	70	68		68·5	76·4	73·5	62·8	E.N.E.	E.N.E.	Fine A.M. P.M. fine.

Register of Meteorological Observations—*continued.*

Barrack Hospital, Scutari.					General Hospital, Scutari.						
1855.	Common Thermometer.				External.		9 A.M.		Winds.		
July.	6 A.M.	12 Noon.	8 P.M.	Maxima and Minima of the Decades of Month.	Minimum.	Maximum.	Thermometer.	Wet Bulb.	A.M.	P.M.	Weather.
	°	°	°		°	°	°	°			
1	−64	72	70		58·4	76·6	75·0	63·4	E.N.E.	E.N.E.	A.M. fair. P.M. fine.
2	65	74	+80	Morning Maxima 72°	59·7	77·0	74·3	64·4	E.N.E.	E.N.E.	A.M. fair. P.M. fine.
3	66	−70	−68	Morning Minima 64°	59·5	78·6	74·0	67·0	N.E.	E.N.E.	A.M. fine. P.M. fine.
4	66	77	74		61·0	82·0	78·0	66·8	E.N.E.	E.N.E.	A.M. fine. P.M. fine.
5	70	77	80	Noon Maxima 80°	64·8	81·5	78·0	68·0	E.N.E.	E.N.E.	A.M. fine. P.M. fine.
6	71	77	78	Noon Minima 70°	66·4	82·0	80·5	69·6	E.E.E	E.N.E.	A.M. fine. P.M. fine.
7	71	+80	74	Evening Maxima 80°	66·2	82·0	81·0	71·0	E.N.E.	E.N.E.	A.M. fine. P.M. fine.
8	70	79	77	Evening Minima 68°	68·2	80·0	80·0	71·0	E.	E.N.E.	A.M. fine; cloudy. P.M. fine.
9	+72	78	79		67·2	81·5	79·0	71·0	E.N.E.	E.N.E.	A.M. hazy; fine. P.M. fine.
10	72	75	78		67·0	88·6	76·0	71·4	W.S.W.	.E.	A.M. fair. P.M. fine.
11	70	78	80		68·0	89·3	82·0	72·6	S.W.	Calm.	A.M. fine. P.M. fine.
12	74	81	84	Morning Maxima 78°	70·8	94·0	88·0	75·0	Variable.	Variable.	A.M. fine. P.M. fine.
13	+78	+84	+86	Morning Minima 67°	73·0	88·0	88·0	77·0	N.N.W.	N.N.W.	A.M. fine; fresh breeze. P.M. fair; do.
14	75	77	74		70·5	79·0	77·5	72·0	N.	N.N.W.	A.M. cloudy; rain. P.M. cloudy; fine.
15	68	74	71	Noon Maxima 84°	65·8	80·0	76·0	65·6	N.	N.N.W.	A.M. cloudy; fair. P.M. fine.
16	68	74	71	Noon Minima 72°	62·3	79·0	78·0	70·0	N.	N.N.W.	A.M. cloudy; rain at night. P.M. cloudy.
17	−67	−72	−70	Evening Maxima 86°	59·4	80·0	75·0	67·8	Calm.	S.E.	A.M. fine. P.M. fine.
18	67	75	76	Evening Minima 70°	62·5	84·5	77·3	68·8	E.N.E.	E.N.E.	A.M. fine. P.M. fine.
19	68	80	76		65·0	83·0	82·7	68·6	E.N.E.	N.E.	A.M. fine. P.M. fine.
20	70	80	77		66·2	81·5	80·8	70·0	E.N.E.	N.	A.M. fine. P.M. fine.
21	−70	+80	78		65·5	82·0	81·5	71·3	N.W.	N.W.	A.M. fine. P.M. fine.
22	71	79	79		65·0	..	78·8	71·5	E.N.E.	..	A.M. cloudy; fair.
23	71	80	78	Morning Maxima 77°	..	82·0	..	..	..	..	.....
24	74	78	+80	Morning Minima 70°	69·0	87·0	80·5	74·0	Calm.	N.E.	A.M. fine. P.M. fine.
25	75	80	80	Noon Maxima 80°	71·8	85·0	81·0	74·3	N.E.	N.E.	A.M. fine. P.M. fine.
26	75	78	78		70·4	87·0	81·7	75·5	N.E.	Calm.	A.M. cloudy. P.M. fine.
27	73	79	79	Noon Minima 77°	70·4	89·5	82·5	75·2	S.W.	Calm.	A.M. fine. P.M. fine.
28	+77	80	−76	Evening Maxima 80°	75·0	83·0	82·8	74·0	N.N.W.	N.	A.M. close; cloudy. P.M. thunder, rain; afterwards fine.
29	70	−77	80	Evening Minima 76°	67·3	83·6	79·5	73·2	N.	Calm.	A.M. fine; rain at night. P.M. fair.
30	72	78	80		69·0	87·0	82·0	74·0	N.N.W.	N.	A.M. fine. P.M. fine.
31	74	79	80		69·5	87·6	84·5	73·0	N.N.W.	Calm.	A.M. fine. P.M. fine.

July.	From 1st to 10th.	From 11th to 20th.	From 21st to 31st.	Month.
	°	°	°	°
Maximum - - -	80	86	80	86
Minimum - - -	64	67	70	64
Mean - - - -	70·6	76·1	76·6	74·4

Register of Meteorological Observations—*continued.*

1855.	Barrack Hospital, Scutari. Common Thermometer.				General Hospital, Scutari. External.		9 A.M.		Winds.		Weather.
Aug.	6 A.M.	12 Noon.	8 P.M.	Maxima and Minima of the Decades of Month.	Minimum.	Maximum.	Thermometer.	Wet Bulb.	A.M.	P.M.	
	°	°	°		°	°	°	°			
1	70	78	77		68·0	84·0	81·0	70·3	N.	N.	A.M. fine. P.M. fine.
2	73	78	78		70·0	83·0	79·2	70·6	N.N.W.	N.W.	A.M. fine. P.M. fine.
3	73	80	77	Morning Maxima 74°	68·0	84·5	79·6	73·0	N.E.	E.N.E.	A.M. cloudy. P.M. fine.
4	+74	+80	+78	Morning Minima 68°	72·0	85·5	83·5	72·6	E.N.E.	E.N.E.	A.M. fine. P.M. fine.
5	74	82	77	Noon Maxima 80°	73·0	85·5	83·6	72·6	E.N.E.	E.N.E.	A.M. fine. P.M. fine.
6	74	80	78	Noon Minima 72°	68·8	85·6	84·0	70·8	N.	N.N.W.	A.M. fine. P.M. fine.
7	73	73	76	Evening Maxima 78°	69·4	78·0	77·5	73·0	N.N.W.	Northerly.	A.M. (rain) Thunder and rain all day long and during the night.
8	−68	−72	75	Evening Minima 74°	64·5	78·0	71·0	68·8	N.E.	N.E.	A.M. fine. P.M. fine.
9	68	76	−74		65·5	80·5	78·3	72·8	N.E.	N.E.	A.M. fine. P.M. fine.
10	71	76	76		68·3	84·0	79·5	75·0	N.E.	N.E.	A.M. fine; cloudy. P.M. fine.
11	71	79	77		69·5	83·5	81·0	75·5	N.E.	N.E.	A.M. fine. P.M. fine.
12	73	80	78	Morning Maxima 74°	70·5	84·0	84·0	75·5	E.N.E.	E.N.E.	A.M. fine. P.M. fine.
13	+74	78	+80		70·5	87·5	80·5	75·0	Variable.	N.E.	A.M. fine. P.M. fine.
14	74	80	80	Morning Minima 67°	70·5	86·0	81·6	76·0	S.W.	Calm.	A.M. fine. P.M. fine.
15	74	+82	80	Noon Maxima 82°	70·4	84·0	82·0	75·0	N.N.W.	N.N.W.	A.M. fine. P.M. fine.
16	72	74	72	Noon Minima 72°	74·0	76·0	74·5	66·0	N.N.E. Fresh.	N.N.E. Fresh.	A.M. fine. P.M. cloudy.
17	70	74	74	Evening Maxima 80°	73·0	80·0	75·3	66·0	N.N.E.	N.N.E.	A.M. fine. P.M. cloudy.
18	70	75	74		67·0	77·0	76·0	65·2	N.N.E.	N.E.	A.M. fine. P.M. fine; cloudy.
19	68	73	71	Evening Minima 70°	67·0	75·0	73·6	64·2	N.N.E.	N.N.E.	A.M. fine. P.M. fine; fresh breeze during day.
20	−67	−72	−70		70·0	76·5	75·2	64·0	N.N.E.	N.E.	A.M. fine. P.M. fine; fresh breeze during day.
21	−64	74	70		67·4	77·0	75·5	64·0	N.E.	N.E.	A.M. fine. P.M. fine; fresh breeze during day.
22	68	75	72		68·0	79·0	77·0	66·0	E.N.E. Fresh.	E.N.E. Fresh.	A.M. fine. P.M. fine; fresh breeze during day.
23	68	75	75	Morning Maxima 70°	66·5	78·3	75·6	65·4	E.N.E.	E.N.E.	A.M. fine. P.M. fine; fresh breeze during day.
24	68	77	76	Morning Minima 64°	65·0	80·5	77·6	68·8	E.N.E.	E.N.E.	A.M. fine. P.M. fine; fresh breeze during day.
25	+70	+78	76	Noon Maxima 78°	68·0	82·3	79·2	70·0	E.	E.N.E.	A.M. fine. P.M. fine.
26	72	78	+76		67·6	82·0	80·5	70·0	E.N.E.	E.N.E.	A.M. fine. P.M. fine.
27	68	74	72	Noon Minima 71°	65·8	78·0	76·0	64·8	E.N.E.	E.N.E.	A.M. fine; cloudy. P.M. fine.
28	68	74	72	Evening Maxima 76°	66·3	77·0	74·5	68·0	N.E.	N.E.	A.M. cloudy. P.M. fine.
29	67	76	76	Evening Minima 69°	62·0	77·5	76·0	68·0	N.E.	N.E.	A.M. fine. P.M. fine.
30	70	75	70		66·3	76·0	76·5	69·0	N.E.	N.E.	A.M. cloudy. P.M. fine.
31	66	−71	−69		64·3	74·0	73·5	63·4	E.N.E.	E.N.E.	A.M. cloudy. P.M. fine.

August.	From 1st to 10th.	From 11th to 20th.	From 21st to 31st.	Month.
	°	°	°	°
Maximum - - -	80	82	78	82
Minimum - - -	68	67	64	64
Mean - - - -	74·3	74·1	71·3	73·25

Register of Meteorological Observations—*continued*.

1855.	Barrack Hospital, Scutari. Common Thermometer.				General Hospital, Scutari. External.		9 A.M.			Winds.		Weather.
Sept.	6 A.M.	12 Noon.	8 P.M.	Maxima and Minima of the Decades of Month.	Minimum.	Maximum.	Thermometer.	Wet Bulb.	Aneroid Barometer.	A.M.	P.M.	
	°	°	°		°	°	°	°	°			
1	63	70	68		57·0	74·0	71·5	62·8	..	E.N.E.	E.N.E.	A.M. fine. P.M. fine.
2	62	70	71	Morning Maxima 71°	58·0	77·0	72·0	63·4	..	E.	N.E.	A.M. fine. P.M. fine.
3	66	74	72	Morning Minima 60°	62·3	80·0	74·6	66·6	..	E.N.E.	E.N.E.	A.M. fine. P.M. fine.
4	67	73	72	Noon Maxima 80°	64·5	78·0	74·8	66·4	..	E.N.E.	E.N.E.	A.M. fine. P.M. fine.
5	67	73	74	Noon Minima 64°	63·3	78·0	76·0	65·5	..	E.N.E.	E.N.E.	A.M. fine. P.M. fine.
6	66	72	76	Evening Maxima 82°	60·3	83·5	75·5	68·0	..	E.	Calm.	A.M. fine. P.M. fine.
7	+71	+80	+82	Evening Minima 66°	68·5	84·0	82·0	70·0	..	E.N.E.	N.N.E.	A.M. fine. P.M. fine.
8	67	67	73		..	69·5	69·0	60·0	..	N.E.	N.E.	A.M. fine. P.M. fine.
9	−60	66	−65		53·6	71·0	66·5	60·0	30·18	E.S.E.	N.E.	A.M. fine. P.M. fine.
10	60	−64	67		52·0	72·0	66·3	58·4	29·95	Calm.	S.	A.M. fine. P.M. cloudy.
11	66	72	+72		60·8	74·8	72·3	64·0	..	W.	S.W.	A.M. p. at night; cloudy. P.M. cloudy.
12	+67	72	71	Morning Maxima 67°	63·5	77·5	73·6	67·4	29·97	N.W.	N.W.	A.M. cloudy p. P.M. cloudy
13	66	+73	71	Morning Minima 57°	62·0	77·0	73·4	65·0	29·95	E.	S.W.	A.M. cloudy p. P.M. cloudy.
14	64	71	70	Noon Maxima 73°	63·0	73·0	67·8	66·0	29·71	S.W.	S.W.	A.M. rain at night. P.M. cloudy.
15	66	68	70	Noon Minima 60°	61·8	78·0	70·2	67·0	29·85	S.W.	S.W.	A.M. rain at night. P.M. p.
16	63	65	63	Evening Maxima 72°	66·0	66·0	65·0	61·0	29·90	N. q.	N.W.	A.M. q p. P.M. p.
17	58	−60	−60		54·2	63·0	56·5	54·6	29·95	W.	N.	A.M. fine. P.M. p.
18	−57	64	62	Evening Minima 60°	52·0	67·5	63·9	58·6	30·02	N.	N.	A.M. fine. P.M. fine.
19	57	64	65		51·5	71·0	63·2	59·4	30·06	E.	N.E.	A.M. fine. P.M. fine.
20	58	64	64		52·3	69·0	67·3	63·0	30·05	Calm.	N.N.E.	A.M. c. p. P.M. fine p.
21	60	66	63		53·0	71·5	65·0	60·8	30·13	N.E.	N.E.	A.M. p. P.M. c. p.
22	−59	65	63	Morning Maxima 64°	56·0	71·0	66·0	62·6	30·14	N.E.	N.E.	Passing showers.
23	60	64	64	Morning Minima 59°	56·5	70·0	66·0	62·0	30·14	N.E.	N.E.	Cloudy.
24	60	65	64	Noon Maxima 69°	55·0	70·5	65·3	61·0	29·94	N.E.	N.E.	Cloudy; fine.
25	60	66	67	Noon Minima 64°	53·0	69·5	65·3	61·0	29·82	N.E.	S.W.	Fine.
26	60	67	66	Evening Maxima 67°	56·7	70·0	71·0	61·6	29·93	S.W.	N.E. Fresh.	Fine.
27	62	66	64	Evening Minima 60°	59·5	70·0	63·5	59·2	30·16	N.E. Fresh.	N.E.	Cloudy.
28	62	+69	64		61·0	69·0	70·5	66·0	30·03	N.E.	N.E.	Fine; rain at night.
29	+64	−64	−60		59·5	64·0	63·4	61·2	30·00	N.E.	N.E.	Rain; overcast.
30	60	65	61		53·6	66·0	63·5	59·6	30·05	N.E.	N.E.	Cloudy p.

September.	From 1st to 10th.	From 11th to 20th.	From 21st to 30th.	Month.
	°	°	°	°
Maximum - - -	82	73	69	82
Minimum - - -	60	57	59	57
Mean - - -	68·6	64·8	63·8	69·5

Register of Meteorological Observations—*continued.*

Barrack Hospital, Scutari.					General Hospital, Scutari.							
185.	Common Thermometer.				External.		9 A.M.		Aneroid Barometer.	Winds.		Weather.
Oct.	6 A.M.	12 Noon.	8 P.M.	Maxima and Minima of the Decades of Month.	Minimum.	Maximum.	Thermometer.	Wet Bulb.		A.M.	P.M.	
	°	°	°		°	°	°	°	°			
1	59	66	64		52·0	..	63·2	6 ·8	30·44	N.E.	N.E.	A.M. fine. P.M. fine.
2	60	66	65	Morning Maxima 64°	53·5	71·0	64·5	60·0	29·94	E.	N.E.	A.M. fine. P.M. fine.
3	61	66	69		52·8	75·6	66·5	62·5	29·78	W.S.W.	Calm.	A.M. fine. P.M. fine; cloudy.
4	+64	67	64	Morning Minima 56°	59·3	69·0	64·0	62·0	29·74	W.S.W.	S.W.	A.M. rain at night. P.M. fine.
5	−56	−61	−62	Noon Maxima 70°	55·4	67·0	60·6	57·0	29·84	W.	N.	A.M. overcast. P.M. showery.
6	61	66	64	Noon Minima 61°	58·0	67·0	64·4	62·0	29·97	N.	N.	A.M. fair. P.M. fair.
7	60	65	65	Evening Maxima 74°	55·0	70·2	65·3	62·6	29·98	E.	N.	A.M. fine. P.M. fine.
8	62	67	66		53·8	68·6	65·5	63·0	29·97	S.	Calm.	A.M. fine. P.M. fine.
9	60	+70	70	Evening Minima 62°	57·0	73·0	67·5	64·0	29·89	S.	Calm.	A.M. fine. P.M. fine.
10	+64	73	+74		61·0	75·5	74·7	66·3	29·75	S.W.	S.W.	A.M. fine. P.M. fine.
11	+69	+75	+70		67·6	80·0	75·5	66·0	29·68	S.W.	N.N.E.	A.M. fine. P.M. cloudy.
12	62	−64	−64		60·3	65·0	61·3	61·0	29·78	S.S.E.	N.	A.M. overcast. P.M. cloudy; rain.
13	60	66	66	Morning Maxima 69°	53·8	69·0	65·0	63·4	29·79	S.	N.	A.M. fine. P.M. fine.
14	−60	70	68	Morning Minima 60°	53·4	71·5	65·6	64·0	29·90	S.W.	Calm.	A.M. fine. P.M. fine.
15	62	69	70	Noon Mxaima 75°	56·0	71·5	67·4	65·2	29·92	S.W.	Calm.	A.M. fine. P.M. fine.
16	63	70	70	Noon Minima 64°	59·0	71·0	68·6	66·0	29·84	Calm.	Calm.	A.M. fine. P.M. fine.
17	62	70	67	Evening Maxima 70°	58·0	71·0	69·0	67·4	29·92	S.	N.N.E.	A.M. cloudy. P.M. fine.
18	62	66	66		58·3	66·0	66·4	64·7	30·02	E.	N.E.	A.M. cloudy. P.M. overcast.
19	62	66	66	Evening Minima 64°	58·5	68·0	64·5	62·8	30·12	N.E.	N.E.	A.M. fine. P.M. fine.
20	61	66	66		53·6	68·5	65·0	63·8	30·10	S.S.W.	S.W.	A.M. cloudy. P.M. fair.
21	+62	65	62		56·5	67·7	66·4	64·0	30·9	N. Fresh.	N.E.	A.M. cloudy. P.M.
22	−56	64	64		54·5	66·0	61·0	58·0	30·14	E.	N.E.	A.M. fine. P.M. fine.
23	56	65	65	Morning Maxima 62°	49·5	64·0	63·5	58·6	30·04	Calm.	N.E.	A.M. fine. P.M. fine.
24	60	64	64		57·8	65·8	61·6	57·6	30·12	E.	N.E.	A.M. overcast. P.M. fine.
25	60	66	65	Morning Minima 56°	56·0	63·6	65·0	61·2	30·01	E.	N.E.	A.M. fine. P.M. fine.
26	60	−63	−62	Noon Maxima 70°	55·5	64·6	62·0	58·0	30·02	E.	E.N.E.	A.M. overcast. P.M. overcast.
27	60	63	64	Noon Minima 63°	53·3	67·0	64·5	61·0	29·98	E.	E.N.E.	A.M. overcast. P.M. fine.
28	60	63	64	Evening Maxima 70°	54·0	67·0	64·7	61·7	30·02	Calm.	N.E.	A.M. cloudy. P.M. fine.
29	60	67	65		52·5	67·7	62·3	66·0	29·98	E.	Cal	A.M. fine. P.M. fine.
30	60	70	68	Evening Minima 62°	52·4	70·5	66·5	63·0	29·89	N.	S.E.	A.M. fine. P.M. fine.
31	60	+70	+70		61·5	78·0	71·0	61·2	29·90	E.	E.	A.M. cloudy. P.M. fine.

October.	From 1st to 10th.	From 11th to 20th.	From 21st to 31st.	Month.
	°	°	°	°
Maximum - - -	74	75	70	75
Minimum - - -	56	60	56	56
Mean - - -	66·16	67	63·8	65·6

Register of Meteorological Observations—*continued.*

1855.	Barrack Hospital, Scutari — Common Thermometer.				General Hospital, Scutari. External.		9 A.M.			Winds.		
Nov.	6 A.M.	12 Noon.	8 P.M.	Maxima and Minima of the Decades of Month.	Minimum.	Maximum.	Thermometer.	Wet Bulb.	Aneroid Barometer.	A.M.	P.M.	Weather.
	°	°	°		°	°	°	°	°			
1	64	+74	+72		61·0	72·0	72·0	64·0	30·00	S.E.	S.E.	A.M. fine. P.M. fine.
2	64	74	70	Morning Maxima 64°	57·6	72·0	69·9	63·0	30·06	S.	E.	A.M. fine. P.M. fine.
3	64	70	68									
4	64	66	68	Morning Minima 58°								
5	+64	68	68	Noon Maxima 74°	*Note.*—These Observations were lost, in consequence of the loss of the papers on which they were entered.							
6	60	65	62	Noon Minima 62°								
7	60	64	63	Evening Maxima 72°								
8	58	64	63		..	65·2	..	..	..			
9	−58	63	64	Evening Minima 60°	53·0	67·2	60·4	58·6	29·97	Calm.	Calm.	Fine, hazy. P.M. overcast.
10	60	−62	−60		54·8	56·8	58·4	58·8	30·02	Calm.	S.W.	Overcast, rain at night. P.M. T. L. rain.
11	+56	57	−55		53·0	53·0	56·8	56·0	30·01	N.E.	N.N.E. Fresh.	Overcast, rain at night. P.M. overcast, rain, squally.
12	−50	−50	56	Morning Maxima 56°	44·2	56·0	46·0	47·0	30·18	N.N.E. Fresh.	N.N.E. Fresh.	Overcast, rain at night. P.M. overcast, rain, squally.
13	56	+59	58	Morning Minima 50°	44·5	60·5	56·0	56·0	30·22	N.E.	N.E.	Cloudy, much rain at night. P.M. fair; cloudy.
14	54	58	58	Noon Maxima 59°	50·8	58·6	57·0	56·6	30·19	E.N.E.	N.E.	Cloudy; fine. P.M. fine.
15	53	57	58		49·0	55·0	56·0	55·0	30·12	E.N.E.	N.E.	Fine. P.M. fine
16	−50	58	+60	Noon Minima 50°	49·4	55·0	56·0	55·0	30·15	N.E.	N.E.	Fine. P.M. cloudy.
17	53	58	58	Evening Maxima 60°	49·4	56·0	55·0	53·7	30·21	N.E.	N.E.	Fine. P.M. cloudy.
18	55	58	58	Evening Minima 55°	47·0	60·0	53·4	53·4	30·17	N.N.E. very slight.	N.E.	Fine; rain at night. P.M. fine.
19	51	57	57		47·0	60·0	53·8	53·0	30·07	N.	N.E.	Fine. P.M. cloudy.
20	54	58	56		50·0	51·5	51·6	51·4	29·88	N.E.	N.E.	Cloudy, p. P.M. cloudy, p.
21	50	54	56		44·6	49·8	48·5	48·6	29·94	N.E.	N.E.	Overcast. P.M. cloudy.
22	50	55	56	Morning Maxima 57°	44·3	52·0	48·2	46·7	29·94	E.N.E.	E.N.E.	Fine. P.M. fine.
23	50	55	57		41·6	54·6	50·0	48·0	29·95	N.E.	N.E.	Fine. P.M. fine.
24	50	55	58	Morning Minima 46°	40·0	56·0	48·6	49·2	29·97	Calm.	N.E.	Fine. P.M. fine.
25	54	56	58	Noon Maxima 60°	47·5	58·0	56·0	56·6	29·65	S.S.W. Fresh.	S.W.	Overcast; rain. P.M. cloudy.
26	+57	+60	59	Noon Minima 52°	52·5	52·5	55·3	56·0	29·85	N.	N.	Fine. P.M. Cloudy.
27	54	60	+60	Evening Maxima 60°	47·2	51·0	51·0	50·8	29·73	S.W.	N.	Cloudy. P.M. Cloudy.
28	54	54	54		46·0	45·0	47·0	47·4	29·45	N.N.E.	N.N.E.	Overcast; much rain during night. Overcast; rain.
29	50	54	56	Evening Minima 56°	39·0	46·4	44·5	43·4	29·84	N.N.E.	N.E.	Overcast; cloudy.
30	−46	−52	−56		38·0	44·5	45·5	45·4	29·68	N.E.	N.E.	Fine; overcast.

November.	From 1st to 10th.	From 11th to 20th.	From 21st to 30th.	Month.
	°	°	°	°
Maximum - - -	74	60	60	74
Minimum - - -	51	50	46	46
Mean - - -	65	56	55	58

Register of Meteorological Observations—*continued.*

1855	Barrack Hospital, Scutari. Common Thermometer.				General Hospital, Scutari. External.		9 A.M.			Winds.		Weather.
Dec.	6 A.M.	12 Noon.	8 P.M.	Maxima and Minima of the Decades of Month.	Minimum.	Maximum.	Thermometer.	Wet Bulb.	Aneroid Barometer.	A.M.	P.M.	
	°	°	°		°	°	°	°	°			
1	49	52	54		42·0	48·0	44·5	44·8	*29·51	N.N.E.	N.E.	Cloudy, rain at night. Overcast.
2	46	48	50	Morning Maxima 56°	37·3	46·0	43·3	41·2	29·68	N.E.	N.E.	Overcast. Overcast.
3	48	54	58		37·5	41·5	47·6	84·4	29·55	Calm.	Northerly.	Overcast. Overcast.
4	52	52	52	Morning Minima 46°	41·5	51·5	41·5	43·2	29·55	N.	Northerly.	Overcast, rain at night, gale from South. Overcast.
5	50	56	57	Noon Maxima 58°	41·3	56·0	51·5	52·4	29·51	S.	S.	Cloudy. Rain. Overcast, hazy; squall at 7 P.M.
6	54	58	56	Noon Minima 48°	54·0	55·5	54·7	54·8	29·41	S.	Southerly.	Overcast. Rain. Fine.
7	54	58	60	Evening Maxima 60°	51·3	52·0	55·5	54·0	29·56	Southerly.	S.	Fine. Fine. Cloudy.
8	54	55	56		44·3	55·5	46·0	45·0	29·65	N.E.	N.E.	Overcast, rain. Overcast.
9	56	56	60	Evening Minima 50°	43·3	51·6	55·6	56·0	29·60	S.	N.E.	Overcast, rain at night. Overcast.
10	52	58	59		48·3	54·0	51·6	51·6	29·73	N.	N.E.	Cloudy. Overcast.
11	53	58	59		49·5	55·6	53·0	53·0	29·90	N.E.	N.E.	Cloudy. Cloudy, fine.
12	54	50	58	Morning Maxima 54°	46·5	56·0	55·6	53·4	29·55	E.S.E.	S.S.W.	Cloudy. Fine. Cloudy, strong gale.
13	48	52	57	Morning Minima 33°	41·0	44·0	42·6	43·6	29·56	N.	N.N.E.	Overcast, rain & gale, N.W., at night. Overcast, rain.
14	50	52	50		41·0	44·5	44·5	46·0	29·38	N.N.E.	N.N.E.	Overcast, rain, gale at night. Overcas n.
15	42	48	6	Noon Maxima 58°	33·0	35·3	35·3	36·8	29·45	N.N.E.	N.N.E.	Overcast, sleet, gale at night. Overcast, rain.
16	42	45	46	Noon Minimum 44°	32·5	34·6	34·0	35·6	29·81	N.E.	N.N.E.	Overcast, sleet, blew fresh at night. Cloudy, fine.
17	33	44	45	Evening Maxima 59°	30·5	41·0	34·0	33·8	29·78	N.N.W.	W.	Cloudy, fine, frost. Fine Cold.
18	39	56	46	Evening Minima 45°	32·3	45·0	43·0	44·2	29·87	Calm.	S.W.	Fine. Fine. Cloudy.
19	44	47	46		32·5	38·7	36·0	37·0	30·07	N.E.	N.E. Fresh.	Overcast, rain. Overcast, sleet.
20	44	48	52		33·0	..	39·0	39·4	30·17	E.	Calm.	Cloudy, rain. Cloudy, fine.
21	46	52	56		..	53·0	..	..	..	E.	Calm.	Cloudy, fine. Cloudy, fine.
22	50	58	59	Morning Maxima 50°	44·0	57·0	49·4	49·2	30·00	E.	E.	Cloudy, fine. Cloudy, fine.
23	48	56	55		43·3	52·0	47·7	48·8	30·15	N.E.	E.	Overcast. Fine. Cloudy.
24	49	54	52	Morning Minima 42°	44·4	50·0	47·0	47·2	30·15	E.	N.E.	Fine, clear. Fine, clear.
25	47	53	50	Noon Maxima 58°	40·0	49·5	43·8	44·8	30·05	N.	N.	Fine. Cloudy. Fine.
26	44	50	48	Noon Minima 48°	34·3	45·0	41·3	42·8	29·89	E.	N.E.	Fine. Fine. Cloudy.
27	44	51	49	Evening Maxima 59°	34·0	45·5	41·3	42·6	29·98	N.	N.E.	Fine. Cloudy. Overcast.
28	45	50	50		40·0	43·0	42·6	43·4	30·19	N.	N.E.	Overcast, drizzle. Overcast, drizzle.
29	46	50	49	Evening Minima 48°	38·0	47·5	42·6	44·0	30·28	E.	N.E.	Cloudy. Cloudy, fair.
30	42	48	50		34·0	43·0	40·6	41·2	30·27	N.E.	N.E.	Cloudy. Cloudy, rain at night.
31	42	50	50		35·3	44·5	39·3	40·0	30·27	E.	Calm.	Fine. Fine.

December.	From 1st to 10th.	From 11th to 20th.	From 21st to 31st.
	°	°	°
Maximum - - -	60	59	59
Minimum - - -	46	33	42
Mean - - -	53	46	50

* 29·35 at Midnight.

APPENDIX II.

COPY of LETTER accompanying List of Morbid Preparations forwarded to the Director-General of the Army Medical Department.

SIR, *London, March 11th*, 1856.

I HAVE the honour to enclose you herewith a brief descriptive list of certain pathological preparations collected by myself and my assistants, during our mission of Pathological Inquiry to the East.

These preparations have been chiefly collected at Scutari, and though not numerous, will, I think, be found to illustrate well the most marked forms of disease which prevailed in the hospitals at that station. Important as these were numerically, as well as by the profound and fatal lesions they induced, they ranged through but a small extent of the Pathological category; so that disease was found to recur very constantly in certain tolerably well-defined types. It is in the illustration of such types in all their varieties that the chief value of the preparations of morbid parts, which I have the honour to contribute to the Museum of Chatham, will be chiefly found.

The specimens frequently embrace nearly the whole Intestinal Tract, and, if I may be permitted the suggestion, constitute not only "stock," from which numerous and multiple preparations may be made, but also in their "putting up" will require to be treated in such a manner as will cause them to illustrate best the very varied processes of the same diseased action, and its results in different structures. This remark will apply especially to the excellent specimens illustrative of the Secondary Enteric Lesions of Fever, and also to those which demonstrate the remarkable Atrophic Lesions of the Mucous Membrane and of the Minute Glandular Apparatus of the Small Intestine, often associated with Chronic Dysentery. I feel authorized to say, that should it be thought that any assistance on my part could be afforded to the gentlemen engaged in putting up the preparations at Chatham, both Dr. Aitken, my first assistant, and myself will feel happy to contribute any additional information or indications which may be deemed necessary.

A correspondence which I had formerly the honour of addressing to Lord Panmure, and which has, perhaps, come under your notice, fully explains why it is that I have not the pleasure of offering to the Museum of the Army Medical Department a collection of specimens illustrative of the Surgical Pathology of the past campaigns.

It was and is a matter of the greatest regret to me that the necessary facilities and authority for carrying out this object were denied to me.

I have the honour to be,
Sir,
Very faithfully yours,
ROBERT D. LYONS.

To the Director-General of the
Army Medical Department, London.

LIST of PREPARATIONS collected at SCUTARI and elsewhere by DR. LYONS and his Assistants, and forwarded to the DIRECTOR-GENERAL of the ARMY MEDICAL DEPARTMENT.

Number of Preparation.	Disease.	General Description of Morbid Parts.	Name of Patient.	Regiment.	No.
1	Chronic Dysentery	*Rectum :*—Soft pulpy exudation of the mucous membrane, of a greenish black colour when recent, and deeply ulcerated.	Michael Delaney -	48th	1,082
2	Diarrhœa - -	*Jejunum :*—Ulceration of Peyer's Glands - - - - - -	Charles Borough.	—	—
3	F. C. C. - -	*Ileum :*—Deposit and ulceration in Peyer's Patches - - - -	David Prior.	—	—
4	Chronic Dysentery	*Colon :*—Upper portion of a greenish-black colour when recent, with extensive ulceration increasing as the Rectum is approached.	William Cullen -	77th	3,267
5	Diarrhœa - -	*Colon and Rectum :*—Honeycomb-like exudation over mucous membrane - -	Ben. Brown - -	34th	3,674
6	Ditto - - -	*Ileum :*—Ulceration of Peyer's Patches, increasing in size towards Cœcum -	—Woodward -	7th	2,825
7	Ditto - - -	*Ileum :*—Ulceration of Peyer's Patches, excavations with sloughs - - -	Private G. Nicholas	7th	3,733
8	Dysentery, Acute -	*Colon :*—Of a dark green colour when recent ; ulceration to depth of peritoneum -	Geo. Wildsmith -	95th	3,397
9	Dysentery, Chronic	*Colon :*—Of a green colour when recent ; enormous thickening of tissue - -	Peter Denachy -	31st	2,045
10	Ditto - - -	*Ileum :*—Ulcers at lower part ; exudation in Colon (*See* Preparation No. 33) -	George Lines "	R. H. A.	—
11	Hemorrhage from wound of Brachial.	*Brachial Artery :*—Partial tear across ; ulcerations ; ligatures applied, but not to sound parts of vessel ; median and cutaneous nerves and veins much injured.	George Ander "	34th	—
12	Dysentery - -	*Colon, &c. :*—Exudation ; distention of solitary glands, with ulceration (tuberculous diphtheritic lesions).			
12*a*	- - -	*Mesenteric Glands :*—Tuberculous degeneration, with cretaceous deposit - -	Private R. Sully -	23rd.	—
13	Chronic Dysentery	*Colon, &c. :*—Diphtheritic exudation, with ulceration of vermiform appendix and of Peyer's Patches.	—	—	—
14	Bronchitis - -	*Small Intestines :*—Wasting of mucous membrane ; remains of ulceration in glands	Woods - -	R. Brigade	3,739
15	Mania - - -	*Colon :*—Remains of healed ulceration, with melanotic deposit - - -	Private P. Holden	62d	2,765
16	Ditto - - -	*Rectum :*—Exudation, with great thickening of substance of gut - - -			
17	Pericarditis - -	*Heart and Pericardium :*—Adhesions organized - - - - -	W. Bridly - -	R. A.	—
18	Aneurism - -	*Aorta*, with portion of Heart :—Aneurism about size of walnut ; dilatation of Aorta			
18*a*	- - -	Atrophy of Mucous Membrane of Small and Large Gut :—Peyer's Patches and solitary glands infiltrated with white milky deposit ; partial wasting, with melanic deposit in the gland Patches - - - - - -	John Smith - -	55th	—
19	Diarrhœa - -	Ulceration of Peyer's Patches :—Follicular wasting of gut ; bareness of Peyer's Glands.	Moses Ewans -	44th	2,922

List of Preparations collected at Scutari and elsewhere—*continued.*

Number of Preparation.	Disease.	General Description of Morbid Parts.	Name of Patient.	Regiment.	No.
20	Phthisis - -	*Colon* :—Exudation, with diphtheritic deposit, and ulceration extending up into small gut.	— Owen - -	L. T. C.	159
21	Diarrhœa - -	*Small Gut* :—Extensive ulceration of Peyer's Patches - - - -	Corp. Rich. Togood	4th Light Dragoons.	—
21*a*	- - -	*Portion of Gut* in a state of intus-susception - - - - -			
21*b*	- - -	*Mesenteric Glands* in a state of enlargement and softening - - -			
22	- - -	*Portion of gut*, in case of Preparation No. 19, with ulceration of Peyer's Patches.	—	—	—
23	- - -	Taenia solium complete with its head.	—	—	—
24	Chronic Dysentery	*Ileum* :—Ulceration in the vicinity of ileo-cœcal valve - - - -	Private Jas. Davis	1st Drags.	—
25	- - -	*Stomach* :—Remarkable hypertrophy of mucous tissue ; patient long known to be addicted to drink.	—	—	—
26	Injury - -	*Lung* :—Remarkable rupture of Left, extending horizontally across the pulmonary structure to near the bronchus, caused by external violence in explosion of November 15 ; no rupture of costal pleura could be positively determined, old band-like adhesions being found at corresponding part of Thoracic wall.	—	—	—
27	Vul. Sclop. -	*Intestines* :—The "Diarrhœa Tubularis," more properly "Diphthero-Enterite," in small Intestines, being the lesion which caused death in one of Dr. Lyons's cases of amputation through the knee joint, at General Hospital in Camp.	Case of Pat. Campbell	68th	—
28	Fever - - -	*Intestines* :—Enteric lesions (secondary) of Fever - - - - -	A patient of 38th in Camp.		
29	Vul. Sclop. - -	*Humeral Artery* :—Veins and nerves ; centric portions in a limb torn off by a round shot.	—	—	—
30	Dysentery - -	Large Intestine :—Exudation in large, with ulceration in small Intestine, and Sago-grain (Dr. Lyons) appearance (or white milk-like infiltration of solitary glands in Jejunum).	—	—	—
30	Cholera - -	Sago-grain appearance in *Jejunum*.	—	—	—
31	- - -	*Deposit* in solitary glands and Peyer's Patches.	—	—	—
32	F. C. C. - -	*Ileum* :—Extensive ulcerations in Peyer's Patches.	—	—	—
33	Chronic Dysentery	Large gut in case of which No. 10 is Preparation of Small gut, showing extensive ulceration of mucous surface.	—	—	—
34	Cholera - -	Ulceration of Peyer's Patches, and infiltration of Solitary Glands, death on 7th day	Van Katt.	—	—