Observations on the nosological arrangement of the Bengal medical returns, with a few cursory remarks on medical topography and military hygiene / by Fred. J. Mouat.

Contributors

Mouat, Frederic J. 1816-1897.
Royal College of Physicians of Edinburgh

Publication/Creation

Calcutta : printed by Sanders and Cones, 1845.

Persistent URL

https://wellcomecollection.org/works/rtuzmf2e

Provider

Royal College of Physicians Edinburgh

License and attribution

This material has been provided by This material has been provided by the Royal College of Physicians of Edinburgh. The original may be consulted at the Royal College of Physicians of Edinburgh. where the originals may be consulted.
This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.

wellcome collection

Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
https://wellcomecollection.org

OBSERVATIONS

ON THE

NOSOLOGICAL ARRANGEMENT

OF THE

BENGAL MEDICAL RETURNS,

WITH

A FEW CURSORY REMARKS

ON

MEDICAL TOPOGRAPHY AND MILITARY HYGIENE.

BY

FRED. J. MOUAT, M.D., F.C.R.S.E.,

ASSISTANT SURGEON BENGAL ARMY,

PROFESSOR OF MATERIA MEDICA AND MEDICAL JURISPRUDENCE IN THE BENGAL MEDICAL COLLEGE,

&c. &c. &c.

Calcutta:

PRINTED BY SANDERS AND CONES, No. 4, TANK-SQUARE.

1845.

R 351.68

PREFACE.

THE first part of this brochure was written at the suggestion and request of the late Dr. Murray, Inspector-general of H. M. Hospitals in India. Prior to being presented to the Medical and Physical Society of Calcutta, it was carefully looked over by that highly gifted, indefatigable, and accomplished officer, lest any expression might accidentally have been used calculated to offend the heads of the Medical Department in Bengal. The Committee of Papers of the Society referred to, recommended it to be printed in their next volume of transactions : but as it appeared to have met with the disapproval of the existing medical authorities—not one of whom to the best of my belief, ever saw or read a line of it—I was strongly urged to withdraw it, which I did; protesting at the same time that it did not contain a single syllable unbecoming a subaltern officer, or reflecting in an improper manner upon those placed in authority over him.

My present object in publishing detached remarks, which cannot lay claim to any originality or profoundness, is again to direct attention to subjects which have long occupied the very limited leisure at my disposal for professional or extra official pursuits.

It is well known that orders have been received from England to report upon the existing system of returns adopted in the medical departments of the three presidencies, with a view to assimilate them as nearly as practicable, to those adopted in the royal service.

Every medical officer who has the slightest regard for the interests of his profession and service, must hail this onward movement as the harbinger of much future benefit to both, if fully and fairly carried out; and is, therefore, bound to afford all the information in his possession, however small it may be, to those who are engaged in the laborious and responsible task of remodelling the reports and returns from an army and country which present unrivalled opportunities for professional research, and of which the medical department now labours under the disgrace, of having during the greater part of a century, furnished no data sufficiently accurate for the compilation of the statistical records required by the War Office.

That this is the fault of the system in use, and not of the men appointed to carry it out, it would be easy to prove.

It is my apology for the present publication.

OBSERVATIONS ON THE NOSOLOGICAL ARRANGEMENTS ADOPTED IN THE RECENT RETURNS OF THE BENGAL ARMY.

Read before the Medical and Physical Society of Calcutta, April 15, 1841.

THERE is, perhaps, no subject in the whole range of Medical Science and Literature, that is beset with so many difficulties, as the classification of diseases. "An accurate and scientific arrangement of them requires the consideration of so many obscure and intricate points; so patient a separation of effects from causes, and proper distinction between circumstances which are merely accidental, and those that occur so constantly as to constitute the type of the malady, that correct conclusions can only be arrived at by a patient process of induction, founded on the conjoined labours of the physiologist and pathologist. Medicine not only embraces a great extent and variety of knowledge, but its facts are in many instances so complicated, and obscured by an almost endless variety of delicate and invisible causes, that the greatest and most profound efforts of genius, have often been baffled in the attempt to throw light upon that which is veiled in so much darkness; to separate the adventitious from the essential; and to analyse each object of research so

completely, as to leave no point in obscurity which is capable of being elucidated by human means of investigation."

It has been truly and elegantly remarked, by one of the most enlightened of modern medical philosophers,* "That we must not expect the same rigid accuracy in medicine, that may be obtained in some of the departments of Natural History; since in fact many of the distinctions required in a nosological system, are rather established for the sake of practical convenience, than strongly and immutably characterized by nature; but the more nearly we approach to this accuracy, the more likely we shall be to diminish the number of imperfections, and to leave at last such only as unavoidably arise out of the nature of the subject.

It appears to us to be a strange and unaccountable circumstance, that the important discrimination between *Affinity* and *Analogy*, which in the arrangement of natural objects is beginning to prove of such signal benefit and efficacy, should have been altogether overlooked and omitted by medical authors. Nothing would be more likely, than the introduction of this scientific distinction, to simplify the subject, and get rid of much of the obscurity and want of coincidence among different observers, which at present renders the nosological department of medical science so imperfect and unsatisfactory. There is no system of classification in existence, to which some objections may not be raised, and these, without in any way detracting

* Young.

from the talents and skill of the classifyer, for since Pathology has in the present century made such rapid strides, and the scientific study of Morbid Anatomy has thrown much light upon many affections, whose nature as previously unknown or conjectural; errors regarding them must naturally become corrected, and their proper places assigned. It was doubtless with some such intention as this—to keep pace with the advance of science, and to render the returns of disease from the army more accurate and valuable, that the alphabetical form has been abolished, and the classification lately issued for regimental returns, adopted. When a radical change is introduced, and a new arrangement decided on, it should be our duty to render it as complete as the present state of our knowledge admits of, and thus endeavour to simplify it to the greatest possible extent, without rendering it either obscure or intricate. In any returns from the army, it needs no argument to prove, that the minute subdivisions into genera, species, and varieties—absolutely required in a complete system of Nosology—would be quite misplaced. Many diseases are of such infrequent occurrence, and of many the diagnosis is so difficult, as scarcely to be determined with accuracy; and for these, the head of "Alii Morbi" is sufficient—it being easy to specify them in a detail, which ought to accompany every regimental return.

The following is the form now issued, and the object of these remarks, is to render it more complete, or at least to rectify a few errors into which we shall endeavour to show, that its proposer has fallen:

EUROPEAN TROOPS.*

Monthly Return of Sick in Hospital of *for the Month of* *Date*

Corps and Station,
Names of Medical Officers,
Number of European Officers,
Number of Fighting Men,

Diseases, Classes and Names.			Remaining.	Admitted,	Total.	Discharged.					Deaths and Ages.						Remaining.
						Cured.	Average period under treatment.	Transferred.	On Sick leave.	Invalided.	Died.	Average period under treatment.	From 20 to 30.	From 30 to 40.	From 40 to 50.	From 50 to 60.	
Of the digestive function.	Colica																
	Diarrhœa																
	Cholera Biliosa																
	Cholera Spasmodica																
	Icterus																
Of the respiratory function.	Asthma																
Of the sanguineous function.	Febris	Intermittens.															
		Remittens															
		Continua															
	Phlegmon et Abscessus																
	Inflammatio	Cephalica															
		Thoracica															
		Enteritica															
	Hepatitis	Acuta															
		Chronica															
	Splenitis																
	Opthalmia	Acuta															
		Chronica															
	Catarrhus																
	Dysenteria	Acuta															
		Chronica															

			Daily average number of Sick.	Daily Ratio per Cent. of ditto.
Of the sanguineous function.	Rheumatismus	Acutus		
		Chronicus		
	Variola			
	Phthisis Pulmonalis			
	Scrophula			
	Syphilis	Primitiva		
		Consecutiva		
	Elephantiasis			
	Scorbutus			
	Gangrena			
	Ulcus			
Of the nervous function.	Mania			
	Delirium Tremens			
	Cataracta			
	Tetanus			
	Chorea			
	Epilepsia			
	Apoplexia			
	Paralysis			
Of the sexual function.	Gonorrhœa			
Of the excernent function.	Tumores	Bronchocele		
	Hydrops	Anasarca		
		Hydrothorax		
		Ascites		
		Hydrocele		
	Dysuria			
	Lepra			
	Psora et Herpes			
From external violence.	Contusio			
	Luxatio et Subluxatio			
	Vulnus			
	Ditto, Sclopitorum			
	Ditto, Anguinum			
	Ambustio			
	Fractura			
	Concussio Cerebri			
	Alii Morbi			
	Total,			

Remarks { Of the above received by transfer.
Ditto re-admitted within the month.
Capital operations and their nature.

* The form for Native Troops is exactly the same.

Colic.

The diseases forming the first class of this table, are those of the digestive *function*,* and the first affection specified is Colic. Cullen defined it to be "dolor abdominis, præipuè circa umbilicum torquens; vomitus; alvus adstricta:" and regarding spasm, as the essential cause of its production, naturally located it in the order "spasmi" of his class Neuroses. Dr. Young likewise considered it to be a spasmodic affection, and placed it in the seventh division—*Palmus*—of his Paraneurismi. Drs. Whiting and Tweedie refer the symptoms to either "spasm, obstruction, over-distension, or inverted action."† From these opinions, and from those of many practical writers, who might be quoted to the same effect, it would appear that the disease from whatever cause produced, is really one of the muscular fibres of some portion of the intestinal canal. There can be little doubt that nosologists have subdivided the varieties of colic to a much greater extent, than is at all required for practical purposes; but as they all appear to be modifications of the same affection, and in the best marked cases, are referred either to a loss of tone in the muscular coat of the large intestine, (which Abercrombie regards as the cause of the distension that is found in many cases after death, where an inverted action had been produced), or to the spasmodic condition which exists in its fibres during the presence of colic, it is evident that neither of these states has any distinct or definite dependence, upon the *function* of digestion.

* Define digestive *function?*

† Art. *Colic.* Cyc. of Practical Medicine. Gregory describes it as "a spasmodic constriction of some portion of the intestinal canal."—*Elements of Medicine.*

The latest investigations in Physiology have assigned the actions of muscles, whether voluntary or involuntary, to the influence of the nervous system, and although it is difficult to assign rigorously the seat of a malady, which like colic is very often unaccompanied by any appreciable and constant alteration of the abdominal organs we cannot go far wrong in attributing this derangement of the muscular action to some condition of the organic system on which it is dependent in its healthy state. Colic ought, therefore, in our humble opinion, to be ranged under disorders of the nervous system, where the most able and trustworthy nosologists have already placed it.

Diarrhœa.

Diarrhœa, the next disease on the list is produced by so many and such opposite causes, and is so diversified in its effects, that it is neither correct nor philosophical to attribute it to the derangement of any particular function. "It is with difficulty," said Dr. Cullen "that I have arranged this genus, as it is not very consistent with our plan to let it stand in our nosology. Diarrhœa is symptomatic of so great a variety of diseases, many of which are different from one another." Some authors have even gone further, and recommended its being banished altogether from the list of individual diseases, from its being merely regarded as symptomatic of other affections; but it has been justly remarked by Dr. Crampton, that "we are far from having attained to this perfection of pathology, even in theory," and that the safer plan would be to consider it as a "distinct disease, but to

regard it as the consequence of *various morbid states* in different cases." The best way then to avoid falling into error, and indulging in speculations that cannot at present be subjected to proof, is to place it by itself, until its locality shall have been definitely determined in some future nosological system. The *Cholera Biliosa*, being by most medical writers regarded as a mere variety of Diarrhœa, and not presenting any prominent features of distinction so well marked as to entitle it to a separate place in this return, may with great propriety be struck out. The name itself is objectionable, inasmuch as *biliosa* is an unnecessary repetition of terms, and if the disease be retained at all, it should bear some such designation as Diarrhœa Biliosa.

Cholera.

We now come to question the legimitacy of the habitat of Cholera Spasmodica among disorders of the digestive *function*, and are completely at a loss to discover the reasons which have caused it to be placed there. The process of digestion is no doubt deranged, but so are those of the circulating system; of innervation; of voluntary power (volition itself being usually unimpaired); and of secretion in general. The state of the blood exhibits the fact, that even while respiration continues, the decarbonizing process is imperfectly performed, and also that the functions of those organs which are supplied by the par vagum and great solar plexus, are disturbed or cease entirely.

The extreme depression of the vital powers, the reduction of the animal heat, and the feebleness of the heart's impulse, have no definite or

known immediate connection with the nutritive function; and it is at present impossible to tell, whether this train of general symptoms is due to any physical condition of the blood itself reacting on the heart and nervous system; or whether that system is affected by irritation propagated from the alimentary canal, along the ganglionic nerves to the medulla spinalis. Each of these views has had supporters of ability and experience, and yet the pathology of the disease is so obscure, that notwithstanding the amount of labour which has been bestowed upon it, and the many hundred careful dissections that have been made, we know very little about it. The greatest proportion of evidence appears to demonstrate, that "the whole series of phenomena results from the action of a morbific poison on the body; but we are ignorant of the precise nature of the primary changes effected by it in various organs and systems." To assign it, therefore, a specific place, and attribute its production to the derangement of one particular function—the digestive—is advancing beyond what the progress of science warrants, and founding a theory not borne out by experience.

The name of the disease is essentially erroneous, and has doubtless had some share in perpetuating the false views which have obtained belief regarding it. It is well known to all who have had a practical acquaintance with this fearful pestilence, that not an atom of bile is visible in the ejecta of a true cholera case. The gall bladder in fatal instances is usually found distended with bile, and the patient may in general be considered as doing well, when the character of the excretions becomes

changed. On account of the universal absence of the bile in genuine cases, Dr. Elliotson has proposed the name of Acholia. A distinguished authority upon the subject of nomenclature, has handed down to us as an aphorism, "that a good name once established, ought not to be changed even for a better one." Yet there can be little doubt that much of the obscurity of medicine has arisen from the want of a correct and scientific use of terms. The most reasonable objection that can be raised to an improved system of nomenclature founded on pathology is, that our knowledge of that branch of medical science itself is not at present sufficiently definite or extended, to justify a radical change based upon its unstable foundation. While we are compelled to admit the truth of this, it cannot be denied that the first step towards improvement is to eradicate that which is known to be false; and benefit cannot fail to result from the adoption of a new name, even though it be inadequate to explain the exact nature of the disease it is intended to designate; provided it indicates the most prominent, best marked, and general character of the complaint.

In a late number of the Madras Medical Journal, the term "*Adynamia Algida*," or *Acholera Adynamica* was proposed by Dr. Murray, on account of the "low adynamic type" of the disease, which was observed in every case during that severe visitation.* Should more extended observation prove that

* Madras Quarterly Medical Journal, Vol. 2. p. 447.—Report on Cholera as it appeared in the 13th Light Dragoons by Dr. Mouat, Surgeon, H. M. 15th Hussars.

The value of the Stethoscope as a means of diagnosis in this disease,

the state of the heart's impulse, as indicated by the Stethoscope, is a constant and essential feature of the disease, being accompanied at the same time by a low adynamic condition of the vital powers generally, with coldness (algide state) of the body, which we are inclined to believe, will be found to be the case; either of these names (we prefer the last) will be the most scientific and worthy of adoption, that has hitherto been proposed.

Asthma.

The next division is that of the respiratory function, and in it the only disease which appears is *asthma*. This is an excellent illustration of the difficulty, if not impossibility, in the present state of our knowledge, of classifying diseases by any physiological arrangement such as that attempted in this table. It has a primâ facie appearance of philosophic accuracy which on closer investigation will not stand the test of rigid analysis, and is not found to answer any beneficial purpose. The pathology and causes of asthma are but little known, and what we do know on the subject, would rather lead us to regard it as a purely nervous affection (like Hysteria and Chorea), of which the disturbed respiration and such morbid changes as are occasionally found, are the mere effects. In a case

was (to the best of our belief) first clearly pointed out in this report, and with such striking results as to entitle it to serious consideration, in all future prognoses and treatment. The Author observes, that in almost, if not in all, fatal cases, "a most feeble cardiac impulse was indicated by the Stethoscope, even in cases where the pulse continued to be normal at the wrists;" and again, in a great many who had the disease apparently in its worst form, but in whom the heart's impulse continued strong, recovery was the result."

mentioned by Willis, of a patient who died during an asthmatic paroxysm, no change whatever was found after death. Laennec and Ferrus met with many cases, in which the result of the post mortem examinations was of a similarly negative character. Indeed the latter informs us, that during fifteen years of hospital practice, he had never met with a single dissection which fairly exhibited the results of idiopathic asthma, and that the more extended experience of Corvisart, Leroux, and Lerminier was equally fruitless.* In this state of uncertainty regarding the disease, as it is confined to the pulmonary tissues alone, no conjectures or theoretical speculations are hazarded, in placing it under the head of diseases of the respiratory organs. For the same reason Catarrh, Pneumonia, Pleuritis, Bronchitis, and Phthisis, ought to have been placed in the same order, as affecting this system. Catarrh is no doubt an inflammatory affection, and the viscid mucus which is present in most cases, the result of that condition of the mucous membrane, but it is not so evident that these are not secondary effects produced by the application of various sources of irritation, as cold, &c. to the lining of the air tubes, giving rise to inflammatory symptoms as their effects.

Tubercle.

Tubercle again is generally supposed to be an accidental production, which is secreted and deposited in the interior of certain textures in the body, and as all secretions are elaborated from the blood, in this point of view it would not be incorrect to regard it as a disease of the

* Cyc. of Pract. Med. Art. *Asthma.*

sanguineous system: but if we do so, we must also class the whole of the accidental formations in the body under the same head, viz. tumors and abnormal growths of all kinds. Thus, every excrescence from a large osteo-sarcoma to a small thickening of the cuticle, will fill up the ranks of this disordered function. In admitting this, however, we are leaving out of consideration the effects of the nervous system on secretion, for we are at present unable to state whether the particular tendency in the constitution of the individual to the deposition of tubercular matter, be owing to some condition of the circulating or nervous system, or (which is more probable) of both, rendering him prone to run into that state of diseased action. Laennec attributed the production of tubercle to some general disposition in the system, not referrible to inflammation; for he considered that whenever the two were co-existent, the inflammation rather followed than preceded the tubercular deposit. M. Louis was of the same opinion, and admitted that there were cases in which inflammation exerted no influence whatever on its developement. Some writers—as Portal and Broussais—are of opinion, that they are nothing more than lymphatics of the lungs, altered in their appearance. Others again, with Baron (in whose opinion however very few are inclined to coincide) imagine that tubercles in the first stage are Hydatids, and some observations by Dupuis and Andral on the disease as found to exist in some of the lower animals, would seem to favour this hypothesis. It has been supposed by Alison, Carswell, and other eminent pathologists, that

in tubercular and some other constitutional organic diseases, as Cancer, Fungus Hœmatodes, &c. the morbid matter is found in the veins, and sometimes even in the heart itself, and that therefore we are bound to regard them, as diseased states of the blood. On the other hand Cruveillier and many equally respectable authorities are disposed to doubt and deny this. It would be presumptuous then until the chemical department of physiology and pathology has attained greater perfection, to decide this point definitely, and although there can be no doubt that further investigation *may* confirm these views (more especially when the laws regulating vital affinities are better known), we are forced from the discrepancy of opinion among men of the greatest talent, to regard our present knowledge of the subject as inadequate to justify our looking upon the disease, as one of the sanguineous function.

In arranging Catarrh, Phthisis, Asthma, &c. in the order of diseases of the pulmonary apparatus, we are not likely to mislead any one by speculating on obscure points of physiology; and this is all we are at present justified in doing.

Fever.

We come now to the consideration of the next department designated diseases of the sanguineous function*, by far the most faulty because the most extended of the list.

The subject of Fever is the first and most important that presents itself for investigation, but is so complicated in its nature, and extended in the various

* Query. What is meant by sanguineous function?

minute points whieh require to be taken into consideration, that it would be incompatible with the object and limits of this paper, to give more than a general outline of the principal views, that have been and still are entertained, regarding its nature and locality.

Fevers have formed a favorite topic for discussion, and a wide field for speculative manœuvring, from the days of Hippocrates to our own times. The principle textures and organs of the body have successively passed in review, and according as they were more or less prominently affected in the different cases on which theories were founded, has each been made to substantiate the particular opinion of its supporter. The *old* humoral pathology, backed by the chemical vagaries of Paracelsus, and Van Helmont, had its reign in medical schools, and produced more than a sufficient quantity of mischief, by leading to fatal practical errors, which will ever be the case, where speculation is allowed blindly by the dogmatism of its adherents, to dictate a definite course of treatment, in any such inscrutable and protean maladies. It was succeeded by quite as mystical and unsatisfactory an elucidation of the causes and phenomena of fever, as that afforded by itself.

Before we can arrive at definite conclusions on the subject, we must not only ascertain thoroughly the phenomena themselves which constitute the disease in all its varieties and combinations; but the nature of their exciting causes, and the system whether fluid or solid, in which the departure from healthy action commences.

Dr. Southwood Smith has based his views of fever upon the sequence of events, and states that the sensorial and nervous functions are the first deranged, which he regards as the invariable antecedent; the derangement of the circulating function which follows next, being in his opinion the equally invariable sequent: and although he distinctly acknowledges the necessity of attending to the state of the blood, he concludes that "changes in the fluids can only be second in the series of morbid events; they can never be primary antecedents, or first causes, but merely sequents, or events." Ploucquet imagined, that although other organs were occasionally implicated, inflammation of the brain was the cause of fever; and Clutterbuck has adopted this opinion with some modifications. On the other hand the experiments of Magendie, Stevens, Andral and others, would lead to a diametrically opposite inference, and they have advanced important facts as well as ingenious and philosophic arguments, to prove the correctness of their views. "Is it not as clear as the day," said Magendie in his Lectures on the Blood, "that to enable us to decide on the essentiality, or non-essentiality of a fever, we ought first to be acquainted with every phenomenon that takes place from its outset to its close. But as such acquaintance is, in the present state of science, utterly beyond our reach, it is impossible for us to discuss rationally and thoroughly the question alluded to."

The exceeding difficulty of analysing the ever varying changes of the blood, and impossibility of examining it in the only condition, in which any

positively accurate deductions can be drawn from its morbid changes as producing disease, viz. in its own vessels, are acknowledged by Magendie himself, who has devoted more time and attention than most physiologists to its study in disease, and is consequently more inclined to attach importance to the evidence afforded by its pathological conditions.

The cause of the increased heat also, is unknown, because our knowledge of the production, variations, and other phenomena connected with animal heat, is uncertain and imperfect. The most recent researches in physiology would incline us to the belief, that its chief dependence is on the brain and nervous system; yet, until we are definitely informed of the share which respiration and the whole process of secretion bear in its generation, it would be illogical to arrive at conclusions, while the premises on which they must be founded are so defective.

The real amount of our knowledge on the subject, forces us to the unsatisfactory belief, that the chemical pathology of Magendie and Stevens; the gastro-enteritic views of Broussais, Louis, Bretonneau, and other distinguished French enquirers; the contra-stimulant doctrine of Rasori, and his Italian followers; the 'sthenic and asthenic' fallacies of Brown and Darwin; the ingenious and comprehensive opinions of Pinel; the views of Stahl and Cullen; as well as those of Armstrong, Tweedie, Smith, Clutterbuck, McCormack, Alison, Craigie, and the whole modern school of British Pathologists—are each and all inadequate to unfold the mysterious nature of

this extensive class of diseases, and account for the infinite diversities which their seat, progress, and results develop in their successive visitations. For these reasons, it is, that we object to their place in the present table, and recommend their forming a distinct division of their own.

The subdivision of Inflammations into merely cephalic, thoracic, and enteritic, is objectionable, inasmuch as in the inflammatory affections, especially of the two last mentioned cavities, a number of organs and tissues are embraced, differing from each other in their structure, functions, and symptoms when diseased; so that these returns would be of very little use to any future enquirers, who might consult them for statistical or other purposes, connected with Military Hygiene. Thus, under the head of thoracic inflammations, are included all that class of diseases of the heart, together with those of the lungs. Now, it is well known, that the causes producing such affections of the heart, and those originating similar disorders of the pulmonary apparatus, are essentially different; and in judging of the salubrity or otherwise of a station in which a preponderance of thoracic inflammations was exhibited by these returns, it would be a matter of much difficulty to assign the diseases to their true causes, from the want of more specific information as to which organ was really attacked. The same applies even more forcibly to the enteritic division, from the greater number of organs contained in the abdomen. The only inflammations specified are those of the liver, spleen, and large intestine; so that all the remaining tissues

must be returned together, and if a soldier should happen to die of nephritis, or inflammation of his bladder, he would be returned under the same head as a woman carried off by puerperal peritonitis, or any inflammatory uterine affection.

Rheumatism.

Rheumatism appears among the diseases of the class we are now considering, for no better apparent reason than its being inflammatory in its nature. Its seat is generally acknowledged to be either the synovial membranes, the muscular or fibrous tissues, or the cellular tissue uniting them, in which it produces certain morbid alterations in its acute form. In many of the chronic forms of the disease, the presence of inflammation has been denied, but be that as it may, no useful purpose can be answered by separating it from the structures which it attacks, the more especially as the changes, if any really exist, which are supposed to take place in the blood, are unknown.

Variola.

Variola the next disease in the list, is dependent on the action of a morbid poison, the origin of which is to the present day, a matter of conjecture and speculation. It is introduced into the system by contagion and inoculation. By the latter method, its operation is doubtless due to the agency of the absorbent system and circulation; but the immediate mode of action of the other means is less obvious. It is invariably characterized by its peculiar eruption on the surface, by which it is distinguished from all other disorders, and on account of which

it has been classed among diseases of the skin, where we propose to reinstate it.

Scrophula.

To enter into a minute analysis of *Scrophula*, or even to enumerate all the diagnostic marks by which the tendency, or predisposition to its production in any particular person is recognized, would be incompatible with the limits and object of these remarks. They are besides of such frequent occurrence as to be well known to every medical practitioner. The disease is hereditary, although the strumous habit may exist throughout life in an individual, without giving rise to the affection, from its exciting causes not being applied. When called into activity, it produces derangement of the glandular system, caries and other affections of the bones and joints, tubercular deposits in various parts of the body, with a general disturbance of the whole system. It may likewise be originally developed in children of sound constitution, from the influence of impure air, bad diet, and living in dark damp situations from which the rays of the sun are excluded. That it is dependent in the first instance, on any specific morbid state of the blood, is very doubtful, and at all events has not been proved; but that there is a constitutional diathesis, tending to produce the disease in which the whole system is more or less affected, is so well established, as to be denied and disputed by few.

Scorbutus.

In *Scorbutus*, the blood is almost always, if not invariably changed in its chemical and vital properties, but we are still without sufficient evidence to prove, that this is the primary seat of the affection. The causes of Scurvy are numerous.

Privation from fresh animal and vegetable food, or living for any length of time on salt provisions, are very prominent ones; but long exposure to cold and moisture, united with the agency of the depressing passions, will also give rise to it, as happened when the disease appeared among the crews of the *Adventurer* and *Beagle* in the Straits of Magellan, during Captain King's Voyage of Discovery in 1828. These vessels were well supplied with every dietetic prophylactic against the disease, suggested by former fatal experience, so that the causes above mentioned were the only ones to which its breaking out could be attributed. Impure air, want of cleanliness, &c. are likewise exciting causes, and they can only operate in the first instance through the medium of the skin and pulmonary tissues. It is certainly true that Andral and other distinguished pathologists, regard it as a disease originating from certain primary morbid changes of the blood, yet as the pathology of that fluid is still very imperfectly known, however probable this view of the nature of Scorbutus may be, it would be more in accordance with the present state of our information, and risk less chance of objections being raised, to denominate it, as some systematic writers have done, a constitutional disease, for during its progress few organs or tissues of the body remain unaffected.

Syphilis.

Syphilis is well known to be a disease produced by the action of a specific poison, without the presence of which it cannot be excited in the system. It may likewise be caused by inoculation of the morbid matter, or by transition from a mother labouring under the

affection, to a fœtus in utero, and when introduced into the system act through the agency of the blood; but this is no proof of its being a disorder of the sanguineous system, for it is incapable, to the best of our belief, of being generated in the blood per se. Its absolute dependence on disorder of the genital apparatus, justifies our regarding it as a primary disease of the sexual system, while its location among those of the sanguineous function involves much theory, which has not hitherto been subjected to demonstrative proof.

Gangrene.

Gangrene, under which term, we presume, is included every form of mortification and sphacelus, is produced by many causes in which the sanguineous function alone is not concerned; as from mechanical, chemical and physical agents; the deleterious action of certain poisons as Ergot of Rye (of which we are unable to decide whether the effects are due to the circulating or nervous system, or as Dr. Carswell supposes, to both:) and lesions of the great nervous trunks distributed to a part. Many cases of mortification from this latter cause have occurred, in which the blood vessels were healthy and uninjured. We regard these reasons as adequate to justify our removing Gangrene from its present position.

Excernent Function.

Under the head of the excernent function, we have diseases placed, the position of which cannot possibly be justified. Excretion is the process by which "the useless ingredients of the substances which suffer decomposition," are got rid of, and "the apparatus by which those effete

matters are eliminated, *not formed*, are the skin and kidneys."* In simple *Bronchocele*, there is merely hypertrophy of the gland, without any change in its structure, and this is the only form of the disease likely to be met with among the soldiery. The compound cases, in which a variety of adventitious substances are found imbedded in the tumour, rarely occur beyond the localities in which it appears to be indigenous, as in some of the valleys of Switzerland, Nepaul, Derbyshire, certain districts of America, as the Isthmus of Darien, &c. and in all these cases it is usually considered to be a disease of nutrition, and not of the natural process by which "effete matters are eliminated." The same applies to the formation of most tumours.

Dropsies.

With respect to dropsical effusions, which are also in this division, their causes are extremely numerous. They have been ascribed to diminished absorption, or increased exhalation; to inflammatory action, as in acute hydrocephalus, &c., to obstructions of the circulation, whether arising from debility, pressure on the great venous and lymphatic trunks, or diseases of the vessels themselves; and diseases of the lungs, heart, kidneys, and liver. From all that is known regarding dropsy, we are bound to regard it, by whatever cause produced, as a disorder of the venous and lymphatic systems, or at least, as the result in effusion must always be produced through the means of those vessels, we cannot be very far wrong, in placing it in the same class with their diseases.

* Muller's Physiology.

Besides this, the fluid effused is analogous to, if not identical with, the serum of the blood—and that is certainly not an excretion.

Dysuria.

Dysuria, by being placed here, has evidently been mistaken for a very different affection, viz. suppression of urine, or Ischuria Renalis: difficulty of expelling the contents of the bladder, or as it is termed in the language of Surgery, retention of urine, is not a disease of the renal (secretory) function, which is perfectly performed, but of the vesical apparatus. It is caused by many morbid states of the bladder, stricture, diseased prostate, the presence of calculi at the entrance of the urethra into the bladder, &c. &c. with all of which causes, the elaboration of the urinary secretion, may have nothing whatever to do.

Psora.

The pathology of the skin is at present far too little known, to permit our deciding, which of its glandular structures or constituent tissues, is involved in its diseases.

Psora is known to depend on the presence of an insect, the Acarus Scabiei. Whether it is spontaneously generated in the skin, or by what means it finds its way there, we know not; but we do know that it is neither an excretion nor secretion. Müller says that "the skin is the seat of a two-fold secretion—a fatty matter and a vapour; the former formed by the sebaceous follicles, the latter secreted by the sudoriferous glands." Breschet has described a third secretory apparatus, the *chromatogenous* glands, from which the colouring matter forming what has been termed the rete mucosum, is poured out. The pathology of this structure is

nearly unknown. It is gratuitous, therefore, and exhibits a great deficiency of the proper principles of inductive philosophy, to determine the particular function disordered, in diseases with whose real nature we have little or no acquaintance. The use of the term function, as applied to the classification of diseases, is itself liable to very grave and serious objections. The duty or office of an organ (which we regard as the rigid meaning of the word function) may to all appearances, and as far as we are capable of judging, be carried on perfectly well, and the general health be not at all disturbed, even when a considerable amount of organic disease is actually present.

Cataract.

Cataract has been placed under the head of diseases of the nervous function, with mania, apoplexy, &c. We are not aware of any nerves having yet been satisfactorily proved to exist in the body of the lens, or its capsule—the seats of cataract—it is therefore highly unphilosophical to assume that its degeneration or disease, is to be attributed to the derangement of a structure, which has no demonstrated existence in it. The best mode then, it appears to us, of reconciling its present position, is to return to the old opinion of Galen, that the lens is the really essential constituent of the organ of vision ; in which case we shall be reduced to the absurdity of believing, that many people on whom the operation of extraction has been performed, and who can see tolerably well with the aid of their artificial lenses, yclept spectacles, carry their visual organs in their pockets and only produce them when required for use.

Having now pointed out, though by no means to the extent the subject admitted of by a more detailed and elaborate analysis, the errors and imperfections which this form of return contains, we are compelled to confess that no better or more complete arrangement can be suggested, than the alphabetical one adopted in the regimental returns of the Royal Army.*

The list is more detailed and extended than that heretofore used in the Company's Service, but we confess that we are quite unable to appreciate the value of confining the enumeration to one side of a page, (as has always been done) and not extending it to any limit which may be found necessary to render documents of so much interest and importance, as detailed and accurate as they will admit of.

The terminal "ALII MORBI" might then be safely dispensed with, instead of, as at present, embracing every disease which is not enumerated in the scanty table.

It cannot fail to be a source of regret, that the system of returns required from the Indian Army, should not be identical with that adopted in Her Majesty's Service. The value of such uniformity in extending our knowledge of the medical economy of troops serving in every quarter of the extended empire subject to Great Britain; of the closer approximation to truth, that would result from calculations spread over so wide a field, and deduced from numbers that would constantly tend to diminish

* That contained in the 6th report of the Registrar General of Births, Marriages and Deaths, is however much more complete and perfect. 1845.

the amount of error, arising from local and accidental causes in smaller bodies of men, is almost self evident to any one who has studied attentively the important subject of statistics. On this topic it has been justly remarked that—"the benefit, or otherwise of any remedial measure, should be based on statistical members, or that rigorous exactness, of which mathematical calculation alone is susceptible. This important science has been reserved for our own age, and promises hereafter to place our profession on a scale with the more exact sciences, and so far to remove one of its greatest opprobria, by giving its problems a certainty not hitherto possessed, and it has been justly observed elucidating "much that is now obscure, and reducing to precision much that is now doubtful in Medical Science."

"In fact in the statistics of Medicine, it is only in large numbers that we can place confidence, where the observations and experience of one must come in to correct those of another, and hence the importance of each individual adding his mite to the general stock."*

The reports now publishing by Major Tulloch and Mr. Marshall, are so elaborate, and detailed, and their value so great as standards of reference for future enquiries, that the lucid arrangement adopted in them should be followed as nearly as possible, in order that results obtained may be readily collated, and thus the greatest possible amount of information be elicited. The returns at present sent in from Native

* Madras Medical Journal, Vol. 1, p. 178.

Corps, are so meagre and unsatisfactory, from being in most instances mere enumerations of the names of diseases,* the number of admissions, and proportion of deaths to strength, without explanatory references, or details of any kind; that they are of no value, nor can specific information on the prominent points of military hygiene be extracted from them.

In the annual returns furnished by all Medical Officers in charge of H. M. Regiments, the following heads of enquiry have been ordered to be answered, with a view to enhance the value of these documents by uniformity of system, in the extent of information required:

1. Topographical description of Station and Vicinity—Nature of the climate—Atmospheric Phenomena, &c. &c.	
2. Position of Barracks, and Hospital—with the extent and nature of accommodation they afford; means of ventilation, &c.	As Native Troops are not quartered in Barracks, but live in Huts, built in regular lines, the situation of these with regard to tanks, paddy fields, jungle, rivers, and in fact a general description of their locality should be substituted.
3. Rations and diet—detailing the nature of the Soldier's meals, and what facilities the station offers for improvements in this respect.	It is obvious from the customs, habits, and religious scruples of the Native Soldiery, that no very precise answer could be given to this question; but their food is usually purchased in the Regimental or Sudder Bazaar,

* A large proportion even of these being returned under the very indefinite and unsatisfactory head of *Alii Morbi.*

and is so simple in its nature, that its quality could be readily ascertained. Every Medical Officer, who has been in charge of a Native Corps, must have remarked, that the admissions into Hospital after the poojahs or religious festivals, are much increased, and not a few of the cases owe their origin to the gorging of sweetmeats, and other native luxuries, in request at such times. The notice of this circumstance should not therefore be omitted, in accounting for the increase of diseases after the Doorga, and other Poojahs. Moral, as well as physical causes of disease, are doubtless in active operation at the same time, with which we are less likely to become acquainted—so that the enquiry will not be very precise or satisfactory.*

4. Duty and employment—specifying whether they are in any respect so severe, as to prove prejudicial to the health of the Troops.

The physical capacity of the Sepoy, and his capability of enduring fatigue, are much less than those of the healthy, well-formed European. We are greatly in want of information on this point, and as to the amount of drilling, guard-mounting, &c. to what they can be

* Much valuable information on all such points might be obtained from properly trained and educated Native Doctors, who from associating with the Native Soldiery are well acquainted with their habits, &c. &c.

subjected without injuring their health and efficiency. It is well known with regard to regiments stationed at Barrackpore, that the proportion of sick to strength, in the reserve guard sent for garrison duties in Fort William, and to supply the Town Guards of Calcutta—is considerably increased, and that the most severe cases of Fever and Dysentery, occur among them. The true cause of this is not well ascertained, nor is it likely to be known until the subject is properly investigated by the Medical Officers in charge of the Regiments forming the Presidency Division, and embodied in their reports to the Superintending Surgeon.*

5. Internal economy—particularly as regards the measures for repression of intemperance: the prevalence, or rarity of crime and punishment among the Troops; and the means employed to furnish them with healthy exercise and amusement.

Much of this question is incapable of being answered by European Officers, from the internal economy of the sepoys being beyond the pale of their jurisdiction. Intemperance is happily so rare and unusual a vice in the Native Soldier, as to present a striking contrast to its prevalence and deadly influence among his European

* Since this was written Dr. Finch has furnished interesting and useful information upon the subject; and Lord Ellenborough's arrangements for the relief have, I am told, diminished much of the inconvenience formerly suffered.

brethren in arms. The quantity and nature of crime can be readily ascertained, as well as the punishments resorted to for its suppression; nor are they unimportant subjects in the consideration of the moral management of Native, as well as European Troops. The Calisthenic excercises of the Asiatics are worthy of adoption, in all European as well as those Native Corps in which they have not been introduced. Mr. Brett speaks highly of their good effects in his recent work on Surgery in India.*

6. The average strength of the Force throughout the year, distinguishing white from black troops, and showing any change in its composition by the removal of one Corps, on the arrival of another; followed by a detail of the deaths, and admission into Hospital.

The first part of this section would obviously fall to the lot of the Superintending Surgeon. It would throw much light upon the effects of the treasure parties, and all kinds of detached duties on the health of the *Sepoy*.

7. Remarks on the principal classes of diseases by which sickness and mortality have been occasioned; noticing any peculiarity, either as regards the

This and the succeeding section require no change.

* A regular gymnasium, on the plan of those existing in the Prussian Army, and in the Sapeurs Pompiers, or Military Fire Brigade of Paris—might at very little cost be established at large Stations. Its effects on the health of the men, as well as the desire for healthy recreation that would be generated, by rivalry and emulation, could not fail to be beneficial.

forms in which they present themselves, or their prevalence, or rarity, compared with former years, or with other stations.

8. A detailed notice of any epidemic, which may have visited the station in the course of the year, stating the circumstances under which it appeared, its subsequent progress, and if it was attended by any atmospherical phenomena.

9. If sufficiently extensive materials be possessed, shew whether the sickness and mortality at the station have most affected young soldiers or those advanced in life; and whether they have fallen in a higher proportion on those recently arrived, than on the long residents. These calculations however, are not required, unless at least 1,000 men have been under observation.

A slight modification of this section would render it applicable to Native Troops. The number of admissions of recruits is much greater down at the Presidency than those of the Sepoys who have passed through the process of drilling, and are upon the effective strength of their Regiments. The effects of the climate of Bengal and Arracan, upon the up-country Sepoys, requires the most attentive consideration and investigation, as it is manifestly impolitic to bring a fine body of men into districts where they speedily become useless. The satisfactory proofs of this deterioration, could not fail to induce the Government to devise measures for checking it.

10. An account of the state of Vaccination and the degree of prevalence of Variola: show-

ing how far the former has been protective against the Variolous Agency.

11. Digested histories of any cases particularly worthy of observation, noting age, temperament and constitution of the patient: the cause and mode of attack of the disease: the symptoms during its progress—the mode of treatment dietetic as well as therapeutic, with dissection reports of fatal cases.

This is very much required, as hundreds of interesting cases are now passed over in silence, details of which could not fail to increase our knowledge of the pathology and therapeutics of disease among the Native Troops

To these another section might with great propriety and benefit be added, viz.

12. Trials of and reports on the remedies in common use among the native population, or which are known to exist in the Flora of India; how far their actions may be considered analogous to those of the same class of agents in the European Materia Medica, the forms of combination in which they are administered by native practitioners; and where they could be safely substituted for European Medicines.

This could not fail ere long to extend the present limited boundaries of our knowledge of the Materia Medica Indica, and to put us in possession of definite, and trust worthy information on the effects of indigenous remedies in combating the diseases of the country. The saving to Government would be great, and what is of more immediate consequence to the Medical Officer, it would render him in some degree independent of European supplies, and might even in some cases lead to the discovery of agents superior in efficacy to any we at present possess. The history of the employment

of Bark—Sarsaparilla—Ipecacuan—Iodine in Bronchocele, (when used in the form of burnt sponge) and many other remedies, whose virtues have been accidentally discovered, or a knowledge of them obtained from the aborigines of the regions in which they were indigeneous, give us reason to hope that the supplies of nature are far from being exhausted, and that we may yet stumble upon efficient antagonists to the hydrophobic poison, the bites of venemous serpents, and other opprobia of medecine; even though we should not attain a knowledge of them by more philosophic and inductive means.

It is of no small importance to the Government of this country to obtain accurate medical and statistical details, concerning the diseases of the Native Troops; the age at which they are found to be most efficient for active field service; the proportion of sick to strength, and of deaths to admissions; the effects of climate, seasons, drill, guard mounting, treasure parties, and all other duties in which they are constantly engaged, whether in the field, on the line of march, or in cantonments; the period at which their physical energies become so impaired as to render them only fit to be drafted to the Invalid Establishment, as well as many other points connected with their Hygiene; without a knowledge of which circumstances, the actual

efficiency of an army sent on service can never be correctly ascertained, and ignorance of them must entail great additional expense on the state, without increasing its strength. These desiderata can only be obtained by ordering more complete returns from Native Corps, than are at present sent in, and by specifying a certain number of inquiries, similar to those enumerated above as adopted in Her Majesty's Service, to be answered in every annual report. By the rigid adoption of some such system, much benefit would soon be rendered both to the Sepoy and the State.

Whether we regard the composition, strength, or utility of the Native Army, it can scarcely be affirmed that its value has been over-rated. The power of the East India Company has been justly stated by the most recent writer on the subject, to be "one of the most splendid anomalies in the whole range of history;" and as much of its authority and extent of dominion have been obtained, and are only likely for many years to come to be maintained, by the sword*—it is surely neither idle nor visionary to adopt every method practicable, for maintaining and increasing the efficiency of

* This was written in 1841. Since that time a more intimate acquaintance with Indian History has led me to a different conclusion, viz. "that it is not by forts or troops that England obtained possession, or keeps possession, of India. It is by the general justice of government, by the integrity of her civil officers, and by the energy of her national character. The troops and forts are of infinite value when the struggle of war comes; but it is the struggle of peace that tries the Government of Colonies."

This in no way militates against the necessity of preserving the troops of all arms, in the highest degree of efficiency—in accomplishing which desirable end, their medical economy is by no means of secondary importance.

the instrument, by means of which so valuable a possession is retained."

It was originally my intention to have appended to the foregoing paper, a few observations upon the best means of collecting topographical information; but upon consulting all the authorities accessible in this country, I find the subject has been so well and completely treated of by the late Dr. Hennen, that no better guide could possibly be placed in the hands of medical officers, to enable them to afford the information required. This appears also to have been the opinion of the Medical Board, since Dr. Hennen's paper was reprinted in Calcutta, together with portions of McCulloch's Essay on Malaria, and I believe, distributed throughout the service, for the purpose of collecting topographical information from the various military and civil stations, under the Bengal Presidency:—an object which reflects* the highest credit upon those who originated the plan, but does not appear to have been responded to with any great degree of zeal by the medical department generally, if we may judge by the small number of replies which have been deemed worthy of being printed and published. I have ventured to give a very brief analysis of these, in order that the exact nature of the amount

* It would appear from a note to p. 581, of the last edition of Johnson and Martin, on Tropical Climates, that the plan was suggested by the latter gentleman "in a statement submitted to the Governor General of India (now Lord Metcalfe) on the 26th March 1835, and which was finally adopted and ordered for the three Presidencies of India, on the 23rd November of the same year."

of information extant may be known, and with a hope that some steps will be taken at once to supply all that is deficient, and furnish the data required for such statistical and other reports as ought long since to have emanated from the medical officers of the Indian Army.

Ajmere.

Dr. Irvine's Topography of Ajmere is a valuable work, containing much useful and interesting matter. The portions relating to mineralogy, botany and materia medica are tolerably complete, but in purely medical details it is deficient, from causes evidently beyond the controul of the author. The same may be said of its meteorology and geology:—it is nevertheless a most useful guide for all medical officers who may hereafter serve in Rajpootana, and an excellent basis for extending the information contained in it. The utility of the botanical appendix is somewhat diminished by the plants being arranged according to the obsolete Linnean classification: this is however a minor defect, and one which can very easily be remedied in any future report from the same quarter. The elegant and classic work of Col. Tod, furnishes ample details upon most subjects of general and historical interest connected with Rajasthan. Dr. Irvine's work is unfortunately without a map—which is, or ought to be an essential constituent of every topographical report.

Dacca.

Taylor's Topography and Statistics of Dacca is in every respect a creditable performance, and one which, in my humble opinion, reflects the greatest credit upon the talents and industry of the author. He has left little for

future observers to add, except annual tables of disease and mortality, histories of particular epidemics, meteorological tables, and therapeutical statistics. The uses of indigenous remedies may be determined with greater accuracy, and perhaps be more extended than they are at present. This is a subject upon which the gradually accumulating records of the Government Dispensaries, under the charge of Sub-Assistant Surgeons, would throw much light, if the results were tabulated, and carefully as well as correctly reported.

Oud'h.

Dr. Butter's Topography and Statistics of the southern districts of Oud'h, and of the cantonment of Sultanpûr, Oud'h, is a learned work, exhibiting much research into the civil, political and general relations of the people and country, which are of more interest to the general than to the professional reader. The author is reported to be an oriental scholar, which has communicated a peculiar, and apparently pedantic cast to his report, more especially in the orthography of eastern terms and names. The medical matter occupies only one short chapter, and contains no statistical or detailed information; so that in this respect, there is much left for future observation. The chapter on the Military cantonment of Sultanpur-Oud'h on the Gumtí, is a condensed and interesting view of the medical history of the place, during three remarkably healthy years, and is followed by tables of the strength, admissions and deaths in the 53rd N. I., during that period.

Meerut.

The Topography of Meerut by Dr. John Murray is a plain, sensible,

practical report, from one evidently well acquainted with his profession. It contains no detailed statistical information, but is such a record as might with very little trouble, be furnished annually by every medical officer in charge of a corps or station.

Sarun.

Mr. Rankine's Topography of Sarun, contains a good although rather meagre outline of the subject, leaving all matters of detail and statistics to be furnished by future observers. The difficulty of collecting information worthy of publication is in many cases very great, and requires a considerable amount of leisure and industry, with a good knowledge of the language and manners of the people—the latter of which are too often neglected in this country. There are many circumstances of great interest connected with the diseases, mortality, diet, internal economy and management of jails, which can only be properly and perfectly investigated by the Civil Surgeons, and upon which our knowledge is still extremely defective and imperfect, notwithstanding the publication of Mr. Hutchinson's treatise on this subject. Much valuable matter and careful registers of the hygiène of prisoners may possibly exist in the records of Government, but as they have never been published or made known, the information is of no practical use.

Assam.

The Topography of Assam by Dr. McCosh is an industrious and amusing performance, written in a light, easy, readable strain, and evincing much acuteness and powers of observation on the part of the writer. The general information contained in it, has, however, since the

date of its publication been completely superseded by the laborious and valuable compilation of Mr. Robinson, the Government Inspector of Schools in the province, who enjoyed unusual advantages for the task. The medical chapter in the work of Dr. McCosh contains little detailed or statistical information, beyond a table of the comparative healthiness of the eastern frontier in the years 1833-34 and 35, taken from the late Capt. Pemberton's report.

Kemaon.

The General and Medical Topography of Kalee Kemaon and Shore Valley by Mr. Dollard—is a popular description of the chief points of interest connected with those places, with no detailed medical or scientific information of any kind. Mr. McClelland's work on the Geology and Mineralogy of Kemaon is the only existing authority of any value upon those subjects, in relation to this highly interesting part of the country.

Route to Upper Scinde.

The latest work upon the subject of topography, from a Bengal Officer, is a small pamphlet by Dr. J. Sutherland, on the Route from the N. W. P. to Upper Scinde, illustrative of the statistics and geological features of the rivers Sutlej, Chena and Indus. It contains no medical information.

Dorjeling.

In a pamphlet upon Dorjeling, published by order of Government in 1838, containing the journals of Col. Lloyd, and Dr. Chapman, together with a digest of the reports of Mr. J. W. Grant and Capt. Herbert, will be found extended and carefully collected Meteorological registers from October 1836 to November 1837, together with

a diary of the weather from January to November of the latter year.

Calcutta.

The voluminous records of the Calcutta Fever Hospital Committee contain an immense amount of detailed and valuable information, upon many points connected with the medical and vital statistics of this great city; which are little known and of no practical benefit, from the diffuse, undigested, straggling, and extended form in which they exist. A most useful practical work might be compiled from these materials; the records of the General and Native Hospitals; those of the many excellent dispensaries in the city, as well as the Eye Infirmary, Insane and Police Hospital, Leper Asylum, Medical College Hospitals—and returns of the sickness and mortality of troops quartered in Fort William, which are doubtless to be found in the office of H. M. Inspector General of Hospitals. The excellent reports of the vaccine department; with Martin's topography, several papers in the transactions of the Medical and Physical Society, some in the Asiatic Researches and Journal of the Asiatic Society, with the meteorological registers of the Surveyor-General's Department, Prinsep's and Henderson's Tables, and the old works upon the early state of society and manners in Calcutta, noticed in a recent number of the Calcutta Review, together with the Police Records would afford an abundant supply of materials, to any one possessed of sufficient leisure and ability, to undertake so important and laborious a task.

There is perhaps no city in the civilized world of similar extent and importance, in which the medical

police, drainage, ventilation, and all such matters are so much neglected, and in so imperfect and inefficient a state, as they are in Calcutta; and it would be difficult to find more abundant, fruitful, and fatal causes of disease and death concentrated within narrower limits, and to which so many human beings are constantly exposed. In Calcutta, and probably most other large Hindoo cities, the circumstances connected with cremation, and exposure of the dying upon the banks of the sacred rivers or their tributaries is a fearful and fruitful cause of mortality, which can only be perfectly and effectually checked, by an efficient and energetic system of medical police. It would appear from the published records of the Fever Hospital Committee, that attention was some time since forcibly directed to the Unterjalie or *Ghaut Murders*, as they were very properly termed; but the nature of the evidence afforded or remedial measures suggested, I am unacquainted with. Many authentic cases are known, in which individuals have by this atrociously inhuman system, been hurried to a premature grave, who might and in all probability would have lived for some years afterwards, if proper care had been taken of them. Indeed, I have heard of an instance in which a wealthy native, after making his will, was very carefully consigned to the tender mercies of the elements, who was rescued by the destruction, at the instigation of an eminent practitioner in Calcutta, of the will which led to his removal to the Ghaut. When this document had been so disposed of, he was removed to his house and lived for some years subsequently. The late head-writer

of the Medical College, an excellent and upright individual was twice taken to the Ghaut, and passed through that frightful ordeal; yet recovered sufficiently to attend to his duties for some weeks afterwards. I was once called upon to prescribe for a highly respected native, who was stated to be dying. I found him laboring under a severe attack of disease of the kidneys, and nearly asphyxiated by burning charcoal in a closely shut room: but there was nothing to indicate approaching dissolution. I prescribed for him, and saw him again a few hours afterwards in consultation with one of my colleagues in the Medical College, who perfectly coincided in my view of the case, and recommended a continuance of the remedies. At 5 o'clock that evening, shortly after our visit, he was carried to the Ghaut, from which he never returned. I afterwards ascertained that none of the medicines were taken, and have no doubt that the exposure under such circumstances, was the immediate cause of death. A native was once sent to me at the Medical College, by the head of a Government establishment in this city, after being exposed for three or four days on the river side. He died immediately on being removed from the carriage —apparently from exhaustion and inanition, and I am quite convinced that the vitality of a system labouring under disease, which could hold out for such a length of time, would by proper care and management, have restored the health of the individual.

To put a stop to such a system as this, would interfere with no religious or other prejudice of the natives, since neither the Shastres nor Vedas countenance any

such murders, as are occasionally committed in this manner: and even if they did, the humanity and power which caused the abolition of the Suttee, might with equal mercy, justice, and wisdom be exercised in the present instance. The remedy is simple, and not expensive. By appointing a Sub-assistant Surgeon, or uncovenanted medical practitioner, to examine all persons carried to the Ghaut, and prohibiting the exposure of any not certified by him to be, in his belief, in a dying state, the evil would readily and rapidly be removed: the more especially, if persons were rendered liable to severe punishment, who were in any case, detected engaged in, or conniving at such disgraceful proceedings.

Medical and Physical Transactions.

In the Transactions of the Calcutta Medical and Physical Society, with the other works mentioned in a preceding paragraph, will be found a large amount of very valuable and useful information, which only requires to be carefully digested and presented to the profession in a less diffuse and scattered form.

Pathologia Indica.

Mr. Allen Webb's Pathologia Indica, contains in a small space more real sound practical information upon tropical diseases, so far as it extends, than any single treatise with which I am acquainted, published in this country; and is, in addition, full of learning and apposite references to authorities not generally or easily available to most persons in India.

It would be out of place here to enumerate, or pretend to discuss the merits of the various treatises on Tropical Diseases, which have been published from

the time of Lind and Clarke to the recent work of Dr. Macgregor. They indisputably prove the absolute necessity of collecting further information upon the most ordinary affections of every day occurrence, as Fever, Dysentery, and Cholera, in all of which the only means of arriving at correct conclusions as to the relative and absolute value of the very various modes of treatment described, is by the application on the most extended possible scale of Louis' numerical method.

Madras Reports.

The Medical Board of Madras has recently had compiled from its records, a series of statistical and topographical reports of the various districts and stations in that presidency ; which although fuller than any previous publications, and containing much information made known in them for the first time, are by no means so complete and satisfactory as might have been expected, from the number of years during which the materials were accumulating. Much of the matter contained in them must be of more than doubtful accuracy from the nature, extent, and mode of furnishing the quarterly and other reports adopted in the Madras Presidency, which are at present, so far as I am able to judge from their latest published Medical Code, in every respect, save one, inferior to those now in use in Bengal—and even these are quite inadequate and insufficient for supplying the amount of information required by the War Office.

Military Hygiene.

By no nation has the subject of Military Hygiene been so much neglected, as by ourselves; with opportunities far exceeding those of any other people in existence, and extending

over an empire upon which the sun never sets. Of late years a great effort has been made to remove this stigma, and the result has been the War Office Reports —a monument of industry and of national glory—to which India has yet to furnish her quota.

The French have no strictly national work upon the subject of Medical Topography, but have been collecting materials since 1776, and with the papers from Military Hospitals, published by De Horne and Hautesierk, have a fund of information adequate for every purpose, should a complete treatise ever be undertaken in that country.

In a work published in 1819 by Dr. Millingen, entitled "the Army Medical Officer's Manual upon active service," are contained many valuable hints, which might be adopted in this country, with the necessary modifications arising from local circumstances. The following are among the suggestions referred to :—

"No time should be lost on the arrival of an army in a foreign country, more particularly when intended for extensive operations, in assembling a board of health, presided by the inspector-general ; in which the following points will be investigated, and official and detailed reports thereon, subsequently submitted to the commander-in-chief.

"1*st*. What are the usual epidemic, endemic, and sporadic diseases of the country ? at what period of the year making their appearance ? whether general, or only prevailing in particular districts ?

"2*d*. If general, in what season ? under the prevalence of what wind ? in what situations ?

3*d*. Provincial, where ? what are the supposed causes ? on the banks of what river ? in the vicinity of what lake, morass, wood, &c. ? under the use of what particular diet or article of food ? the medical topography of the district to be minutely ascertained.

"4*th*. What is the most approved practice of the native medical men? and what are the prophylactic means generally resorted to by the inhabitants?

"5*th*. What is the nature of the water of the several rivers?

"6*th*. What are the principal mineral springs and thermal waters? obtaining if possible their analysis.

"7*th*. What are the most approved works upon the medical topography, and the diseases of the country, as well as on its natural productions?

"8*th*. What are the prevalent winds at the different periods of the year? and what is the mean temperature of the different provinces during the various seasons?

"9*th*. What is the habitual diet and mode of living of the inhabitants? in the middling and labouring classes more particularly—inquiring into the diversity of provincial customs, which can generally be traced to prophylactic motives.

"10*th*. What are the indigenous alimentary, medicinal, and poisonous productions?

"11*th*. What are the condiments most commonly made use of?

"12*th*. What are means usually resorted to by venders of wine, spirits, beer, &c. to adulterate these articles, and what are the most effectual and ready tests for detecting the fraud?

13*th*. What are the principal diseases of cattle?

14*th*. What are the venomous reptiles and insects, and what are the popular means employed to counteract their bite or sting?

"15*th*. Of what description are the means of transport in the several districts, whether by land or water carriage?

"16th. By land; of what kinds the waggons, carts, &c. or bât animals—of what description the roads? By water; of what size the boats, whether open or decked, and how far navigable the rivers, lakes, or canals?

* * * * *

* * * * *

19*th*. What are the principal public hospitals and infirmaries in the several cities, towns, and districts, whether supported by the nation, or by private endowments?

* * * * *

"21*st*. What are the principal palaces, country seats, and manufactures, in the neighbourhood of the cities and towns lying in the probable theatre of war?

"22*d*. How is the country supplied with salt? where abundant, and where scarce? whether sea salt or rock salt?"

The good sense and practical value of the following remarks by Dr. Hennen, induce me to introduce them here, as bearing upon the subject under consideration:—

"The conduct of our arch enemies the French, on the occasion of carrying a war into a new country, as far as regarded the health of their troops, is worthy of imitation. On the irruption of Bonaparte into Italy in 1796, a memoir was drawn up by the Inspector General of Health of the Army, and published by the Executive Directory, on the means of preserving and restoring health in that country. In this memoir were contained topographical views of the various parts of Italy,—their comparative salubrity,—their reigning diseases,—and the resources which each state, and each city and town possessed, for the support or restoration of health. To these were added special remarks on military hygiene, applicable to the circumstances of the army, the seasons and the climate, with practical notices, drawn from the best native medical authorities. So provident were the directors and their general for the health of their armies, that before they had advanced as far as Milan, the medical officers had pushed their topographical researches to the utmost extremity of the kingdom of Naples. Upon the same principle the Topographical Queries of Desgenettes, already alluded to, were circulated under a similar sanction; nor can we conceive any body of men to whom, if sufficient time is permitted to them, inquiries of this description can be more appropriately entrusted, than to the well-informed medical officers of an army; at a period of life when their mental and corporeal powers are in full vigor, and, aided by many concurrent circumstances, it becomes their interest to study minutely those subjects which either directly or collaterally may possess any influences upon health. They witness the endemic constitution of their occasional residences, and

are often enabled to mark, not only the effects which local circumstances produce on new comers, but also the various shades of difference which are observable, until the constitution becomes assimilated to that of the native inhabitants. Endless opportunities for research, comparison, and analytical induction, are presented to their view, and the value of these great sources of improvement is rarely diminished by that paralyzing influence which present or prospective independence but too frequently exerts over the talents and the industry of man."

Tables of Disease.

When a radical change is to be effected, the operation of which may have to extend over a considerable number of years, the more complete and perfect it is made in accordance with the existing standard of information, the more likely will it be to be productive of the greatest possible amount of good. On this account for the table of diseases to accompany each annual, regimental, brigade, division or other return—the most complete form I am acquainted with is that contained in the sixth Annual Report of the Registrar General, and this in my opinion is the one that should be adopted. The Registrar General's reports will be furnished annually, are compiled by able and scientific men, and will form perpetual standards of reference and comparison.

Some of the diseases specified are very rare, and a few never occur among soldiers, but in civil life, all of them will be found more or less frequent; none should therefore be omitted. The mere heading of the tables, and sub-division of columns could be exactly adopted to the circumstances for which they would be required, and would need some little variation if intended for European or Native Troops; Civil or

Jail Hospitals. The following is the list referred to:—

CAUSES OF DEATH.

All Causes.
Specified Causes.
I. Zymotic Diseases.
Sporadic Diseases:—
II. Of Uncertain or variable Seat.
III. Of the Nervous System.
IV. Of the Respiratory Organs.
V. Of the Organs of Circulation.
VI. Of the Digestive Organs.
VII. Of the Urinary Organs.
VIII. Of the Organs of Generation.
IX. Of the Organs of Locomotion.
X. Of the Integumentary System.
XI. Old Age.
XII. External Causes:—Poisoning, Asphyxia, Injuries.

I.

1 Small Pox.
2 Measles.
3 Scarlatina.
4 Hooping Cough.
5 Croup.
6 Thrush.
7 Diarrhœa.
8 Dysentery.
9 Cholera.
10 Influenza.
11 Ague.
12 Remittent Fever.
13 Typhus.
14 Erysipelas.
15 Syphilis.
16 Hydrophobia.

II.

17 Inflammation.
18 Hæmorrhage.
19 Dropsy.
20 Abscess.
21 Mortification.
22 Purpura.
23 Scrofula.
24 Carcinoma.
25 Tumour.
26 Gout.
27 Atrophy.
28 Debility.
29 Malformations.
30 Sudden Deaths.

III.

31 Cephalitis.
32 Hydrocephalus.
33 Apoplexy.
34 Paralysis.
35 Convulsions.
36 Tetanus.
37 Chorea.
38 Epilepsy.
39 Insanity.
40 Delirium Tremens.
41 Brain, &c., Disease of

IV.

42 Laryngitis.
43 Quinsey.
44 Bronchitis.
45 Pleurisy.
46 Pneumonia.
47 Hydrothorax.
48 Asthma.
49 Phthisis.
50 Lungs, etc., Disease of

V.

51 Pericarditis.
52 Aneurism.
53 Heart, ect., Disease of

VI.

54 Teething.
55 Gastritis.
56 Enteritis.
57 Peritonitis.
58 Tabes Mesenterica.
59 Worms.
60 Ascites.
61 Ulceration.
62 Hernia.
63 Colic or Ileus.
64 Intus-susception.
65 Stricture.
66 Hæmatemesis.
67 Stomach, &c., Disease of
68 Pancreas, Disease of
69 Hepatitis.
70 Jaundice.
71 Liver, Disease of
72 Spleen, Disease of

VII.

73 Nephritis.
74 Ischuria.
75 Diabetes.
76 Cystitis.
77 Stone.
78 Stricture.
79 Kidneys, &c., Disease of

VIII.

80 Childbirth.
81 Paramenia.
82 Ovarian Dropsy.
83 Organs of Generation, Disease of

IX.

84 Arthritis.
85 Rheumatism.
86 Joints, &c., Disease of

X.

87 Carbuncle.
88 Phlegmon.
89 Ulcer.
90 Fistula.
91 Skin, &c., Disease of

XII.

92 Intemperance.
93 Starvation.
94 Violent Deaths, Causes not specified.

The causes of death from these various diseases should form one table: and the admissions from them as compared to strength, &c. another. In the same, or in other forms might be specified the ages of the persons admitted, the length of time under treatment, and such other details as will be found amply developed in the War Office returns.

In this way a knowledge would soon be obtained of the peculiar affections to which various branches of of the army are subject; and the means of remedying or removing them would rapidly follow the proper investigation of their causes.

In like manner the causes of the great mortality of various stations in Arracan and Scinde; the unusual prevalence of sickness, partly arising from the agency of the depressing passions, as in General Pollock's army at Peshawur, after the failure to force the Khyber, and its complete disappearance upon the triumphant advance to Jellalabad: the great and unusual healthiness of the Illustrious Garrison; the fearful mortality in Col. Burrell's force at Chusan:—the fatal effects of the march of H. M. 62nd regiment to Musulipatam, and the general mortality among corps in the Madras Presidency upon the line of march: the unhealthiness of Fort William, Berhampore and Dinapore: the salubrity of Kurnaul when first occupied as a cantonment and its subsequent abundonment as a perfect Golgotha; with many other facts of a similar nature, well known to medical officers in this country, would be thoroughly and properly investigated, and turned to good account on subsequent occasions, when similar events were likely to occur.

Barracks and Hospitals.

The state of barrack and hospital accommodation are much neglected in India, and a large amount of disease and mortality can be traced to their improper construction, position, internal economy and management, which could never have occurred had proper medical representations on the subject been based on sound and scientific premises, and clearly demonstrated to the public authorities at the time of their construction.

Economy of building materials in some of these cases has been fearfully out-balanced by the loss of lives, ten times more expensive and valuable to the state. The smallest amount of space that is considered necessary for the healthy action of the lungs and skin of a felon in Europe, is 1,350 cubic feet of air, and less than this can never with safety or propriety be assigned to the sick European soldier in a tropical climate. The fullest and most perfect ventilation again are absolutely necessary, and care should be taken that the sick are not at any time or in any way exposed to malaria, or other noxious exhalations, all prone to attack a frame weakened and reduced by disease, and obnoxious to the influence of every agent of death and destruction.* The European Infantry

* The subject of position and accommodation for troops, in tropical climates, implies a very important question for the consideration of the higher powers of the state. The loss of life has been great in the West Indies in all wars ; in the late war, particularly, it was prodigious. If the subject be viewed scientifically in all its extent, divested of prejudice and prepossession, it appears to be a fact clearly proved, that the great loss has been principally owing to defects of arrangement, or the ill judged disposition of persons unassimilated to climate. The fact has presented itself with a bold feature on many occasions ; and it may reasonablybe expected,

Hospital at Bangalore, apparently in contempt of every rule of science as well as of common sense is built in the centre of a barrack yard, surrounded on every side by high walls, exceedingly ill ventilated,

that, if correct information be given upon the subject, a change in the form and manner of the future disposition will be necessarily adopted, when proved to be calculated to guard health without marring the execution of military duties. The exigence of the case sometimes commands the sacrifice of health in military service; but such exigence ought to be clearly and decidedly proved before a sacrifice be made of a blessing of so much importance. The character of districts and particular situations of country is known, by experience, to natives and inhabitants. Healthy and unhealthy positions are known, to medical men upon general and sure grounds; for similar causes, acting upon similar subjects, uniformly produce similar effects. Thus the general question is open for judgment; the means of attaining information are easy, as they are certain; but it is noticed, with reluctance, that they are rarely resorted to. The neglect has been long felt, and it is grievously felt, even in the present time. Human life suffers unavoidably in war; but it is sacrificed, on numerous occasions, to ignorance and inattention,—to indolence or accommodations of indulgence. Health, a most important concern in armies, is, in reality, little regarded in military or civil arrangements. Indeed it is scarcely to be expected, that those, who command armies or who rule nations, who dedicate their time to perfect the tactic of troops, or to manage the tempers of men, can penetrate deeply into the science of health; for it requires great labour, and some talent to attain, even the first principle of knowledge on the subject. As the attainment of knowledge is tedious and difficult; and as men, who possess power, frequently flatter themselves that they possess knowledge, they do not lend a willing ear to instruction presented by inferiors:—they follow their own opinions,—and they err in their course. In proof of this it may be observed, that the situation of the greater number of the forts and barracks in the islands of the West Indies, whether governed by the English or the French, is unfavourable to health. Where the cause is otherwise, accident has had more share in the arrangement than design. The evil alluded to is of serious consequence,—the cause of multiplied mortality. A remedy exists; but the eyes of those in power must be opened, and the minds enlightened by science before it can have a chance of operation. Yet it is easy; for it can be no difficult matter, previous to the erection of forts, barracks, or even to the fixing of cantonments for troops, to institute

not furnished with proper verandahs, and eminently calculated to aggravate acute and epidemic attacks of disease.* That of the European Cavalry at the same station is rather better placed, and by subsequent additions rendered more healthy and serviceable—but even it is susceptible of considerable improvement. No hospital in a tropical climate should be raised less than 8 feet from the ground, and yet there is perhaps, scarcely a single one in the country so constructed.

The new Fever Hospital to be built in connection with the Medical College, is to have an elevation of 10 feet.

Every Military and Civil Hospital throughout India should be furnished with the means of keeping accurate meteorological registers, consisting of at least two

an official and professional survey, by a committee of military and medical officers, for the purpose of ascertaining the advantages and disadvantages of positions as regarding health and defence. It is scarcely possible but that such lights would arise, in the survey, as might enable those, who are intrusted with the direction of affairs, to ensure defence and convenience, without overlooking the essential considerations due to the preservation of health. The measure is obvious, plain and simple; and though it would, to a certain extent, be effective of its purpose, it does not yet appear that it ever has been adopted, at least as far as respects the question of health."—*Jackson on the Formation, &c. of Armies.*

* "There died of the European troops stationed at Secunderabad, during a period of eleven comparatively healthy years, about 79 per thousand of mean strength.

The great mortality at this station is referrible to the following causes; viz.; the occupation by the troops of one of the worst known localities, as regards health, yet surrounded by such as are quite as noted for their salubrity; barracks and hospitals of unusually bad construction, the former being "composed of two squares enclosing one another, so as to make assurance doubly sure against the possibility of perfect ventilation," defective drainage and sewerage."—*Johnson and Martin on Tropical Climates, p.* 584.

thermometers, one of which should be a register thermometer—a rain guage—a barometer, and a common weathercock to ascertain the direction of the wind.

The medical subordinates should all be properly instructed in the use of these instruments, and the tables kept upon the plan adopted by Capt. Wroughton in 'the Surveyor General's Office,' which is published and distributed monthly. The following form might be adopted for the purpose:—

Days of the Month.	OBSERVATIONS. Made at Sun rise.					
	Barometer reduced to 32° Fahrenheit.	Temperature.			Wind.	Aspect of the Sky.
		Of the Mercury.	Of the Air.	Of Wet Bulb.	Direction from Sun set to Sun rise.	

The same observations should be made at noon and sunset, and the quantity of rain which may have fallen be appended to them in the subjoined manner:

Rain Gauge.	Moon's Phases.

There are other circumstances connected with this branch of enquiry, which are of extreme interest in

military hygiène, and can only be elicited by a complete, well regulated system of medical reports.

The same be may said of the transport of sick and wounded to which Dr. Login has recently directed attention, and the selection of the men best adapted for the various branches of the service; it being a well-known fact in Europe, that peasants and tillers of the ground accustomed to the management of draught cattle, make the best cavalry and horse artillery soldiers, while mountaineers are best adapted for light infantry and rifle crops—and robust healthy men of any class are fit for the great body of infantry. The food, clothing, equipment, and arming of soldiers must also be in some measure controlled by the effects which these exercise, on the health and consequent efficiency of the men. The drills, brigade exercises, and punishments of soldiers with many similar circumstances connected with the internal economy* of troops, generally con-

* The observance of a correct and rigid economy in armies is an object of the greatest importance in the success of war. Without correct economy, there is no security for the continuance of health; and without the possession of vigorous health, there is no dependance upon the results of military operation; for there can be no efficiency, or correspondence of exertion among the parts. The medical history of armies holds out a dismal picture of human misery. Armies were crippled or nearly destroyed by artificial diseases in the late war,—by diseases of contagion, proceeding from corrupted sources of recruiting, and gaining strength from ignorance of the principles of preserving health, or from the neglect of their application in practice. Such losses are melancholy, because they proceed from errors;—not indeed always reprehensible in design, for they proceed from misapplied cases, as well as from neglects; but they are always melancholy, and they call for a remedy. A contagious disease is an accident of frequent occurrence in armies of European or temperate climates; but it does not necessarily belong to military service, even in these countries. Wherever it exists, it argues the existence of

sidered beyond the province of the medical officer, should all be carried on in such manner and at such times as are known to be least injurious and pernicious to the men. In the attempts made by the Emperor Napoleon in 1805, to discipline and render his Grand Army efficient in the shortest possible space of time, he filled his hospitals with severe cases of acute disease. Drilling at improper hours and seasons has in India, been one of the most fatal of all causes of sickness and death, more especially among European Soldiers.

To pursue these matters more at length would require a complete and detailed treatise on Military Hygiene—for which, as respects India, the materials

error in the system of economy.—If the principles, laid down in the preceding pages of this work, be thoroughly understood and acted upon with energy, it may be confidently asserted that no contagious fever will arise spontaneously in an army: if introduced surreptitiously it will not make progress; for the routine of duties, enjoyed in this place, is calculated to dissipate and cut up its causes in their very roots. Soldiers, it may be observed, are selected from the healthy part of the community: reason says that they ought to be more healthy than the mass of the people; yet the matter is not so in fact. The cause of sickness, it may be added, does not consist in actual hardships; for these are rarely of great extent; where they do exist, they rarely affect the health. It consists oftener in indulgence, in torpor, in accumulation in quarters, in excesses of living, in changes and novelty of impression from fluctuating causes. Armies are destroyed in European campaigns by contagious disease, the effect of accumulation and sloth, rather than of toils and fatigues: they suffer in tropical climates by exposure in a new atmosphere, which acting by an effect of novelty, influences the routine of health. A mere change of climate affects the health; but the great prevalence of disease arises principally from ignorance of the causes of prevention, or it rather arises artificially, by adding materials in unusual abundance for the operation of unusual heat of climate."—*Jackson, Op. Cit.*

have yet to be collected, and can only be obtained by a change in the present system of returns and reports.

There are, however, still two or three points, which are not embraced in the War-Office publications, and of which the value and importance in this country are very great.

Therapeutical Statistics.

The first is with respect to the statistics of therapeutics, or the relative value of the different modes of treating varioustropical diseases. For procuring this information, detailed tables should be required from every medical officer of the nature and extent of his practice in Dysentery, Cholera, Fever, &c. &c. specifying the exact amount of mercury, opium, or any other powerful drugs administered; the number of leeches applied and quantity of blood drawn; the expenditure of extras—a fruitful source of relapses, and waste of the public stores—with the results which have followed the particular line of practice adopted.

Medical Indents.

The next circumstance is the objectionable, wasteful, and indefinite manner at present adopted of indenting for medical stores.

If an enquiry were instituted into the amount of public property, which has from this cause been lost, without any benefit to the state, during the last twenty years, it would be found to be very great indeed, and almost beyond belief.

To remedy this is a very simple matter. A fixed scale of supply of medicine, instruments, stores, &c. should be laid down by regulation, for a body of men of

known strength, and calculated under ordinary circumstances to last a specified length of time. The data for these calculations could readily be furnished from the books of the Hon'ble Company's Dispensary, and the average expenditure of at least twenty-five years be taken as the mean amount likely to be consumed. The same should be drawn up for all detachments of European or Native Troops, and issued according to the duration of their absence from Head-quarters. Properly constructed boxes for holding the exact amount should be issued—so that in indenting upon the Dispensary the medical officer would only have to specify the number of men, women, and children under his charge, and the probable time for which the supply was required. The saving to the Exchequer by such a system, would only be equalled by its convenience to the medical officer—who on first arriving in the country and being appointed to a charge, is always puzzled by the present complicated regulations.

Medical Codes.

The last of the topics to which I shall refer is the want of uniformity between the Medical Codes of the three Presidencies, for which it would be difficult to find any reasons either on the ground of expediency or necessity, and which has operated and will continue to operate, prejudicially on the interests and advancement of the Company's Medical Service in India. There are no less than three different scales of diet established; as many modes of conducting the duties of hospitals; a like diversity in the forms of indenting, with trifling, unimportant distinctions throughout, which

serve only to embarrass, without in any way aiding or increasing the efficiency of the public service. They are all much too cumbrous and complicated, as well as deficient in method and arrangement. It has long been understood to be the wish of the Hon'ble Court of Directors that the various departments of the services in the three presidencies should in all respects, be as nearly assimilated as local circumstances will admit of. In no branch would such identity be of more real use, than in the medical department, and in none could it be accomplished with greater facility.

The medical and statistical returns from all the presidencies should be annually furnished to one central office, and there collated, digested, and published, with the least possible delay. To expect that this laborious and responsible duty, could be accomplished by any of the Secretaries to the three Medical Boards, with their ordinary duties, already sufficiently heavy and extended, would be both unreasonable and impracticable. If I were permitted to offer a suggestion upon the subject, it would be to recommend the appointment of a Director General, or special Medical Secretary to the Government of India, upon whom not only the whole of this duty should devolve; but who should compile an uniform code of regulations for the service throughout India, and be the medium of communication with Government and the Honorable Court of Directors, upon all subjects of a professional nature, and to whose office, all reports of the various medical boards should be furnished. The annual volume might easily be kept within reasonable limits, and like the education and

other similar reports, form perpetual and ready standards of reference, and at all times exhibit the actual working state of the department. All the other great branches of the public service have their representatives in the Government of India, while one of the most scientific and assuredly not the least important or necessary of them, send all its communications through intermediate channels of a non-professional nature, which however able and talented in their respective ways, cannot be expected to furnish competent opinions, or exercise a sound control over questions of purely professional and scientific nature. I cannot better conclude these cursory remarks, penned in the brief intervals snatched from regular and incessant official duties, than by quoting from the unrivalled work of Dr. Robert Jackson on the "Formation, discipline, and economy of Armies," the great value of sound and accurate information upon all points connected with their medical management, and a perfect knowledge of their physical capabilities, which can only in my humble opinion be attained by an extended and philosophical system of medical returns and reports :

"In searching for foundations, upon which to form a system of military action, the lights, drawn from a knowledge of the structure and laws of the animal body, deserve consideration : for it is demonstratively evident that a knowledge of the general laws which animal structure obeys, as well as of the extent, to which animal bodies bear, or are capable of bearing the action of foreign causes, is an useful knowledge for those who direct the action of the military machine. Such knowledge is only to be attained by a study of animal structure : and on this ground, some acquaintance with anatomy and the laws of physiology is indispensable for

the tactician; for, from these sources it can only be known, correctly, how an animal body acts, and what it is capable of enduring. This is technical; but besides this technical knowledge of the structure of the animal fabric, some knowledge of the history—the revolutions and military actions of nations, as they have appeared on the theatre of the world, is highly necessary to be duly appreciated: it is known from the one source what men may do, it is known from the other, what they have actually done. This comprehends a general acquaintance with principles, as connected with preliminary science: but to this must be added, in order to be master of the subject, a practical experience of war, conducted under a variety of circumstances; for as it is particularly necessary to guard against the influence of opinions, built upon hypothetical foundations, it is proper, for this reason, that those, who train troops, or give rules for the training of troops, know, by experience, what are the actual effects of changes of climate, of vicissitudes of heat and cold, of the sufferings of hunger and thirst, of rest or idleness, activity or exertion upon the body of man individually; for man individually is the fundamental part of the military instrument, and, as such, his history must be understood in all its parts. It is thus, that actual experience of a soldier's fare and accommodation, in the various conditions of military service, must have been felt, in order to be estimated correctly; and a man must have eaten of a soldier's bread, and slept under the covering of a soldier's blanket, before he can be competent to speak precisely on the subject of what is the best regimen for a soldier; or to what extent his sufferings may be carried without incurring the chance of injuring his health, that is without destroying his capacity of preserving an effective place in the military fabric. From the above sources of knowledge and experience, and from these only, a person, who reflects upon the operation of causes and effects will know precisely what a man may bear, and suffer, and what is calculated to improve or to diminish his fitness for the pursuits of war. The knowledge is complex in appearance; but it hangs upon a simple principle.

The prompt application of superior force upon given points decides

the fate of battles. The manner of marshalling the means is a part of duty which belongs exclusively to the military officer. It would be deemed presumptuous in a man, who does not wear the military cloth, to offer an opinion upon the subject. Such presumption is not attempted in this place; but, as the materials composing armies, are common materials, open to the observation of any one and of every one, it will not be thought arrogant to examine them scientifically, and to note their qualities. These are various aud heterogeneous; and as the perfection of military organization and discipline consists in the capacity of bringing a quantity of individual force to bear upon given points, with unity of action, it becomes a principal object of investigation to ascertain the nature or principle of the bond which connects the action in its source, which cements it through all its ramifications, and which conducts it to an operative effect."

To those members of the medical service who may be alarmed at the additional trouble and responsibility that would devolve upon them from a new system of reports, or who doubt their own ability to do justice to it, I would address the following remarks from one of the most able, efficient, and excellent of our military medical officers, the late Dr. Hennen:—

"To remember and to record are confessedly the humblest operations of the human mind; and he who may not possess talents to reason, or possessing may not choose to exert them, may yet confer essential service on science, by furnishing the materials to those who enjoy both the power and the will to make use of them. We well know that there are many in our profession who record nothing—except the amount of their fees; who stigmatize enquiry with the title of innovation, and crush instead of fanning into life, the generous glow of science, while it is yet struggling into existence.

To these *traders* we have nothing to address, but to those who cultivate the science of medicine, we would strenuously recommend the cultivation of medical topography, as among the most important means of promoting our knowledge of disease."

THE END.

SANDERS AND CONES, TYPS., NO. 4, TANK-SQUARE, CALCUTTA.