ON THE
CLASSIFICATION AND TABULATION
OF
INJURIES AND SURGICAL OPERATIONS
IN TIME OF WAR.

BY
DEPUTY INSPECTOR-GENERAL T. LONGMORE, C.B.,
PROFESSOR OF MILITARY SURGERY IN THE ARMY MEDICAL SCHOOL,
NETLEY.

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It is well known to those who have studied the subject of the specialities of military surgical practice that some of the best established rules of field surgery, especially as regards gunshot injuries, have been arrived at by estimating the results, statistically collected, following different methods of treatment, as well expectant as operative. It is generally believed, moreover, that many other questions of practice, equally important for field surgeons, which are still wavering under the influence of conflicting opinions, are only awaiting the collection of sufficiently comprehensive and reliable statistics to be placed on a similarly settled basis. And now that armies are brought together on a more vast scale than ever owing to the increased means of transport and locomotion, while the numbers of wounded are counted by thousands instead of the hundreds of former years, there is, unhappily, no want of materials for forming such statistics; the best method of

turning these materials to useful professional account is alone not agreed upon.

The practical value, above indicated, which attaches to statistical information derived from surgical experience in time of war, renders it very desirable that all military surgeons, both those who are regularly and constantly engaged in army practice, and others casually called to assist in the treatment of wounded troops, either as volunteers or as medical practitioners temporarily retained for military service, should be thoroughly acquainted with the manner in which the statistics of war injuries and the results of their treatment are collected ; so that, in time of need, all may be ready to work together in collecting such information on one and the same system. It is also well for civil, no less than military, practitioners to be acquainted with the systems adopted for defining the different classes of wounds inflicted in war and for showing the results of their treatment, so that they may be enabled to judge of the extent to which they may trust them as guides for their own practice.

Keeping these points in view, I propose in the following paper (which I may premise has special reference to gunshot injuries, as these form the great mass of the injuries now inflicted in battle)—

1st. To give an account of the special classification and tabulation of the statistics of particular gunshot injuries and their treatment in time of war adopted in the British military service, and of those adopted in other countries.

2ndly. To consider how far the so-collected tabular statistics of any one of these countries can be justly compared with the statistics tabulated under similar headings in other countries.

3rdly. To observe which system ensures the greatest probability of accuracy and completeness of information, or possesses most of other advantages, such as economy of labour, of cost, &c., in compilation ; and

4thly, and finally, to allude to the necessity which in my opinion exists for the subject to be considered internationally, so that the statistical surgical histories of campaigns may be

constructed on a general plan common to the medical departments of all regular armies.

CLASSIFICATION AND TABULATION OF THE STATISTICS OF PARTICULAR GUNSHOT INJURIES AND RESULTS OF TREATMENT IN TIME OF WAR.

Classification employed in the British army.

It will be at once conceded that a classification intended to include injuries of many different kinds should have such a form as will readily exhibit them under the conditions which essentially distinguished one set from another, which cause them to differ in their nature, in the phenomena which they present, in the consequences which usually result from them, and in the treatment which they require for their repair.

The importance of a precise and accurate, and at the same time simple, arrangement for classifying and tabulating the injuries resulting from war can be hardly over-rated. The value of all statistical and professional returns bears an exact relation to the degree in which the importance of a truly scientific distribution of the detailed facts and circumstances included in them has been appreciated, and to the extent in which such a distribution has been carried into execution. It is especially important that this should be recognised in the classified returns with which military surgeons have to deal; and in no department of the military surgeon's practice is this importance more obviously apparent than in the department of wounds, especially gunshot wounds. In war these injuries not unfrequently occur in large numbers together, not by tens, but by hundreds and thousands: the occasions are such, that surgeons have no time for entering into detailed reports of particular cases; and yet the nature of each case must be defined within some fixed limits, if the records furnished of the whole collected number of wounds are to be turned to any practically useful results, either as regards the surgical consequences of the injuries recorded, their ultimate effects in disabling soldiers for service, or for purposes of comparison between the results of various modes

of treatment. If wounds of different characters and of different degrees of gravity, wounds complicated with serious lesions of neighbouring organs, and others simple and uncomplicated, are mixed together under one heading, deductions drawn from the tabular returns in which they are included must contain so many sources of error as to be rendered unreliable and valueless for any scientific purpose whatever. Yet, almost self-evident as this statement appears to be, it was not until the year 1855, nor until ten months after the battle of the Alma, that there was any authorised classification of gunshot wounds in the army medical regulations of the British service. At the date mentioned, July, 1855, a systematic classification which had been formed by Inspector-General Taylor, C.B., was regularly introduced into the army returns, and it is still the form under which all returns of wounds occurring in the field are ordered to be tabulated. As this was a very important innovation, as not even an approach to scientific accuracy in returns of injuries received in battle can be said to have existed until its introduction, and as the same classification is not followed in other countries, while all concur in the need of some system as little open to objections as possible, it will be useful to explain to some extent the nature of Mr. Taylor's classification, and to indicate its practical value. These will be best understood by taking a brief glance at the ill results of the previous absence of an authorised system, and of the faulty plans of arrangement which were occasionally employed by surgeons of their own accord.

Previously to the period of the Crimean War the general medical regulations of the army only required the *numbers* of the gunshot wounds occurring in particular battles and campaigns to be stated. No distinction was required in any of the numerical returns to be made between the *nature* of one wound and that of another. It was, however, expected that in the professional reports furnished at stated periods by medical officers, the histories of any cases of particular interest should be mentioned at full length. It was left to the discretion of the surgeons to select the cases to be thus reported upon. In the year 1813 special instruc-

tions were issued for the guidance of surgeons serving with the armies in the Peninsula, and in these the situations of wounds were ordered to be noted in the returns of sick and wounded.¹ This referred simply to regional situation. Sometimes it has happened that surgeons of hospitals have classified of their own accord the cases which fell under their care, or have selected certain groups of cases for more detailed tabulation. The nature of such tables will obviously vary with the professional attainments and abilities of the surgeons who compile them. Under the most favorable circumstances in these respects, however, in consequence of different plans adopted for framing the tables, and owing to the different professional views held by different surgeons, and in some instances the tendency to put prominently forward specially successful results, or features having particular attractions for the several reporters, the tabular returns from these various sources can very rarely be employed with advantage for purposes of comparison one with another.

Such returns, too, are often found to be so imperfect in themselves as not only to be useless for purposes of comparison, but even for conveying reliable information on many of the very points for which they have been specially prepared. The last year in which any considerable number of soldiers were invalided home to England on account of wounds received in action prior to the time of the Crimean War was the year 1848. The wounded men referred to were sent from India, New Zealand, and the Cape of Good Hope; and the cases of all those who were admitted into the General Invaliding Hospital, then at Fort Pitt, were exhibited together in a special return, the first column of which was intended to show the particular regions of the body wounded, and the

¹ It would seem strange at the present day for an order to be issued to medical officers to make a distinction between *wounds* and *ulcers*; yet such an order was considered necessary in the year 1813. In the printed orders for the regulation of the military hospitals with the Marquis of Wellington's army in the Peninsula, Article 43 enjoins:—"In all returns wounds are always to be distinguished from ulcers, and the site of the wound or ulcer is to be always noted." No form for classifying or tabulating the wounds was included in the regulations.

remaining columns the results of the wounds and the various ways in which the patients were finally disposed of. On examining the column showing the situations of the wounds, the first line is found to show all the wounds of the head and face classed together, and I need hardly mention what different considerations are involved in wounds of these two regions. Then follow wounds of the thorax; thirdly, wounds of the abdomen; and, fourthly, wounds of the back; without any subdivisions to show whether parietes only, or the cavities connected with them, or visceral or other complications, were involved in the injuries. Five headings then followed for the upper extremity, viz., wounds of the shoulder, arm, elbow, forearm, and hand; and five for the lower extremity, viz., wounds of the hip, thigh, knee, leg, and foot; without any indications to point to injuries of bones, nerves, arteries, &c., with which some of them were certainly complicated. To what real practical advantage could such information be converted? The returns of a corresponding kind which have been handed down to us from the Peninsula campaigns are for the most part equally unsatisfactory in the same respects. Inspector-General Taylor made the following remarks in reference to this fact when proposing his own scheme of classification:—"The necessity for some such classification as that now proposed is obvious from referring to the returns furnished during the Peninsular War. These will be found nearly uninteresting and uninformative in consequence of the want of distinction amongst wounds of wholly different nature and quality. In wounds of the head, chest, and abdomen, no distinction is made between simple flesh wounds of these regions and injuries to the more important viscera. The returns do not even distinguish between incised and gunshot wounds, which are of such totally different value even in the same parts. All kinds of wounds seem brought together simply as 'surgical cases;' and in some of the returns of capital operations it is not clear whether fingers and toes have, or have not, been included under the terms 'upper' and 'lower' extremities." Investigation fully confirms these statements of Mr. Taylor. It is important to be

aware of the fact that these uncertainties and serious imperfections do exist in the comparatively recent professional returns referred to, for in almost all systematic works of surgery they are used as standards of comparison for a variety of objects ; to exhibit the results of amputations in different regions, for example.

Inspector-General Taylor's classification was formed with the design of removing the objectionable confusion, and supplying the deficiencies, which I have described as existing in these older returns. Mr. Taylor began his classification in India, at the time of the Sutlej campaign, but completed it in its present authorised shape in the Crimea, when in medical charge of the 3rd division of the army. Early in 1855 an order was issued for Mr. Taylor's form of descriptive return to be used in all army professional documents, both by the surgeons actually in the field, and by those on duty in the general hospitals in rear.¹

It may be safely asserted that this was the first time that a general classification of gunshot wounds at all approaching to precision—one, too, combining comprehensiveness with accuracy of detail and all requisite elements of practical utility—had been employed in the army returns of any country. When the present revised code of regulations for the medical department of the British army was framed in accordance with the recommendations of the Royal Commissioners in the year 1858, the classification was embodied in them with some slight modifications, and it still remains the form according to which gunshot and other wounds received in action are required to be enumerated and described by the surgeons under whose care they come for observation and treatment. The separate returns from corps and detachments of troops are combined in one general descriptive return,

¹ In the year 1856 Mr. Taylor published his classification, together with some explanatory observations, in the form of a small pamphlet. See 'A Classification of Wounds and Injuries received in action, proposed for use in military hospitals, submitted to the Director General of the Army and Ordnance Medical Department, and to the Principal Medical Officer with the army in the Crimea.' By J. R. Taylor, C.B., Deputy Inspector-General, Camp near Sebastopol, January 26th, 1856.

having the same form of classification, by the chief medical officer of the army.

All the wounds and injuries among the non-commissioned officers and men received during the Crimean War and treated in the field and general hospitals from the 1st of April, 1855, to the end of the war, 7161 in number, have been defined, and the results of their treatment shown, by returns tabulated in accordance with Taylor's classification, in the Government report on the medical history of the war. The wounds of the commissioned officers have been similarly classified for the whole period of the war. The system of classification had not been introduced into India at the time of the Sepoy mutiny, so that we have no medical and surgical history of that war as we have of the Crimean War; but the wounds of all the men of the British forces which led to the subjects of them being invalided home to England,¹ have been recorded with precision according to the authorised classification; and, equally so, all the wounds and injuries which were received during the last war in New Zealand. No returns or records exist by which the vast numbers of wounds received in the wars in which this country was engaged prior to the Crimean campaign—in the Peninsula, in Belgium, in India, and elsewhere—can be defined; scarcely anything more than their mere numbers, and these very imperfect, were ever recorded. This neglect is not likely to happen again in any future war in which this country may be engaged.

The form of Inspector-General Taylor's 'Descriptive Numerical Return of Wounds,' the history of which I have described in the foregoing remarks, comprehends fifteen classes. The first twelve of these contain the classification of gunshot injuries; the remaining three classes include incised, stabbing, and miscellaneous wounds and injuries. When employed in the Crimea printed copies of this classification were issued in forms convenient for the insertion of the necessary numbers, numerical returns; and others so arranged as to afford room for detailed remarks on particular cases of wounds.

¹ See 'Army Medical Reports,' vol. iv, pp. 463—471. London, 1864.

Descriptive Numerical Return of Wounds and Injuries received in Action, admitted into the Hospital of the ———, between the — of ———, and — of ——— 18 —.

———, the — of ———, 18 —

CLASSIFICATION AND SPECIFICATION OF WOUNDS AND INJURIES.		Remained on the 18	Since admitted.	Died.	Discharged to duty.	Transferred			Remained on the 18
					To other hospitals or stations.	Readmitted for other diseases.	Readmitted for capital operation.		
1. GUNSHOT WOUNDS OF THE HEAD.	1. Contusions and simple flesh wounds of scalp { Slight Severe								
	2. With contusion or fraction of the cranium, without depression								
	3. Ditto, with depression								
	4. Penetrating the cranium								
	5. Perforating ditto								
2. GUNSHOT WOUNDS OF THE FACE.	1. Simple flesh contusions and wounds... { Slight Severe								
	2. Penetrating, perforating, or lacerating the bony structures, without lesion of important organs								
	3. Ditto, with lesion of the								
	4. With fracture of the lower jaw								
3. GUNSHOT WOUNDS OF THE NECK.	1. Simple flesh contusions and wounds... { Slight Severe								
	2. With injury of the								
4. GUNSHOT WOUNDS OF THE CHEST.	1. Simple flesh contusions and wounds... { Slight Severe								
	2. With injury of bony or cartilaginous parietes, without lesion of contents								
	3. With lesion of contents by contusion, or with non-penetrating wound								
	4. Penetrating, and ball lodged, or apparently lodged								
	5. Perforating contents { Superficially Deeply								

DESCRIPTIVE NUMERICAL RETURN OF WOUNDS—*Continued.*

CLASSIFICATION AND SPECIFICATION OF WOUNDS AND INJURIES.		Remained on the 18	Since admitted.	Died.	Discharged to duty.	Transferred			Remained on the 18
						To other hospitals or stations.	Readmitted for other diseases.	Readmitted for capital operation.	
5. GUNSHOT WOUNDS OF THE ABDOMEN.	{ 1. Simple flesh contu- sions and wounds... 2. Contusions or non- penetrating wound with lesion of 3. Penetrating or perforating, with lesion of	{ Slight Severe <							

I have mentioned that some modifications of Inspector-General Taylor's classification were made when the revised medical regulations for the army medical service were issued in 1858. Mr. Taylor's "descriptive numerical return" was specially prepared for use as a hospital return, that is, for use after the patients had been admitted into a hospital and placed under regular hospital treatment. But it was thought necessary by those who framed the revised regulations that besides this a return of all the injuries received in each action should be obtained as soon after the action as possible by the principal medical officer, so that a trustworthy report of all the casualties resulting from the engagement might be furnished to the commanding officer of the forces without delay.¹ While keeping the same classified arrangement, it was necessary for this purpose to alter the headings of the separate columns. Instead of indicating changes taking place under hospital treatment, the columns were used for indicating the nature of the missiles or weapons by which the several regional and special injuries had been inflicted. This reduced the number of classes from 15 to 12; the injuries of classes 13, 14, and 15, "Sword," "Bayonet," and "Miscellaneous" wounds, being tabulated in three separate *columns* of the return. The whole return was framed to include the deaths directly consequent on the injuries inflicted in the action—all distributed regionally and according to their causes just the same as the injuries of those who survived to come under surgical treatment. I suppose this was something intended to be aimed at, rather than expected to be carried into execution. It is no small matter, even with a thorough systematic

¹ *Medical Statistics of an Army in the Field* :

1. When an army is in the field a daily medical return of diseases is to be made up by the regimental surgeon or medical officer in charge on Form M, and transmitted to the principal medical officer, to be used for his report to the commanding officer of the forces.

2. *A classified return of wounds and injuries received in each action is to be sent on Form N as soon as possible by the surgeon or medical officer in charge to the principal medical officer.*

3. A classified return of wounds and injuries of every kind received in action and admitted into hospital is to be made up in Form O, and transmitted by the regimental surgeon or medical officer in charge to the principal medical officer at the conclusion of each week. (Extract from 'Army Medical Regulations,' London, 1859, pp. 94, 95.)

arrangement, and with a well-organized and disciplined division of labour, to obtain a fair approach towards accuracy in enumerating the number of the wounded and the nature of their injuries after battles; to ascertain and define the injuries of the killed on fields of battle, under ordinary circumstances, is impracticable. The comparatively few medical officers present on such occasions have not time enough to attend properly to the wants of the living wounded, much less time to spare for determining the particular injuries of the dead, who often lie very widely scattered over the ground. Unfortunately the return has been so framed that unless this information is given, the document, purporting as it does to include the "total wounds and injuries" inflicted in a given action must always be an incomplete and, so far, an erroneous one. This might be avoided by having a separate return for the injuries of those dying on the field of action before receiving surgical aid; it being enjoined for it to be filled up when circumstances might admit of the required information being obtained, which could only happen on occasions of comparatively slight engagements with limited numbers of casualties. The return just described, and designated Form N, is shown on the following page.

The classified return of injuries adopted in the military regulations for indicating the *admissions into hospital and their results* is not altered in any material respect from the original return elaborated by Inspector-General Taylor; the classification is limited to twelve classes in the same way as the previous *return of casualties in action*; the incised, stabbing, and miscellaneous injuries being shown under the same form, but in a separate return from those caused by gunshot, instead of being tabulated in one and the same return under additional classes. This return, designated Form O, follows on page 215.

Inspector-General Taylor appended to his classification of injuries a form of return for showing in a systematic and concise manner the capital operations performed in consequence of them, and their results. With a trifling addition this also was adopted in the Revised Army Medical Regulations. (For the Form (P) of this return see p. 216.

[Form N.]

CLASSIFIED RETURN OF WOUNDS AND INJURIES RECEIVED IN ACTION ON THE

N.B.—Separate Forms should be used for (1) Officers and for (2) Non-commissioned Officers and Men.

[This Form may be used for various purposes where Returns of Wounds and Injuries are to be made, the headings being altered according to circumstances.]

Regions of the body wounded or injured.	ADMISSIONS.						DEATHS							
	WITH WOUNDS OR INJURIES.						CONSEQUENT ON THE FOREGOING WOUNDS AND INJURIES:							
	Projectile or weapon by which the wounds or injuries were inflicted.						Projectile or weapon by which the wounds or injuries were inflicted.							
Total wounded or injured.	Cannon ball.	Shell.	Grapeshot.	Rifle, musket, pistol ball.	Sword lance.	Bayonet.	Other or undetermined means.	Cannon ball.	Shell.	Grapeshot.	Rifle, musket, pistol ball.	Sword lance.	Bayonet.	Other or undetermined means.
	Among total wounded or injured.													
ALL WOUNDS AND INJURIES.														
1. WOUNDS of the HEAD														
2. WOUNDS of the FACE														
3. WOUNDS of the NECK														
4. WOUNDS of the CHEST														
5. WOUNDS of the ABDOMEN														
6. WOUNDS of the BACK and SPINE														
7. WOUNDS of the PERINEUM and GENITAL and URINARY ORGANS, not being Wounds of the Peritoneum														
8. WOUNDS of the UPPER EXTREMITIES														
9. WOUNDS of the LOWER EXTREMITIES														
10. WOUNDS with direct injury of the LARGE ARTERIES, not being cases of compound fracture														
11. WOUNDS with direct penetration or perforation of the LARGE JOINTS														
12. WOUNDS with direct injury of the LARGE NERVES, not being at the same time cases of compound fracture														

N.B.—The Classification will be continued by the expansion of each of these 12 heads, so as to show the precise character of the Wounds and Injuries.

[Form O.]

CLASSIFIED RETURN OF WOUNDS AND INJURIES OF EVERY KIND RECEIVED IN ACTION ABROAD.

Admitted into the Hospital of _____ between the _____ of _____ and _____ of _____, 18

*N.B.—Separate Forms should be used for (1) Officers and for (2) Non-commissioned Officers and Men.**[A separate Form may be used for Gunshot Wounds as distinguished from other Wounds.]*

Region of the body wounded or injured.	Remained on the _____, 18	Since admitted.	Amputations.			Other operations.	Died.	Discharged to duty.	Transferred.		Remained on the _____, 18
			Primary.	Secondary.	Excision.				To other hospitals.	To England.	
<p>ALL WOUNDS AND INJURIES.</p> <p>1. WOUNDS OF THE HEAD</p> <p>2. WOUNDS OF THE FACE</p> <p>3. WOUNDS OF THE NECK</p> <p>4. WOUNDS OF THE CHEST</p> <p>5. WOUNDS OF THE ABDOMEN</p> <p>6. WOUNDS OF THE BACK AND SPINE</p> <p>7. WOUNDS OF THE PERINEUM AND GENITAL AND URINARY ORGANS, not being Wounds of the Peritoneum</p> <p>8. WOUNDS OF THE UPPER EXTREMITIES</p> <p>9. WOUNDS OF THE LOWER EXTREMITIES</p> <p>10. WOUNDS with direct injury of the LARGE ARTERIES, not being cases of compound fracture</p> <p>11. WOUNDS with direct penetration or perforation of the LARGE JOINTS</p> <p>12. WOUNDS with direct injury of the LARGE NERVES, not being at the same time cases of compound fracture</p>											

N.B.—The Classification will be continued by the expansion of each of these 12 heads, so as to show the precise character of the Wounds and Injuries.

[Form P.]

Classified Return of Operations performed and of Deaths following them between the — day of — and the — day of —, 18—, in the — Hospital.

Nature of operations.	Operations performed.		Deaths following the foregoing operations.	
	Primary.	Secondary.	Primary.	Secondary.
<p>AMPUTATIONS.</p> <p>TOTAL</p> <p>UPPER EXTREMITIES.</p> <p>Shoulder-joint</p> <p>Arm</p> <p>Fore-arm</p> <p>Thumbs</p> <p>Fingers</p> <p>LOWER EXTREMITIES.</p> <p>Hip-joint</p> <p>Thigh. { At upp. third At mid. third At low. third</p> <p>Leg</p> <p>Ankle-joint</p> <p>Medio-tarsus</p> <p>Tarso-metatarsus</p> <p>Toes</p> <p>EXCISIONS.</p> <p>UPPER EX-TEMITIES. {</p> <p>LOWER EX-TEMITIES. {</p>				
<p>EXTRACTION OF BALLS AND OTHER FOREIGN BODIES.....</p> <p>TREPHINING</p> <p>LIGATURES OF ARTERIES ... {</p> <p>OTHER OPERATIONS.....</p>				

Those who care to study and compare the classification I have thus described with other systems will, I believe, find it to be the best essentially as well as the best fitted for use in the field. I would only suggest one alteration in the general outline of the classification, and this chiefly in order to obtain more complete uniformity. This suggested alteration is the abstraction of class ten, "wounds of large arteries," and of class twelve, "wounds of large nerves," and their transference to the list of subdivisions in classes eight and nine, wounds of the upper and lower extremities, in the manner set forth below.¹ The tabulation of wounds of important arteries and nerves of other regions, as of the face, neck, &c., is already provided for in the subdivisions of the classes comprehending the regions in which the injuries may have happened to have occurred. By this means the classes will be reduced from twelve to ten. All the classes will then be regional: and all the orders, or subdivisions, structural.

A few alterations, or rather additions, also appear to me to be necessary for the subdivisions,² but it would travel away from my purpose to discuss them here. One special advantage of the classification is that any such addition which may be decided to be necessary, whether for general purposes or to meet a particular occasion, can be readily made without in any way disturbing the main plan or framework.

So much for what has been done in this country towards collecting scientific professional statistics of the injuries from war by regularly classified numerical returns, as well as for establishing a definite system on which the surgical results of

<p>1</p> <p>8.</p> <p>GUNSHOT</p> <p>INJURIES</p> <p>OF THE</p> <p>UPPER</p> <p>EXTREMI-</p> <p>TIES.</p>	<p>{</p> <p>1. Simple Flesh } Slight,</p> <p>contusions and wounds } Severe</p> <p>2. With injury of large</p> <p>blood-vessels.....</p> <p>3. With injury of large</p> <p>nerves</p> <p>4. With contusion and</p> <p>partial fracture of long</p> <p>bones, &c.</p> <p>(The remainder as in</p> <p>Taylor's classification.)</p> <p>}</p>	<p>9.</p> <p>GUNSHOT</p> <p>INJURIES</p> <p>OF THE</p> <p>LOWER</p> <p>EXTREMI-</p> <p>TIES.</p>	<p>{</p> <p>1. Single flesh } Slight</p> <p>contusions and wounds } Severe</p> <p>2. With injury of large</p> <p>blood-vessels</p> <p>3. With injury of large</p> <p>nerves</p> <p>4. With contusion and</p> <p>partial fracture of long</p> <p>bones, &c.</p> <p>(The remainder as in</p> <p>Taylor's classification.)</p> <p>}</p>

² Such as I have indicated with regard to "Injuries of the Head" on p. 30.

future wars in which this country may happen to be engaged, can be compared with the results in those which have been previously recorded. There are other official documents by which these professional statistics may be checked: monthly, quarterly, and annual professional returns and reports from medical officers; nominal returns of killed and wounded furnished by corps to the Adjutant-General's department, and nominal returns of those who die in hospital to the medical department; documents connected with the invaliding of the disabled soldiers, and with the pensions awarded to officers and men for disabilities, in which more or less of professional information bearing on the nature of the cases is included. But in discussing the subject of the classification of injuries received on fields of action as I have done, I have kept in view the machinery devised for furnishing the records of the nature and results not of particular groups of cases, but of all the injuries and operations resulting from battles; for, as will appear hereafter, it will entirely depend on the quality and suitableness of this machinery whether the information afforded through its means is of any real value to those who find occasion for studying works which purport to contain complete and true professional histories of campaigns.

Classifications employed in the armies of other countries.

The only other **countries** besides England which have published official surgical and statistical histories of the wars in which they have been engaged are the United States and France. They have been published since the date of the Crimean war. I propose now to glance at the systems adopted in these two countries in collecting the facts on which the statistics of these histories have been formed, and to describe briefly the forms of classification of injuries employed in them. And first as regards the plan adopted by the United States.

Collection and classification of the surgical statistics of war injuries in the United States.

During the year 1861, in which the great war of the rebellion commenced, and during the first eight months of the year 1862, like ourselves at starting in the Crimean war, the United States' surgeons were only required to furnish monthly and quarterly reports of sick and wounded, with one general heading for gunshot injuries.¹

In an official circular emanating from the surgeon-general's office, Washington, dated July the 1st, 1863, it is stated:—"Previous to that month (September, 1862) the surgical statistics of the war are absolutely worthless. The only information procurable is such as can be derived from an examination of a mass of reports, all of which present merely certain figures under the vague and unsatisfactory heading *Vulnus sclopeticum*."² It has been since mentioned that "a careful re-examination of these records prove that they contain a large amount of material that is far from valueless;"³ but, seeing that it is also stated in the same document that, during the period above referred to, "the returns from about one half of the regiments in the field gave an aggregate of over thirty thousand cases of gunshot injury," how different from "far from valueless" would have been the expression applied to them had they all been scientifically classified

¹ At the time mentioned "Wounds" were recorded in the American hospital returns under four headings:—*Vulnus incisum*; *V. contusum vel laceratum*; *V. punctum*; and *V. sclopeticum*. No further specification of them was required; but, as in the British regulations, there was an injunction in the 'Report of Sick and Wounded' that "cases of unusual interest will be reported in detail."

All the forms of hospital returns in use in the United States' army medical service up to September, 1862, may be seen in the 'Handbook for the Military Surgeon,' by C. S. Tripler, M.D., Surgeon United States Army, and G. C. Blackman M.D., Professor of Surgery in the Med. Coll. of Ohio, 3rd edit., Cincinnati, 1862.

² Consolidated Statement of Gunshot Wounds. Circular No. 9. Surgeon-General's office, July 1, 1863, p. 2.

³ Circular No. 6. Surgeon-general's office, November 1, 1865, p. 3.

and recorded as under other conditions they might have been!

In the year 1862 a special form was adopted by the United States' Army Medical Department for tabulating the gunshot injuries resulting from the war. The classification of the so-called "Tabular Statement," the form of which is shown on the next page differed materially from that of the classification adopted in the British service. Instead of the principal classes being *Regional*, as in the British tables, they were made *Structural* in the American. The injuries were distributed under four great classes—wounds of flesh, wounds of cavities, wounds of bones, and wounds of joints. These four structural classes were subdivided by regions. The flesh wounds were subdivided into wounds of the head, neck, trunk, external genitals, upper and lower extremities; and, in like manner, the wounds of bones and joints into those of particular bones and joints. The wounds of cavities were strangely subdivided into the seven following orders:—1, wounds of brain; 2, lungs; 3, other wounds of thoracic cavity; 4, stomach; 5, intestines; 6, bladder; and 7, other wounds of abdominal cavity.

No provision was made for tabulating wounds of large arteries, nerves, organs of special sense, and other important structures of the body. Another most important defect was that no provision existed in the "tabular statement" for indicating special differences in the nature of the wounds inflicted. All were numerically mixed together, the most trifling with the most grave, the most simple with the most complicated. So far as the figures of such a tabular statement, taken by themselves, are concerned, I believe them to be almost practically worthless. The following is the form of the tabular statement just mentioned.

In addition to the figures in the tabular statement the United States' regulations provided, like our own, for brief reports on particular cases of wounds in the periodical hospital returns of sick. A further amount of information would be procurable from the case-books in which the cases treated in hospital are required to be recorded at greater or less length. All, however, who are familiar with such records know how very little information of real and reliable value is ordinarily to be found in them. A certain proportion of such books will contain records in which the nature and progress of cases, and all important points of professional interest, are faithfully and accurately described, so that there is no difficulty on subsequent examination in distributing the cases under their proper categories, and using them for other scientific purposes; but, on the other hand, a large proportion—from inadvertence, want of time, indolence, or the absence of the requisite knowledge to enable the case-takers to appreciate properly the points of real value—will simply be filled with routine entries, neither capable of supplying the materials for building up statistical information of any worth, nor of being turned to account in any way for the improvement of future practice.

Moreover, with dependence on such an arrangement for the supply of information, it necessarily follows that a vast amount of labour and time must be expended at some central office in perusing and sifting the whole of these documents; and, if it be thought worth the pains, in carrying on correspondence having for its object to make up deficiencies, to get explanations of doubtful expressions, to reconcile contradictory statements, and this, too, long after the occurrences referred to have passed by.

These difficulties were experienced at the Surgeon-General's office in Washington. In January, 1864, new registers for cases of wounds and operations were introduced for use in the field and in the general hospitals, on forms recommended by a committee of medical officers. The registers for the general hospitals contained minute directions for entering cases under appropriate headings. Each page of the register

was divided into a series of blank columns, and each column was required to have written in it certain information indicated at the head of the column. A special form of bed-head card was adopted to assist in the compilation of these registers.

When these new arrangements for tabulating and recording the experience gained by the medical officers in the field and general hospitals had been put in force, as the documents successively arrived at the Surgeon-General's office in Washington, a large number of medical officers and clerks were occupied in classifying and transcribing their contents. The injuries by gunshot appear to have been at first classified, and entered in corresponding volumes, under nine headings, viz. —1, wounds of the head and face ; 2, of the neck and chest ; 3, of the abdomen, back, and spine ; 4, of the perinæum and genito-urinary organs ; 5, fractures of the upper extremities ; 6, fractures of the lower extremities ; 7, flesh wounds of the upper extremities ; 8, flesh wounds of the lower extremities ; 9, wounds of arteries, veins and nerves ; a tenth volume being devoted to sword, bayonet, and miscellaneous injuries. The cases of operation were recorded under five headings, viz. :— 1, amputations in continuity ; 2, amputations in contiguity ; 3, excisions ; 4, ligations ; and 5, miscellaneous operations. The labour involved in this proceeding may be estimated from the fact stated in page 5 of Circular No. 6, 1865, that “on September the 1st, 1864, there had been transcribed upon these registers the histories of 30,435 wounds, and of 1172 operations.”

But, vast as the labour employed was, this mode of classification did not prove sufficiently satisfactory, and in October, 1864, the task was undertaken of revising the surgical records in the Surgeon-General's office anew. In order to group together only similar orders of injuries, it was determined to classify them under a larger series of sub-divisions. The collection of cases included under the first heading, “Gunshot Wounds of the Head and Face,” were separated into six distinct classes, and so on with the others. Eventually a classification of the wounds and injuries was adopted

which, so far as gunshot injuries are concerned, divides them under twenty-eight headings, three others being devoted to certain accidents resulting from them, viz., tetanus, secondary hæmorrhage, and pyæmia. Surgical operations were also classified under twenty-eight headings.

The classification thus adopted is stated, in a report by Surgeon Otis,¹ to be "less elaborate than that employed in the British statistics of the surgery in the Crimea, and more detailed than that followed by Dr. Chenu in the French Surgical Report of the Crimean war." I will presently attempt to compare its advantages with those of the classification adapted in the British service, the latter of which, I am of opinion, far preponderate.

The classification finally adopted in the United States, is shown in the following tables, which exhibit the number of cases of each class that had been registered in the Surgeon-General's office at Washington on September 30th, 1865.

¹ Circular No. 6. Ante cit., p. 6.

*Classification of Surgical Operations followed in the Division
of Surgical Records, S. G. O.*

Amputations of the fingers	1849
Amputations of the wrist-joint	46
Amputations of the fore-arm	992
Amputations at the elbow-joint	19
Amputations of the arm	2706
Amputations at the shoulder-joint	437
Amputations of the toes	802
Amputations of the foot (partial)	160
Amputations of the ankle-joint	73
Amputations of the leg	3014
Amputations at the knee-joint	2984
Amputations of the thigh	21
Amputations at the hip-joint	575
Excisions of the head of the humerus	315
Excisions of the elbow	34
Excisions of the wrist	22
Excisions of the ankle	
Excisions in the continuity of the	695
upper extremities	
Radius	
Ulna	220
Radius and ulna	
Excisions of the shafts of the tibia	
and fibula	11
Tibia	
Tibia and fibula	
Excisions of the knee	68
Excisions of the shaft of the femur	32
Excisions of the head of the femur	101
Excisions of bones of the face or trunk	221
Trephining	404
Ligations of arteries	726
Extractions for foreign bodies	443
Operations for surgical diseases	23
Operations not included in other categories	
Total	17,125

*Classification of Wounds and Injuries, and their Results,
followed in the Division of Surgical Records, S. G. O.*

Gunshot fractures and injuries of the cranium	1108
Gunshot fractures of the bones of the face	1579
Gunshot fractures of the spine, not involving the chest or abdomen	187
Gunshot fractures of the ribs, without injury of the thoracic or abdominal viscera	180
Gunshot fractures of the pelvis, not involving the peri- toneal cavity	397
Gunshot wounds of the scapula and clavicle, not impli- cating the thoracic cavity	389
Gunshot fractures of the humerus	2408
Gunshot fractures of the radius and ulna	785
Gunshot fractures of the carpus and metacarpus	790
Gunshot fractures of the femur	1957
Gunshot fractures of the patella and knee-joint	1220
Gunshot fractures of the tibia and fibula	1056
Gunshot fractures of the tarsus and metatarsus	629
Gunshot penetrating wounds of the chest, and injuries implicating the thoracic viscera	2303
Gunshot penetrating wounds of the abdomen, and in- juries involving the abdominal viscera	565
Gunshot scalp wounds	3942
Gunshot flesh wounds of the face	2588
Gunshot wounds of the neck	1329
Gunshot wounds of the thoracic parietes	4759
Gunshot wounds of the back	5195
Gunshot wounds of the abdominal parietes	2181
Gunshot wounds of the genito-urinary organs	468
Gunshot wounds of the upper extremities	21,248
Gunshot wounds of the lower extremities	25,152
Gunshot wounds of arteries	44
Gunshot wounds of veins	3
Gunshot wounds of nerves	76
Sabre wounds	106
Bayonet wounds	143
Simple fractures and miscellaneous wounds and injuries	2833
Cases of tetanus	863
Cases of secondary hemorrhage	1035
Cases of pyæmia	754
Total	87,822

An examination of this classification shows that, though extended, the principles of the arrangement originally adopted in the "Tabular Statement" before described, are in a great measure adhered to. The first thirteen classes are all fractures or *Injuries of Bones*; the fourteenth and fifteenth are *Wounds of Cavities*; the following nine classes are *Flesh* wounds; the three following, *Wounds of Blood-vessels and Nerves*. The remaining classes consist of injuries from other causes than gunshot, or include certain consequences of wounds. The "Flesh Wounds," "Wounds of Cavities," and "Gunshot Fractures," constituting the three chief sections of the "Tabular Statement" classification, are retained; wounds of blood-vessels and nerves are added; the fourth and remaining section of the tabular statement, "Wounds of Joints," cease to be specified, with the exception of "Fractures of the Patella and Knee-joint." The wounds of joints must, therefore, be included in the classes of fractures of bones of the extremities and flesh wounds of the extremities, according as the joint wounds have happened to occur with, or without, fracture of bone. To which class a joint wound involving two or more of the bones forming the articulation, all three bones of the elbow, for example, would be referred, is not apparent. Considering the very peculiar qualities of wounds of joints, the special questions which concern the treatment of wounds of joints generally in the field as well as of particular joints, it is surely an arrangement open to many objections to mix them up indiscriminately in a numerical table with wounds of bones in which joints are not implicated.

Collection of Surgical Statistics in time of war, and their classification in France.

The classification of injuries published in the grand works of Dr. Chenu on the Crimean and Italian wars—the most extensive, the most complete, and, at the same time, the most faithful medico-chirurgical histories that have ever been published of French military campaigns—may be accepted

as the classification authorised by the medical department of the French army, these works having been published under the official auspices of the Conseil de Santé, and I take it as the standard of comparison with the classifications employed in the British and United States' medico-military services.

The professional documents by which information is afforded on the nature and results of the injuries of soldiers received into field and other hospitals in the French army are very simple. They consist of schedules termed "*Cahiers de visite*," and they answer at one and at the same time the purposes of the diet tables, case-books, and other hospital returns used in the British service. Each patient entering a French ambulance or hospital is required to have his name, grade, regiment, and date of entrance placed in specified columns on two of these *Cahiers de visite*, one for the even and one for the uneven days of the month. The date of the receipt of the wound, its nature, and its result, whether leading to return to duty, discharge to other hospital, or death, are also noted on this document. Each schedule contains divisions for the daily prescriptions of diets, extras, remedies, and observations on changes in the patient's condition. After the completion of these schedules, they are transmitted to the Intendance Department, where they serve for the verification and liquidation of accounts.

As Dr. Chenu has observed, "if these schedules were always kept as the regulations require, they would convey information the most certain and most valuable for the medico-chirurgical statistics of a campaign; but it is not often possible to get a scrupulously careful regard paid to them in the field. Imperious necessities of the moment, the too frequent overcrowding of patients, excessive number of entries on the same day, sudden evacuations of hospitals, deficiency in the number of surgeons and hospital attendants, and the inevitable disorder and errors which are the consequence of these things, sufficiently explain the omissions so much to be regretted from every point of view" ('Campagne d'Orient,' p. 6). Dr. Chenu states that the field hospitals of the French army in the

Crimea furnished comparatively few regular "cahiers de visite," and that even those of the hospitals on the Bosphorus were not complete. A number of them were burned when one of the hospitals at Constantinople was destroyed by fire.

There were, however, some other means available to Dr. Chenu for partly supplying these deficiencies. The most reliable were the documents furnished to the Ministry of War, viz. (1.) those relating to officers and soldiers to whom pensions were accorded for injuries. These documents, being vouchers for outlay of public money, had been made with scrupulous exactness, verified in repeated ways, bore in every instance a strict account of the origin and nature of the injury or surgical operation for which the pension was given, and were carefully preserved for future reference. (2.) The nominal returns of deaths and missing. (3.) The nominal returns of losses from regiments. (4.) The returns of officers and soldiers wounded or amputated, but remaining in the army, notwithstanding their amputations or wounds.

As to the classification adopted for tabulating the statistics thus collected, Dr. Chenu confesses that he had experienced difficulty in arranging it so as to satisfy the needs of correct anatomical distribution. The form of the classification at last adopted resembles the English classification, so far as the principles on which it is based are concerned. The principal divisions, like the English, are *regional*, the subdivisions *structural*. But although the French classification agrees in principle with Taylor's classification, it differs in its details. In the French Crimean history the injuries are classified in twenty-five divisions; the amputations and excisions in fifteen divisions. In the statistical history of the Italian campaign, the classification is altered in some minor respects. The number of classes is reduced from twenty-five to twenty-two. Wounds of the back and vertebral column, which form a separate class in the French history of the Crimean war, are distributed among the three classes of wounds of the neck, chest, and abdomen in that of the Italian war. Wounds of the face, the eyes, and the lower jaw, form three separate classes in the Crimean classification; they appear together

under one class, "wounds of the face," in the history of the Italian war. The subdivisions of all the classes are also modified in some particulars. As the work on the Italian campaign is the most elaborate as well as the latest published of these French professional histories, the classification adopted in it may be considered to be the most approved. I, therefore, insert it for purposes of comparison with the United States' and British classifications.

[illegible]

5. INJURIES OF THE ABDOMINAL REGION.	Contused wounds	
	Penetrating wounds	
	Undefined wounds	
6. INJURIES OF THE SACRO-LUMBAR REGION.	Contusions	
	Contused wounds	
	Complicated wounds	
7. INJURIES OF THE ILIAC & GLUTEAL REGION.	Undefined wounds	
	Contusions	
	Other injuries	
8. INJURIES OF THE INGUINAL REGION.	Contused wounds	
	Complicated wounds	
	Contusions	
9. INJURIES OF THE GENITAL ORGANS.	Herniæ	
	Contused wounds	
	Complicated wounds	
10. INJURIES OF THE ANAL REGION.	Contusions	
	Contused wounds	
	Complicated wounds	
11. INJURIES OF THE SCAPULO- HUMERAL REGION.	Contused wounds	
	Complicated wounds	
	Undefined wounds	
	Luxations	
	Contusions	
	Other injuries	
	Carried forward	

16.

INJURIES OF THE
HAND.

Contused wounds
Fractures of metacarpal bones
" finger bones
" phalanges
Gunshot (penetrating ?)
Luxations
Contusions
Other injuries.....

17.

INJURIES OF THE
COXO-FEMORAL
REGION.

Contused wounds
Fractures
Gunshot (penetrating ?)
Luxations

18.

INJURIES OF THE
THIGH.

Contused wounds
Fractures.....
Gunshot (penetrating ?)
Luxations
Contused wounds
" " with lesion of femur
Fractures of neck of femur
" great trochanter
" femur, upper fourth.....
" " upper third
" " middle third
" " lower third
" " lower fourth
" " condyles
" femur ?
Simple fractures.....
Gunshot (penetrating ?)
Contusions
Other injuries

Carried forward

Classification of the injuries and surgical operations resulting from war in Germany.

It will be expected that I should say something with regard to German classification of the injuries resulting from war, but I am unable to do so, as no fixed classification exists. No field returns for recording numerically the several kinds of injuries inflicted in battle are employed in the German armies during war, nor is there in the German Army Hospital Regulations any authorised form for tabulating wounds according to their distinguishing features, analogous to the classification officially adopted in the English Army Medical Regulations.¹

Neither have official histories, either statistical or surgical, of the wars of 1864 and 1866, in which Prussia was engaged, been yet published. General-Arzt Dr. Loeffler, one of the most distinguished and industrious medical officers of the Prussian army, has published the first half of a work on the Danish war of 1864; and valuable detached papers of observations on particular groups of cases have been put forth by various eminent surgeons in monographs, but nothing approaching to a complete statistical record, in which the nature and result of every injury is comprised, such as was accomplished in the 'British History of the Crimean War' after Taylor's classification was adopted, has been achieved,

¹ Up to the year 1869 the general returns of the sick and wounded in the field hospitals made only a divisions of wounds into *leichte verwundungen* and *schwere verwundungen* (slight and severe wounds). See 'Reglement über den Dienst der Krankenpflege im Felde bei der Königlich Preussischen Armee,' Berlin, 1863, p. 467. In heavy and stationary hospitals an admission and discharge register was kept, in which the nature of the wound or sickness of each patient was required to be entered. The form of this register is shown at p. 332 of the foregoing regulations. The form of this admission and discharge register has been improved, and appears to have been made applicable to all field hospitals, light and heavy, in the new Prussian army medical regulations of 1869. See 'Instruktion über das Sanitätswesen der Armee im Felde vom 29 April, 1869,' Berlin, 1870, p. 327. But I have been informed from various quarters that this register during the late Franco-German war was only kept in the hospitals established in towns, or in others having a similarly stationary character.

or is, I fear, capable of being accomplished. It has been said by some German surgeons that the injuries resulting from war can be best classified after the war is over, from the documents collected at the stationary hospitals in which the patients have remained for some time under observation and treatment. But if nothing is done in the way of tabulating injuries and operations on some definite plan in all field hospitals, only after the patients have been transported to stationary hospitals, wherever they may be, what becomes, so far as the surgical statistics are concerned, of all those patients, whether subjects of surgical operations or otherwise, who remain for short periods of varying duration in the moveable hospitals, but who never reach any stationary hospital at all; how are they to be distinguished from the "killed in action?" One advantage of classified numerical returns furnished shortly after each engagement is, that all such cases will be included in them. They can be filled up quickly, all the casualties will be shown by each medical officer holding a charge on one common plan, essential distinguishing features are less likely to pass unnoticed, and it will be comparatively easy to combine the separate returns afterwards into one general return. These results can only be obtained under a pre-arranged and complete scheme of classification and tabulation emanating from central authority.

2. DIFFICULTIES IN THE WAY OF ESTABLISHING COMPARISONS BETWEEN THE STATISTICS TABULATED UNDER THE SEVERAL CLASSIFICATIONS BEFORE NAMED.

Having described the modes of classification adopted in England, the United States, and France, I wish now to call attention to the difficulty of comparing the statistics of one country with those of either of the others, in consequence of the different plans on which the classifications have been framed. It is obvious, at a first glance, that, even when two classifications are based on corresponding principles, if, in one instance, the number of *classes* into which the injuries

are divided is 12, while in another it is 24, an obstacle will be encountered in trying to establish a fair comparison between the results of some particular groups of injuries in the two sets of statistics. But when, further, the arrangement of the *orders* into which the classes are subdivided is different—subdivisions included in one that are not included in the other, orders common in name to both, but different in the special characters distinguishing them—it is evident that the obstacles will be increased, if they are not absolutely such as to render all just comparison impossible. This is what is found to happen in attempting to compare the results of injuries in many of the French with the English tables of the Crimean war. For example, in the English classification, all gunshot injuries in which the peritoneum is penetrated or perforated, by whatever route the projectile may have entered, would be included in *Class 5, Gunshot wounds of the abdomen; Order 3, Penetrating or perforating wounds*; while in the French classification, if the projectile entered from the perineum, it would be included in *Class 13, Wounds of the ano-perineal region*. In the English classification there is a special class, the 7th, for wounds of the perineum, genital, and urinary organs, but with this addition “not being at the same time wounds of the peritoneum;” and this single example, which is only one of very many others of a similar kind, will sufficiently serve to show the nature of the impediments which arise in trying to establish accurate comparisons between nominally similar groups of injuries in these two classifications.

These obstacles to fair comparison of course become still greater when one system of classification is based on different, *principles* from another, as the United States’ system is with reference to the French and English systems. On turning, for example, to the English and French statistics of the Crimean war, it will be seen that in the former, out of 115 gunshot injuries of the abdomen, in which the peritoneal cavity was not penetrated, 22 deaths occurred, or 19.1 per cent., while in the latter, the French, the percentage of mortality in these non-penetrating wounds is shown to be

nearly the same ; but on turning to the American records, it appears that out of 2164 flesh wounds of this region, wounds of the abdominal parietes, only 114 deaths occurred, or 5·2 per cent., nearly one fourth only of the mortality in the French and English armies in the Crimea. On further investigation it will be found, however, that in the American returns all injuries in which abdominal viscera were injured or supposed to be injured, although the cavity of the abdomen was not opened, are excluded from this category ; while in the French and English returns all cases whatever are included, so long as the cavity of the region had not been opened. This difference of system at once alters, not only the statistics of the non-penetrating wounds, but also those of the penetrating wounds of the abdomen. The English Crimean records show that out of 124 penetrating wounds of the abdomen among the officers and men, 115, or 92·7 per cent., died ; the French records, that out of 121 penetrating wounds, 111, or 91·7 per cent., died, almost identically the same proportion as in the English army. The American report states, however, " Of 543 penetrating wounds, the results have been ascertained in 414, and were fatal in 308, or 74 per cent. The number of recoveries is unexpectedly large, but includes only cases in which the reports showed beyond question that the abdominal cavity had been involved." A close study of the returns shows that among these are included the injuries which were excluded from the set of non-penetrating wounds, although the cavity had not been opened, but only so far "involved" that viscera had been diagnosed to be injured. The indiscriminate mixing together of these latter cases with the penetrating wounds, and their abstraction from the non-penetrating wounds of this region, at once renders a common standard of comparison between either the French or English and the American returns of wounds of the abdomen unattainable. Illustrations might be multiplied, but these will, perhaps, suffice to show the inaccuracies that are liable to attend comparisons instituted between the statistics of different countries in respect of injuries inflicted in war, and

the results of their treatment so long as different systems of classification exist among them.

3. RELATIVE MERITS OF THE SEVERAL SYSTEMS OF CLASSIFICATION AS REGARDS FACILITY OF COLLECTING AND ARRANGING STATISTICS, AND INSURING ACCURACY OF INFORMATION.

I have now to make some few remarks on the value of the three forms of classification—French, American, and British—so far as concerns their arrangements for the primary collection of the facts embodied in them, the means of securing an accurate tabulation of these facts, and also as regards the relative labour and cost attending their production in a complete and suitable state for illustrating the histories of campaigns.

There is one rule which, I think, all will agree should be maintained in returns which are intended to form the materials out of which the surgical history of a campaign is to be composed, and it is the following :—the *primary*, and the *ultimate*, classification of the injuries and surgical operations should be in accord, not merely in principle, but also in general arrangement. If these agree, then all the returns are contributing towards a known common end ; if they do not agree, there must be greatly increased labour, if not confusion. In the British classification this rule is enforced : it is not in the French any more than it is in the American systems. In the British system, the professional observers and operators in the field and in the general hospitals in rear classify the injuries under their care on the same plan as that in which the complete statistics are ultimately shown. In the American system, the classification under “Flesh Wounds,” “Wounds of Cavities,” “Wounds of Joints,” and “Fractures” with their subdivisions, can never give the ultimate information which is required to be given ; and which, however, I feel certain, will be given by dint of the great zeal, talent, and laborious perseverance which prevail in the surgeon-general’s office, in the medical and surgical history

of the great American civil war when it appears. The surgeons in the field on the American system enumerate under gunshot fractures the number of fractures of the cranium, the first on the list of the eleven bones into which fractures are divided, but they make no distinction between the various kinds of cranial fractures included in the numbers under this heading. A gunshot fracture of the cranium with depression, but without penetration of the dura mater and opening of the arachnoid cavity, is an essentially different injury from one with penetration and opening of the arachnoid as to prognosis, the chance of success from trephining, and, indeed, in every respect of importance. So is one with lodgment of the projectile near the seat of opening, from another in which the projectile has passed into the encephalon. When all such injuries are tabulated together, as they are in the primary American returns, what useful information can be obtained from a table showing, for example, the results of the operation of trephining? In the British system of classification, these and all such important distinctions can be definitely marked; and the attention of the surgeons is forced to them because they are required to insert each case under one or other of the headings according to which it belongs. Too much praise cannot be awarded to the admirable monographs on "Amputations at the Hip Joint," and on "Excisions of the Head of the Femur for Gunshot Injury," which have resulted from the great United States' war; but it is manifestly to the personal zeal and devoted exertions of Surgeon Otis, under the instructions of Surgeon-General Barnes, that science owes these exhaustive treatises, much more than to the system of collecting information which was employed while the American soldiers referred to in them were under hospital care and observation. When the surgical history of the United States' war comes to be completed, its chief value will probably be found to consist in the information afforded by it on the remote effects of injuries and operative interference, owing to the pains which have been taken to follow up the cases of patients for years after the conclusion of the war, rather than in the general

statistics of the results of injuries and operations in their earlier periods. After soldiers have been discharged and pensioned in the British military service, there is no organization for keeping up acquaintance with their professional histories, nor, I believe, is there in the French service. This acquaintance appears to have been maintained, however, in the United States, as is evinced in the monographs I have already referred to on hip-joint injuries.

There is one point in the French classification to which I must just allude, and this is the large number of its principal divisions or classes. It must at once strike a critical observer that this outline distribution is inconveniently diffuse. The division of the surface of the body into so many sections militates against ready location of the injuries as they are brought under notice, and unnecessarily multiplies the subdivisions. The body is divided, according to the French classification, into twenty-two regional divisions, and yet it would be easy to show that these are not sufficiently numerous to satisfy scientific accuracy. To carry out the classification to such an extent in the main divisions as to satisfy all wants in this respect, would be totally to destroy that conciseness which is one of the prime objects of classification. It is much more convenient to locate the data for such scientific requirements in the subdivisions and minor tables. The requisite exactness of detail is fully arranged for in the orders, or subdivisions, of Taylor's classification, and under this arrangement can be furnished with comparatively little trouble. Any one who has carefully examined the British statistics of the Crimean war will have observed the close and methodical manner in which not merely the situations, but the special natures of all the injuries inflicted, have been recorded from the time when the cases were arranged in accordance with the plan of Inspector-General Taylor's classification.¹

¹ Dr. Chenu has given strong testimony to this fact in the 'French Medico-Chirurgical History of the Crimean War.' "I had finished my work," Dr. Chenu writes, "when I was fortunate enough to receive a similar one which had been prepared at London for the English army, and I have thus been able

I attribute this precision not to any superior ability on the part of the British as compared with the French or other surgeons, but mainly to the fact that the attention of the former was forcibly called to the distinctive characters of the injuries brought under their notice by the well-considered and well-arranged classification devised by Inspector-General Taylor; and, further, to the facilities of recording and tabulating the injuries according to this classification and its subordinate divisions by the printed forms which were provided for the medical officers, and which, after completion, were transmitted to the authorities for condensation into the general statistical tables.

The difference between the labour and cost of compiling the statistical and professional history of a campaign from documents furnished in the French and United States' systems, and from documents furnished on the English system, is worthy of notice. This difference will not only appear on investigation, but has been proved by experience.

It has been already mentioned that the only regular professional documents for furnishing the materials for such a history in the French service are the separate hospital

to furnish a translation of the numerous tables contained in it; but in order to facilitate comparison between the results in the two armies, I have endeavoured to give to these tables the form adopted for my own. I am compelled to confess that it has been impossible for me to attain the astonishing precision arrived at by our confrères of the British army. This precision, that one would scarcely get in our chief hospitals in France in time of peace, leads to the supposition that an admirable order, almost incredible, prevailed in the British ambulances and hospitals from the beginning of the campaign and during the whole period of the war; and if, as I dare not doubt, the statistics of the medico-chirurgical service of the British army in the East are scrupulously exact, it must be acknowledged that our British confrères have been much more able or more fortunate than we have been." 'Campagne d'Orient en 1854—56,' par J. C. Chenu, Paris, 1865, p. 12. Dr. Chenu, when thus writing, had evidently not noticed that no detailed statistics of the wounds and injuries which occurred in the British army among the non-commissioned officers and privates were attempted to be given from the opening of the war down to the spring of 1855, in consequence of the absence of that order which he presumes to have then existed, but which was subsequently fully established.

tickets or "Cahiers de Visite" employed in the ambulances and hospitals. Now, in order to sift, complete, and arrange the information supplied by these tickets, furnished as they were in a more or less incomplete state owing to the numerous hospitals through which many of the patients successively passed, Dr. Chenu mentions in his history of the Crimean war that he had to form fresh cards for each patient on a plan of his own. Examples of these cards are given in his work. He states also that he could only get these cards completed, so far as it was possible to complete them, after having filled up eleven hundred and fifty thousand of them, eighteen non-commissioned officers being employed for ten months as clerks to assist him in this proceeding. The labour on the American system is so great that an American friend once informed me that when he was at Washington there were 200 intelligent clerks employed in the surgeon-general's office in collecting and arranging the surgical statistics of the war, for the preparation and publication of which a very large sum of money has been liberally granted by Congress. Contrast these statements with the striking fact that the two folio volumes comprising the British medical and surgical history of the Crimean war were put together in the course of two years from the ordinary returns and reports of the military hospitals by two staff surgeons and one assistant surgeon,¹ without the aid of any clerks, and without any special grant of money; and that, up to the present time, the surgical history of no other war has equalled it in completeness and accuracy of details. By the English system, as Dr. Chenu has remarked, all the English army surgeons assisted in framing the voluminous professional report on the Crimean campaign; while the statistics in his work were the result of one man's labour, no corresponding help being given by the medical officers in charge of the ambulances and hospitals in the French army. In short, the English system is one of a general division of labour among all the surgeons actively employed, so that, so far as statistics are concerned, compara-

¹ The late Staff-Surgeons Matthew and Hanbury, and Assistant-Surgeon (now Staff-Surgeon) J. Fitzgerald.

tively little remains but to collate, unite, and add together the results of their individual records. The accuracy of the separate observations must depend upon the professional knowledge and acumen of the observers individually concerned; but it is to be remembered that administrative officers are employed not simply for collecting, but also, where necessary, for investigating the information supplied when open to doubt, and for procuring its correction when found to be faulty. An active and conscientious brigade or divisional inspector will constantly visit the field hospitals under his charge, and will obtain such an acquaintance with the cases treated by the surgeons acting under his directions, that few errors of importance ought to be allowed to exist in the returns transmitted through his medium to the head quarters of the army.

I am aware that full and correct statistics cannot be obtained under all circumstances in war. In cases of such overwhelming defeats as have occurred in the late war in France the collection of complete statistics would be simply impossible so far as the defeated armies are concerned. But the Geneva Convention, admitting as it does the professional staff of the field hospitals to remain with their patients without being made prisoners of war, gives a facility for a certain amount of hospital records to be preserved, even by the medical officers of a defeated army. The principal portion of the statistics should be got, however, from the hospital records of the conquering army. Were a common system of tabulating and classifying such statistics resolved upon, the natures of the wounds and injuries inflicted and the results of the treatment adopted for their cure or amelioration might be rendered with far greater precision than it can be under existing circumstances. Where no classified field returns of injuries and surgical operations are kept, how many wounded, as I have before alluded to, who are treated for days, perhaps weeks, near the scenes of action, and then succumb; how many important surgical operations performed under similar circumstances and leading to fatal results, must be wanting altogether in the statistical returns

afterwards put together when the war is over, the subjects of them appearing in the number of those who were killed on the battle field! And in such cases how much less valuable becomes the information tabulated, so far as ratios of fatal results and recoveries are concerned, whether of particular injuries or particular modes of operative interference. The importance of an established system of classification should not be decried because occasionally circumstances of difficulty occur which prevent it from being thoroughly carried into execution. On such circumstances occurring, the authorities will be able to explain the cause of the absence of the requisite information; under other circumstances, if a system of printed returns be established and issued for use, steps will be taken to ensure the returns being furnished.

4. NECESSITY FOR A COMMON INTERNATIONAL CLASSIFICATION.

These considerations naturally lead me to my last observation,—the desirability of an agreement being come to in different countries for classifying the injuries of war, the surgical operations they lead to, and their results, on one general system; so that not only the statistics of different modes of treatment or operative interference in particular injuries in one country may be reliably compared with each other, but that the sphere of investigation and comparison may be extended, and the opportunity of making similar observations be afforded with regard to the statistics of all countries in common. I need not enlarge on the necessity for such an accord; all that I have already said has tended to bring it to notice. It can only be achieved by an honest and thorough study of the several systems of classification which have already been employed, and of any suggestions that may be offered for improving one or other of them, joined with a mutual understanding to adopt that classification which may be ultimately found to be the most practically useful. Would not the attainment of such an object be a legitimate and worthy task for an international committee of competent

delegates, appointed either by the army medical departments and governments of the countries respectively concerned, or selected by societies having a corresponding professional influence in them with that which the Royal Medical and Chirurgical Society holds in this country?