On the Mortality arising from Military Operations. By WILLIAM
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THE present paper may be considered a sequel to that upon the
" Mortality arising from Naval operations"* which I had the honour
to lay before the Society in their last Session.

Although military affairs are in general looked upon in England
with less interest than those of the navy, they derive at this time
increased importance from the fact that nearly all the great operations
of the present war have been upon land, and have, moreover, from a
combination of unfortunate circumstances, been subjected to much
criticism and discussion.

The war itself being so recent, the numerical facts relating to
it are too little known and authenticated to admit of their being
employed to any great extent in this inquiry; and the data for the
present paper have, therefore, as in that upon naval operations, been
principally drawn from the events of the great revolutionary wars,
beginning in 1793, although advantage has been taken of such
accurate information as could be procured relating to other periods.

The difficulty of such researches proves strongly how desirable it
is that full official reports of the statistics of the present war should
be laid before the world; and the recent announcement that the
Government does not intend to publish the large collection of facts
upon the subject made by one of the Crimean Commissioners, a
Fellow of this Society, whose qualifications for the task are so well
known, is therefore greatly to be regretted.

It is said, indeed, that although the reports are to be confined to
official circles, the public service will have the full benefit of them;
but this, I venture to say, is a great mistake. The full benefit to be
derived from information of this description can only be obtained by
laying it open to the whole nation, so that every enquirer may be at
liberty to sift and examine it, and to point out the conclusions to
which he may consider it to lead.

A due regard to the feelings and anxieties of those whose relatives
or friends are serving against the enemy, would seem to dictate the
promulgation of more regular and precise information as to the
deaths which take place at the seat of war. The publication of the
nominal returns of the killed and wounded among the private soldiers
now adopted, I believe, for the first time, was no doubt prompted
by the consideration referred to; but the intention would be more
completely carried out by inserting in the Gazette, in addition to the
returns of killed and wounded, monthly lists of the deaths which
take place in the military hospitals abroad. If the whole of these
returns were regularly transmitted to the Registrar-General, the

* *Statistical Journal,* vol. xviii.

public would be certain, from the admirable manner in which the statistics of his department are managed, to have full and precise information upon questions of great importance both to the nation and to individuals. Such an arrangement would likewise remedy a defect in the Registration Act pointed out by the Registrar-General himself in his return for the quarter ending December, 1854. "The Act," he says, "has made no provision for the registration of the officers and soldiers of the army who die out of England, so that, while the name, age, rank or profession, place, time, and cause of the death of every man, woman, or child that dies at home are preserved in the Registers, the names of the men who uphold in arms the cause and the fame of their country abroad, find no place in these records. Otherwise every family that has sent forth its sons, and has lost them in the war, would have the satisfaction of knowing that their names were inscribed in a perpetual record whether they died at Varna, perished at Scutari, sank under the waves of the inhospitable sea, or slumbered at Alma, Balaklava, or Inkermann, beneath the earth of the Crimea consecrated only by their bravery."

There seems to be a general impression that the experience acquired by recent disasters, will lead to such a permanent improvement as to preclude the possibility of their recurrence; but the student of our military history will find too many subjects for humiliation and anxiety to join readily in such a belief. The voice of experience, if it could have averted those calamities, has spoken loudly and distinctly enough, but with such slight effect, that much of the language of complaint and remonstrance uttered during the last two centuries may be applied with hardly the alteration of a syllable to the present times. "We English," said Marshal Schomberg, in 1689, "have stomach enough for fighting, it is a pity we are not as fond of some other parts of a soldier's business.* One hundred and twenty years afterwards, on the 17th of June, 1809, the Duke of Wellington wrote†—"We are an excellent army on parade, an excellent one to fight, but we are worse than an enemy in a country, and take my word for it, that either defeat or success would dissolve us."

The historian of the English sieges in the Peninsula, Sir J. T. Jones,‡ assigns as a reason for the heavy losses they occasioned, that the armies being unprovided with a sufficient number of skilled engineers, were in most cases unable to push their approaches close enough to the body of the place besieged, and the troops, therefore, in marching to the assault, were compelled to leave the protection of the trenches at such a distance from the point to be attacked, that, before reaching it, they were broken and thrown into confusion by the fire of the enemy and the obstacles to be overcome.§ The Duke of Wellington, in his grief for the carnage at Badajoz, complained bitterly of this defect.

Sir John Pringle, writing one hundred years ago, said ‖—"Among the chief causes of sickness and mortality in an army, the reader will

* Macaulay's Hist. of England, vol. iii., p. 430.
† Despatches, vol. iv., p. 407.
‡ Journal of Sieges in Spain.—Introduction, p. xvi.
§ Despatches, vol. ix., p. 181.   ‖ Diseases of the Army.—Introduction.

little expect that I should rank what was intended for its health and preservation, the hospitals themselves—and that on account of the bad air and other inconveniences attending them." Sir James McGrigor, in 1815,[*] admitted the truth of the assertion, and pointed out the precautions necessary to prevent the evil.

Admiral Berkeley, who commanded on the Lisbon station, writing to Earl Temple, on the 10th of September, 1809, said, in reference to the army in the Peninsula,—"The horses starved while ships loaded with hay and oats from England, enough to furnish all the cavalry, were rotting and spoiling in the Tagus. The medical-staff is as bad, as our army were dying away from want of medicines, while more than sufficient were in ships in the river."[†]

The medical men at Walcheren complained that when they were in want of wine and porter for the sick, application was made to the Senior Deputy-Commissary-General to purchase these articles, but he refused to do so.[‡]

In the same expedition, much distress, and consequent sickness, arose from the want of cooking places. The importance of attention to this subject was urged by Sir James McGrigor, yet a large proportion of the sickness in the Crimea was caused by neglect of it.[§]

Insufficient clothing was another cause of serious disease among the troops there. "The best clothed were generally among the most healthy regiments," was the warning of Sir James McGrigor, in 1815;[||] and Lord Wellington's opinion upon the point, may be inferred from the following extract of a letter he wrote to General Fane, dated 3rd November, 1810:[¶]—"I wish I had it in my power to give you well-clothed troops, or to hang those who ought to have given them their clothing."

These painful reminiscences are not brought forward with a view to throw blame upon any one, still less to create an impression that evils of such magnitude do not admit of a remedy, but simply to show that the information in official hands, which must be infinitely more extensive than any here cited, has failed in suggesting one; and to enforce the opinion that the best hope of success will be found in the fullest and most extensive circulation of correct intelligence as to the evils themselves and their causes.

In most professions the importance of classifying and studying the results of experience for the purpose of deducing therefrom rules for future guidance, is fully recognized and acted upon; but in the military and naval services it seems to be but partially understood, although in them of infinitely greater moment, because in many cases officers have no opportunities for acquiring practical experience until they are placed in situations where errors may lead to the most disastrous and fatal results.

There are undoubtedly some exceptions to the second of these remarks, and among them are Sir John Pringle and Sir James McGrigor, to whose observations I have already referred. The

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[*] Medico-Chirurgical Transactions, vol. vi., p. 474.
[†] Court and Cabinet of Geo. III., vol. iii., p. 359.
[‡] Parliamentary Papers, p. 646.   [§] Ibid., p. 162.
[||] Medico-Chirurgical Transactions, vol. vi., p. 468.
[¶] Despatches, vol. vi., p. 550.

works of the former are familiar to everyone who has paid attention to the subject. Sir James McGrigor, well known for many years as Director-General of the Army Medical Board, was at the head of the medical department of the Peninsular army during the latter part of the war, at the conclusion of which he wrote a sketch of the medical history of those campaigns in which he had served. This sketch was printed in the sixth volume of the "Transactions of the Medico-Chirurgical Society" (pp. 381 to 490), and appears to have been read before the Society on the same day as Sir Gilbert Blane's celebrated "Statements of the Comparative Health of the Navy." It contains many valuable suggestions as to the preservation of the health of troops on service, and some important statistical returns, which have been found useful in determining points that would otherwise have been left in doubt.

Mr. Guthrie, who served in the Medical Department throughout the Peninsular War, and whose humanity and professional enthusiasm induced him to devote several weeks to gratuitous attendance on the soldiers wounded at Waterloo, has published in his "Commentaries on the Surgery of the War in Portugal," &c. (sixth edition, London, 1855), some comparative tables. In 1838, Mr. Rutherford Alcock published* "Notes on the Medical History and Statistics of the British Legion in Spain," with which he served as Deputy-Inspector-General of Hospitals.

General Stewart appended to his "Sketches of the Services of the Highland Regiments" (Edinburgh, 1822), returns of the casualties suffered in each regiment during the period of its service, and a complete list of the killed and wounded in the British Army from the beginning of the war in Spain and Portugal to the end of the campaign in the Netherlands. A collection of Parliamentary Papers, published in 1811 (London, 8vo.), contains full information as to the losses and sickness among the troops employed in the expedition to the Scheldt, better known in England as the expedition to Walcheren. Of all the contributions, however, to this department of knowledge, the most valuable by far, in a statistical point of view, is to be found in the second volume of the "Lancet" for 1837-1838, pp. 143 to 148, in a paper "On the Mortality and Sickness of Soldiers engaged in War," by Mr. T. R. Edmonds, a Fellow of this Society, well known by his scientific writings upon vital statistics. Mr. Edmonds enjoyed the unusual advantage of access to the whole of the returns in the Adjutant-General's office, and obtained from them "a full detail of the total loss experienced in the Peninsular Army subsequently to Christmas, 1810."

"I considered," he says, "that the knowledge of the particulars of this loss would suffice to afford a correct idea of the destructive effect on life and health, produced by a vigorously prosecuted war, on an army generally victorious and rarely suffering from disastrous retreats." Mr. Edmonds has, I think, been led into erroneous conclusions upon some points, but his general results are invaluable; being, so far I know, the only systematic collection upon a large scale of numerical results relating to the present subject.

In the paper upon "Naval Mortality," allusion was made to an

* London, Churchill, 1838.

article in the "Companion to the Almanack for 1853," entitled "Cost of War" (p. 53), which gave, in chronological order, lists of the losses sustained by the British in all engagements, whether by sea or land, which took place from 1793 to 1815. Having tested the accuracy of more than three-fourths of the numbers relating to the army, including particularly those which refer to operations of magnitude, I have found them almost invariably correct; and I have therefore adopted them, with some slight additions and alterations, as the basis of Table II. in the appendix. This table contains the total numbers returned as killed and wounded, in each year, from 1793 to 1815, distinguishing the officers from the non-commissioned officers, and rank and file, with columns, showing the average effective strength of each class. The effective strengths of the latter were deduced from the returns of the Adjutant-General, printed in the Appendices to the Journals of the House of Commons.

The difficulties experienced in the Naval enquiry, arising from the almost entire absence of official information, do not exist with respect to the army. Among the parliamentary papers there is a vast mass of returns containing such copious and extensive information, that it is truly surprising no English author, either historical or professional, should have availed himself of them. M. Dupin, in his "Force Militaire de la Grande Bretagne" (part 1), published some statistical tables, derived from these returns, to show the state of the British Army during the war, from 1804 to 1813; but, from his not being aware of the corrections necessary to be applied, his results are inaccurate. Some portions of his tables were republished in "Marshall's Military Miscellany" (London, 1846), a valuable work, containing much information as to recruiting, and particularly as to military punishments.

The Adjutant-General's returns show, periodically, the effective strength of the cavalry and infantry of the army; the numbers of the deaths, discharges, and desertions, and of the recruits annually raised; but they only contain occasionally information as to the Artillery and Engineers, those troops having been, until very recently, under the separate control of the Ordnance Department. The returns of effective strength give the numbers of rank and file only without non-commissioned officers, who are, however, included in the returns of deaths, discharges, and desertions. In order, therefore, to compare these with the effective strength, it is necessary that a proportionate increase should be made to the latter. This fact, which I only learned through the courtesy of the present Adjutant-General, does not appear upon the face of the returns, and is one of the sources of the errors of M. Dupin.

In the British Army, the non-commissioned officers are corporals and serjeant-majors, serjeants, armourers, saddlers, trumpet, drum and pipe majors, trumpeters, drummers, fifers, and pipers; and from a comparison of the numbers in the Army Estimates, for two years, they appear to average very nearly 72 to every 1,000 rank and file upon the establishment, or number of men voted by Parliament. The corporals are included in the rank and file, of whom they form about one-twentieth part. In all the statements of effective strength in the present paper, the numbers shown by the returns have

been increased in the ratio of 1,072 to 1,000 for non-commissioned ófficers.

The returns from 1793 to 1800 give the effective strength at the beginning of the year only, and the average numbers for those years are the means of the numbers at the commencement and termination of each year. For the subsequent years, however, the returns are given for the first January and first July in each year; and the averages adopted are the means of the numbers at the beginning, middle, and end of each year. In a body which fluctuates so much as an army, it would certainly be more desirable to have monthly records of the strength. No returns of the effective strength of the Artillery and Engineers, previously to 1801, have been published; and it has therefore been necessary to form an estimate of the numbers of these corps, from 1793 to 1800, from the numbers of men annually voted for them.

Only one set of returns relating to the commissioned officers actually serving has been discovered. These[*] are dated the 11th of May, 1814, and may be supposed to give the actual numbers at the commencement of that year. From it has been drawn out the following

Abstract of Return showing the Total Number of Officers of all Ranks actually serving in the British Army (including Artillery and Engineers), 11th May, 1814.

	On Full Pay.			
Ranks.	Numbers.	Proportion of each Rank to a Total of 100,000 Officers.	Proportion of each Rank to the Effective Strength of 100,000 Non-Commissioned Officers and Rank and File.	On Half Pay.
General Officers—				
Field-Marshals, Generals, Lieutenant, and Major-Generals....	344	2,507	121	120
Field Officers—				
Colonels, Lieutenant-Colonels, and Majors	1,330	9,694	467	181
Captains	2,876	20,962	1,009	462
Subalterns—				
Lieutenants (1st and 2nd) Sub-Lieutenants, Cornets, and Ensigns	6,630	48,324	2,327	1,268
Adjutants, Paymasters, Quarter-masters, and Recruiting Service	986	7,187	346	515
Medical	1,176	8,571	411	188
Chaplains, Commissariat, and Provost-Marshals	378	2,755	133	235
Total	13,720	100,000	4,814	2,969

A comparison of this abstract with the effective strength in non-

* Commons' Journals, 1814, p. 643.

commissioned officers and rank and file at the same period, gives for each 1,000 of these a proportion of 48 officers nearly. The numbers in the first column of Table II., headed "Estimated average effective strength" of commissioned officers, were deduced in this ratio from the strength of the non-commissioned officers, and privates, shown in the opposite column.

This proportion of officers is greater than upon active service, when there are generally about 40 officers to every 1,000 non-commissioned officers and rank and file, but as the percentage of sickness is always much larger among the men, the relative numbers adopted probably represent the amount of risk to each class in battle.

In order to determine with precision the total mortality caused by casualties in action, it is necessary to ascertain the proportion of those returned as "wounded" who die subsequently of their wounds. Some observations upon this subject occur in the paper on "Naval Mortality,"* previous to which no attempt had been made to investigate the question generally, except by Mr. Edmonds in his paper in "The Lancet," already referred to, where he has given a table extracted from the returns submitted to him, shewing the number of officers who died of wounds after five great battles.

From this table it appeared that the number dying of wounds was one-third of the number of those returned as "killed," and concluding that this was the general proportion both for officers and private soldiers, he framed his calculations as to the relative mortality from battle and disease accordingly; but there is strong evidence to show that his hypothesis is incorrect as to both classes.

In the Appendix number V. will be found a table constructed from various returns of officers killed and wounded, and of the numbers of the latter who died of their wounds. These returns were taken from General Stewart's "Sketches of the Highland Regiments;" from Mr. Alcock's work on the "Auxiliary Legion;" from Mr. Edmonds' table already mentioned; and from a statement of "Casualties in the Crimea," returned to the House of Commons by the Adjutant-General on the 7th of April, 1855, and said to have been made up to the latest date, which was probably about the 20th of March. The aggregate casualties, recorded in this table, amount to 406 officers killed, and 1,973 wounded, of the latter of whom 164 died; and it will be seen that neither the general average accords with Mr. Edmonds' rule, nor any of the subordinate collections of facts, except that from which it was deduced. The number of officers killed in the Auxiliary Legion was 20, and those dying of wounds was 16, or four-fifths of the killed. In the Crimea, the number killed was 91, and those dying of wounds 20, or less than two-ninths of the killed. One very remarkable circumstance may be noticed with respect to this table, that where the number killed bears a larger proportion to the number wounded than ordinary, the deaths among the wounded are relatively less, and conversely where the number killed is small in proportion to the number wounded, the deaths among the latter are relatively greater—there appearing to be a tendency in all the groups of cases towards a uniform ratio between the total deaths and total casualties, although there are great varia-

* *Statistical Journal*, vol. xviii., p. 202.

tions as to the proportion of injuries immediately fatal and of those that prove fatal subsequently.

As this table records the results of 1,973 cases, equal to more than two-fifths of the whole number of officers wounded from 1793 to 1815, it may be supposed to represent the average deaths with tolerable accuracy, and these being in the proportion of 83·1 per 1,000, or 1 in 12·08, it has been assumed that one-twelfth of the officers returned as wounded died of their wounds.

No official returns as to the mortality among the wounded non-commissioned officers and rank and file have been published by the Adjutant-General; but Sir James McGrigor recorded the causes of all the deaths which took place in the Peninsula while he was at the head of the Medical Department.* The total number is 16,970, and having classified them, I find that 3,411 deaths were caused by wounds and injuries. During the period in question, the numbers returned as wounded were 1,817 officers, and 24,360 non-commissioned officers and rank and file. Deducting for the deaths among the former 151, being one-twelfth, the ratio already given, we obtain 8,361 as the deaths among the latter, which number bears a proportion to the total wounded of 137 per 1,000, or 1 in 7·25. From the mode in which Sir James' returns were made up, it is possible that some deaths from accidents not occurring in action may have been included in his lists. It has, therefore, been thought advisable to take 1 in 8 as the proportion of deaths among wounded non-commissioned officers and rank and file, and this agrees nearly with the result recorded by Mr. Alcock as to the Auxiliary Legion (page 9), in which the deaths among those returned as wounded were 1 in 7. "The proportion," he says, "would have been lower had the full number of the wounded been known; but many men who received slight hurts did not report themselves," not having the same motive for doing so as in the British service.

Although there have been no returns illustrating this part of the subject from the Adjutant-General's Office, a published Report from the Head of the Medical Department in the Crimea, dated the 17th of October, 1855, gave the results of the attack upon the Redan fort at Sebastopol, on the 8th of September preceding. It appears that 1,910 wounded were received into the hospitals upon that occasion, and of these 226, or 1 in 8·79, had died on the 16th of October, 37 days afterwards. There were then 556 cases under treatment, some of which would probably terminate fatally; and as it is stated that a few of the worst had been left upon the ground, there seems reason to think that the total deaths would approximate very nearly to one-eighth of the whole number wounded.

In his "Commentaries," Mr. Guthrie has given, at page 154, the numbers of the wounded admitted into the hospitals after the battle of Toulouse, and of those that died; but as his account falls short of the whole number wounded in the battle, it has not been included in the general result given in Table V.

The disproportion between the estimated deaths of wounded officers (one-twelfth) and those of wounded soldiers (one eighth), being an increase of 50 per cent. for the latter class, is very great,

* Medico-Chirurgical Transactions, vol. vi., p. 479.

but it seems completely established by the following comparative statement drawn from all the distinct accounts upon the subject that have been published.

Proportion of Deaths to 1,000 Wounded,

	Siege of Gibraltar. Drinkwater.	Battle of Toulouse. Guthrie.	Auxiliary Legion. Alcock.	As estimated in the present Paper.
Officers	29	26	81	83
Non-commissioned Officers and Rank and File	101	118	142	125

That the difference is due to the greater amount of attention and of comforts that the officer by his position is enabled to secure, appears from the facts relating to the siege of Gibraltar and the battle of Toulouse. At the former, officers were as favourably situated as it is possible to be during actual hostilities, except for a short time when there was a scarcity of provisions, and of 35 that were wounded only 1 died, a mortality very little more than one-third of that in the field. The battle of Toulouse was fought, immediately before the cessation of hostilities, close to a large city, which afforded ample accommodation for the wounded, and out of 117 officers brought to the hospitals there only 3 died, being 1 in 39, or a less proportion than at Gibraltar.

The common men appear also, though in a less degree, to have participated in the advantages, particularly at Gibraltar where, as only 1,083 men where wounded in the course of three years and upwards, the hospitals were probably never crowded, and the deaths among the wounded were reduced to 1 in 10. I have dwelt more upon these facts because they appear to me to lead to the conclusion, that by improved hospital management many more lives of wounded men might be saved.

A further difficulty in determining the mortality from casualties arises from the number of men returned as missing. These may have consisted of soldiers who took advantage of the confusion of a general action to desert; of those wounded or unwounded who fell as prisoners into the hands of the enemy; or of those who having been killed, or so severely wounded as to be unable to move, remained undiscovered in woods, or among standing-corn, or brush-wood, some of them, it is to be feared, dying a lingering death. It is not at all uncommon for a successful army to lose some of its men as prisoners, and it so happened occasionally to the British in the Peninsula; but, looking at the general nature of their operations, it seems probable that a large proportion of those returned as missing, were either killed or wounded; and as nearly all of the latter not carried off by the enemy must have died, there can be little doubt the mortality among the missing was considerable. It has been estimated as being at least one-fourth of the whole number, by a General-Officer of much experience who served on the staff through the greater part of the Peninsular War.

Sir William Napier says, that, at the battle of Albuera, "The trophies of the French were 500 unwounded prisoners," but the number returned as missing out of the British force, which did not form one-fourth of the army, was 570.

The first return of the loss of the Coldstream Guards at the battle of Inkermann, was 9 rank and file killed, and 53 missing; but a corrected return, subsequently published, reported 59 rank and file killed, and none missing. If the army had been compelled to move from its position immediately after the battle, there can be no doubt that a large portion of those killed would have been permanently recorded as missing.

A summary of the losses in twelve general actions gives a result of 4,935 killed, and 25,855 wounded, in all 30,700 ascertained casualties. Taking those dying of wounds at one-eighth of the wounded, the total deaths would amount to 8,167. The numbers returned as missing in these engagements were together 2,752, and the assumption that one-half of these were casualties, and one-fourth of them deaths, would increase the total of the former to 32,076, and of the latter to 8,855, being an addition to the mortality of nearly 85 per 1,000 or 8½ per cent.

In an attempt to deduce from the facts in Table II. the total mortality from casualties in action, the following assumptions have been made, founded upon the considerations just detailed:—

1. That one-twelfth of the officers returned as wounded died of their wounds.

2. That the proportion similarly dying among non-commissioned officers and rank and file was one-eighth.

3. That the mortality in the latter class was increased 8½ per cent., or in the ratio of 1,085 to 1,000 by deaths among the missing, and that the casualties among the missing were double the number of such additional deaths.

No increase of the loss among officers has been made for the missing, very few being so returned.

The Table numbered I. in the Appendix was compiled entirely from the returns made by the Adjutant-General. If these had been complete and accurate, they would have afforded invaluable information; but unfortunately they are incorrect for some of the years, and not being made up in accordance with one general principle, they either mislead the enquirer, or inflict on him much irksome and unnecessary labour in the endeavour to arrange them for the purpose of comparison. Notwithstanding these defects, some interesting and important conclusions may be deduced from them. They relate only to the Cavalry and Infantry of the army, the Artillery and Engineers, for reasons that have been mentioned, not being included in them. The first three columns of the Table show the average effective strength in non-commissioned officers and rank and file in each year, from 1793 to 1815, distinguishing from the year 1800 to the end of the term the respective proportions serving at home and abroad. As the original returns give the rank and file only, the numbers have been increased for non-commissioned officers in the manner pointed out with respect to Table II. The remaining columns record the deaths, discharges, and desertions, with the totals of these, being the

diminution in each year, and the number of recruits annually raised, or the fund out of which the diminution was replaced.

Neither the last, however, nor the column of discharges can be relied upon for showing the real facts, as it was the practice with regard to such men as were transferred by drafts from one regiment to another, to return them from the former as discharged, and from the latter as enlisted. In the list of recruits from 1803 to 1815, the men raised for Foreign and Colonial corps are said not to be included; and although this is not distinctly stated to be the case as to the preceding years, a careful comparison of the numbers for those years with the effective strength leads to the conclusion that it must be so. An exception is, however, to be made for the years 1794 and 1795. The effective strengths for those years are stated to contain, in addition to our own army, the Foreign Corps serving abroad,* in British pay, under the command of the Duke of York, amounting to more than 20,000 men; and there can be no doubt from the large numbers of recruits returned in 1794 and 1795, in all 79,026, and of discharges for 1795 and 1796, together 40,639, that these corps, which must not be confounded with the foreign regiments regularly retained in the British service, were included in the respective lists. I experienced great difficulty in getting access to the returns from 1793 to 1800, they are, I believe, only to be found complete in the Library of the House of Commons, where, through the introduction of Mr. John Benjamin Smith, and the courtesy of the Librarian, I had an opportunity of examining them. They were published in the Annual Register for 1800, but with several typographical errors, the deaths in 1794 being stated at 10,000 too many, and those in 1795 at 10,000 too few, and without the explanations necessary for understanding them correctly. Sir Archibald Alison has quoted from this source the numbers of recruits raised from 1793 to 1800 at 208,388, and compared them with the then existing population of the empire, to show the inefficient exertions made for carrying on the war. The same numbers were also referred to in Parliament by the Secretary at War in a debate, in the year 1854, upon the recruiting of the army; and it is a remarkable proof of our want of a sound system of military statistics, that neither the historian who commented upon these returns with a view to influence our future policy, nor the minister who detailed them to the legislature with a similar purpose, appear to have had any suspicion of their inaccuracy, or of the probability that very little more than three-fourths of the numbers they represent were actually raised as recruits, within these Islands, for the cavalry and infantry of the regular army during the period referred to.

The returns, in this Table I., are arranged in four distinct classes :—1st, from 1793 to 1801, the duration of the first period of the war; 2ndly, for 1802, a year of peace; 3rdly, from 1803 to 1812; and 4thly, from 1813 to 1815. The 3rd and 4th comprise the second and third periods of the war, but the returns for 1813, 1814, and 1815, are classed separately on account of their being incomplete.

The returns from 1793 to 1800 are deficient as regards the

* Commons' Journals, 1806.—Appendix, No. 12.

desertions, none of which are given for these years; and the only period that can be relied upon to furnish materials for accurate ratios as to mortality, discharges, and desertions, is that from 1803 to 1812. During these 10 years, all of which were years of war, it appears that the average strength of the cavalry and infantry, exclusive of commissioned officers, was 198,200 men; that the deaths throughout the army, at home and abroad, were in the annual proportion of 51·25 to 1,000 average strength, or exactly 5¼ per cent.; that the discharges, including transfers, were annually 22·51 per 1,000, which should probably be reduced, in respect of the latter, to 20·25 per 1,000; and that the annual desertions were 28·06 per 1,000, making a total average decrement of 99·56 per 1,000, or within a fraction of 10 per cent., exclusive of the losses arising from soldiers who were made prisoners of war.

Notwithstanding the great difficulty of the undertaking, arising from the numerous omissions in the returns, I have endeavoured to estimate, as nearly as the materials accessible permit, the actual number of men who entered into the regular military service of this country during the whole of the periods we have been considering, and likewise the numbers that were removed from it, as well as their several modes of exit.

I have endeavoured to supply the omissions in the returns of deaths, discharges, and desertions, by a comparison of the effective strength with the respective ratios for years that may be relied upon for accuracy, and to correct the returns for discharges by deducting a proportional allowance for transfers from one regiment to another. This allowance I have taken at 10 per cent. upon the annual discharges, after eliminating those for the foreign corps spoken of in reference to the years 1794 and 1795, and those for the years 1802, 1814, and 1815, which took place in consequence of peace having been declared. This deduction amounts to 10,891 men, and the numbers of the recruits are reduced to the same extent. I have likewise estimated that 20,000 men were made prisoners of war. That this number does not greatly exceed the truth, will probably be inferred from the following note appended by the Adjutant-General to a return of " deaths, discharges, and desertions" from 1803 to 1812.*

" There were about 4,000 men left at various places in Spain and Portugal, in the year 1808, by the army under the late Lieutenant-General Sir John Moore, who were struck off the strength of their respective regiments on the 25th of December, 1809, *as no information could be obtained respecting them*, and about 2,800, chiefly belonging to corps in the Peninsula, supposed to be prisoners of war, who were struck off the strength of their respective regiments on the 25th of December, 1811, and in the year 1812, about 2,500 were taken prisoners, not any of whom are included in the above return."

Having estimated the probable numbers of those who disappeared from the army, and knowing the number of recruits raised in the United Kingdom, we may, by comparing them with the effective strengths at the commencement and termination of the period,

* Commons' Journals, 1814.—Appendix, No. 5.

obtain an approximation to the number of men raised for foreign and colonial corps, which I have estimated at 198,630.

There appears to be only one return of the recruits raised for these corps. It is for 1812,* and gives the following numbers for the whole of that year:—

> Recruits enlisted at foreign depôts 5,240
> At the head quarters of the different regiments.... 6,087
> _____
> 11,327

The only information as to the Artillery and Engineers is to be found in the annual returns of effective strength, and the following statement of the numbers of recruits raised in each of 5 years.†

> 1801.............................. 1,175
> 1802.............................. 281
> 1803.............................. 5,882
> 1804.............................. 4,029
> 1805.............................. 3,103
> _____
> Total............ 14,470

There seems to be good reason to believe that the mortality in the artillery and engineers is less than in the cavalry and infantry, and it has therefore been taken at one-fifth, or 20 per cent. lower, and the discharges are estimated at a like reduction after an allowance for the regimental transfers, which cannot occur in the artillery. The desertions are assumed to have been in the same proportion as for the cavalry and infantry, it being supposed that the high rate of bounty, the great temptation to desert, applied equally to every branch of the service.

A comparison of all these elements with the average effective strength has given the results inserted in Table I. The total numbers in that Table, actually taken from the returns, are deaths 198,781; discharges 224,149; desertions 84,255; total 507,185; recruits raised 501,609. The following is submitted, with very great diffidence, as an approximation to the real numbers for the whole period from 1793 to 1815.

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* Commons' Journals, 1814.—Appendix, No. 5.
† Ibid., 1806.—Appendix, No. 12.

Estimate of the Number of Men that entered into and were removed from the
Regular Army from 1793 *to* 1815.—See Appendix, Table I.

	Total Numbers.	Proportion to a Total of 100,000.		Total Numbers.	Proportion to a Total of 100,000.
Of Recruits raised— For British Regiments	519,040	69,421	Deaths.........................	219,420	37,710
For Foreign and Colonial Regiments....	198,630	26,567	Discharges	229,141	39,378
Total	717,670	95,988	Desertions	113,273	19,475
Of Foreign Corps temporarily employed	30,000	4,012	Prisoners of War..........	20,000	3,437
				581,834	100,000
	747,670	100,000			
Effective strength on the 1st Jan., 1793 (Non-com. officers and rank and file)	45,440		Effective strength on the 31st Dec., 1815 (Non-com. officers and rank and file)	211,276	
	793,110			793,110	

If the foregoing be a correct estimate, the numbers of recruits
annually raised throughout the period were,

For British regiments of cavalry, infantry, artillery, and engineers .... } 22,567

For foreign and colonial regiments 8,636

31,203

The modes by which a very large portion of the men were raised
are shown in a return from the Adjutant-General of the total recruit-
ing for British (exclusive of foreign and colonial) regiments for a
period of ten years and nine months, ending with September, 1813.*

	Gross Numbers.	Proportion to a Total of 100,000.
By ordinary recruiting........................	134,316	53,760
Under the Additional Force Act........	15,790	6,315
By volunteering from the Militia.......	99,755	39,925
	249,861	100,000

It may be interesting to some enquirers to compare the foregoing
with the progress of recruiting during the present war.

According to a return from the Adjutant-General's Office, dated
the 2nd of April, 1855, the numbers of recruits raised for the

* Commons' Journals, 1813.—Appendix, No. 5.

different branches of the army, from the 1st of March, 1854, to the 31st of March, 1855, were—*

	Total Numbers.	Annual Ratio.
Cavalry	4,106	3,790
Infantry.........................	40,289	37,190
Artillery........................	4,755	4,389
Total	49,150	45,369

The numbers volunteering from the militia are not fully stated in the return, and the proportion contributed by that force cannot, therefore, be determined; nor is it mentioned whether recruits for foreign corps are included. The Act authorizing the employment of these was passed on the 23rd of December, 1854, and the highest number of recruits (6600) was enlisted in that month, after which the enlistments fell off considerably, probably from the accounts which reached England of the deplorable state of the army in the Crimea. In February, 1855, only 4073 men were enrolled.

In order to give in one view the general results of the facts contained in the Tables I. and II., now described, the following three statements have been drawn up.

The first, taken from Table II., is

(A.)

A Summary of the Casualties in Action sustained by the British Regular Army during $20\frac{45}{160}$ *Years of Hostilities occurring in and between* 1793 *and* 1815.

	Officers.			Non-Commissioned Officers and Rank and File.		
Average Strength	9,078			189,500		
	Killed.	Wounded.	Total.	Killed.	Wounded.	Total.
Total Casualties	920	4,685	5,605	15,392	65,393	80,785
Estimated deaths among the wounded	390	$=\frac{1}{12}$		8,174	$=\frac{1}{8}$	
Estimated casualties among the missing	....	....	....	23,566 2,003		4,006
Total Deaths	1,310			25,569	Total Casualties	84,791
Annual proportion of deaths to 1,000 strength	7·06			6·60		
Annual ratio of casualties to 1,000 strength	30·19			21·88		

* 4th Report Crimean Committee.—Appendix, No. 14.

The next, deduced from the deaths recorded in Table I., is

(B.)

A Statement of the Annual Ratio to 1,000 Mean Strength of the Mortality during War among the Non-Commissioned Officers and Rank and File of the Cavalry and Infantry of the British Army, as shown by the Adjutant-General's Return.   1793 to 1801—1803 to 1812.

Year.	Ratio of Total Mortality.			Ratio of Mortality from Casualties in Action.
	British Corps.	Foreign and Colonial Corps.	Whole Force.	
1793........			29·63	3·26
1794........			80·98	6·36
1795........			93·69	1·27
1796........			84·78	2·46
1797........	Not	known.	53·65	0·38
1798........			34·32	0·31
1799........			36·93	6·17
1801........			49·97	4·89
1803........	41·77	39·30	41·47	3·22
1804........	38·70	60·50	41·76	0·54
1805........	40·38	36·77	39·81	1·39
1806........	35·96	27·12	34·39	1·01
1807........	39·13	39·62	39·24	3·88
1808........	43·58	32·96	41·74	1·43
1809........	76·19	45·06	71·27	7·71
1810........	63·03	48·90	60·40	1·67
1811........	63·70	39·08	58·80	9·08
1812........	72·11	50·11	67·38	10·76
Average....	53·23	42·15	53·65	4·04
	1803 to 1812			
Additions for deaths among those returned as missing			0·34	0·34
			53·99	4·38
			Whole Period.	

Finally, by combining the tables (I. and II.) with information already published, we obtain

A Comparative View of the Mortality of the Military and Naval Services.

Annual Proportion to 1,000 Effective Strength.	DURING WAR.							DURING PEACE.		
	Army.						Navy, 1793 to 1815.	Army.		Navy, 1830 to 1843.
	At Home and Abroad, 1793 to 1815.		Abroad, 1803 to 1812.		On Active Service, Peninsula, 1811 to 1814.			At Home, Various Periods.	Abroad; Various Periods.	
	Officers.	Non-Commissioned Officers and Rank and File.	Officers.	Non-Commissioned Officers and Rank and File.	Officers.	Non-Commissioned Officers and Rank and File.	Officers, Petty Officers, and Common Men.	Non-Commissioned Officers and Rank and File.	Non-Commissioned Officers and Rank and File.	Officers, Petty Officers, and Common Men.
Of those injured in action	30·19	21·91	48·02	30·16	287·00	182·00	8·62	....	....	....
Of deaths from injuries in action	7·06	6·60	11·50	9·40	65·00	52·32	3·00	....	....	....
From shipwreck	Not known	49·61	Not known	70·64	·36·00	112·78	6·00	15·90	35·80	15·97
From diseases or accidents							32·00			
Total Deaths	....	56·21	....	80·04	101·00	165·10	41·00	15·90	35·80	15·97

The annual deaths in the army, during peace,* are 15·90 per 1,000 for the troops serving at home, and 35·8 per 1,000 for those serving abroad, the average for the whole being about 29 per 1,000; but it appears from the following table, that during the war, the deaths in the army at home were in rather a larger proportion. The average, from 1801 to 1805, being 18·41, instead of 15·9, per 1,000, a difference which may have arisen from the return to the depôts of their regiments of men debilitated by the hardships of active service.

Army at Home.   (Cavalry and Infantry only.)

Year.	Average Strength.	Total Deaths.	Ratio of Deaths to 1,000 Average Strength.
1801........	81,000	1,816	22·42
1802........	67,400	1,254	18·61
1803........	76,860	1,228	15·99
1804........	97,800	2,116	21·64
1805........	103,800	1,445	13·92
Annual Average	85,400	1,571	18·41

* *Statistical Journal,* vol. viii., p. 197.

The statement (B) contains the annual ratio of mortality among the cavalry and infantry from 1793 to 1812, beyond which it could not be carried because there were no accurate returns of the general mortality for the years 1813, 1814, and 1815. This is greatly to be lamented, as the military operations in those years, particularly in 1813, were much more actively carried on than before.

In this statement the annual proportions of death from casualties in action are shown in a separate column, by means of which some valuable comparisons may be made.

The average annual ratio is exceedingly low, being only 4·38 per 1,000, including an addition of 0·34 per 1,000 for deaths among the missing not included in the returns that served as the basis of Table I. (Appendix), from which the statement (B) was deduced.

This low ratio arises from the fact, that of the 25,569 deaths from casualties shown in the statement (A), only 14,282, or less than four-sevenths of the whole, occurred previously to the end of 1812. Between this period and the conclusion of the war the remaining 11,287 deaths took place, the average per 1,000, for each of the years not included in statement (B), being as follows:—

1813	....	16·49 per 1,000
1814	....	8·67 ,,
1815	....	15·08 ,,

very high ratios as compared with the preceding period; and particularly so, when it is considered that there were not twenty-seven months of actual hostilities, and very little more than eighteen months of European war during the three years.

The great increase, subsequently to 1812, brings the annual average ratio of deaths from casualties in action to 6·60 per 1,000 (Statement A).

The annual ratio of mortality from disease may be obtained by deducting the annual ratio of deaths in action from the annual ratio of deaths from all causes. It was $(53\cdot99 - 4\cdot38 =)$ 49·61 per 1,000 from 1793 to 1812.

Having no guide for the amount of mortality from disease after 1812, we can only assume that it is represented by the average ratio up to the end of that year, and by adding to this the average deaths from casualties during the whole period, we get $(49\cdot61 + 6\cdot60 =)$ 56·21 as the annual ratio of mortality from all causes from 1793 to 1815.

The total mortality of the troops upon active service (Statement C) was taken from Mr. Edmonds' tables, with an addition of 4·10 per 1,000 annually for deaths among those returned as missing, which increases the ratio of deaths from all causes from 161 to 165·1 per 1,000 per annum.

Besides this alteration, the proportions of the deaths caused in battle, and of those caused by disease, are differently stated.

Mr. Edmonds having ascertained from the returns the total deaths from all causes, during the period he examined, deducted therefrom, for the purpose of determining the deaths from disease, the numbers returned as killed increased by one-third, which he considered would be a proper allowance for the numbers that died

of wounds; but it has already been shown that this allowance was insufficient, and Mr. Edmonds has consequently over-estimated the mortality from disease, and under-estimated that from casualties in action. The following comparison will show how Mr. Edmonds' results, and my own, were arrived at:—

Mortality from Various Causes in the Army under the Duke of Wellington for 41 Months ending 25th May, 1814.

Rank.	Officers.		Non-Commissioned Officers and Rank and File.	
	Killed.	Wounded.	Killed.	Wounded.
Average strength	2,716		61,511	
Total numbers	399	2,208	6,335	30,221
Died of wounds...........................	184	$= \frac{1}{12}$	3,778	$= \frac{1}{8}$
Died from Disease........................	583 357		10,133 23.696	
Correction for deaths among the missing	....		33,829 861	
	940		34,690	
Mr. Edmonds. Total numbers killed	424		6,674	
Died of wounds...........................	142		2,225	
Died from Disease........................	566 374		8,899 24,930	
	940		33,829	

The total numbers of deaths do not appear to be so much influenced, as might be expected, by the numbers of those that took place in action, there being often a high rate of general mortality when the deaths in action were very few, and on the contrary, a much smaller amount of total mortality when the deaths in action were more numerous. One result appears, however, always to have followed—namely, that when the deaths in action in a given year were many, the mortality from disease in the succeeding year was high, although the deaths in action in that year may have been few in number. This increase of mortality was no doubt caused by the diseases engendered in the preceding year by the hardships of active service.

M. Dupin, in his "Force Militaire de la Grande Bretagne" (I. page 243), has stated the mortality of the British, exclusive of the foreign and colonial corps, at 59·30 per 1,000, or very nearly 6 per cent.; but, as has been pointed out, he was not aware of the necessity for making an allowance for non-commissioned officers, and therefore

his estimate is beyond the truth; nevertheless he expresses surprise at not finding it greater.*

His opinion of our military system was thus expressed:—" If we reflect upon the various means employed by the English Government to supply the wants of the soldier, and upon the prudence of its military chiefs, who never strain the powers of man beyond the just limits of his efforts, and his privations, we shall cease to be astonished at the trifling losses of the British army."

In the statement (B) a distinction is made, from 1803 to 1812, between the mortality of the British corps and that of the foreign and colonial corps. They were respectively 53.23 and 42·15 per 1,000 annually, the mortality of foreign and colonial corps being about 20 per cent. less than the British. This result agrees in a very remarkable manner with the conclusions pointed out by Dr. Balfour as to the superior healthiness of all troops when serving in their native countries.† The real difference is greater than it appears, because a larger portion of the foreign and colonial corps were employed out of the United Kingdom upon services so much more fatal to British soldiers as to increase the mortality among them from below 20 to 80 per 1,000 annually.

The following statement shows the proportion of cavalry and infantry serving at home and abroad from the year 1808 to 1812, both inclusive:—

Serving.	Gross Numbers.			Ratio to 1,000 Strength.		
	British.	Foreign and Colonial.	Whole Force.	British.	Foreign and Colonial.	Whole Force.
At home ...	80,000	5,700	85,700	430	131	374
Abroad	105,900	37,900	143,800	570	869	626
Total	185,900	43,600	229,500	1,000	1,000	1,000

It may be said, indeed, that the relative mortality of the British was increased from their exposing themselves more fearlessly in battle; but although this may have been occasionally the case, the foreign troops in our pay gave many proofs of distinguished gallantry, and the Duke of Wellington frequently spoke of them in very high terms. The objection, however, is of no value as, if the whole of the casualties in action had fallen upon the purely British regiments, the mortality from disease among them would still have exceeded the

* There are other mistakes in M. Dupin's statements, for instance, he has inserted (I. 241) for the years 1813 and 1814, under the head of British Corps, the Total Deaths returned by the Adjutant-General, which include foreign and colonial corps. The returns, themselves, however, for the years in question, are so defective that probably the mistake of the author brought him nearer the truth. A very important typographical error occurs in the table referred to, where the discharges (*congés*) from the army for 1814 are stated at 3,429 instead of 34,293, the number also being placed in a wrong column. The discharges for that year were, British corps 25,867, foreign and colonial corps 8,426; total, 34,293.

† *Statistical Journal*, vol. viii., p. 197.

total mortality of the foreign and colonial corps.   It has been recently stated in Parliament that the desertions among these troops were greater than those among the native British regiments, but the contrary is shown to have been the case by the returns of the Adjutant-General.

The following is an abstract of these from 1803 to 1812, inclusive, for the non-commissioned officers and rank and file of the cavalry and infantry only :—

	Gross Numbers.			Ratio to 1,000 Strength.		
	British Corps.	Foreign and Colonial Corps.	Whole Force.	British Corps.	Foreign and Colonial Corps.	Whole Force.
Deaths	86,700	14,877	101,577	53·23	42·15	51·25
Discharges....	35,541	9,074	44,615	21·82	25·71	22·51
Desertions	46,666	8,948	55,614	28·65	25·35	28·06
Total	168,907	32,899	201,806	103·70	93·21	101·82
Average Strength	162,900	35,300	198,200	1·000	1·000	1·000

The fact that the great bulk of the foreign and colonial troops were employed abroad, accounts no doubt for the diminished ratio of desertions, as by far the larger proportions of these took place among the troops serving in the United Kingdom.

From the facts that have been detailed we may form some estimate of the actual loss of life caused to this Empire by the wars beginning in 1793.

The strength of the British army at the commencement of that year was 45,440 men, exclusive of officers, and it was 211,276 men at the termination of the year 1815, in which peace was finally concluded.   This large force was kept up at the latter date because a considerable corps was employed with the army of occupation in France, but in more recent times our army has seldom exceeded 120,000 or 130,000 men while there was peace in Europe, and we can hardly suppose that its average strength, from 1793 to 1815, would have exceeded 80,000 men if there had been no war during that period.   An average force of 189,500 men was, however, rendered necessary by the war, and it therefore caused an increase equal to 109,500 men constantly employed.

The total estimated deaths from 1793 to 1815 were 219,420 (page 232), and from these are to be deducted the deaths that would probably have occurred, during peace, in a regular army of 80,000 men, and among the excess of 109,500 men who, but for the war, would have remained in the employments of civil life.

According to Dr. Farr's English Life Table,* 10 per 1,000 is the annual ratio of deaths for the whole male population of the age of

* Registrar-General's Annual Report, 1844, p. 520

30.   Assuming this to have been the average age of the 109,500 men referred to, the annual deaths among them, as civilians, would have been 1,095, or for twenty-three years 25,185.   The annual ratio of deaths in the whole army, at home and abroad, is 30 per 1,000, at which rate there would be 55,200 deaths in twenty-three years, in an average force of 80,000 men.   The sum of the deaths in the two classes, or 80,385, deducted from the total estimated deaths, or 219,420, leaves 139,035 as the excess of mortality caused by the war.

Besides these, 2,003 deaths, not included in the returns as such, are estimated to have taken place among the missing; these must be added to the foregoing result, together with 1,310 officers killed in action, and such a proportion of the deaths among officers from disease, as exceeded the ordinary mortality during peace.

We have no means of ascertaining with accuracy what this was, but it can hardly have been at a less rate than 7 per 1,000 annually, which, on a mean strength of 9,078, would amount to 1,460 deaths in twenty-three years.

The total account of extraordinary mortality, according to these data, would stand thus :—

Non-Commissioned Officers and Rank and File.

Deaths included in the Adjutant General's returns corrected for omissions	219,420
Add for deaths among the missing	2,003
Total	221,423
Deduct estimated peace mortality	80,385
	141,038

Commissioned Officers.

Killed in action	1,310	
Estimated excess of mortality from disease	1,460	
		2,770
Total estimated excess caused by War		143,808

A similar calculation having been made respecting the mortality in the navy* during the same period, the two may be compared with advantage.

* *Statistical Journal*, vol. xviii., p. 213.

General Summary of the extraordinary Mortality caused among all Ranks in the Army and Navy by $20\frac{44}{100}$ *Years of Actual Hostilities occurring in and between* 1793 *and* 1815.*

Excess of Mortality beyond the ordinary rates during Peace caused by	Total Numbers.		Proportion in 100,000 Deaths	
	Army.	Navy.	Army.	Navy.
Casualties in action	26,879	6,663	18,686	10,524
Shipwreck*	116,929	11,985	81,314	18,931
Diseases and accidents		44,662		70,545
Total	143,808	63,310	100,000	100,000
	207,118			
Average strength in officers and men	198,578	110,000		

The total number of 207,118 spread over a period of twenty-three years, gives an annual excess of 9,005 deaths, but probably not less than 23,000 out of the whole, or about 1,000 per annum, occurred among the foreign and colonial corps. So that the actual loss of life to the inhabitants of these Islands, in consequence of the direct action of the war, appears not to have been greater than 8,000 annually.

It is likely that some addition should be made to this estimate for extra mortality among prisoners of war, consisting not only of men taken in the active service of the army and navy, but of civilians belonging to the mercantile marine, many of whom were captured.

All these classes must have been placed in a position unfavourable to health. According to Alison† there were, in the year 1811, about 10,000 English prisoners in France, and 50,000 French prisoners in England.

If we consider the slight apparent effect upon the productive powers of this country of the enormous mortality occasioned by the cholera, the still greater destruction that followed the famine in Ireland, and the immense emigration amounting, in the fifteen years ending with 1854, to 3,133,414‡ persons, most of them belonging to the classes from which the army and navy are recruited, we shall be convinced that the power of this Empire to make war upon a large scale is not likely to fail from the want of men.

* There can be no doubt that British soldiers, from the extensive service required of them in our transmarine possessions, are liable to considerable losses from shipwreck; and in our own time we have seen them meet its horrors with the same undaunted fortitude with which they confront the dangers more properly arising from their profession.   There is, however, no information to show the proportion of deaths arising from this cause; the whole are included in the deaths from disease and accidents.

† History of Europe, vol. ix., p. 682.

‡ Statistical Abstract, 1830-1854, published by command of Her Majesty.

Napoleon* estimated that a population of a million of souls will furnish annually 3,500 recruits, and as the average number of the inhabitants of the United Kingdom, from 1793 to 1815, was about sixteen or seventeen millions, it is clear, on this supposition, that the direct mortality caused by its warlike operations could have been supplied by a fraction of the people.

These facts lead to the reflection that the slaughter occasioned by warfare is not among the greatest of its evils, and that the most extensive of these, apart from moral and religious considerations, are probably to be found in the various forms of social misery it creates by the interruption of productive industry and commercial communications. Such at least is the case in countries that have not, like our own, been fortunate enough to escape the scourge of its actual presence. We cannot calculate the suffering it inflicts upon these, but we are not without the means of partially estimating its effects.

In the able article upon Vital Statistics, published in McCulloch's account of the British Empire, it is mentioned that the civil war in Sweden, which lasted during the five years from 1806 to 1810, "caused the annual mortality to rise 25 per cent.; and the effect was felt, not only by the able-bodied men engaged in warfare, but by the old man, the young woman, and the child upon the mother's breast."†

The inhabitants of Spain and Portugal were about 16,000,000 during the war of independence, and from the nature of the contest, and the bitter animosity they showed against the invaders, it is hardly possible that the evils produced could have been less, indeed they were probably much greater, than those of the war in Sweden just referred to.

Assuming the ordinary annual mortality of those countries to be 25 per 1,000, an increase of 25 per cent. would amount to 6·25 per 1,000, which, in the six years the struggle lasted, would have caused an excess of 600,000 deaths, probably not less than three times the number that occurred in all the foreign armies that contended upon the soil.

A very striking fact shown by these statements is one that has already been noticed by Mr. Edmonds‡—namely, that the casualties occurring to officers are much greater in proportion than those happening to the lower ranks. Upon active service the annual casualties of officers were 287 per 1,000, and of men only 182 per 1,000, being a difference of more than 50 per cent. against the former. Among a given number of casualties, however, the proportion of officers killed outright is smaller than among the men, being 164 per 1,000 for the former, and 193 per 1,000 for the latter. This may probably be accounted for by the circumstance that the most destructive wounds in battle are inflicted by round and grape shot, which are generally discharged at bodies of men, and cannot, except in very rare instances, be directed against particular individuals. With respect to these, the men are exposed to the same risks as the officers, and the excess of casualties, from which the

* Mémoires, vol. viii., p. 6.   † Vol. ii., p. 561.
‡ Lancet, 1837-8, ii., p. 145.

latter suffer, are no doubt produced by their becoming especial objects of individual riflemen or musketeers.

Sir Howard Douglas* quotes, on the authority of M. Arago, a statement made by Col. Lebeau, who commanded the 1st regiment of French infantry of the line at the battle of Waterloo, to the effect that the officers of his regiment were all, without exception, wounded by the English riflemen, whose balls he called "*balles d'officiers*" because they disdained to aim at the common men; the same able writer gives an account of the havoc created among the Danish officers in the battle of Idstedt, fought in 1850, by a body of Prussian riflemen, armed with *carabines à tige*, and posted behind a hedge at 150 yards distance from the Danish line.† It seems probable that the risks to officers will increase with the improvement in small arms.

From what has been already stated, it appears that the proportion of deaths among wounded officers, compared with those among wounded men, are in the ratio of 2 to 3 only. So that although the risk of injury in battle to the officer is so much greater than to the private soldier, being as 3 to 2, the ultimate risk of death from the same cause is not so much in excess, being only as 13 to 10; but when the mortality from disease is included in the estimate, the relative chances of death are reversed, and become to the soldier 8 to 5 as compared with the officer.

It is necessary to bear in mind, however, that these proportions refer only to the gross numbers of each class serving with the army, and not to the numbers actually present in battle. During the Peninsular war, an average of one-fifth of the private soldiers were disabled by sickness, and a considerable number detached for the performance of special duties, being described in the returns as on command. The diminution in the numbers of the officers present in action, from the same causes, was very much less, although we cannot determine the proportion, the numbers of officers so situated not being stated in the returns.

Mr. Edmonds, indeed, says, in reference to this part of the question, that "In the harder fought battles of the Peninsula, as at Waterloo, the mortality among officers was more than 50 per cent. greater than privates, regarding only those that were actually engaged;" but this calculation is founded on the hypothesis that the deaths among the wounded are in the same proportion in all ranks, which, from the reasons already given, must be considered erroneous.

According to the best estimate I have been able to frame, the mortality from casualties, occurring during the three days' fighting at Waterloo, was about 84 per 1,000 for officers, and 63 per 1,000 for non-commissioned officers and rank and file.

The great advantages enjoyed by the officers in exemption from disease may be seen by reference to Table VIII. in the Appendix, showing the sickness and mortality for ten weeks in the army at Walcheren, when the deaths among the privates were in the propor-

* Naval Gunnery, 4th edition, p. 513.
† Ibid., p. 511.

tion to an annual mortality of 640 per 1,000, and among the officers to that of 181 per 1,000, the average number of sick being 470 privates and 166 officers per 1,000 of the respective classes.

Although I cannot offer the Tables in the Appendix (I. and II.) as complete statistical pictures, which it was my wish to make them, of the British army during the period they embrace, I trust they may be considered to have some value as a contribution to the history of a momentous period in the annals of England, containing as they do information of a kind that has been rarely given at all, and still more rarely with accuracy. The statistics of national defence must surely be an important element both in the economical and political history of a country, yet it is astonishing how little they are attended to in England. In a collection of the statistics of the Empire, for the fifteen years ending with 1854, presented to the Houses of Parliament by command of Her Majesty, there is no mention whatever of the extent of our military and naval forces, not even the numbers of men annually voted being stated.

Table II. is believed to be the first attempt to give a general view of the effective strength of the British regular army during the period under consideration. Statements upon the subject may occasionally be found in historical works, but they are in the majority of cases incorrect. A very remarkable instance of this occurs with respect to the projected invasion of England, in the years 1804 and 1805, by the Emperor Napoleon I. There are few questions more interesting to the statesman, or to the historical student, than to consider the result that would have ensued if an attempt at landing had succeeded. The first object of the enquirer would naturally be to ascertain what force this country could have brought forward to repel the attack; but if he turn to the works of the two writers, who may be called the national historians of the struggle, Thiers and Alison, he will find assertions upon the subject differing widely from each other and from the truth.

The following is a comparative statement of the strength of the British military force, in 1804, according to

	Thiers, Book XVIII.	Alison, Chap. 38.	Adjutant-General's Returns, increased for Officers and Non-Commissioned Officers, Cavalry, Infantry, and Artillery.
At Home—			
Regular Army....	80,000	129,572	114,360
Militia	70,000	109,947	98,900
	150,000	239,519	213,260
Abroad...................	50,000	61,527	54,243
	200,000	301,046	267,503

The English historian's numbers are derived from the estimates voted for the year, and his error would have been much greater if he had not omitted the estimates for the artillery, for foreign and

colonial corps, and for men to be raised under the Additional Force Act, which would have increased his total to 338,000 men.   There is obviously, however, a great difference between voting the levy of a number of men and having that number raised and equipped.   The effective force was always below that voted, and frequently fell very far short of it, as appears from the following return of the numbers of men wanting to complete the regular army at the periods named :—

> On the 1st of January, 1805 54,288
>   ,,   ,,   1806 38,069
>   ,,   ,,   1807 35,656

.The statements given by Sir Archibald Alison of the military strength of this country, being for the most part taken from the annual number of men voted, are generally erroneous.

The statement at page 235 illustrates the relative dangers of the military and naval services.   It appears therefrom that during the last great war the man who entered the army ran between two and three times if a private, and between three and four times if an officer, the risk of injury in battle that was encountered by one who entered the navy, and that the general chance of death in action to the one was double that of the other.   When the soldier was ordered on service abroad, the latter risk became three times as great to the private, and nearly four times as great to the officer, while to those engaged in actual hostilities it was respectively seventeen and twenty-two times that of the sailor, the whole navy being considered on active service in time of war.   These ratios, however, would be greatly lessened if we were to include in our estimate the danger from shipwreck, which made the seaman's risk of death from the casualties of the service three times that of death in battle.

During peace the average mortality of the army serving at home and abroad is about double that of the navy, but it is one-third more only during war, in which, however, it is double for the portion of the army serving abroad, and four times as great for troops engaged in actual hostilities.

Napoleon* has said that a fleet of thirty sail of the line at sea may be considered equivalent to an army on land of 120,000 men. Lord Nelson commanded twenty-seven sail of the line at the battle of Trafalgar, and the English, on that day, lost in killed and wounded 1,690 men.

At Borodino, out of a force of 133,000 French, 28,085, or 211 per 1,000, were killed or wounded.   In the campaign of Waterloo the allied force was 230,000 men, and their total casualties 36,590, or 159 per 1,000.   The average strength of the English navy, from 1793 to 1815, was 110,000, and its total loss in killed and wounded, during the period, was 19,382, or 176 per 1,000.   Such is the disproportion in carnage, that a single battle on land has been more destructive to life than twenty years of combats at sea.†

These facts are not adduced to depreciate the valour of the

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* Mémoires, vol. v., p. 24.

† Le soldat de mer sur son escadre ne se bat qu'une fois dans une campagne; le soldat de terre se bat tous les jours.—*Napoleon, Mémoires*, vol. v., p. 25.

English navy, whose prowess and skill have been the shield of their country during so many centuries, but to point out, as not among the least of the blessings vouchsafed by Providence to this nation, that, while our peculiar means of defence have proved so much more effectual than those of other countries, they are maintained at so much smaller an expenditure of the lives of our fellow-citizens.

Sickness.

That disease is generally more fatal to an army in the field than the sword of the enemy is almost a proverbial truth, and one that has been lately impressed upon the minds of the English people by facts of a deeply painful character.

The enormous amount of sickness that in modern times has nearly always been the consequence of active military service, is supposed by some not to have attended the operations of ancient armies, particularly the Roman; and this immunity is thought to have arisen from the greater powers of endurance of the soldiers as well as from the more prudent management of their commanders.

The British army scattered over the globe in the various dependencies of the empire, many of them situated in unhealthy climates, suffers during peace from a considerable extent of sickness which, even in the army at home, greatly exceeds the average amount among similar classes of persons in civil life.*

That men, selected on account of their bodily vigour, well fed, clothed, and housed, and enduring no hardships or privations likely to be injurious to health, should suffer from sickness to a greater extent than those apparently less favourably circumstanced is a fact that must excite surprise, and is well worthy the attention of the military authorities.

In the Journals of this Society are to be found a large collection of statistical results drawn from the records of extensive enquiries ordered by the government as to the sickness of the British troops during peace, but very little official information upon the same subject during war, particularly when carried on upon a large scale, has been given to the world. We are indebted to Sir William Napier for the publication, in his history of the Peninsular war, of several returns showing the proportion of sick among both the French and English armies engaged in that contest, and to Mr. Edmonds for half-yearly returns, during the latter part of it, relating to the English army, and from these statements I have compiled Tables VI. and VII. in the Appendix.

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* *Statistical Journal*, vol. ii., p. 258.

The following is a

Comparative Statement of the Proportion of Sickness in Various Armies.

	Total Average Strength included in the Returns.	Number of Returns included in the Average.	Proportion Sick to 1,000 Total Strength.		
			Lowest.	Highest.	Average.
French — Egypt (1801)	23,400	2	....	....	125
Army of Spain (1808 to 1813)	299,000	15	103	194	130
Army of Portugal (1808 to 1813)	94,700	8	64	235	146
English—Peninsular Army (1808 to 1814)	44,500	19	94	330	209
Egypt (1801)	17,000	2	103	261	182
Walcheren (1809)	21,100	11	72	587	326

The facts in this statement as to the sickness in the French and English armies in the Peninsula were taken from the returns just mentioned. Those as to the armies of both nations in Egypt from Sir Robert Wilson's history of the English expedition to that country; and those as to the sickness at Walcheren, from the Parliamentary papers that have been referred to before.

The Duke of Wellington[*] has laid it down as a rule, that "in all times the sick list of an army on active service amounts to at least 10 men in 100, or 3,000 upon 30,000," but it will be seen upon reference to Table VI. in the Appendix, that among the troops in the Peninsula the number of sick was always in a much greater ratio, except at the end of the year 1808 and beginning of the year 1809, when the army was not engaged in active operations, the troops under Sir John Moore not being included in the Table. The lowest amount of sickness in the Peninsular army was in April, 1809, and the highest in October, 1811, when out of 57,781 men, 19,880, or 330 per 1,000 of the whole strength were in the hospitals. The average of all the returns is 209 per 1,000 constantly sick. Mr. Edmonds, in the half-yearly returns, from 1811 to the beginning of 1814, which I have mentioned, found the average to be 225 per 1,000, but neither of these statements can be considered as founded on such complete data as to establish the average proportion with accuracy, monthly returns at least being required for that purpose. The highest ratio of sickness among the French (Appendix, Table VII.), in the Peninsula, was 194 per 1,000, the lowest 103 per 1,000, and the average 130 per 1,000.

In a note on Mr. Edmonds' paper in the "Lancet," he mentions that in July, 1809, immediately before the battle of Talavera, the French army consisted of 275,000 men, "of whom 61,000, or 22¼ per cent. were sick." This is no doubt correct, but I have not met with any return giving so high a ratio.

The general average of the sickness in the French armies, both

* Despatches, vol. v., p. 275.

in Spain and Egypt, appears, so far as the returns can be trusted, to have been lower than that of the English; and the Duke of Wellington, in a despatch dated the 9th of June, 1812, expresses surprise that in Marshal Soult's army there should be only 4,869 sick out of a gross number of 68,200.[*]

In a comparison of the relative sickness of the French and English armies in Spain, there are, however, several points to be considered. The English was essentially an army of operation, constantly engaged in active service, the brunt of every campaign falling principally upon it. The greater part of the French troops consisted of armies of occupation regularly quartered in the country, and having only to contend with Guerrillas and the feeble Spanish armies, which they so frequently and easily dispersed. A more just comparison would be made with the army of Portugal, which, though smaller in amount, was more constantly engaged in active operations. The lowest ratio of sickness in this army was 64 per 1,000, and the highest 235 per 1,000, the average being 146 per 1,000, which still is lower than the English ratio.

Another circumstance to be borne in mind is, that as the English army was almost invariably successful, very few of its wounded were taken prisoners, while a large number of the wounded French having been taken, their sick lists would thereby be proportionably diminished.

An important admission made by the Emperor Napoleon himself, in his Memoirs, must also be mentioned. He relates[†] that, in Egypt, he agreed with the heads of corps they should overcharge, by one-third the real quantity of provisions, arms, and clothing distributed to the troops, and he speaks of the astonishment expressed by the author of an account of the French campaigns in Egypt, at finding that the orders of the day showed the army to amount to 40,000 men, although the writer had ascertained from authentic facts that the real number was much less. Napoleon continues that, in 1796 and 1797, and since (*et depuis*), the same means were employed in order to excite exaggerated notions of the numbers of the French forces. The returns of effective strength were called in the French army, "*Etats de situation*," and I do not know whether they were included in the orders of the day (*Ordres du jour*), but if so, and if they were dealt with in this manner without a proportionate increase in the numbers of the sick, the ratio of the latter would thereby be much diminished.

Notwithstanding the great public excitement, and the numerous investigations that have arisen out of the expedition to the Crimea, I have only found one return,[‡] having a distinctly official character, to show the exact proportion of sickness in the army there. This was dated the 2nd of October, 1854, before the commencement of the siege of Sebastopol. In the third report of the Crimean Committee (Appendix, page 470), there is a " return showing the total number of men of Lord Raglan's army sick and wounded (of all

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[*] Despatches, vol. ix., p. 223.
[†] Mémoires, vol. viii., p. 119.
[‡] 3rd Report of Committee.—Appendix, 4 72.

arms) during each month from their landing in Turkey," giving these numbers :—

1854.		1854.	
April	· 503	October	11,988
May	1,835	November	16,846
June	3,498	December	19,479
July	6,937	1855.	
August	11,236	January	23,176
September	11,693	February (imperfect)....	16,964

From a comparison with other returns I find that these are not the average numbers sick during each month, but the total of those applying for assistance at the hospitals, and they. cannot, therefore, be used to ascertain the average number sick. Several returns were published during the latter part of the war, but they appear to include only the number of sick in the Crimea, without reference to those at Scutari and elsewhere. The return dated the 2nd of October, 1854, shows that out of 34,642 non-commissioned officers and rank and file, 6,777 were sick, being at the rate of 195 per 1,000. Among these the wounded are included, and of the whole number sick 328 only were present with the army; the remainder, with the exception of those wounded at the Alma, must therefore have been left at Varna. The wounded at the Alma were 1,539, and although many of these must have died before the 2nd of October, the news of their deaths would not probably have reached the head-quarters by that time, as they were all, immediately after the battle, sent on board the fleet for transport to Scutari. Deducting for the whole of the wounded at the Alma, and the sick present with the Army, together 1,867, from the total sick (6,777), there remain for the sick at Varna 4,910, which upon the total strength at the period of embarkation, about 35,000 men, is at the rate of 140 per 1,000, or nearly one-seventh of the whole force, a greater amount of sickness than the average of the French army of Spain, and nearly as great as the army of Portugal (page 247) while engaged in very active campaigns, this too, although not a soldier in Lord Raglan's army had fired a shot, or seen the uniform of an enemy.

A complete return of deaths, up to the 15th February, 1855, was laid before the Crimean Committee, and is to be found in the Appendix to their Second Report (page 688). According to this, there died—

Of sickness from the first landing in Turkey to the embarkation for the Crimea on the 6th September, 1854 .... }		903
In the Crimea from casualties in action	1,481	
„ disease	4,300	
		5,781
In other hospitals from disease and wounds................................		2,167
On their passage from the Crimea, from the same causes		882
Total deaths		9,733

From the number of casualties that actually occurred up to the 15th February, the deaths they caused should probably be increased from 1,481 to 1,910; and the statement would then stand thus :—

	Deaths.		
	From Casualties.	From Disease.	Total.
From the landing in Turkey to the 6th of September, 1854	....	903	903
From the 6th of September, 1854, to the 15th of February, 1855	1,910	6,920	8,830
Total	1,910	7,823	9,733

Various statements were laid before the Committee of the numbers and dates of the reinforcements sent to the East; and I have calculated from these, that the average strength of the army, during the first of the above periods, was 25,000, and during the second 42,500, of all ranks.

Each of the periods was of five months' duration very nearly. The mortality in the first arose from disease alone, and was at the annual rate of 87 per 1,000, or three-fourths of that from the same cause among the troops engaged in active service in the Peninsula.

In the second period it was equivalent to an annual mortality per 1,000 of

108 from casualties in action, and
391 from disease, or

499 from all causes.

being about double the annual ratio of deaths from casualties in the Peninsula, and 3½ times those from disease.

The Crimean Commissioners state in their Report (page 3), that the mortality for the seven months ending with the 30th April, 1855, appeared to amount to about 35 per cent. upon the average strength, which is equal to an annual ratio of 60 per cent., or 600 per 1,000.

I have compiled from the columns of the "Times" a classification of 4,259 deaths in the hospital at Scutari. This statement, not being derived from official returns, may perhaps be liable to error in some respects; but it is not without value for the purpose of general comparison with a similar statement of the causes of 16,970 deaths in the Peninsular army recorded by Sir James McGrigor, viz.:—

Causes of Death.	In the Peninsular Army.		In the Hospital at Scutari.	
	Number of Deaths.	Proportion of 100,000 Deaths.	Number of Deaths.	Proportion of 100,000 Deaths.
Diarrhœa and dysentery	4,940	29,110	2,451	57,549
Fever	6,761	39,842	739	17,351
Catarrh, pneumonia, bronchitis	606	3,571	169	3,968
Gelatio	....	....	327	7,678
Wounds	3,411	20,100	238	5,588
Other causes	785	4,626	215	5,048
Not specified	467	2,751	120	2,818
Total	16,970	100,000	4,259	100,000

The proportion of deaths from diarrhœa and dysentery at Scutari was double that in the Peninsula; but from fever very much smaller. This is remarkable, considering the assertion of a celebrated traveller that the slightest imprudence or exposure leads to a fever in the Crimea.*

During Sir James McGrigor's superintendence of the medical department in the Peninsula, which lasted two years and a half, 352,272 cases were admitted into the hospitals; so that a number nearly equal to the whole force went through the hospitals twice in each year. The proportion of recorded deaths to the numbers treated was one in 20·8, or 4·8 per cent.; but 81,582 cases are entered as "transferred," and the results of these were, of course, unknown. Of the remainder, the deaths were 1 in 15·9, or 6·3 per cent. Out of 17,537 admissions to the hospital at Scutari, there were 3,062 deaths, being 1 in 5·73, or 17½ per cent., and 5,824 of the cases were still under treatment when the return was made up. It is probable that all the cases sent to this hospital were severe ones, while the Peninsular returns contain a large proportion that were only slight.

No person can have his attention drawn to such an enormous amount of sickness and mortality without feeling an earnest desire to ascertain its causes and the means of preventing it, if possible, in future.

The following observations of Mr. Edmonds, published in 1838 in his paper on the mortality of the Peninsula, derive peculiar force from the events of the last two years:—"That an English army," he said, "of 61,511 men, during a period of three years and five months, should have had 18,815 men, or 22½ per cent., constantly sick, and that no inquiry should have been instituted as to the causes of the sickness, is a serious national reproach."

In the course of the present inquiry, I have collected numerous facts, and many suggestions have occurred to my mind with respect to this part of the subject; but, although they appear to me to be of great interest and importance, I refrain from laying them before the Society, partly on account of the great length of this communication, and partly because they are not of a strictly statistical character.

Battles.

The table in the Appendix No. III. contains the particulars of all the great battles in which British troops have been engaged since the commencement of the present century, excepting those that occurred in India, with respect to which I have not been able to obtain information sufficiently precise to include them in the statement.

This country has generally been entitled to the undivided glory of its naval achievements, the fleets of allied nations having rarely participated in them; but our operations upon land, in Europe at least, have almost always been carried on in conjunction with the forces of other powers.

Of the nineteen great battles included in the table four only were fought by British armies unassisted by troops of any other nation.

* Clarke's Travels.

From this circumstance, I have been compelled, in order to give a complete view of the results of the several actions, to state, in separate divisions of the table, the loss sustained by the British only, and the total losses of the whole of each army, including British and Allies. The effective strength of the troops engaged is also given in each case, and the proportion of casualties per 1,000 deduced therefrom. In the table relating to naval engagements,* I was enabled to give, with considerable accuracy, the strength of the enemy's force, and the loss that it sustained in each action, thereby furnishing materials for some useful comparisons; but it is impossible to follow the same course with respect to land battles, from the great uncertainty in most cases both as to the strength and casualties of the enemy. The losses sustained in actions by foreign armies are not always officially published; and, when published, the numbers given cannot always be relied upon. No dependence whatever is to be placed upon the general estimates inserted in historical works, which vary enormously, according to the prejudices or the wishes of the persons making them. The only sure guides to such information are to be found in official returns. It is, indeed, true that these may be incorrect or may be garbled when published; but no person that has not access to accurate original returns can pretend to fix with precision the losses of an army. The English returns, as mentioned already,* give the numbers of rank and file, or, to use a common term, of bayonets and sabres only, without including the officers and non-commissioned officers; and proportionate additions for both these classes have, therefore, been made in the table. The non-commissioned officers are taken at the rate mentioned at page 223, or 72 for every 1,000 rank and file, but the officers at only 40 to 1,000 non-commissioned officers and rank and file, instead of 48, as estimated for the whole army at page 225, a reduction made in order to allow for the large numbers of officers engaged at home in what may be called the civil departments of the army. The proportion of officers adopted appears to agree with that in both the English and French Crimean armies. According to a statement from the War Department, made in Parliament, "the Admiralty had transported, from the 7th of February, 1854, to the 22nd January, 1855, 2,141 officers, and 54,224 men of the English army, and 556 officers, and 14,055 men of the French," being, in both cases, at the rate of 39·5 officers to 1,000 men. The precise strength of the artillery and engineers is very rarely given in the British returns, the number of guns only being stated.

As the casualties happening to these corps, however, are included in the general list, it is necessary to make an estimate of their numbers.

They have been taken at an average of 40 men per gun, which appears to be about the general proportion, allowing for those sick and absent. At the Battle of Talavera the English had 30 guns and 1,287 men of the artillery and engineers present.† At Waterloo the English artillery consisted of 191 guns and 8,166 men, exclusive of 1,240 of the engineers and field-train.‡ Napoleon, at the same

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* Page 223.

† Alison, vol. ix., p. 422. ‡ Siborne, vol. i., p. 426.

time, had 350 guns with 10,901 artillerymen, the engineers and field-train amounting to 5,600 men.* There seems good reason to conclude that the force of the Prussian army in artillery, in the above campaign, is under-estimated in Capt. Siborne's work, as he assigns only 5,303 artillerymen to 312 guns, which is not more than 17 men per gun.

The majority of the battles recorded in the table were fought in the Peninsular War; and the strength of the armies engaged in these has been taken in each case from Sir William Napier's History. In some instances his statements have been compared with those of other writers, almost all of whom, however, have relied upon his authority. The effective strength at the battle of the Alma is accurately given from a parliamentary return,† but I have had great difficulty in ascertaining the numbers at the battle of Inkermann. According to Lord Raglan's dispatch not more than 8,000 British troops were engaged in that action; but the returns of killed and wounded include casualties in three regiments of cavalry and twenty-six battalions of infantry, besides artillery, so that, if the dispatch be correct, the infantry could not have averaged more than 270 men per battalion, a number almost incredibly small. Having no other guide, I have adopted Lord Raglan's estimate, concluding, however, that it referred to rank and file only, and making proportionate additions for officers and non-commissioned officers.

From the general result of Table III. it appears that in the nineteen battles recorded, an aggregate British force of 438,205 officers and men were engaged; that of these 49,921 were either killed or wounded, of whom 14,517, being very nearly 30 per cent., died from the injuries they received, and that the casualties averaged 114, and the mortality 33, for every 1,000 men engaged.

Mr. Edmonds has estimated the average mortality of the British troops in four battles—Talavera, Salamanca, Vittoria, and Waterloo—at 3·9 per cent. for the officers, and 2·1 per cent. for the private soldiers,‡ but from two causes of error he has under-estimated the mortality, particularly in the first three battles. I have already pointed out that the proportion assigned by him for deaths among the wounded is too low, but a much greater difference in the present case arises from his having assumed, apparently, that the whole strength of the army in the Peninsula, as shewn by the muster-rolls, was present in each action. Thus he gives the numbers of British at the battle of Talavera as 39,586, but from a return printed by Sir William Napier, it appears that, including cavalry, infantry, and artillery, there were only 19,846 rank and file present.§ The loss of the British in this action was very severe, being at the rate of 213 casualties, and 63 deaths, per 1,000 engaged, whereas Mr. Edmonds, founding his calculations upon a much larger number than was actually present, makes the mortality 4·4 per cent. for the officers, and 2·6 per cent only for the private soldiers. His estimates for Salamanca and Vittoria are below the actual mortality from the same cause.

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* Siborne, vol. i., p. 433.
† Committee's 3rd Report, Appendix No. 10.
‡ Lancet, 1837-8, vol. ii., p. 148.   § Appendix, vol. ii., p. 449.

The lowest ratio of casualties shown in Table III. is 22 per 1,000. This was at Busaco. The highest for the whole force engaged in any single battle was at New Orleans, where the British were defeated with a loss, in killed and wounded, of 317 per 1,000. The British suffered in a greater ratio than this at Albuera, where they had 395 per 1,000 killed or wounded. The casualties of the total force engaged in that battle, including both British and Allies, were however, only 176 per 1,000. In nearly all the actions fought in conjunction with allies the greater ratio of loss was borne by the British; their casualties averaging 114 per 1,000, while those of the aggregate force of British and Allies averaged 98 per 1,000 only.

From the returns as to the battle of the Alma we are able to assign the proportion of losses which there fell upon the different branches of the service.

Battle of the Alma, 20th September, 1854. [*]

	Force Engaged.	Numbers Killed and Wounded.	Ratio per 1,000 Engaged.
Cavalry	1,100	1	1
Infantry	22,600	1,937	86
Artillery and Engineers	3,100	34	11
Total	26,800	1,972	74

In Table III. a column is inserted to show whether the action was offensive, or defensive, on the part of the British.

This is done with a view to the elucidation of an important point in military science. " Military men," says Napoleon, " are much divided upon the question whether it is more advantageous to give or to receive the attack." It appears probable that a classification of the results achieved, and the losses sustained, in a large number of battles might assist materially in the solution of this problem, and the distinction has accordingly been made in the table. It is not supposed that the number of actions there recorded is sufficient to lead to a decisive conclusion; but it is one of the objects of the present paper to point out in addition to the results actually established, those that might be attained, by military statistics.

Among the latter of these, the determination of the relative efficiency of the different weapons of warfare, is one to which sufficient attention appears hardly to have been paid. The great object of all military organization must be the fullest developement of the destructive powers of troops. To this end their equipment and training, as well as their formation and discipline, everything, in fact, connected with tactics and strategy must be directed; and it becomes, therefore, of importance to ascertain the relative effects of the different arms employed.

Some information upon this subject may be obtained from a return, furnished by the surgeon of the Scots Fusilier Guards,

of the nature of the wounds received by the men of that regiment at the battle of Inkermann, the 5th of November, 1854.

Wounded by	Severely.		Slightly.		Total Number.	Proportion per 1,000.
	Total Number.	Proportion per 1,000.	Number.	Proportion per 1,000.		
Bayonet...................	3	46	4	190	7	59
Gunshot...................	62	954	17	810	79	658
Contusions	....	....	....	....	34	283
Total	65	1,000	21	1,000	120	1,000

It has been confidently and repeatedly asserted that the victory at Inkermann was won by the bayonet, which it is said was there more extensively employed than on any other occasion since the battle of Maida. In the Russian official account of the action it is called an embittered bayonet contest, and they boast that their troops had not only challenged, but frequently put to rout the well fed and powerful British soldiers with what the latter considered their own peculiar weapon.

The brigade of Guards was more constantly and closely engaged in this battle than any other portion of the army. This is proved by the fact, that out of 2,382 casualties suffered by twenty-six battalions, 594, or one-fourth of the whole, were borne by the three battalions of guards; and yet we find that in one of these, notwithstanding the assertions referred to, the proportion of bayonet wounds received among those returned as wounded was less than 6 per cent. of the whole.

The popular notion in England is that the efficiency of the British infantry depends principally upon the determination with which they use the bayonet. It does not of course come within the objects of this paper to discuss questions of military tactics, except to show how far they may be illustrated by military statistics; but if it were otherwise, there would be no difficulty in proving that the opinion in question is entirely a delusion, and that, as an able writer has already pointed out,* the almost uniform success of the British infantry during the last war, arose in a great measure from the fact that the formation in line they invariably adopted in action produced a much greater developement of musketry fire than the formation in column adopted by their opponents; and, moreover, that so far from their victories having been due to the bayonet, a reliance upon that arm as the principal weapon of offence was the entire cause of two out of the very few severe defeats they suffered during the war, one of the two being the most disgraceful check ever experienced by the British arms.

The conclusions here pointed out are in accordance with all the facts of history, which show that nations possessing the most efficient missile weapons, have always been the most successful in war.

* Revelations of Russia, vol. ii., p. 50.

From the statistics of the battle of Balaklava, another proof may be obtained of the relative destructive powers of cannon and musketry compared with those weapons which the French include in the comprehensive expression,—" *les armes blanches.*"

The British cavalry in that action consisted of a light and a heavy brigade, each of which made a charge in the course of the day. The heavy brigade were opposed by a body of Russian cavalry only, which, although it was very superior in numbers, they attacked and defeated. The casualties they suffered were of course principally produced by the weapons of cavalry, lances and sabres. The charge of the light brigade is too well known to need description—they were nearly destroyed, suffering from every description of weapon used in modern war, particularly from artillery.

The following is a statement of the relative proportion of deaths among the casualties of each :—

	Total Casualties.		Proportion to a Total of 1,000.	
	Heavy Brigade.	Light Brigade.	Heavy Brigade.	Light Brigade.
Killed.....................	9	160	85	569
Wounded	97	121	915	431
Total	106	281	1,000	1,000

It is not surprising that the casualties in the light brigade should have been in so much larger a proportion, but it is a remarkable fact that more than one-half of those injured were killed outright, while in the heavy brigade only 1 in 12 of those injured were killed.* The ordinary proportion in land battles is 1 killed to every 5 casualties.

Sieges.

The Table numbered IV. in the Appendix, contains details as to various sieges in which the troops of this country have engaged in the course of the last hundred years, that of Sebastopol being included. I have collected, as far as they were attainable, the particulars of all the English sieges that occurred in that period, excepting such as took place in India, but I have only inserted in the Table those with respect to which the information obtained· is sufficiently precise to lead to definite conclusions.

The date, duration, and result of each siege, is given, with the force of the besiegers, and the number killed and wounded among them, together with the ratio of the casualties to 1,000 men engaged. The strength and casualties of the garrisons are also stated where they could be ascertained.

* In this action private John Dryden, of the 11th Hussars, forming part of the light brigade, received 24 lance and 7 sabre wounds, and being left on the ground for dead was taken prisoner. He, nevertheless, recovered, and having been exchanged, was doing duty with his regiment in January, 1856. This was certified in a letter from the surgeon of the 4th Dragoon Guards, published in the newspapers.

A column in the table shows as to each siege whether it was undertaken by the British alone or in conjunction with allies; but, in the latter case, the aggregate numbers only of the besieging force, and of the casualties suffered, are given without reference to the national distinctions made in Table III.

The severe criticisms of some French writers upon the methods of attacking fortified places adopted by our engineers, make it an object of interest to compare the results of the systems of the two nations; and information with respect to seven French sieges, similar to that given as to the English, has accordingly been inserted in a continuation of the table. The facts as to the English sieges in the Peninsula, were taken from Sir John Jones' Journals, and those as to the French from the *Journaux, etc.*, of Captain Belmas.

The difference between the modes of attack above alluded to, consisted in this:—the French, proceeding according to the strict rules of art, pushed their approaches so close to the body of the place that, when a breach was effected, the success of the assault was secured, and the garrison were therefore compelled to capitulate; while the English, less scientific or less patient, breached the walls and sent forward their troops to the attack from such a distance as to expose them to the certainty of a heavy loss as well as to the risk of failure, the disadvantages to the assailants being generally such as to encourage the garrison to make a vigorous resistance. This course, although less sure than the other, and involving a much greater sacrifice of life, effected when successful a saving of time.

Accordingly we find that the average duration of the English sieges recorded, exclusive of that of Sebastopol, was only 13¼ days, that of the French being 33⅔ days; but that while the casualties of the former averaged 113 per 1,000, those of the latter were only 73 per 1,000 of the force engaged.

For the purpose of a more complete comparison, I have classified the fortresses captured by both nations under the heads of those that capitulated and those taken by assault, showing the

Average Results of Fourteen successful Sieges.

Places taken by		Number of Sieges.	Duration in Days.		Aggregate Force Employed.	Casualties.	
			Total.	Average.		Total.	Per 1,000.
Capitulation	French armies	4	143	35¾	154,800	6,633	43
	English armies	4	93	23¼	47,900	2,403	50
		8	236	29½	202,700	9,036	44
Assault	French armies	1	28	28	21,500	4,209	196
	English armies	5	59	11⅘	63,700	11,228	176
		6	87	14½	85,200	15,437	181

Here we see that although the places assaulted were taken on an average in half the time required to gain possession of those that

capitulated, the ratio of loss suffered by the besiegers before the former was quadruple that before the latter.

An unusual opportunity for comparing operations of this description occurs in reference to the Peninsular War. The two fortresses of Badajoz and Ciudad Rodrigo were each of them successively besieged and captured by the French and English armies. The former with an average force of 22,500 men obtained possession of both places by capitulation, at the cost of 2,830 killed or wounded, the time occupied in the two sieges being 65 days. The English took both places by assault. Their average force was 21,200, and their loss 5,820 killed or wounded in the two sieges, which lasted 32 days in all. It is a curious fact that the respective losses are very nearly in the inverse ratios of the respective times $\frac{1}{32} : \frac{1}{65} :: 5,820 : 2,865$, the last number being only 35 in excess of the French casualties.

The English Engineers have been accused of needlessly sacrificing the lives of the soldiers by their methods of attack, and it is therefore but justice to them to point out that they did not hesitate to expose their own. This is shown by the following

Comparative Statement of the Casualties among Officers of the Engineers and Artillery at various Sieges.

	Engineers.				Artillery.			
	Em-ployed.	Killed.	Wounded.	Total Casual-ties.	Em-ployed.	Killed.	Wounded.	Total Casual-ties.
Badajoz (1st siege)	21	5	3	8	5	1	3	4
Ciudad Rodrigo	19	2	5	7	14	....	2	2
Badajoz (2nd siege)........	24	4	7	11	38	6	8	14
Forts of Salamanca........	3	....	....	....	14	1	1	2
St. Sebastian (1st siege)	22	1	4	5	39	1	1	2
,, (2nd siege)	17	3	3	6	54	....	1	1
Total	106	15	22	37	159	8	13	21
Ratio of casualties to a strength of 1,000	349				132			...

At the second siege of Badajoz nearly one-half the Engineer officers employed were either killed or wounded.

The siege of the citadel of Antwerp in 1832, described in the French division of Table IV., may be taken as a measure of the smallest amount of loss with which a place strongly fortified and sufficiently garrisoned and defended can be captured. The force of the besiegers was very large, the means at their disposal ample, and they were under no necessity to hurry their operations as there was not the slightest prospect of the place being relieved. The garrison, therefore, had no inducement for extraordinary exertion, more particularly as the only motive for the defence was a foolish point of honour. The siege lasted 24 days, and the loss of the French in killed and wounded, out of a force of 66,500 of all arms, was only 803, or 12 per 1,000.

The actual deaths probably did not exceed 210, or 8·16 per 1,060. The loss of the garrison in killed and wounded was 110 per 1,000.

There is, however, one point which it is necessary to bear in mind as to the relation between the duration of sieges and the losses they cause. The labours of the trenches are very harassing to the soldiers, and produce an increase of sickness and consequent mortality among them; these are of course diminished by shortening the operations, and, in order to arrive at correct conclusions, we must know the number of deaths from disease occurring during a siege, as well as those from casualties in action. If it be true, as some persons have supposed, that Sebastopol might have been captured by a vigorous assault at the time the Allies first appeared before it, when its formidable defences had not been begun, there is hardly any conceivable amount of loss consistent with the success of the attempt that would not have been productive of a saving of life.

The siege of this place has been included in the table on account of the great interest it naturally excites at present, although there are some points connected with it upon which further information is required. Even that we possess as to the British portion of the besieging force, which is alone included in the table, is imperfect, there being no returns to show its average strength during the siege. At page 250 I have stated the grounds upon which I estimated this at 42,000 men for the first five months. For the whole period I have taken it at 50,000 men, which is not perhaps far from the truth. On the 9th of October, 1855, it was 54,600, and on the 16th 53,500 men,* but these numbers include rank and file only, and must be considerably increased for officers and non-commissioned officers. The army at the last of the above dates had probably been reduced by the transfer to Scutari of a large number of wounded men.

Table No. IX. in the Appendix contains a complete classification of all the returns of killed and wounded from the landing of the army in the Crimea to the 8th September last, when the town of Sebastopol was evacuated by the Russians. I cannot be certain that there are no errors in this table, because I have unfortunately not been able to verify it in the manner I intended, but it has been carefully drawn up, and it agrees very nearly in its general results with a statement published some months ago in the newspapers. In this the total numbers of killed and wounded for the period named were given at 13,849, while by Table IX. they appear to have been 13,880. The method of classification adopted will be best understood by the following summary, in which the estimated mortality is founded on the numbers killed, increased for deaths among the wounded and missing, calculated upon the principles laid down in page 228.

* Although the military authorities appear to have carefully, and very properly, avoided publishing direct information as to the strength of the army, the Reports of the head of the Medical Department, inserted in the "Gazette," occasionally stated not only the numbers of deaths and admissions to the hospitals, but the exact ratios these numbers bore to the total strength, which could, of course, be ascertained from such data by a simple arithmetical process.—See "Dr. Hall's Report," dated 16th October, 1855.

Summary of the Returns of Killed and Wounded in the British Army in the Crimea from the 19th September, 1854, to 8th September, 1855.

	Staff.	Artillery, Engineer, and Train.	Cavalry.	Infantry.	All Arms.	Officers.	Non-Commissioned Officers and Rank and File.
Siege duties	1	504	....	4,060	4,565	154	4,411
Assaults......................	10	153	....	4,233	4,396	290	4,106
Total siege................	11	657	...	8,293	8,961	444	8,517
Battles	30	171	398	4,320	4,919	297	4,622
Total	41	828	398	12,613	13,880	741	13,139
Estimated deaths						223	3,973
Proportion in 100,000 — Siege duties	22	11,040	....	88,938	100·000	3,374	96,626
Proportion in 100,000 — Assaults...........	227	3,480	....	96,293	100·000	6,597	93,403
Proportion in 100,000 — Total siege....	123	7,332	....	92,545	100·000	4,955	95,045
Proportion in 100,000 — Battles	610	3,476	8,092	87,822	100·000	6,038	93,962
Proportion in 100,000 — Total	295	5,966	2,868	90,871	100·000	5,339	94,661
Proportions of estimated deaths						5·315	94·885
Estimated proportions of numbers serving						3,798	96,202

A portion of the deaths among wounded officers was ascertained from an actual return,* and the remainder estimated at $\frac{1}{12}$ of the wounded, a proportion agreeing within a small fraction with the facts shown in the return. The deaths among the wounded non-commissioned officers and rank and file are taken at $\frac{1}{4}$ of the whole, but it is greatly to be feared, from the various reports as to the state of the hospitals, that the mortality exceeded that proportion, particularly in the earlier part of the siege.

As we have no information respecting the average strength of the different classes included in the summary, the interest of the facts it contains is greatly diminished. The estimated proportions of officers and men serving are calculated according to the numbers of each class stated to have been despatched to the seat of war up to the 22nd of January, 1855 (see page 252), amounting in the whole to 56,365. In the absence of accurate returns of the average numbers serving, a comparison of these proportions with the relative casualties gives the nearest approximation we are able to make to the ratios of the latter borne by each class. So far as we are able to judge the peculiarity pointed out at page 242 as to the greater proportion of casualties sustained by the officers, has been fully experienced in the Crimea. If the estimate as to the relative strengths in officers and men be correct, the officers formed 3·798 per cent. of the whole force,

* Parliamentary Papers, 204, 1855.

but the average proportion of casualties to that class was 5·339 per cent. In the ordinary siege duties the casualties to officers were 3·374 per cent. only, being in a less proportion than their numbers; in the battles the ratio rose to 6·038 per cent., and in the assaults to 6·597 per cent. The proportion of total deaths to 1,000 casualties among officers in the Crimea was 301, a much greater number than during the period (1793—1815) included in Table II., when it was only 234. The ratios of deaths among wounded officers appear to have been exactly the same in both periods, but the proportions returned as killed vary considerably, being 164 officers killed to 836 wounded from 1793 to 1815, and 233 killed to 767 wounded in the Crimea. The proportion of killed among the men was nearly the same in both wars, being 193 to 1,000 casualties in the first, and 190 to 1,000 in the second.

The protracted resistance which the Russians were enabled from peculiar circumstances to make at Sebastopol, is supposed by many to have been the result of discoveries in military engineering, and is adduced in support of an opinion that a new system of fortification founded upon the exclusive use of earthworks has been invented, which will have the effect, in siege operations, of neutralizing the superiority of the attack hitherto so universally admitted. These views, however, are erroneous. The value and the disadvantages of earthworks in fortification were as fully appreciated before, as they have been since, the siege of Sebastopol, which has not elicited any new principles, although it has amply confirmed the soundness of the leading rules previously laid down by the best authorities in military science.

The facts relating to this siege would seem to show that the enormously increased powers with which instruments of destruction have been endowed by the improvements of modern science, tend much more to the advantage of the besiegers than of the besieged, as might indeed have been expected. We have no means of ascertaining the losses of the Russians during the siege, but from their own statements they must have been immense. The official returns of their casualties in the two assaults of the 18th June and the 8th September have been published, and are given below. The additional losses from the 17th August to the 8th September are estimated from Prince Gortschakoff's report of the capture; the proportion of the missing, already mentioned at page 228, being added to the killed and wounded.

	Total Killed and Wounded.
August 17th	1,500
,, 18th to August 22nd	1,000
,, 23rd to September 25th	4,500
Sept. 6th to ,, 8th	3,968
Estimate for Artillerymen, not included in the foregoing	300
September 8th	10,808
	22,076
June 17th and 18th	5,776
Total	27,852

By reference to Table IX., it will be seen that the English casualties during the whole siege, exclusive of the battles fought, were 8,961, which a similar addition for the missing would increase to 9,100.

There are no means of forming an estimate of the French loss, but to take it at double our own would certainly be a liberal allowance. This would make, during the 338 days which the siege lasted, a total loss to the assailants of 27,800, a number less than the casualties of the garrison during 25 days only—those days, however, being the most sanguinary of any that occurred.

The French garrison of Badajoz, consisting of 4,870 men, inflicted, at the siege of 1812, 4,824 casualties in 20 days upon their assailants, with a loss to themselves of 1,600 only including deaths from sickness. In the same year, the garrison of Burgos, 2,000 in number, repulsed their opponents with a loss of 2,064 in killed and wounded during 32 days siege, their own casualties being 639. The garrison of St. Sebastian, in 1813, was 3,200 strong, and its losses, including deaths from sickness, amounted in 21 days to 1,700, whilst those of the besiegers in killed and wounded only were 4,420.

The following general summary of the results of Tables III. and IV., shows the

Average Mortality and Casualties caused by Battles and Sieges.

			Battles.		Sieges.			
			British only.	British and Allies.	Places taken by		Unsuccessful.	All Classes.
					Capitulation.	Assault.		
Number of each class			19	15	4	5	5	15
Ratio to a strength of 1,000	Deaths		33	not ascertained	18	59	59	42
	Casualties	Mean	114	98	50	176	169	131
		Highest	395	176	108	313	272	313
		Lowest	22	23	26	30	74	26

Having now touched upon all the leading points of this most important investigation, I have to beg the indulgence of the Society for the many material defects in the information which I have laid before them; some of these defects would no doubt have been avoided, had the subject fallen into abler hands; but that not a few of them were inevitable will, I think, be admitted on a consideration of the difficulties I have enumerated.

Before, however, concluding this imperfect communication, I cannot refrain from expressing, even at the risk of being considered presumptuous, the increased admiration which in the course of the enquiry has been excited in my mind for the gallant army that has recently prevailed against so many misfortunes in the East. However earnestly we may deprecate the evils of war,—however sternly we

may refuse to be dazzled by the brightness of military glory,—it is impossible to read without enthusiasm of the unflinching courage, the unrepining endurance, and the generous devotion of those brave and noble-minded men.

The character of the English soldier at two different periods of our history has been drawn by two living historians, each well qualified to appreciate and to describe his actions. Mr. Macaulay, after dwelling on the fervent piety, the strict morality, and the rigid discipline of the Puritan warriors of the Commonwealth, celebrates their stubborn English courage, and the disdainful confidence with which they marched against the most renowned battalions in Europe. Sir William Napier thus compares his brethren in arms with their opponents in the Peninsula :—" Napoleon's troops fought in bright fields, where every helmet caught some beams of glory; but the British soldier conquered under the cold shade of aristocracy: no honours awaited his daring, no despatch gave his name to the applauses of his countrymen; his life of danger was uncheered by hope, his death unnoticed. Did his heart sink therefore? Did he not endure with surprising fortitude the sorest of ills, sustain the most terrible assaults in battle unmoved, and, with incredible energy, overthrow every opponent; at all times proving that, while no physical military qualification was wanting, the fount of honour was also full and fresh within him."

Eloquent as these eulogiums undoubtedly are, they are not more than equal to the deeds by which they were inspired; but those deeds it should be remembered were performed by men whose fortune it was to be trained to victory by either one of two out of the three greatest military chieftains whose names our modern annals record.

Amid the failures that have dimmed the lustre of our national fame, it is still a source of pride and of consolation to feel that the praises awarded by history to the veterans of Cromwell and of Wellington may be applied, not only without exaggeration, but with the strictest justice to those young and inexperienced soldiers, who lately went forth in defence of the honour and safety of their country, to face for the first time the horrors of the field of battle.

If England shall continue to produce such men, it is not presumptuous to hope that, so far as human means can avail, her glory and her prosperity may be continued to distant generations.

APPENDIX.

TABLE I.

Abstract from the Returns of the Adjutant-General, showing the Increase and Diminution of the Cavalry and Infantry of the British Army, (including Foreign and Colonial Corps,) from 1793 to 1815.

N.B.—Numbers marked (*) are from defective Returns.

Years.	Mean Strength in Non-Commissioned Officers and Rank and File.			Diminution in Non-Commissioned Officers and Bank and File.				Recruits, including Men transferred from one Corps to another.
	Serving at Home.	Serving Abroad.	Total.	Deaths.	Discharges, including Transfers to different Corps.	Desertions.	All Causes.	
1793			69,500	2,059	2,234		4,293	17,033
1794			106,100	8,596	4,229		12,825	39,563
1795			126,700	11,870	26,005		37,875	40,463
1796	No Returns		116,300	9,858	14,634	No Return	24,492	16,336
1797			111,200	5,967	7,981		13,948	16,096
1798			116,800	4,008	7,772		11,780	21,457
1799			137,300	5,071	8,734		13,805	41,316
1800	92,600	66,300	158,900	*1,542	*4,321		*5,863	17,829
1801	81,000	82,600	163,600	8,175	9,229	3,196	20,600	17,413
Totals..........			....	57,146	85,139	3,196	145,481	226,506
Annual Average			122,900	6,950	10,102	....	17,052 exclusive of A.D. 1800 and desertion	28,313
Annual Ratio to 1,000 } Mean Strength...... }			....	58·69 exclusive of A.D. 1800	85·30	....	143·99	230
1802	67,400	70,300	137,700	4,417	27,139	3,383	34,939	7,405
1803	76,800	48,800	125,600	5,208	6,458	4,404	16,070	11,253
1804	97,800	48,700	146,500	6,119	4,598	5,468	16,185	11,088
1805	103,800	67,700	171,500	6,833	4,329	7,081	18,243	33,545
1806	102,600	86,200	188,800	6,495	4,688	5,748	16,931	30,427

1807	103,800	98,400	202,200	7,935	3,878	5,728	...	27,071
1808	104,200	118,200	222,400	9,285	4,990	6,611	20,886	23,605
1809	93,300	136,000	229,300	16,343	3,323	4,901	24,567	21,095
1810	86,500	138,600	225,100	13,597	4,627	4,729	22,953	22,925
1811	73,900	154,800	228,700	13,448	3,986	5,026	22,460	22,925
1812	70,700	171,500	242,200	16,317	3,738	5,918	25,973	24,359
Totals	...	...	...	101,580	44,615	55,614	201,809	229,732
Annual Average	91,300	106,900	198,200	10,158	4,462	5,561	20,181	22,973
Annual Ratio to 1,000 Mean Strength	...	...	...	51·25	22·51	28·06	101·82	115·90
1813	65,900	185,000	250,900	*15,012	*3,621	*5,822	*24,455	14,698
1814	63,700	190,300	254,000	*12,502	*34,293	*8,857	*55,652	7,989
1815	...	...	208,700	*8,124	*29,342	*7,383	*44,849	15,279
General Totals				*35,638	*67,256	*22,062	*124,956	37,966
Estimated number of Recruits raised for Foreign and Colonial Corps				198,781	224,149	84,255	507,185	501,609
Estimated additions for defective returns				5,079	2,231	18,370	25,680	198,630
Estimated deductions for men transferred from one corps to another				203,860	226,380 10,891	102,625	532,865 10,891	700,239 10,891
Total Estimate for Cavalry and Infantry				203,860	215,489	102,625	521,974	689,348
Estimated additions for Artillery and Engineers				15,560	13,652	10,648	39,860	58,322
Estimated additions for Prisoners of War				219,420	229,141	113,273	20,000	...
Effective strength in Cavalry, Infantry, Artillery, and Engineers {On the 1st January, 1793 / On the 1st January, 1816							581,834 211,276	747,670 45,440
							793,110	793,110

APPENDIX.

TABLE I.

Abstract from the Returns of the Adjutant-General, showing the Increase and Diminution of the Cavalry and Infantry of the British Army, (including Foreign and Colonial Corps,) from 1793 to 1815.

N.B.—Numbers marked (*) are from defective Returns.

Years.	Mean Strength in Non-Commissioned Officers and Rank and File.			Diminution in Non-Commissioned Officers and Rank and File.				Recruits, including Men transferred from one Corps to another.
	Serving at Home.	Serving Abroad.	Total.	Deaths.	Discharges, including Transfers to different Corps.	Desertions.	All Causes.	
1793............			69,500	2,059	2,234		4,293	17,033
1794............			106,100	8,596	4,229		12,825	39,563
1795............			126,700	11,870	26,005		37,875	40,463
1796............	No Returns		116,300	9,858	14,634	No Return	24,492	16,336
1797............			111,200	5,967	7,981		13,948	16,096
1798............			116,800	4,008	7,772		11,780	21,457
1799............			137,300	5,071	8,734		13,805	41,316
1800............	92,600	66,300	158,900	*1,542	*4,321		*5,863	17,829
1801............	81,000	82,600	163,600	8,175	9,229	3,196	20,600	17,413
Totals......			....	57,146	85,139	3,196	145,481	226,506
Annual Average			122,900	6,950	10,102	....	17,052	28,313
Annual Ratio to 1,000 } Mean Strength........ }	....	....	....	58·69	85·30	....	143·99	230
1802............	67,400	70,300	137,700	4,417	27,139	3,383	34,939	7,405
1803............	76,800	48,800	125,600	5,208	6,458	4,404	16,070	11,253
1804............	97,800	48,700	146,500	6,119	4,598	5,468	16,185	11,088
1805............	103,800	67,700	171,500	6,833	4,329	7,081	18,243	33,545
1806............	102,600	86,200	188,800	6,495	4,688	5,748	16,931	20,677

(Annual Average Deaths, Discharges, All Causes exclusive of A.D. 1800 and desertion; Annual Ratio exclusive of A.D. 1800)

1807	103,800	98,400	202,200	7,935	3,878	5,728	17,541	34,114
1808	104,200	118,200	222,400	9,285	4,990	6,611	20,886	27,071
1809	93,300	136,000	229,300	16,343	3,323	4,901	24,567	23,605
1810	86,500	138,600	225,100	13,597	4,627	4,729	22,953	21,095
1811	73,900	154,800	228,700	13,448	3,986	5,026	22,460	22,925
1812	70,700	171,500	242,200	16,317	3,738	5,918	25,973	24,359
Totals	...	...	...	101,580	44,615	55,614	201,809	229,732
Annual Average	91,300	106,900	198,200	10,158	4,462	5,561	20,181	22,973
Annual Ratio to 1,000 Mean Strength	...	...	...	51·25	22·51	28·06	101·82	115·90
1813	65,900	185,000	250,900	*15,012	*3,621	*5,822	*24,455	14,698
1814	63,700	190,300	254,000	*12,502	*34,293	*8,857	*55,652	7,989
1815	...	...	208,700	*8,124	*29,342	*7,383	*44,849	15,279
General Totals				*35,638	*67,256	*22,062	*124,956	37,966
Estimated number of Recruits raised for Foreign and Colonial Corps				198,781	224,149	84,255	507,185	501,609
Estimated additions for defective returns				5,079	2,231	18,370	25,680	198,630
				203,860	226,380	102,625	532,865	700,239
Estimated deductions for men transferred from one corps to another				....	10,891	....	10,891	10,891
Total Estimate for Cavalry and Infantry				203,860	215,489	102,625	521,974	689,348
Estimated additions for Artillery and Engineers				15,560	13,652	10,648	39,860	58,322
Estimated additions for Prisoners of War							20,000	
Effective strength in Cavalry, Infantry, Artillery, and Engineers {On the 1st January, 1793				219,420	229,141	113,273	581,834	747,670
{On the 1st January, 1816							211,276	45,440
							793,110	793,110

<p style="text-align:center">TABLE II.</p>

Showing the Effective Strength and Casualties in Action of the Regular Army, including Cavalry, Infantry, and Artillery, (but exclusive of Militia,) in the Years 1793 to 1801, and 1803 to 1815. (Actual Period of Hostilities 20$\frac{4}{12}$ Years).

Year.	Commissioned Officers.				Non-Commissioned Officers and Rank and File.				Total Casualties, all Ranks.
	Estimated Average Effective Strength.	Killed.	Wounded.	Total Casualties.	Average Effective Strength deduced from the Returns of the Adjutant-General.	Killed.	Wounded.	Total Casualties.	
1793....	3,576	14	41	55	74,500	167	609	776	831
1794....	5,425	29	100	129	113,100	526	1,547	2,073	2,202
1795....	6,467	8	34	42	134,700	104	533	637	679
1796....	5,966	8	67	75	124,300	217	709	926	1,001
1797....	5,722	3	8	11	119,200	35	92	127	138
1798....	6,014	3	4	7	125,300	31	62	93	100
1799....	7,085	31	208	239	147,600	558	2,822	3,380	3,619
1800....	8,141	....	5	5	169,600	16	63	79	84
1801....	8,395	22	170	192	174,900	507	2,782	3,289	3,481
1802....	Peace	....	....	....	....	....	....	....	....
1803....	6,620	25	47	72	137,900	322	973	1,295	1,367
1804....	7,781	1	16	17	162,100	63	194	257	274
1805....	9,101	9	47	56	189,600	157	855	1,012	1,068
1806....	10,037	4	31	35	209,100	141	564	705	740
1807....	10,722	32	125	157	223,800	671	1,576	2,247	2,404
1808....	11,846	9	59	68	246,800	239	918	1,157	1,225
1809....	12,235	63	302	365	254,900	1,317	5,185	6,502	6,867
1810....	12,158	19	108	127	253,000	273	1,197	1,470	1,597
1811....	12,043	80	434	514	258,400	1,548	6,382	7,930	8,444
1812....	12,864	131	640	771	268,000	1,867	8,149	10,016	10,787
1813....	13,248	168	955	1,123	276,000	2,804	13,958	16,762	17,885
1814....	13,241	90	604	694	275,700	1,488	7,218	8,706	9,400
1815....	11,040	171	680	851	230,000	2,341	9,005	11,346	12,197
Total ..	....	920	4,685	5,605	....	15,392	65,393	80,785	86,390
Avrge.	9,078	....	....	....	189,200	....	....	....	....

TABLE III.
Land Battles.

Unsuccessful Actions marked thus (*).   § Numbers not ascertained.

Date.	Battles.	Nature of.	Total Strength in Officers and Men Engaged.	British. Casualties. Killed.	Wounded.	Total.	Per 1,000 Engaged.	Estimated Deaths. Total.	Per 1,000 Engaged.	British and Allies. Total Strength in Officers and Men Engaged.	Total Killed and Wounded.	Per 1,000 Engaged.
1801. March 21	Alexandria	Defensive	14,000	243	1,193	1,436	103	393	28·1	...	...	...
1806. July 4	Maida	Offensive	5,675	45	282	327	58	87	15·3	...	...	...
1808. Aug. 21	Vimièro	Do.	19,200	135	534	669	35	215	11·2	§	§	§
1809. Jan. 16	Corunna	Defensive	16,700	158	634	792	47	257	15·4	...	...	...
,, July 28	Talavera	Do.	22,100	801	3,913	4,714	213	1,455	65·8	56,000	6,268	112
1810. Sept. 27	Busaco	Do.	27,800	106	500	606	22	183	6·6	57,000	1,300	23
1811. March 5	Barosa	Offensive	5,230	202	1,040	1,242	237	360	68·8	14,500	1,610	111
,, May 5	Fuentes d'Onore	Defensive	22,900	170	1,043	1,213	53	379	16·6	35,200	1,469	42
,, ,, 16	Albuera	Do.	9,000	882	2,672	3,554	395	1,358	151·0	37,000	6,500	176
1812. July 22	Salamanca	Do.	30,500	388	2,714	3,102	102	770	25·2	54,200	4,964	92
1813. June 21	Vittoria	Offensive	42,000	501	2,807	3,308	79	890	21·2	95,800	4,829	50
,, {July 25 to Aug. 2}	Pyrenees	Defensive	30,000	559	3,693	4,252	142	1,197	39·9	65,000	6,540	101
,, Nov. 10	Nivelle	Offensive	47,600	277	1,777	2,054	43	675	14·2	90,600	2,621	29
1814. Feb. 27	Orthes	Do.	27,000	210	1,411	1,621	60	404	15·0	43,600	2,200	50
,, April 10	Toulouse	Do.	26,800	312	1,795	2,107	79	582	21·7	54,400	4,641	85
1815. Jan. 8	*New Orleans	Defensive	6,000	386	1,516	1,902	317	625	104·2	...	...	...
,, June 16	{Ligny, Quatre Bras	Defensive, Do.										
,, ,, 18	Waterloo	Do.	49,900	2,126	8,140	10,266	206	3,245	65·0	230,600	36,590	159
,, ,,	Wavre}	Do.										
1854. Sept. 20	Alma	Offensive	26,800	353	1,619	1,972	74	559	20·9	55,000	3,545	64
,, Nov. 5	Inkermann	Defensive	9,000	632	1,878	2,510	279	883	98·1	§	§	§
				8,486	39,161	47,647					83,077	
Estimated deaths among the wounded			...	4,894						...		
Estimated casualties among the missing			...	1,137	...	2,274	...	...	...	...	3,787	
Aggregate numbers			438,205	14,517		49,921	114	14,517	33·0	888,900	86,864	98

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Table IV.
Sieges.

(§) Numbers not ascertained.

Undertaken by	Place	Commenced upon	Duration in Days	Result	Besiegers Force	Killed	Wounded	Total	Per 1,000 Engaged	Est. Deaths Total	Est. Deaths Per 1,000 Engaged	Garrisons Force	Garrisons Total	Garrisons Per 1,000 Engaged
British	Louisbourg	15 July, 1758	11	Capitulation	13,100	165	364	619	40	217	17·0	2,800	§	§
,,	Havana	12 June, 1762	60	Capitulation	13,800	296	650	946	69	392	28·4	§	§	§
,,	Monte Video	28 Jan, 1807	5	Taken by assault	4,000	142	421	563	141	203	50·8	§	§	§
,,	Buenos Ayres	5 July, ,,	2	Assault repulsed	7,800	316	674	990	127	416	53·3	§	§	§
,,	Flushing	3 Aug., 1809	12	Capitulation	16,700	71	373	444	26	121	7·1	5,800	§	§
British & Allies	Badajoz (1st)	16 May, 1811	11	Assault repulsed	16,700	218	1,017	1,235	74	359	21·5	3,700	§	§
,,	Ciudad Rodrigo	8 Jan., 1812	11	Taken by assault	16,600	178	818	996	60	291	17·5	1,764	300	170
,,	Badajoz (2nd)	16 Mar, ,,	21	Taken by assault	25,800	1,035	3,789	4,824	187	1,569	60·8	4,870	*1,600	328
British & Allies	Almaraz (Forts)	19 May, ,,	1	Taken by assault	6,000	99	144	177	30	53	8·8	1,000	§	§
,,	Salamanca (Forts)	17 June, ,,	10	Capitulation	4,000	99	331	430	108	146	36·5	800	100	125
,,	Burgos	19 Sept., ,,	32	Assault repulsed	13,500	509	1,555	2,064	153	731	54·1	2,000	639	320
,,	St. Sebastian (1st)	11 July, 1813	14	Assault repulsed	11,600	204	771	975	84	312	26·9	§	§	§
,,	St. Sebastian (2nd)	24 Aug., ,,	7	Taken by assault	11,000	967	2,478	3,445	313	1,328	120·7	3,200	*1,700	581
British	Bergen-op-Zoom	8 Mar, 1814	1	Assault repulsed	3,300	174	726	900	272	276	83·6	2,700	460	170
		Average.. 144		Aggregate results..	164,200	4,407	14,101	18,508	113	6,414	39·0	§	§	§
British & Allies	Sebastopol	5 Oct., 1854	338	{British assault repulsed / French successful ....}	50,000	1,516	7,446	8,961	179	2,546	54·1	§	§	313
		Average.. 338		Aggregate results..	214,200	5,923	21,546	27,469	131	8,960	42·0	§	§	§
French	Saragossa (1st)	30 June, 1808	41	Siege abandoned	15,570	§	§	3,500	225	§	§	§	3,000	§
,,	Saragossa (2nd)	29 Dec, ,,	64	Capitulation	43,200	§	§	3,000	69	§	§	31,000	22,800	735
,,	Ciudad Rodrigo	15 June, 1810	24	Capitulation	28,100	182	1,048	1,280	44	§	§	5,300	*1,800	340
,,	Badajoz	28 Jan, 1811	41	Capitulation	17,000	§	§	1,600	94	§	§	9,000	*2,000	222
,,	Tarragona	1 June, ,,	28	Taken by assault	21,600	§	§	4,209	196	§	§	13,200	*4,000	308
,,	Tarifa	22 Dec, ,,	24	Assault repulsed	10,400	§	§	517	50	§	§	2,500	61	20
,,	Antwerp	29 Nov, 1832	24	Capitulation	66,500	108	696	803	12	§	§	4,470	491	110
		Average.. 33¾		Aggregate results..	202,270	§	§	14,869	78	§	§	§	34,142	476

* Include losses from sickness.

TABLE V.

Showing the Proportion of Deaths to Casualties among Officers only.

	Killed.	Wounded.	Died of Wounds.	Total Casualties.	Total Deaths.	Proportion of Total Deaths to 1,000 Casualties.
Drinkwater....Siege of Gibraltar	5	35	1	40	6	150·0
Stewart ....42nd Regiment....	22	97	7	119	29	244·0
79th ,, ...	11	69	4	80	15	187·5
92nd ,, ...	12	100	13	112	25	223·0
Alcock ....Auxiliary Legion	20	197.	16	217	36	166·0
Edmonds ....Talavera	32	195	13	227	45	198·0
Salamanca............	34	188	14	222	48	216·0
Vittoria................	25	167	22	192	47	245·0
Orthes	16	134	7	150	23	153·0
Waterloo	143	585	48	728	191	262·5
Crimea ....Official Return	91	241	20	332	111	334·3
Total	406	1,973	164	2,379	570	288·9

TABLE VI.

Returns showing the Proportion of Sick in the British Army in the Peninsula at the undermentioned Dates.

Date of Return.	Total Strength, including Sick.	Number of Sick.	Proportion Sick of 1,000 Total Strength.
1808.			
October 1	33,129	3,470	105
1809.			
April 22	21,597	2,038	94
May 1	24,227	2,357	97
June 25	26,995	3,246	120
July 1	35,410	4,827	136
September 25	35,018	8,827	253
October 11	33,000	7,800	236
November 14	30,000	9,000	300
1811.			
January 20	39,454	6,715	170
April 25	37,813	9,298	246
July 25	56,933	12,277	216
October 1	57,781	19,088	330
1812.			
January 8	50,994	12,255	240
,, 25	58,664	13,405	229
April 5	46,751	12,016	257
July 25	62,087	17,033	274
1813.			
January 25	65,644	17,513	267
July 25	63,868	12,698	199
1814.			
January 25	67,121	14,144	211
Average	44,500	9,300	209

TABLE VII.

Returns showing the Proportion of Sick in the French Army in Spain at the undermentioned Dates.

Date of Return.	Total Strength, including Sick.	Number of Sick.	Proportion Sick of 1,000 Total Strength.
1808.			
October 10	319,690	37,419	117
,, 25	318,934	34,558	108
November 15	335,223	45,107	135
1809.			
October 1	237,330	46,109	194
1810.			
July 15	356,729	47,743	134
August 15	353,918	46,982	133
1811.			
January 15	361,838	48,831	135
April 15	331,776	40,079	121
August 1	372,841	42,433	114
1812.			
January	325,000	42,056	129
April	291,000	34,369	118
May 15	292,000	31,227	107
1813.			
March 15	231,000	30,395	132
July 1	181,000	18,654	103
September 15	173,000	28,241	164
Average	299,000	38,870	130

TABLE VIII.

Showing the Proportion of Sickness and Mortality among the Troops employed in the Expedition to the Scheldt in the Year 1809.

Week ending	Officers.				Non-Commissioned Officers and Men.			
	Proportion to 1,000 Strength.			Proportion of Weekly Deaths to 1,000 Sick.	Proportion to 1,000 Strength.			Proportion of Weekly Deaths to 1,000 Sick.
	Of Sick.	Of Weekly Mortality.	Of Equivalent Annual Mortality.		Of Sick.	Of Weekly Mortality.	Of Equivalent Annual Mortality.	
10th Sept. 1809	No return	5·20	270	....	388	12·09	629.	31·82
17th ,, ,,	307	9·15	476	29·79	468	15·92	828	34·02
24th ,, ,,	244	3·84	199	15·70	533	17·49	910	32·78
1st Oct. ,,	230	2·64	137	11·62	565	15·72	817	27·83
8th ,, ,,	186	4·17	217	17·85	587	14·21	739	24·19
24th ,, ,,	173	None	....	....	549	9·83	571	17·92
31st ,, ,,	135	1·69	88	12·50	530	10·31	546	19·43
14th Nov. ,,	81	None	....	....	428	4·51	235	10·53
21st ,, ,,	87	Do.	....	....	155	4·54	236	29·36
28th ,, ,,	78	Do.	....	....	185	4·79	249	25·90
Average	166	3·48	181	8·75	470	12·30	640	25·38

Abstract of the Returns of Killed and Wounded of the British Army in the Crimea, 20th September, 1854, to 8th September, 1855.

	Killed							Wounded							Total Casualties	
	Staff, Off.	Art., Eng. & Train, Off.	Art. N.C.O. & R.&F.	Cavalry, Off.	Cavalry N.C.O. & R.&F.	Infantry, Off.	Infantry N.C.O. & R.&F.	Staff, Off.	Art., Eng. & Train, Off.	Art. N.C.O. & R.&F.	Cavalry, Off.	Cavalry N.C.O. & R.&F.	Infantry, Off.	Infantry N.C.O. & R.&F.	Officers	N.C.O. & R.&F.
Battles, 1854																
Sept. 20. Alma	1	3	9	..	..	23	318	7	1	21	1	..	78	1,518	114	1,866
Oct. 25. Balaklava	2	1	6	10	159	..	..	4	2	27	21	197	..	..	40	389
Nov. 5. Inkermann	5	2	16	1	4	35	569	11	4	79	..	5	85	1,694	143	2,367
Total Loss in Battles	8	6	31	11	163	58	887	22	7	127	22	202	163	3,212	297	4,622
Assaults, 1855																
June 7. Quarries	..	1	8	..	..	10	98	..	2	45	..	..	34	466	47	617
" 18. Redan	1	3	11	..	..	17	219	3	4	26	..	..	63	1,114	91	1,370
Sept. 8. The same.	..	1	8	..	..	27	348	6	5	39	..	..	113	1,724	152	2,119
Total Loss in Assaults	1	5	27	..	..	54	665	9	11	110	..	..	210	3,304	290	4,106
Ordinary Siege Operations, 1854 and 1855																
Sept. 21 to Oct. 24	..	..	11	..	..	3	41	..	1	71	..	..	12	205	16	328
Oct. 25 " Nov. 4	..	1	4	..	..	1	22	..	1	11	..	..	..	43	3	80
Nov. 6 " June 5	..	6	35	..	..	10	278	..	14	119	..	..	32	1,154	62	1,586
June 8 " " 17	..	..	12	..	..	..	39	..	3	50	..	..	8	236	11	337
" 19 " Sept. 7	..	2	29	..	..	7	263	1	10	124	..	..	42	1,664	62	2,080
Total	..	9	91	..	..	21	643	1	29	375	..	..	94	3,302	154	4,411
Total Siege	1	14	118	..	..	75	1,308	10	40	485	..	..	304	6,606	444	8,517
General Total	9	20	149	11	163	133	2,195	32	47	612	22	202	467	9,818	741	13,139

Totals by arm: Staff 41 — Artillery, Engineers, and Train 828 — Cavalry 398 — Infantry 12,613.

Killed 2,680
Killed and Wounded .. 11,200
Grand Total 13,880