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SANITARY CONTRASTS

OF THE CRIMEAN WAR.

SURGEON-GENERAL LONGMORE, C.B.

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SANITARY CONTRASTS
OF
THE CRIMEAN WAR.

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CHARLES GRIFFIN & COMPANY, LONDON.

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THE CRIMEAN WAR.

BY

SURGEON-GENERAL T. LONGMORE,

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ETC., ETC.



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THE object of the remarks which follow, is to bring to notice a special and very remarkable feature of the campaign against Russia, between the years 1854 and 1856, that, as far as I am aware, has nowhere hitherto received the amount of attention which it deserves. The particular point I have in view is the relative sanitary conditions of the allied French and British armies at corresponding dates, when they were acting side by side in the military operations before Sebastopol. I am the more desirous to place on record the true sanitary contrasts presented by the two armies, because certain references to the subject which have been introduced by Mr. Kinglake, in a recent volume of his history of "The Invasion of the Crimea," are calculated, in my opinion, to create erroneous impressions on the subject in the minds of his readers. Moreover, although the Crimean War was concluded more than a quarter of a century ago, and its events are fast receding into the distance of past history, I hope to be able to show, that while the particular points referred to are calculated to excite the interest of all sanitarians and medical practitioners, even at the present day, they especially demand study on the part of those who are engaged in military service. The whole professional history of the Crimean War, indeed, will afford a fertile source of instruction to army surgeons for all time ;

for the facts embodied in it, unexampled prior to their occurrence in that war, are likely to remain without example in the future, owing to their vastness, their completeness, and their peculiar associations with regard to the two armies concerned in them.

I may mention at once that a great mass of information was collected at the time, and remains available for investigation and study, concerning the sanitary condition of the British army during the Crimean War. In the first place, there is the admirable professional report of the war, officially prepared by the then Director-General of the Army Medical Department, Dr. Andrew Smith, and published under parliamentary sanction. In the two folio volumes which contain this Report may be found an elaborate medical history of each of the regiments of which the army was composed; an account of the principal diseases, considered separately, which prevailed in the army; a carefully classified history of the wounds and injuries inflicted during the war; and a variety of reports, meteorological tables, diagrams, and other documents illustrative of the professional aspects of the campaign. The medical and surgical history of the British army during the Crimean War remains a praiseworthy monument of industry and ability on the part of those who were concerned in its arrangement and production.

In addition to this history there are the published results of very exhaustive inquiries that were conducted while the war was in progress, as well as subsequently to its conclusion, respecting the sickness and mortality among the troops. Among these, the most valuable of all is the Report of the Royal Commissioners who were appointed in the year 1857 to inquire into the regulations affecting the sanitary condition of the army, the organisation of military hospitals, and the treatment of the sick and wounded of the army, together with the evidence on which the Report was based. This Report is a work of historical interest, for on it were founded important changes in military medical organization,

some of which are still making their influence felt in the public service. There are also very full reports by two separate bodies of Commissioners who were sent to the Crimea, while the war was in progress, to inquire into the causes of the sickness and mortality in the army; as well as several volumes of evidence collected by a Parliamentary Committee on the same subject.

The medical and surgical history of the French army during the Crimean War was compiled by the late Médecin-Principal, Dr. Chenu.* Although not of so full and searching a nature as our own history, nor so complete in its information, it still forms a most valuable record for study and reference. Dr. Chenu had to deal with very large numbers in his statistical tables of sickness and mortality—the dead alone in the French army, from wounds and disease, amounting to more than 95,000 during the campaign—and it was only by marvellous industry, method, and resolution that he succeeded in collecting the necessary facts which enabled him to classify and tabulate the information to be found in his work with the amount of precision it possesses.†

The situation of the French and British armies during the siege of Sebastopol was so similar in respect to soil and locality, the climatic influences to which they

* *Rapport au Conseil de Santé des Armées sur les résultats du service médico-chirurgical pendant la Campagne d'Orient en 1854-56.* Par T. C. Chenu, M.D., Méd.-Prin., &c. Paris, 1865.

† I had the advantage of a friendly acquaintance with Dr. Chenu, and knowing him to have been a most painstaking and earnest seeker after truth, self-denying to an extreme degree, pursuing his laborious task of collecting the materials for his great medical and statistical histories of the French campaigns in the Crimea and Italy, under an amount of difficulties and official opposition that most men must have succumbed to, and that even he could not have succeeded in overcoming had it not been for the enlightened encouragement and influential assistance of my eminent confrère and friend, Baron Larrey; knowing also Dr. Chenu's strict honesty of purpose, and the vast amount of good he was enabled through his expositions to accomplish for his country, it was with a feeling of pain that I found Mr. Kinglake could ascribe to him no better designation than that of a "distracted compiler," nor find for his works any less disparaging expressions than those which he has thought fit to apply to them in the eighth chapter of his well-known volume on the "Winter Troubles."

were exposed, and the nature of the work in which they were engaged, were so thoroughly alike, that practically the two armies might almost be regarded as parts of one and the same force. Although, however, the Allied Forces were thus similarly situated—and, indeed, formed but one continuous extended line of troops before Sebastopol during the siege—there was no similarity between them in respect to their conditions of health while they were thus acting in concert. It may be said, in general terms, that the British part of the Allied Force before Sebastopol was remarkably unhealthy during the first period of the siege, and as remarkably healthy during the second period of the siege; while a precisely opposite state of things existed in the French part of the force, which was in a generally good condition of health during the first period, but in an extremely unhealthy condition during the second period. In other words, at the period when the British troops were very unhealthy, the French troops in the same place, and at the same time, were healthy; and when the British troops were in a state of good health, the French troops in the same place, and at the same time, were in a condition of bad health. These statements I will verify presently, by the use of some of the facts statistically recorded in the British and French medical histories of the war, to which I have just now alluded.

The circumstances which led to the disastrous state of health of the British army in the Crimea at one period, and its remarkable improvement subsequently, have been fully considered in the official medical history of the war; but the relative conditions of the French troops during the corresponding periods have not been compared in it with those of the British. The materials were not then available for the contrast, for the statistical Report of Dr. Chenu was not published till seven years after the British Report. Dr. Chenu in his work has noticed the relative conditions of the British, as compared with those of the French army;

but the comparison has been almost entirely confined to the second winter, when the French were in a very deplorable condition. His chief purpose was to show that the superior sanitary condition of the British army was due to the greater influence and authority which he believed the medical officers belonging to it possessed, and on this ground to urge an alteration of the system of medical administration prevailing in the French army. He has only briefly alluded to the sickly condition of the British forces during the early months of the siege, and has neither attempted to trace it to its causes, nor to give an explanation of the different conditions of the two armies at that time. It is, however, the contrast between the two armies *for the whole time* that gives a special value to the instruction which a study of the causes of these differences is calculated to afford. When the sanitary conditions of the two national armies are compared, during both the earlier and the later portions of their service in the Crimea, a study of the condition of one army will be found to contribute to the elucidation of the causes of the opposite condition of the other. This is the problem which still, I believe, requires a good deal of elaboration, in order that a true and impartial value may be assigned to all the terms which it comprises.

I will, in the first instance, illustrate the relative amounts of sickness among the British troops during the two almost annual periods of the time the Chersonesian part of the Crimea was occupied by them. To accomplish this, I will quote the numbers of *deaths* from disease in the two periods. The occupation lasted from part of September, 1854, to June, 1856, nearly two years; and I will separate the time into two terms—viz., from September, 1854, to June, 1855, and from July, 1855, to June, 1856. The total number of deaths that occurred among the non-commissioned officers and men of the British forces throughout the whole campaign, from the time the army first went to the East, in April, 1854, to the time it quitted the

Crimea, in June, 1856, was 18,058.* This number includes those who died on the field of action, and in hospital from wounds and injuries, as well as those who died from disease. If we deduct the deaths consequent on gunshot and other injuries—viz., 1761, there remain 16,297 deaths from disease. Now of this number, 15,013 occurred after the army made its move to the Crimea in September, 1854; and of these deaths, 13,150 took place between September, 1854, and June 1855, both months included; while during the remainder of the stay in the Crimea, between July, 1855, and June, 1856, the deaths from disease only amounted to 1,863. It is to be observed that not only does this second period include the two additional months of July and August, 1855, but the average numerical strength of the troops was about two-fifths greater during the time embraced by it than during the first period, so that the diminished amount of disease among the troops is rendered all the more notable.

If, for purposes of comparison, the deaths—those from cholera as well as those from wounds being excluded, as partaking of the nature of casualties—are shown in four-monthly periods, the numbers occur as follows:—

From Sept. to Dec., 1854, inclusive,	2,373
January to April, 1855,	7,389
May to August, 1855,	923
September to December, 1855,	463
January to April, 1856,	218

It is thus shown, on comparing the mortality during the four months from September to December, 1854, with the corresponding four months in 1855, that there was a decrease in the rate of mortality during the latter period of 80·49 per cent.; while on comparing the deaths in the first four months of 1855

* For details, see table at page 209, Vol. II. of the "Medical and Surgical History of the Crimean War."

with the corresponding months of 1856, the ratio of decrease was no less than 97.05 per cent. The collective effective strength of the British army is not shown by monthly estimates in the medical history of the war, though the monthly average strength of regiments is shown; but as the effective strength was considerably greater during the latter, than it was in the first part of the war, it is evident that, if the calculation were made, the ratio of deaths to effective strength of the army in the respective periods named, would show a still more remarkable decrease than is given above.

The contrast between the earlier and later states of health of the British troops is rendered still more striking, and the observation seems, in some respects, to be fairer, by noticing the different rates of mortality during the two complete successive winter seasons of 1854-55 and of 1855-56. The winter in the Crimea may be said to have lasted from November to April, inclusive. Now the number of deaths from disease alone, all deaths from wounds being excluded, from November, 1854, to April, 1855, was 10,283; while the number in the ensuing winter, between November, 1855, and April, 1856, was 551. The average strength of the troops during the first winter, when so frightful a number of men perished from sickness, was a little over 31,000 (31,333); the average strength during the second winter, when the number of deaths was so much diminished, was above 50,000 (50,166). Had there been no reinforcements to keep up the average numerical strength, but only the troops been present who were there at the beginning of the winter, it will be seen that nearly one-third of the force would have perished from disease in the first winter; while in the corresponding months of the second winter, under like climatic conditions, not so much as one-ninetieth part of the force would have been lost. Again, the total number of deaths from disease during the whole campaign, as already mentioned, having been 16,297,

the fact is shown that, out of every 100 of this total number of deaths, 63 occurred during the first winter in the Crimea, while only 3·38 out of every 100 took place during the second winter in the Crimea.

As a further, and more particular, exposition of the very diverse sanitary conditions of the British troops during the first and second winters in the Crimea, the course of two diseases having a special bearing on personal conditions of constitution may be quoted—viz., fevers and scurvy.

The number of deaths from fevers of various types during the two winters among the British troops was 2,415. Of this total amount, 2,286 occurred during the first winter; only 129 in the larger army of the second winter. Thus, for every eighteen men who died (18·7) from fever during the six winter months of 1854–55, only one man died from the same cause during the winter months of 1855–56. From typhus fever there were 164 deaths during the first, but only sixteen during the second winter.

The deaths tabulated under *Scorbutus* and *Dysenteria scorbutica* during the two winters among the British troops were 292; 176 under *scorbutus*, and 116 under *scorbutic dysentery*. Of this combined number 291 deaths occurred during the first winter of 1854–55—175 from *scorbutus*, and 116 from *scorbutic dysentery*—while only one death from *scorbutic disease* of any form occurred during the second winter of 1855–56.

A similar contrast appears when we examine the deaths under that common attendant on armies, *diarrhœa*. Although the *diarrhœa* which prevailed in the British army in the Crimea was doubtless partly due, at certain seasons, to the influence of an epidemic choleraic state of the atmosphere,* still there can be equally no doubt that a large proportion of the winter *diarrhœa* was *atonic diarrhœa*, associated with

* I exclude cholera, of which there were two epidemics during the campaign, from this review, on account of the obscurity which still hangs about its causes, and its general independence of personal conditions of constitution and states of health. (See Appendix.)

a scorbutic taint. The characters and course of the disease sufficiently established its scorbutic nature. The losses from this disease may, therefore, be equally quoted in illustration of the relative states of health of the army during the two successive winters under consideration. The sum-total of the deaths from diarrhœa during the two winters amounted to 3,196. Of this number no less than 3,159 men died during the six months from November, 1854, to April, 1855; while only 37 died under diarrhœa during the corresponding six months in the winter of 1855-56.

Although the proportionate numbers of deaths, however, form the most tangible and obvious illustration of the extent to which serious disease prevailed at the two periods named, I feel this can hardly convey a true idea of the different sanitary states of the army in general. The fact was, as every one can testify who passed through the two winters in the Crimea, that during the first winter almost every individual officer and man in the army was debilitated by sickness; while no army could ever have been seen in a more fit state to undertake any duties, however arduous they might be, than the British army was during the second winter in the Crimea. During the winter of 1854-55, it was an exception to find any one in a sound state of constitution who had been serving with the army from the time of its first landing in the Crimea; during the winter of 1855-56 it was almost equally an exception to find a man in it suffering from disease.

Miss Nightingale, when replying to certain questions addressed to her by the Royal Commissioners, who in 1857 inquired into various matters affecting the sanitary state of the army, has remarked on the available materials afforded by the Crimean War for instruction in the following terms:—"We have much more information on the sanitary history of the Crimean campaign than we have on any other. It is a complete example—history does not afford its equal—of

an army, after a great disaster arising from neglects, having been brought into the highest state of health and efficiency. It is the whole experiment on a colossal scale. In all other examples the last step has been wanting to complete the solution of the problem. We had, in the first seven months of the Crimean campaign, a mortality among the troops at the rate of 60 per cent. per annum from disease alone—a rate of mortality which exceeds that of the great plague in the population of London. We had, during the last six months of the war, a mortality among our *sick* not much more than among our *healthy* Guards at home, and a mortality among our troops in the last five months two-thirds only of what it is among our troops at home. Is not this the most complete experiment in army hygiene? We cannot try this experiment over again for the benefit of inquiries at home, like a chemical experiment. It must be brought forward as an historical example.”

Complete as Miss Nightingale shows the lesson to be, and complete as it really is, so far as the British army is concerned, the instruction afforded by it becomes more than doubled when it is studied in relation to the opposite conditions which existed in the French army at the corresponding periods, which I will now bring to notice.

In reviewing the sanitary conditions of the French army, I will endeavour to show what they were during the same two periods of the war as I have used for the British army, and in making the comparison, I will do so, as far as practicable, with similar illustrations, and in the same order, as were employed for the British forces. I cannot follow the same arrangement precisely, as the admissions and deaths in some of the French hospitals during the first few months of the campaign, in the year 1854, have not been recorded in successive monthly periods. Dr. Chenu has associated the hospitals at Gallipoli, Nagara, Adrianople, and Varna, with the field-hospitals in the Crimea, and the

monthly returns of all these hospitals are complete from the time of the first landing in the Crimea to the time of quitting it. The monthly returns of the hospitals at and near Constantinople are complete from the beginning of 1855.

The monthly admissions and deaths in the field-hospitals of the Crimea, and in the hospitals associated with them, are classified in separate columns, under the several headings of wounds, fevers, typhus, cholera, scurvy, frostbite, and various diseases. Excluding the deaths from casual wounds and from cholera, the following are the numbers of deaths from the other causes above-named, when added together in successive four-monthly periods :—

From Sept. to Dec., 1854 inclusive,	984
January to April, 1855,	1,828
May to August, 1855,	4,641
September to December, 1855,	3,234
January to April, 1856,	8,959*

The admissions and deaths which occurred in the French hospitals on the Bosphorus, are not classified under the diseases by which they were caused; they are only shown numerically.† The following were the deaths during the several four-monthly periods before-named :—

From Sept. to Dec., 1854 inclusive,	873
January to April, 1855,	5,838
May to August, 1855,	5,904
September to December, 1855,	5,239
January to April, 1856,	8,170

If the deaths just noted be added to those enumerated in the Crimean hospital group, the following propor-

* See for details, statistical tables, pp. 564 and 565, *Campagne d'Orient*, Chenu. There are two errors in the additions in this table as printed; 13,563 deaths under *Fiévreux* should be 13,383; and 647 under *Scorbutiques* should be 645. The mistakes, however, may be in printing some of the separate monthly numbers.

† Chenu, *Op. cit.*, see tables, pp. 545-561.

tions of deaths to effective army strength, during the successive four-monthly periods, may be deduced :—

Average Effective Strength of French Army.	Four-Monthly Period from		Deaths.	Ratio per 1,000.
49,150	1854	Sept. to Dec.	1,857	37·78
88,250	1855	Jan. to April.	7,666	86·867
115,750	1855	May to August.	10,545	91·20
137,750	1855	Sept. to Dec.	8,473	61·51
125,250	1856	Jan. to April.	17,129	136·758

From the foregoing table it is rendered apparent, on comparing the four months from September to December, 1854, with the corresponding four months in 1855—the ratio of mortality in the first period being 37·78, and in the second 61·51 per thousand—that the ratio of increase in the latter amounted to 62·80 per cent. ; while on comparing the first four months of 1855 with the corresponding months of 1856, the ratios of mortality being respectively 86·867 and 136·758 per thousand, the ratio of increase in the latter period was 57·43 per cent. The four months from May to August, 1855, are not comparable with similar months in the following year, as in May and June the French troops were leaving the Crimea to return to France, and early in July the Crimea was completely evacuated by them.

The deaths above accounted for do not include deaths which occurred on board ship on passage from the Crimea to the Bosphorus or France, nor deaths which occurred without entrance into hospital.* During the

* Dr. Chenu has summed up the total losses of the French army arising from the war against Russia, in killed, died, and disappeared, at 95,307. He thus distributes this loss :—Deaths from cholera and other diseases before the landing in the Crimea (20th September, 1854), 8084 ; deaths in the Crimean field and reserve hospitals, 29,095 ; in hospitals at Constantinople, 27,281 ; killed by the enemy or disappeared, 10,240 ; deaths without entry

second winter of 1855-56, the sick accumulated so rapidly, and in such numbers, in the Crimean ambulances and hospitals, that from want of sufficient hospital accommodation, it was impossible for a large number who required admission into these hospitals to obtain it. They were, in consequence, sent away hurriedly to the hospitals at Constantinople for treatment, too often without regard to their fitness for removal. Many of these unfortunate soldiers died on the voyage, while others died shortly after their arrival at the hospitals. Dr. Chenu mentions that 3,500 men

into hospital, 4,342; loss of the *Sémillante*, troops on passage, 394; deaths in infirmaries on board ship, 846; deaths in France after evacuation of the hospitals in the East, up to 31st December, 1857, 15,025; total 95,307. *Campagne d'Orient en 1854-56*, par T. C. Chenu, Paris, 1865, p. 579.

Mr. Kinglake creates, by his writings, what I cannot but call very unfair impressions regarding the statistics published by Dr. Chenu, and sometimes actually refutes his own statements about them, while trying to explain to his readers the little value of the French figures. Dr. Chenu, for example, has stated that the total number of admissions for wounds and sickness in the field and stationary hospitals (*Entrés aux ambulances ou hôpitaux*) during the campaign amounted to 436,144; but that this sum does not represent the number of men wounded or sick (*blessés ou malades*), who did not exceed a total of 225,000. This difference is due to the fact that many individuals were admitted into several hospitals in succession for the same illness; while other men were admitted more than once at different periods of the war, for two or more distinct wounds or separate attacks of disease. The statement, however, calls forth the following remarks from Mr. Kinglake in his endeavours to show the faults of Chenu's statistics:—"Besides, the distracted compiler has ascribed to the very materials which he himself gives as official, an error on so huge a scale as to make them—even where unimpeached—seem almost too fragile for use;" appending, in illustration, "*The Rapport*, p. 579, states that the admissions into hospitals or ambulances during the war were 436,144, but the compiler adds an assurance that the real number of wounded and sick did not exceed 225,000, thus quietly ascribing to the Report an error of 211,144!" In reality, Dr. Chenu nowhere ascribes to the Report any error of the kind, and it is simply amazing that Mr. Kinglake should assert that he had done so; Dr. Chenu only states two distinct facts, both of which are perfectly reconcilable one with the other. Every one versed in hospital statistics knows that the number of admissions, or entrances, into hospital in the course of a given period is one thing, the number of patients admitted another thing; and that, in military hospitals, the former may largely exceed the number of men of which a stated force is composed, while the latter, of course, cannot exceed it. What makes Mr. Kinglake's slighting observations on Dr. Chenu's statement the more strange, is that he himself, by his own showing, was aware of the difference between "numbers of admissions" and "numbers of men admitted;" for elsewhere, on page 180 of the same volume, the following sentence occurs from his pen: "To people unversed in the medical statistics of armies, a statement showing *admissions* largely in excess of strength is apt to be startling, but may nevertheless be accurate: every ailment that puts a soldier 'off duty' for the moment shows itself in the form of an hospital admission."

suffering from typhus were thus sent from the Crimea, and that being mingled on board ship with patients suffering from other diseases, they propagated the typhus among them, as they did also among the patients in the hospitals, already overcrowded, at Constantinople.

The different conditions of bodily health which prevailed in the French army during the first and second winters of the Crimean residence (November, 1854, to April, 1855, and November, 1855, to April, 1856) are rendered very apparent by observing the course of this disease, typhus, and also of that of scurvy, to both of which I referred when illustrating the state of the British troops during the first and second winters in the Crimea.*

As regards scorbutus there was comparatively little in the French army during the first winter, from November, 1854, to April, 1855. The number of deaths from scorbutic disease in all the French hospitals together at that time was 145; but in the second winter, during the corresponding months, the number of deaths of scorbutics in them rose to 964. The average numerical strength of the French troops during the first winter is given by Chenu as 79,000, during the second winter as 131,500; so that while the strength was augmented by three-fifths, the deaths from scurvy increased more than six and a half times in the latter period.

The most terrible illustration of the decline of health in the French army during the second winter is afforded, however, by the increased prevalence of typhus fever. The deaths from this disease during the six months of the first winter were altogether only 90 in number; during the six months of the second winter they amounted to 10,278 deaths. Thus the number of the troops being increased three-fifths, the number carried off by typhus in the second winter was 114

* The figures will be found in a table at page 94 of Chenu's *Campagne d'Italie*, Tome 1, Paris, 1869.

times as many as succumbed to this disease during the former winter.

The gravity of the disease, and the diminished powers of resistance of the French troops, are further shown by the relative numbers of the deaths to the numbers attacked during the two winter seasons. During the first winter, the 90 deaths occurred among 645 patients admitted to hospital under "typhus," so that the deaths were a little under 14 per cent. of those attacked; in the second winter, 19,303 men were admitted into hospital with typhus, and the number of deaths being 10,278, it follows that the proportion of deaths to admissions was over 53 per cent. The virulence acquired by the disease among the French troops is further shown by the fact, that many of the medical officers of the French army became infected, and that no less than 58 of the French surgeons died from it.*

The statistics I have brought to notice show, that while the deaths from disease among the British troops *decreased* 80·49 per cent. in the four months of September to December, 1855, by comparison with the deaths in the same months of 1854, and 97·05 per cent. in the four months of January to April, 1856, by comparison with the same months of 1855; the deaths among the French troops, on the other hand, underwent respectively an *increase* of 62·80 per cent., and 57·43 per cent., at the corresponding four-monthly periods. They also show, as regards particular diseases, that while the number of deaths from scorbutus in the British army, which were 175 in number during the first winter, became contracted to one single death in the second winter; those among the French became expanded at the same periods from 145 to 964; and further, that while the 2,286 deaths from fevers of all kinds among the British in the first winter, were reduced to 129 in the second, and those

* The mean strength of the medical officers with the French army during the Crimean War was 450. Of these 82, or 22 per cent., died, and of this number 58, or 12·88 per cent., succumbed to typhus.

under typhus from 164 to 16; the 90 deaths from typhus among the French troops in the first winter, became multiplied to the dreadful number of 10,278 deaths during the second winter. The health conditions were thus completely reversed in the two armies. And it must not be forgotten that these remarkable differences occurred notwithstanding the fact that the circumstances of the two armies remained alike as regards position and conditions of climate. It may truly be said, indeed, when the contrasts, thus afforded by two armies placed side by side in close connection during two successive winters are considered, that such an opportunity of studying the causes of disease and mortality in an army, on the one hand, and the means by which a state of good health can be secured in an army, on the other hand, is not likely ever to occur again.

The following four subjects of inquiry naturally arise out of the statistical facts I have advanced.

Regarding each army separately, we have the following questions—

(A.) As the British force suffered so severely from fatal sickness during the first winter in the Crimea, what led to its remarkably healthy condition in the same situation during the second winter?

(B.) As the French force had no more than an ordinary amount of sickness for active service during the first winter, what led to the extraordinary rates of sickness and mortality in it during the second winter?

Regarding the two armies unitedly, we have the following questions—

(C.) As the French part of the Allied Force maintained an ordinary state of health for an army in the field during the first winter, what causes led to the extraordinary rates of sickness and mortality in the British part of the force during this same period?

(D.) As the British part of the force was in a conspicuously healthy condition during the second winter in the Crimea, what caused the extraordinary sickness

and mortality in the French part of the force during the same winter?

The first two questions have been replied to in the respective official histories of the war, though not, particularly as regards the French, in a complete way. Satisfactory answers to the last two questions can only be given after a complete and accurate analysis of the causes of the different conditions of health described, and to accomplish an analysis of such a full description is beyond the purpose of this essay. I will, however, in a cursory manner, glance at some points connected with the subject.

The root of the evils which led to the lamentable condition of the British troops in the hospitals, no less than in the camps, during the first part of the war, was undoubtedly the neglect of the old maxim, to be prepared for war in time of peace. This neglect existed in all departments of the army—in none more so than in the Medical Department. Nothing was ready for a state of war. Individuals were not blamable for this. Successive governments—the system of military arrangements—the country at large—were as blamable as individuals. The lessons in hospital administration which had been gained at great cost of money and life during the campaigns in the early part of the century had been cast aside. Had the recorded experience and recommendations of army surgeons* who had served during the Peninsular Wars been acted upon, there would have been an organised army hospital corps, suitable field-hospital establishments, suitable field-hospital transport, suitable field equipment, adequate in amount and ready at call for service; but there were none of these when the campaign commenced. Repeated experiments were made in some of these matters after the war had begun, but generally ended in so many failures. It was only after the conclusion of the war—and some years after, too—

* Consult, on this topic, Dr. Millingen's *Army Medical Officer's Manual upon Active Service*, &c., Lond. 1819.

that the improvements in army medical organisation, and in the plans and arrangements of the field-hospital establishments, were successively effected, which have since been embodied in the authorised codes of army medical regulations.

The particular causes of the excessive sickness among the British troops during the first winter may be sufficiently gathered from the evidence collected at the time of the war. A considerable proportion of the troops had been weakened by their previous stay in the notoriously unhealthy valleys of Bulgaria, where malarial influences were rife, and cholera and choleraic diarrhœa had prevailed. To casual observation no more stalwart troops, no finer bodies of men, could have been seen than the men forming the regiments of the British army as they marched successively over the undulating steppes of the Crimea from the place of landing to the position of the Alma; yet that they had lost in Bulgaria much of their power of resistance against disease has been shown conclusively by Dr. Aitken in his careful analysis of "the effects of the twelve weeks' residence in Bulgaria on the subsequent health of the troops in the Crimea."* After the landing followed the bivouacking without tents or cover, every one lying and sleeping on the damp ground, and subsequently the hardships, privations, and sufferings of the winter siege—the exposure to cold, and the loss of rest, in the trenches and on picquet duty at night; the ill-suited clothing, the tight coatee and closely-fitting trousers of that time; the want of fuel; the want of means of personal cleanliness; the excessive overwork, increased, as the numbers lessened, among those who remained; the want of adequate nutriment, all hygienic rules outraged in respect to sufficiency, quality, variety, and cooking of the food—the rations consisting almost exclusively, for a con-

* Read June the 9th, 1857, at a meeting of the Royal Medical and Chirurgical Society of London, and published in Vol. XL. of the *Medico-Chirurgical Transactions*.

siderable time, of salt meat and biscuit without vegetables. Under such conditions, can it be wondered that scurvy, fevers, and bowel disorders were prevalent, and that the ability of the men to resist the depressing agencies around them became almost wholly exhausted? The elements, too, seemed to combine with the other evil influences in adding to the misery of the overworked troops; for the hurricane which occurred in the middle of November, sweeping away for the time such shelter as had been then got, inundating the ground with moisture, together with the bitter cold which accompanied the storm, aggravated the sufferings of all ranks; while the loss of the large vessel, the "Prince," with the stores of woollen under-clothing contained in it, constituted quite a calamity at the time. But these were relatively mere passing incidents in the great catastrophe—increasing the sufferings of the troops for the time, but having little part in producing the general morbid infection of the army. This was due to the two great factors I have adverted to—the want of preparedness on the one hand, the neglect of even the elementary teachings of sanitary science on the other.*

It was the fashion among many persons to blame the climate of the Crimea for everything that went wrong in our army during the first winter; indeed, at one time it was almost rebellion to suggest any other

* Mr. Kinglake, in his sixth volume, avoiding uglier designations that might grate upon the ears of his readers, applies the euphemism of "Winter Troubles" to the ghastly sacrifice of lives and inexpressible suffering among the troops, the mere recollection of which still causes a shudder to those who were familiar with the tragic scenes that took place day after day, and night after night, in that part of the army which was encamped in the front before Sebastopol, in the winter of 1854-55. History in the future will hardly sanction such a term as representative of the events of that period. Those who wish to obtain a more exact notion of what British troops underwent at that time than such an expression would convey, will do well to consult some of the mass of available testimony on the subject, and especially the Right Hon. Sir John M'Neill's second edition of Colonel Tulloch's Report (London, Harrison & Co., 1880), before accepting Mr. Kinglake's conclusion that the avertible sufferings of the troops were all traceable to the "omission on the part of the Treasury to send a proper supply of forage from England" (Kinglake's *Invasion of the Crimea*, Vol. VI., "The Winter Troubles," p. 377).

source of the disastrous condition of the British army. But that there was no justice in the accusation is apparent enough on reflection. In the same climate, during the same winter, the French army maintained a fair average standard of good health, while the British army by its side was crumbling away under the pressure of overwhelming disease. In the same climate in the following winter, with all its alleged extraordinary rigours, the British army was healthier than it had ever been, even in its own climate at home. Many French officers attributed the collapse of their army during the second winter to its extraordinary severity, but on no better foundation than the accusation made by certain British officers against the climate of the first winter.

Next comes the question, how was it that the French army was in so much better health than the British during the first winter? In the first place, there was not the absence of preparedness that there was in our own army: the French started with the necessary equipment for service in the field; officers and men were familiar with the use of it, and duly estimated its importance. They had their *tentes d'abri*, or shelter tents, with them at the time our officers and men lay on the ground without any protection; and after the battle of the Alma they were able to assist us by the loan of ambulance waggons for the carriage of our wounded to the shore for removal to Scutari, when we were without a single ambulance waggon for the purpose. The French troops were supplied early in the winter with loose and easy fur overcoats (middle of November, Chenu), they had their bakeries, and French soldiers might constantly be seen in the English camps selling loaves of fresh bread to the English soldiers, or exchanging them for the ration biscuit, which they (the French) pounded up and used for thickening soup. They knew the value of soup, and they knew how to make it palatable and nutritious. Their transport animals were looked after by men who had been trained

to take proper care of them. From time to time they took down our sick to Balaklava—sometimes in very large numbers together—on well-trained and well-cared for mules, conducted by men of the *corps d'infirmiers*, who well understood the duty.

The French soldiers were acquainted with many practical matters of importance in economising health, such, for example, as the value of certain wild plants for use as salad with their rations, with which our men were unfamiliar, or which they failed to appreciate. Probably their service in Algeria had made many of them acquainted with such matters; but the general training of the French soldier in his own country had a closer connection with the needs and circumstances of warfare, than that of the British soldier had at that time. The French were sadly neglectful of some important hygienic matters, especially of the conservancy of their camps. Had they not been so their standard of health would have, no doubt, been considerably higher than it was; but in many practical matters bearing on a knowledge of what is necessary for the preservation of health in campaigning, they were greatly in advance of our own men. The possession of a well-organised and sufficient transport for ensuring regularity in the conveyance of supplies to the camps from the port of arrival, and knowing how to keep that transport, both vehicles and animals, in an efficient condition throughout the winter, seemed to be the foundation of the relative efficiency of the French army while the British army was melting away by its side; for it enabled the troops to have the requisite food, clothing, and warmth for maintaining a fair average standard of health among them with regularity, and prevented the hospital establishments—which were well organised, so far as surgical attendance, equipment, and nursing were concerned—from being taxed by demands beyond what they were quite adequate to meet.

There is little difficulty in accounting for the remarkably improved condition of the British army after

the great losses of the first winter. As soon as their nature and extent became realised in England, extraordinary efforts were made, in Parliament and in the country, to retrieve as far as possible the disasters that had occurred, and to obviate their recurrence. Supplies of various kinds of food were sent to the army, not merely in abundance, but in profusion. It was the same with clothing. Roads, too, were made, and transport provided, to an extent that defied all chances of interruption in the carriage of supplies to every part of the army for the future. Fresh hospitals were provided, no overcrowding permitted, and hospital equipment and comforts of all kinds furnished without stint. The old hospitals, which from their overcrowded and defective conditions had themselves become foci of virulent disease, were converted into what they were intended to be, places for recovery from sickness and restoration to health. The troops in the Crimea were housed in wooden huts sent from England, so that the camps on the plateau became converted into wooden towns, while all the necessaries for protection against the cold of the climate were supplied in abundance. The conservancy of the camps and all sanitary requirements were systematically and rigidly attended to. Under such conditions the transformation from the state of abject sickness to one of robust health, and the fact of the hospitals becoming all but tenantless, may be readily comprehended.

I may, however, just make the observation that there were many problems of practical army hygiene that were not solved by these measures. The circumstances of armies require that the means taken to preserve the health of the troops shall be consistent with moderation in cost, with economical administration, and that they shall also harmonise with the ordinary functions of an army in campaigning, especially with its fitness for ready and rapid locomotion. If the British army had had to leave its position before Sebastopol—if it had had to make even a single day's

march, it must, of course, have left the huts behind, and with them most of the comforts that had accumulated about them. Such an extravagant outlay as the nation submitted to on this occasion, could only take place as an isolated occurrence. The means necessary for maintaining the health of an army in the field, without interfering with its essential military qualities—the most appropriate kinds of food, clothing, protection, and the perfection of all other matters included in army sanitary administration—have been the subjects of continued study since the time of the Crimean War, and very much indeed has been done in effecting improvements in all these respects.

Dr. Chenu, in his medical and statistical history of the Crimean War, when contrasting the healthy condition of the British army with the unhealthy condition of the French army during the second winter, attributes the former to the influence and authority of the British Army Medical Department. He is quite in error in this respect. It was not to the organisation or power of the Army Medical Department that the abundant supplies of all kinds which reached the Crimea in 1855 were due; they were due to the generous impulse of the whole nation, from the highest to the lowest, and to the determination that nothing should be left undone to restore the well-being and efficiency of the army. Had the representations and appeals of army medical officers been of the avail Dr. Chenu has attributed to them, a great part of the sufferings and losses of the first winter would never have taken place. The sanitary influence and authority which Dr. Chenu supposed the army medical officers to possess in the time of the Crimean War, were only entrusted to them after the prolonged inquiries which followed the war had been completed.

I have mentioned some of the causes which prevented the French army from suffering as ours did during the first Crimean winter. There is still the question, why the French army suffered so terribly

during the second winter when ours was in the enjoyment of such a signally good state of health? The causes have been very fully demonstrated by the successive Inspectors-General who presided over the French sanitary service in the East—Lévy, Baudens, and Scrive—and their Reports will well repay careful study. In February, 1856, M. Scrive, who was at that time the chief medical officer with the army in the Crimea, summed up the causes of the disease which was then destroying the French army under six heads, as follows:—

1. The extraordinary rigour of the winter without sufficient shelter.

2. The excessive work of the troops, and insufficiency of sleep.

3. Infection of the camps.

4. The coarseness of the food rations, not varied, without fresh vegetables, often inferior in quality, and at times insufficient in quantity.

5. The decay of the strongest constitutions among the old soldiers owing to the war being prolonged without intermission.

6. The feebleness of the new contingents, and the thousand physical and moral influences which act on young soldiers.

The French army was still under canvas. The troops had extended their military position, had increased the length of their roads very greatly, and had thus considerably prolonged their distance from the port from which they drew their supplies. The labours of men and animals, and the difficulties of transport, became proportionably aggravated. Thus the French in the second winter had got into circumstances very similar to those of the English in the first winter, while there was neither the enthusiasm on the part of the French nation, nor the pecuniary means which had been called forth on the British side, to effect a similarly favourable change in the sanitary condition of the French troops.

Without attempting to describe all the agencies—and they were very numerous—which brought the French army to the low ebb to which it became reduced, any one who will carefully note how its sickness rose and grew until it culminated in the disasters of the second winter, and who will, at the same time, study the correspondence of the French inspecting medical officers, must become convinced that neglect of the advice of those who were competent to advise on the means necessary for preserving the health of the troops, and the authority of the intendants who were quite incompetent to give directions on hygienic matters, led to the development of the scurvy and typhus which broke out among the French troops, to the constant increase in virulence of these diseases, and at last to their diffusion in such overwhelming proportions, that all available resources were powerless to cope with them. The efficiency of the army became compromised to such an extent as to render it manifestly desirable that the campaign should not be prolonged. There can be little doubt that the deteriorated condition of the bulk of the French army in health and power of physical endurance, acted as a powerful motive with the French Government in its readiness to accede to the arrangements for the cessation of hostilities. The neglect of the sanitary department of the military service, and the subordinate position assigned to it, recoiled on the heads of the Government and the people who had sanctioned them, by leading to a frightful amount of sickness and expenditure of life in the ranks of the army, and ultimately to the forced abandonment of part of the enterprise the army was designed to accomplish.

In putting forward this retrospect, I have not attempted to enumerate, much less to analyse and discuss, the whole of the circumstances which concurred in producing the collapsed condition of the British troops in the first winter, or the catastrophe among the French troops in the second winter, of the

Crimean campaign. This is a task which may well be undertaken by some one in the future. The materials for the accomplishment of the task exist, but they are buried in a number of folio volumes and reports, and patient research will be required to accomplish the task with completeness and impartiality. I have not aimed at doing much more than tracing an outline of the events themselves. It is well that the practical lessons in Sanitary Science afforded by the events of the Crimean War should not be allowed to pass out of mind, and that all who are engaged in military service, especially those who have grown up since the events occurred, should be shown through the terribly impressive illustrations contained in it, in what vast numbers, and how comparatively quickly, even men in the prime of life and starting in full health, may wither and die in campaigning, if the rules of that science be neglected. The special object I had in view, however, was to show that the sanitary history of the Crimean War, so far as the French and British forces were concerned, can be best studied, not so much by perusing the published records of either one or the other army, as by examining and comparing the records of both together. The sanitary history of the one will be found to act as a foil to that of the other, and the study of both, side by side, will enable the inquirer to arrive at safer conclusions; for the combined study will prevent him from making false estimates of the influence of particular causes—an error he is not unlikely to fall into if he studies either history alone.

APPENDIX.

THE OUTBREAKS OF CHOLERA IN THE FRENCH AND BRITISH
ARMIES DURING THE CRIMEAN WAR.

THE British and French armies both suffered from two epidemics of cholera during the Crimean War. The first epidemic in the British army broke out in June, 1854, increased in virulence for three months, then slowly declined until February, 1855, when it disappeared. The following month marked a clear interval between the two epidemics, for not a single case of the disease was recorded in the British army in March, 1855. The second outbreak began in April, 1855, and culminated in June. From this date it declined gradually, though irregularly, as it had done in the former epidemic. In April only 7 cases occurred; in May 426 cases were admitted into the hospitals; in June, 1,128; in July, 297; in August, 447; and in September the number of admissions for cholera fell to 63. October showed a slight increase—viz., 83 admissions. The disease continued to decline in November, so far as the army in the Crimea was concerned; but an outbreak in an epidemic form occurred among the troops at Scutari, and raised the admissions in the army at large to 184. From this date it steadily subsided everywhere, only 43 cases occurring among the whole of the British forces in December, 7 in January, 1856, 3 in February, and at last only 1 in March, 1856. The total number of cases of cholera admitted into the hospitals during the two epidemics amounted to 7,575, the total number of deaths to 4,513.

In the French army the first case of cholera appeared in the month of June, 1854, the same month in which it broke out in the British army. Their first epidemic also subsided about the same time—in March and April, 1855. The disease then broke out with fresh vigour, prevailed in a severe form during the period from May to August, 1855, then declined, and toward the close of the year disappeared altogether. The terribly fatal explosion of cholera which

overwhelmed the French expeditionary force, which was detached from Varna to the Dobrutcha at the end of July, 1854, might almost be regarded as a special visitation, irrespective of the epidemic disease which was then prevailing in the army at large. The French surgeons generally maintained that the cholera was imported into the East with the troops which came from the South of France, where it was prevailing in an epidemic form at the time. The disease made its first appearance among the troops that had landed in the Piræus, then appeared at Gallipoli, and afterwards in Bulgaria and the Crimea.

That the cholera acted independently, in a great degree, of the causes which developed other diseases—the diseases engendered by the privations, exposures, and unhygienic conditions to which the British troops were exposed during the first part of the campaign—was made manifest by the manner and periods of its occurrence. It prevailed during the time of plenty as well as during the time of scarcity, at opposite seasons of the year, and pursued its course quite irrespectively of the presence or absence of other diseases. But its independence of the special deteriorating influences of the campaign on the general health of the troops was rendered particularly apparent by the fact that the men who were the most exposed, or had been longest subjected to the trying circumstances of the campaign, were not those who suffered most from the cholera. The prevailing epidemics of cholera, no doubt, excited a generally depressing effect on the constitutions of every one who was exposed to their influence, and so led to the labours and exposures of the campaign producing more pernicious results than they would have done if no such choleraic conditions had existed. But in both epidemics the disposition of the disease to attack healthy men who had recently arrived in the Crimea, rather than those who had been longest exposed to the fatigues of the campaign, was one of its marked features. In the medical history of the war it is stated that it was only necessary to ascertain the regiments which had recently arrived in the Crimea, or those which had lately received large reinforcements, to be informed of the quarters in which the disease most largely prevailed. Sir A. D. Home, who was surgeon of the 13th Light Dragoons during the Crimean War, has illustrated this statement in a very striking manner in his professional reports of the health of that regiment for the year 1855. "Spasmodic cholera," he wrote, "which had for some weeks been prevalent in the

neighbourhood, made its appearance in the regiment when it was encamped at Kadikoi; this appearance of the disease coincided with the arrival of drafts of young soldiers from England, and it was among them that the disease chiefly showed itself during the three months of June, July, and August." He adds, "The greater number of cases occurred in August; unfortunately, during the unhealthy period several drafts of men arrived, and the disease was, as it were, *fed* by them. The old soldiers who had been in the country since the landing of the army were rarely attacked, and, when attacked, the disease in them was much more manageable." This regiment left England early in May, 1854, and served in the Crimea from the beginning of the war, but, being a cavalry regiment, was not engaged in the labours of the trenches, and at the time referred to was comparatively free from all undue exposure or fatigue. I mention these facts to show that it is very necessary to eliminate this disease of cholera from any inquiry that may be instituted into the relative states of health of the French and British armies at corresponding periods during the Crimean campaign. The history of the two epidemics of cholera among the British troops, and the extent to which the disease prevailed in different divisions and regiments of the army, are recorded at considerable length in the *Medical History of the War in the Crimea*, Vol. II., pp. 45-87.

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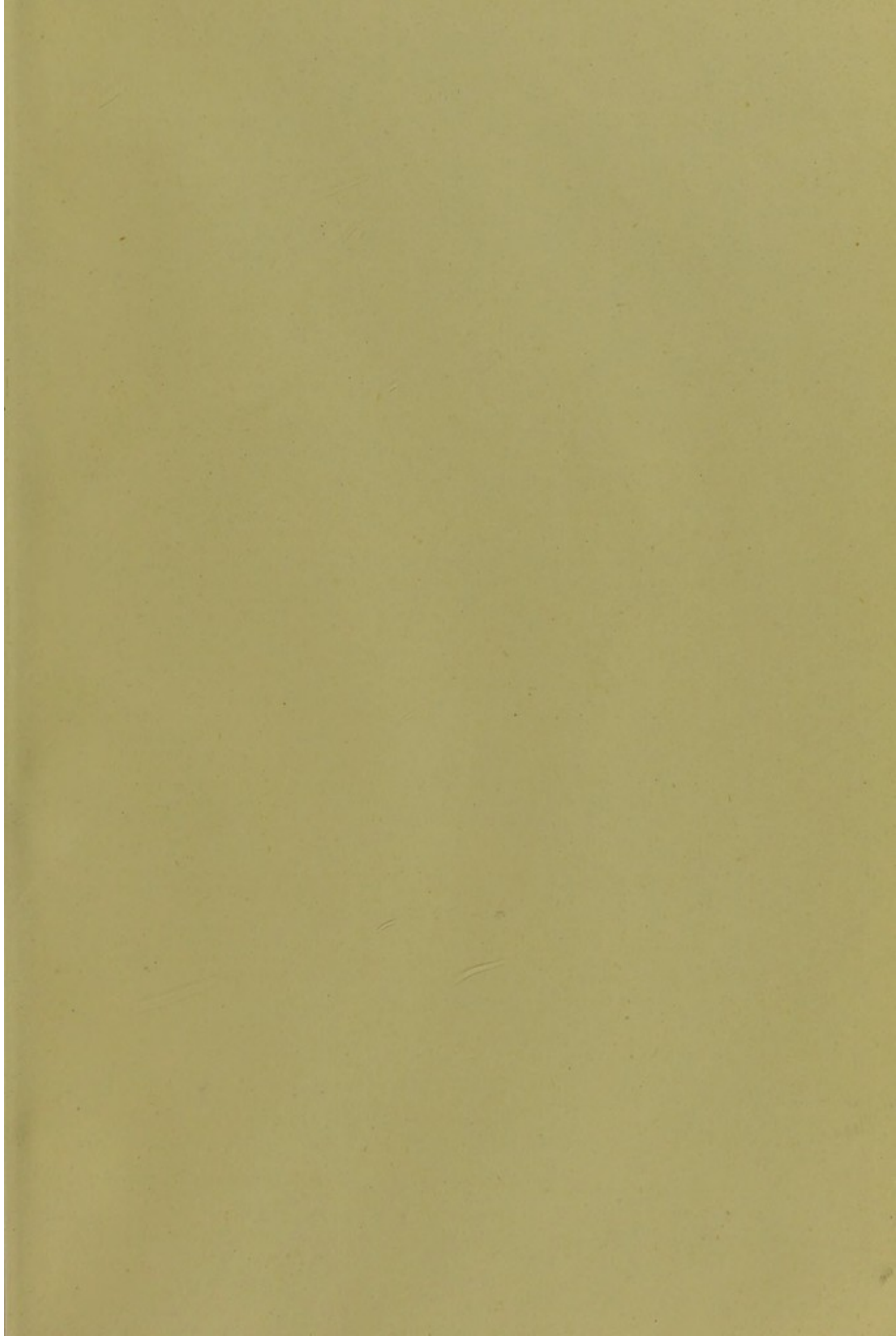
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