Fetid irrigation. Observations on the numerical statements published in a pamphlet, entitled 'Foul burn agitation', with a vindication of the numerical facts relating to the military at Piershill. As published in the papers of the Commissioners of Police.

FETID IRRIGATION.

OBSERVATIONS

ON THE

NUMERICAL STATEMENTS PUBLISHED IN A PAMPHLET, ENTITLED

"FOUL BURN AGITATION,"

WITH A

VINDICATION

OF THE

NUMERICAL FACTS RELATING TO THE MILITARY AT PIERSHILL, AS PUBLISHED IN THE PAPERS OF THE COMMISSIONERS OF POLICE.

"——— perchance, you wonder at this show ;
But wonder on, till truth make all things plain."

Shakspeare.

EDINBURGH :
THORNTON & COLLIE, 19 ST. DAVID STREET.

1840.

OBSERVATIONS.

WITHIN these few days an anonymous pamphlet, entitled, "Foul Burn Agitation," has been published, in defence of the Irrigated Marshes near Edinburgh. It purports also to be a Refutation of the statistical facts, medical opinions, and other information connected with that subject, published under the authority of the Commissioners of Police for the City, in October last. Of the character of the pamphlet in question, and of the animus of the parties from whom it emanates, all will be able to form a correct opinion who take the trouble to peruse it. As there is little to be dreaded from the force of the arguments which the pamphlet contains, and as the abuse with which it is interlarded is of that kind which bears with more force against the quarters whence it emanates than those against which it is directed, both may be safely suffered to produce their respective influence without notice or reply.

In the pamphlet in question, however, certain numerical statements are made, with a degree of confidence proportioned to the difficulty which their author is aware attends their refutation; and as it is possible, in the present state of public feeling on the nuisance in question, that these may produce an erroneous impression, an exposition of their true character is required. As the information requisite for the exposition and correction of these statements is not immediately within the reach of the general public, we have taken the trouble to throw together a few remarks in reference to some of these assertions, and particularly to vindicate the statistical facts relating to Piershill, supplied by Professor Simpson in his Letter to the

Commissioners of Police. We may here observe, that we undertake this with the more confidence, as Dr Simpson will not likely condescend to notice either the statements, or expose the subterfuges, of the anonymous pamphleteer. Besides, it must be evident to every one, from the tone in which the part of the pamphlet referring to that gentleman is written, that whatever may be his inclination otherwise, he is utterly precluded from noticing it at all, at least, in the form of a reply.

The writer of the present remarks begs it to be understood that he has undertaken this on his own responsibility, and that Dr Simpson knows nothing about it, beyond the mere fact that it is in contemplation, and is therefore not answerable for any thing that it may contain. He also trusts that, whatever may be the effect of the Observations he is about to offer on this subject in other respects, he will not be led so far astray as to forget, like the author of the pamphlet, the ordinary courtesies which regulate controversial disputes.

The facts supplied by Dr Simpson, on the subject of these marshes, are of great value in the question, and from the time and labour which the author of "Foul Burn Agitation" has consumed in his attempted refutation, we are led to imagine that, in his opinion at least, they are not to be easily disposed of. How far he has succeeded in accomplishing his purpose, and to what extent he has confirmed the numerical statements of his opponent, we will now inquire.

The part of the pamphlet to which we will more particularly refer, is that entitled "Cavalry Barracks at Piershill." We will take the separate charges brought against the Professor's statement in detail, and will give them, at least in so far as we have been able to extract them from the forty pages of the pamphlet specially devoted to their consideration, in the very words of their author.

The first formal charge brought against Dr Simpson is that regarding the way in which he has prepared his report.

"Dr Simpson," says the author of the pamphlet, "has not found it convenient to give *tables* in figures, whereby to enable

the community to judge of the numerical facts contained in the regimental reports." (Pamphlet, page 83.)

The insinuation contained in this assertion admits of an easy explanation. Dr Simpson has evidently only "not found it convenient to give tables in figures," to avoid the publication of superfluous numbers. The whole of the calculation rests on extracts from public official documents; and whatever statement he had published, whether in detail, or in the gross, must have rested on his individual authority, or on the authority of those who copied the extracts for him. In the pamphlet itself, which contains no fewer than twelve "tables in figures," the ninth and tenth of which only are of importance, no one will think of attaching more credit to these two because they have been preceded by such a display of digits.

The question with the public is as to whether the original extracts have been faithfully made; and when, from the character of the reporter, they are satisfied on this particular, their confidence in the conclusion follows as a matter of course, because the numbers undergo no process of calculation that can involve a fallacy. Dr Simpson, to vouch for the accuracy of his statement in this respect, attached his name to the document. This the author of the pamphlet, for reasons unexplained, has not found it convenient to imitate. Now, however, that Dr Simpson's statement has been questioned, even although in an anonymous pamphlet, it will be proved to be correct, and that, too, in the very way desired. The necessary original numbers will be supplied, and the others that are required, will be quoted from the returns in the pamphlet, as they will unquestionably possess the highest authority with the Doctor's accuser. The writer of the present remarks may here observe, that he possesses no exclusive information on the subject, and that all the observations which follow can be verified from the numbers contained in the two statements, except the actual returns for the first three months of 1832 and 1839, and the number of deaths; for information on which subjects he has consulted the records in the Castle.

The next charge is, that "Dr Simpson's statement of average of sickness and deaths at Piershill, is erroneous in itself." (Pamphlet, page 115.)

How far "the statement is erroneous in itself," it is not worth the trouble to inquire. As the extent, however, to which the statement may be erroneous in point of fact, is that to which, in all probability, the compiler of the pamphlet means to refer, we will shortly consider the grounds on which this assertion rests. In the first place, we will give simply the two statements, that the "community may be enabled to judge" of the precise extent of the discrepancy.

To make the comparison of the numbers in both cases perfectly distinct, and to save the transcription of superfluous figures, we will take the average annual force and sickness in both instances. The two statements then are as follow :—

	Strength.	Sick.	Ratio ℔ 1000 Force.
According to Dr Simpson,*	307	316	1029
According to the Pamphlet,	305	306	1004

Thus, according to Dr Simpson's report, there is in his seven years, an average annual excess, in the admissions into hospital, of 25 per 1000 of force, over the average annual number of admissions as stated by the author of the pamphlet, during the seven years selected as his term; or, in other words, the Doctor states the sickness to be 2½ *per cent. greater* than the author of the pamphlet. There is also a discrepancy in the number of deaths. Dr Simpson states them to be in the ratio of "16 per 1000 of force;" the author of the pamphlet says "14, not above 15, in every 1000 men." We will consider the discrepancy in the sickness first.

We may here observe that the period of time referred to in both cases is *seven years*. This period was selected by Dr Simpson to enable him to institute as accurate and legitimate a comparison as his means of information would allow, with the

* Police Paper, page 43. Foul-Burn Agitation, page 113.

"Statistical Reports on the Sickness, Mortality, and Invaliding in the Army," published by Parliamentary authority, during the course of last year. The period embraced in these official reports extends from January 1830 to March 1837 inclusive, or 7¼ years.

Dr Simpson, as appears from his letter, was unable to procure the requisite returns for any earlier date than 1832, and therefore makes his term begin with the month of January in that year. (See note, Police papers, page 43.) His statement is thus as nearly coincident with that of the official documents in time, as he could make it.

The term selected by the author of "Foul Burn Agitation" differs from both these, without any very satisfactory explanation being offered for the divergence. The term embraced by him extends from *April* 1832 to *March* 1839 inclusive. That there is an advantage to him in this respect, however, will be seen in the sequel. We may also observe, that the amount of sickness and mortality, in both instances, is calculated on the ratio of 1000 of force, to make them correspond in this respect with the "Statistical Reports."

We would here request particular attention to the periods referred to in the two returns; as in this circumstance *the whole cause of the discrepancy, both in the sickness and deaths*, will be found to exist. The two statements, as will be perceived, differ in the period referred to, to the extent of six months—three months at the commencement, and three months at the close, or exactly one fourteenth part of the whole. This difference in time, from its great proportion to the whole term—the smallness of the numbers operated upon —the great disparity in the amount of sickness, in its first and last sections, and the comparative insignificance of the discrepancy, only 2½ per cent. will be found sufficient to account for the whole difference. To explain, then, or rather reconcile, the alleged discrepancy between Dr Simpson and the writer of the pamphlet in question, we will reduce the two statements to the same period of time, by adding to, or sub-

tracting from, both the returns for the omitted months. This method is perfectly fair, and involves no source of fallacy. The equalization of the term, according to the proposed method, we can easily accomplish, having furnished ourselves with the necessary "actual numerical statements," for the very purpose, which are "correct copies taken from the original documents, and are accurate under the usual limitation of unintentional mistakes expressed by the phrase 'errors excepted.'"

According to the returns in the Castle, the Force and Admissions into Hospital at Piershill for the omitted periods, viz. the months of January, February, and March 1832 and 1839, were as follow:—

	In 1832.	In 1839.
Average Force for the 3 Months, -	322	328
Admissions into Hospital for do. -	125	78
Ratio of Sickness per 1000 Force, per Quarter,	388	237
Ditto, ditto, per Annum,	1552	948

From this it appears evident that the sickness for the three months immediately *preceding the commencement of the term* selected by the author of the pamphlet, was greater in the ratio of 60 per cent. per annum, than what it was for the three months *included at the end of that term.*

We shall be anxious to learn whether this fact was known to the author of the pamphlet; but as he seems to be rather shrewd than otherwise, we will use the liberty to impute to him that amount of penetration requisite for the perception of a circumstance of such obvious advantage to himself, even although it should be at the cost of his candour. Perhaps he had discovered that there was no other mode of finding an exception to Dr Simpson's statement, and made up his mind, "whether honestly or not it is for him to explain," to shift the term, and thereby get some pretext for an attack upon his opponent.

Let us now apply this information to the subject, and see the result. For this purpose, we will first make the pamphlet agree with Dr Simpson in point of time, as his statement is

that which is assailed. To accomplish this, we have only to add the amount of force, and the number of admissions for the first of these terms, that for 1832, to the corresponding numbers in the pamphlet, and subtract those for 1839. By this means, the two periods will be rendered coincident, and a legitimate analogy allowed. By the process now detailed, and which any one may verify, as the numbers are given ; we find, on striking an average, the strength and admissions to be as follow :—

Strength, 304, Admissions, 313.

We will now contrast these numbers with those given by Dr Simpson, and calculate the ratio of sickness on 1000 of force.

	Strength.	Admissions.	Ratio ℔ 1000.
According to Dr Simpson,	307*	316	1029
The pamphlet,	304	313	1029

Thus the two statements exactly corroborate each other.

We have now to make Dr Simpson's time agree with that embraced in the pamphlet, by a process of equalization similar to that detailed above, when we will find the same concidence to exist.

From the yearly average of strength 307, and admissions 316, as stated by that gentleman, it is easy to find the gross strength and admissions during the period from which he evolves his estimate. If we multiply the numbers here given by the number of years, and from the product deduct the amount of force and admissions for the first three months of 1832, and add those for the same term of 1839 ; thus reversing the process followed in the other instance, and strike an average of the sums obtained, we find the following numbers—

Strength, 307·6, Admissions, 309.

* In explanation of the trifling difference in the actual numbers, viz 3 on the force, and the same number on the admissions, we can only account for it by supposing, that it must arise either from the author of the pamphlet having followed the stay of the Regiments, or from his having made some deductions which Dr Simpson has not allowed. Probably, it may also arise from the weekly returns at the beginning not coinciding with the commencement of the month. It is, however, quite immaterial.

Estimating the ratio of sickness on 1000 of force, as before, and contrasting it with the "actual numerical statements" of the pamphlet, we have,

	Strength.	Admissions.	Ratio ℙ 1000.
According to the pamphlet,	305	306	1004
Dr Simpson,	307·6	309	1004

Or, in other words, the two statements entirely corroborate each other, as in the previous instance.

We have thus, to prevent all chance of misapprehension on the part of the public, and to obviate all grounds of cavil on the part of the author of the pamphlet, subjected both statements to the same operation respectively; and have seen that instead of contradicting, they mutually corroborate each other. The community will now be enabled to "judge of the numerical facts contained in the regimental reports."

We will now see what evidence the two statements afford, when contrasted in a different manner. In this case we will exclude the first and last years of the term embraced in the pamphlet, and thereby get quit altogether of the two years in which the excepted months are embraced. This will afford us the longest possible number of entire years, which are common to both statements. This period also comprehends the year 1835, for which Dr Simpson informs us (see Police Report page 43.) that he could not procure the complete returns, and probably also some of the periods for which he had to strike an average on "minor points." The contrast will throw some light on the judgment and candour exercised by him in forming these estimates. It will also enable "the community to judge" of the extent to which "the averages relied on by Dr Simpson, are a mere fallacy," as asserted by his opponent.

By adding the strength and the admissions in each of these years, as they are stated in the pamphlet, Table No. 9, page 113, and deducting their sum from the aggregate numbers respectively, we find the gross strength and admissions on the five remaining years to be, strength 1500, admissions 1619; thus giving an yearly average of strength 300, ad-

missions 323. By calculating the ratio of the sickness on a thousand of strength, as has been done in all the other instances, and contrasting the result with Dr Simpson's estimate, we find it to be as follows :—

	Strength.	Admissions.	Ratio ₱ 1000 of Strength.
According to the pamphlet	300	323	1078
Dr Simpson,	307	316	1029

Thus, according to the "actual numerical statements" for the five years, beginning April 1833, and ending March 1838, as contained in the pamphlet, the ratio of sickness is 49 per 1000 of force *greater* than what it is stated to be by Dr Simpson, in his estimate for the seven years, comprehended in his research. In other words, according to Dr Simpson's "calculation," the sickness is five per cent. *less* than what it is shown to be by the "actual numerical statements" of the pamphlet for the limited term. In future, those interested in the nuisance in question, will be disposed to think that the marshes had better been left under the average imputation of Dr Simpson than have been exposed by the "actual numerical statements" of their friends. We must confess that we are now somewhat of the same opinion with the author of "Foul Burn Agitation," in being disposed to give a preference to "actual numerical statements," over what he designates as "calculations of averages and general results." "The evidence now stated sets at rest any question about the salubrity of Peirshill Barracks, and demonstrates that the averages relied on by Dr Simpson are a mere fallacy," in which, in all probability, the actual amount of sickness and mortality produced by the effluvia for ever emanating from the "Lernian Marsh," and diffusing wide its lethal influence in the atmosphere, is underestimated.

We cannot institute a comparison of the numbers in the intermediate five years, according to Dr Simpson's statement, as he has not published the returns for the individual years. This, in his case however, is of comparatively little moment,

as the amount on any intermediate year can differ but little from the general average which he has supplied.

The difference in the rate of mortality admits of as easy an explanation, when due attention is paid to the dates at which the respective statements commence, as what we have just seen in the case of the alleged discrepancy regarding the sickness. Dr Simpson says the deaths occurring among the troops at Piershill are in the ratio of "16 per 1000 of force." The author of the pamphlet says, they are only in the ratio of "14, not above 15, deaths, in every 1000 men." As the number of deaths are few, and the period in which they have occurred comparatively short,—and consequently no great amount of labour was required to investigate the whole affair,—we have consulted the records in the Castle Hospital on this point, and can now assure the author of "Foul Burn Agitation," that the information here afforded is drawn from "the numerical facts contained in the regimental reports." We do not find "it convenient to give a table in figures" in this instance, as the one which is contained in the pamphlet is perfectly correct, that is to say, that for each yearly period, from April to March inclusive, from 1832 to 1839, the very number of deaths occurring, as stated in the pamphlet, accords exactly with what we have ascertained to be the case, with the exception of the first year. In this year (1832—33) we find the number of deaths amount to *seven;* in the pamphlet it is stated to be *five.* The total number of deaths, according to our survey, is therefore 34; according to the pamphlet it is 32. This difference arises from our having included two deaths that are recorded in the "Weekly Regimental Report," *dated between* 28*th March and* 3*rd April* 1832, which may have been left out by the authors of the pamphlet. They are the *two first* deaths which are recorded, and on them, in all probability, the alleged discrepancy hinges. It becomes a question whether they should be included by the author of "Foul Burn Agitation," in his estimate,—whether they happened before or after the 1st of April 1832, the day on which

his report begins. As none of the 34 deaths occur in 1839, they must all be included in Dr Simpson's calculation. The regimental report, by some oversight, contains no information as to the precise days on which these two deaths happened, so that the question cannot be determined by a reference to it. Fortunately, however, for the cause of truth, other means are open by which this difficulty can be unravelled, and the subterfuge, if there is any, detected.

The *actual number* of deaths falling, within Dr Simpson's term, as we have seen, is 34; the *probable number* falling within that of the pamphlet is also 34; while the *certain number* for it, is 32. Let us now try the amount of force in the two cases with these numbers respectively, and see the result. The average annual mortality, according to the highest number, (34) is 4·85; according to the lowest number (32) it is 4·57. Estimating then the ratio of this rate of mortality on 1000 of force, we find the following:—

	Strength.	Mortality.	Ratio per 1000 of Force.
Dr Simpson, -	307	4·57	14·88
The pamphlet, -	305	4·57	14·98.

This ratio of 14·98, or what, according to the delicate and nice phraseology of the pamphleteer, is "14, not above 15," it will be seen, is somewhat higher than that of Dr Simpson.

The same thing of course occurs when we add the doubtful two to the number of deaths in the pamphlet. Thus:—

	Strength.	Mortality.	Ratio per 1000 of Force.
Dr Simpson, -	307	4·85	15·79
The pamphlet, -	305	4·85	15·90.

We thus see that with Dr Simpson's numbers the rate of mortality in both instances is lower than what it is according to the numbers given by his opponent.

In explanation of Dr Simpson's statement, that the ratio of mortality is "16 per 1000 of force," we think it probable that in this instance he has not given the opposition the advantage of the fraction, as from our operations on his numbers, we find

he must have done in every other instance. It is probable also that it may have originated in a mistake on the part of the copyist, in having included a death which occurred at Newcastle, in an individual, whom, from the duration of his illness, and the arrival of his regiment at Piershill, it does not appear has been there. The death is, however, reported in the return dated at Piershill, and the mistake is one that might very easily happen. By adding this death, the number is 35 ; and on computing the ratio on 1000 of force, with this number, from the Doctor's average amount of strength, (307) the ratio is 16 and a fraction. On which of these suppositions this slight mistake on Dr Simpson's part is to be accounted for, we cannot pretend to say. The author of the pamphlet is evidently entitled to all the advantage that he can make of it. It amounts to 0.2 per cent. ; the real numbers being 15·79, not 16, as stated by Dr Simpson.

The investigation of the cause of this apparent discrepancy throws much light upon the animus of the author of "Foul Burn Agitation," and illustrates well the desperate shifts to which he has had recourse, and the hair-breadth escapes he has encountered to make up his alleged discrepancy. Probably an *accident* of twenty-four hours has served to turn the scale, and to constitute the ground of plea. There is no evidence, however, to show that he is in any way entitled to exclude the two doubtful deaths from his estimate, and, by including them, we have shown that the rate of mortality is greater according to him, than what it is stated to be by Dr Simpson.

We may here observe, in reference to one anomaly on the part of the writer of the pamphlet, that he has alike studiously avoided running a parallel in time, both between the period embraced in the official returns, prepared by the authority of the Army Medical Board, and that contained in Dr Simpson's estimate. This conduct is the more curious on his part, in regard to Dr Simpson, as the statement of that

gentleman is the one to which he was attempting a reply, and the accuracy of which he was venturing to question.

When he was preparing for a whole year his "actual numerical statements," and "tables in figures," he might have availed himself of the opportunity of making them directly serviceable in either the one case or the other. But no;—none of the beaten tracks were to be trodden by this original genius, and a new, though somewhat angular course, is carved out for himself. Disdaining alike the Charybdis opened for him by Dr Simpson, and the Scylla of the Army Medical Board, he steers off on a new course, in which he avoids all direct collision with either; coinciding only in so far with the former as will render the paltry advantage he has gained by the divergence, of use.

The excuse of the regiments coming in April, and remaining twelve months, although specious enough, is of no moment whatever; because, before any tangible results could be obtained, the whole years must be added together, and the relative proportion of the annual average or aggregate amount of force and sickness ascertained.

Under the circumstances in which he was placed, and from the task that he had assumed, propriety, candour, and justice, alike demanded that he should make his period correspond with that of Dr Simpson, to the very hour. He ought to have met his opponent foot to foot on the same ground; and there, if he could, have combated his conclusions. But he does not do this. On the contrary, he shifts the term; and having thus wriggled out from a direct collision with his antagonist, and by a mere subterfuge and accident having gained a paltry discrepancy of 2½ per cent. on the sickness, and a fractional difference on the deaths, he proceeds forthwith to exult in the victory thus ignobly gained, and addresses his opponent in language of which a gentleman would be ashamed.

It may be objected, on the part of our opponent, that Dr Simpson has also avoided running a parallel in time with the official documents; but this, it must be remembered, is fully

accounted for in his letter, by the fact, that he could not procure "the returns for the exact term corresponding to the official reports." With his opponent the case is very different; as, whatever difficulty he might have in following the official term, he could have none at all in following Dr Simpson, because the Doctor stated where he had found the necessary information, and bore his testimony to the politeness with which the gentlemen at the Castle and Adjutant-General's office had placed the documents at his disposal. He invites inquiry, and, to give every facility to the operation, points to the very sources of his information. In short, Dr Simpson has done all that an honourable man could do, under the circumstances, who had nothing to conceal, and whose only object was truth.

As regards the term embraced in the official medical returns, the author of the pamphlet cannot plead that he has not examined the documents containing the necessary information, because at page 117 we are informed that "the cases of erysipelas and dysentery have been noted from the returns, not only from 1832, but from 1st January 1830, (the very day on which the Army Medical Board begins their report,) till March 1840," long after the term of that report has closed. Are we to infer that the author of the pamphlet has modestly declined a further exposition of the slanderous imputations brought against his favourite marshes, by Hennen, Ballingall, Christison, Simpson, Liston, and others; or was he so anxious in quest of stray cases of erysipelas, dysentery, and the other ills of malarious origin, that he inadvertently forgot to notice *the force* and *general sickness* during that term.

We are the more surprised at this, as the information on both these particulars would be "contained in the next column to those" containing the cases of erysipelas and dysentery. The whole is contained "on the face of a single sheet," "so that any person" who has possession of the documents, "on inspection may at once" perceive the whole information which they afford. In this instance, we rather think that the author of

"Foul Burn Agitation" "has not ventured to disclose the comparative numerical facts of the Piershill returns" for this period, "because he is unwilling to do so."

After this exposition of the character of the "numerical statements" contained in "Foul Burn Agitation," the community will be enabled to judge "of the value of the inferences from the evidence," at pages 118, 119 of the pamphlet, which the author has there deduced. These we will now proceed to consider.

The author's first inference is, "That Piershill, contrary to Professor Simpson's statement, is not more unhealthy than all the collective cavalry stations," (page 118.)

From what we have shown (p. 9, 10, 11, 13) in explanation of the nature of the alleged discrepancy between Dr Simpson's statement and that contained in the pamphlet in question, both in reference to the amount of sickness and the number of deaths, any notice of this may appear superfluous. A few remarks, however, may not be inappropriate, to show that the statement of the author of the pamphlet in this particular "is erroneous in itself." At page 115 he admits that the average sickness of the whole cavalry stations of the United Kingdom is 929, and the deaths 14 per 1000 of force. "By Table No. 10," he says, "the Piershill returns exhibit 1004, not 1029, of sick, and 14, not above 15, deaths in every 1000 men." Thus, according to his own showing, the Piershill returns exhibit an amount of sickness only 25 per 1000, or 2½ per cent. *less* than what it is according to Dr Simpson; whilst it is 75 per 1000, or 7½ per cent. *greater* than what the average is stated to be for all the cavalry stations in the United Kingdom collectively, in the official medical reports. In the face of this evidence, however, he makes the formal inference detailed above,—that Piershill "is not more unhealthy than all the collective cavalry stations,"—a statement which, when the "evidence" and the "inference" from it are taken in connexion, seems abundantly "erroneous."

According to another of the author's inferences, "Piershill

shows a far inferior degree of sickness to any infantry station in Scotland." (page 119.)

The only other infantry station in Scotland with which Piershill can be legitimately compared is that of Edinburgh Castle, and in this instance the proof is decidedly against the salubrity of Piershill. The troops in these two stations must be regarded as similarly situated, so far as society, climate, and the other extra military circumstances are concerned; and as the author of the pamphlet has chosen to waive all consideration of the difference in the discipline and habits of the respective corps, he cannot object to the evidence which his own tables afford in this particular instance. We give the numbers stated in the pamphlet, having no other connected with the Castle in our possession. According to Table 10 of the pamphlet, the average annual force and sickness at the two stations are as follow:—

	Force.	Sick.	Ratio per 1000.
At Piershill, -	305	306	1004
At the Castle, -	685	652	953

Thus in the Castle, the sickness is 51 per 1000 of force less than at Piershill, or fully 5 per cent. The soldier, therefore, who is stationed in the Castle, where, from his elevated situation, he is removed from the nuisance in which the cavalry barracks are enveloped, enjoys an immunity from sickness to the extent of 5 per cent. over his brother in arms who is quartered at Piershill. With this fact, as proved by himself, staring him in the face, the author of the pamphlet deliberately draws an "inference" "that Piershill shows a far inferior degree of sickness to any infantry station in Scotland." This "inference" is surely what logicians would call a *non sequitur*.

"That in a series of monthly reports for a course of eight years, evidence, partly direct and partly implied, or circumstantial, is afforded in favour of the salubrity of Piershill." (119.)

We have just seen that in a course of *seven years*, the author himself has proved, by "actual numerical statements," that the Piershill returns, when compared with those from all other

cavalry stations collectively, show a greater proportion of sickness by ten per cent., and when compared with Edinburgh Castle, a superiority in this particular of five per cent.

"No case of sickness or death in the cavalry at Piershill is ascribed to the meadow lands, or has been proved, or is even mentioned in these reports as arising from that cause." (p. 119.)

The two statements which we have just reviewed, prove that the sickness is greater at Piershill, in the ratio of 10 per cent., than what it is at all the other cavalry stations, collectively; and whether the author of "Foul Burn Agitation" is disposed to ascribe it to the "meadow lands," as he poetically designates his favourite marshes, he cannot deny the amount of the sickness, or refuse his belief in the concurrence of the two conditions. The question of the connexion between them is too wide a subject to enter into at present. The author of the pamphlet is perfectly safe, however, in inferring, that the regimental reports do not ascribe the increased disease at Piershill to the "meadow lands," because the reports do not ascribe the disease to any cause whatever. They merely report its nature and extent. It will be no answer to tell us that the words, fever, dysentery, small-pox, erysipelas, phlegmon, catarrh, and the like, are mentioned in the reports. These words only occur as names of diseases. The causes which produce or aggravate these particular forms of disease are of too serious import to be described in a monthly regimental report. Besides, any allusion to these, in such a document, would only be valued in proportion to the professional eminence of the reporter. With the mere numbers, however, for which the reports are of unquestionable worth, the case is different. Any individual can record the number of sick, and also the kind of complaints which may be prevalent, but comparatively few are possessed of that amount of judgment, and power of observation, which are requisite for perceiving and analyzing the predisposing and exciting causes of disease.

On this inference we may further remark, that although the formal regimental reports may be silent on the subject, the medical officers, who have been stationed in Piershill, bear

their unequivocal testimony to the insalubrious influence of the exhalations from these marshes.

In a letter to Sir James Macgrigor, Director General of the Army Medical Department, published at page 40 of the Police Commissioners' Papers, Dr Barlow, of the 3rd Dragoon Guards, condemns this "public nuisance" in the strongest possible terms, and says, "that it could not fail to be the source of an influence of the most malignant kind—and to defeat any effort that I could make, within the barracks, to preserve the health of the regiment under my care." Staff Surgeon Jemmett in reference (page 41) to this letter of Dr Barlow, says, "I most fully concur with your opinion on the subject, and I believe, it has been *the general one of medical officers stationed there.*" These letters were both written in December, 1831, and are, of course, uninfluenced in any way, by the present excitement; besides, they are official, and cannot be the subjects of suspicion. "No case of sickness or death in the cavalry at Piershill," it must be here admitted, "is ascribed to the meadow lands;" but it admits of as little doubt that they are very plainly pointed at as the source of general insalubrity, which is what Dr Simpson has positively proved. Dr Barlow, it must be remembered, is one of those individuals who would prepare the "regimental reports" for the corps under his charge, and in which reports no case is mentioned as arising from the "meadow lands." If Dr Barlow has said anything on this subject in these reports, the author of "Foul Burn Agitation" has omitted to notice it in his copious extracts. This may, however, probably arise from Dr Barlow's reports being in 1831, a period which our author has not chosen to investigate, further, than merely to ascertain the effects of the effluvia from the "meadow lands" in the production of erysipelas and dysentery.

The silence of the regimental reports can, however, be dispensed with, when such authorities as Dr Hennen, Sir George Ballingall, and Mr Henry Marshall, who have studied the subject of marsh malaria minutely and scientifically, in those quarters of the world where marsh miasma produces its most frightful havocs, have spoken so freely on the subject.

"That, in these reports, not a vestige is to be seen of evidence, that the wives or children of the cavalry at Piershill, any more than the soldiers, were visited by disease or sickness of any description which could be ascribed to the meadow lands as a cause," p. 119.

In this inference, the pamphleteer is as correct as in the last, for "in these reports not a vestige is to be seen of evidence" concerning either the wives or children at all, beyond their mere numbers, and an occasional allusion to the state of their general health. By following the safe plan of inferring that the reports do not prove anything concerning subjects which they do not mention, he might have multiplied his "inferences" to any extent. We are a little at a loss, however, to perceive how he can call them "inferences from the evidence," and rather doubt that in strict morality, this is scarcely accurate. It will require *rather more* than the usual limitation expressed by the phrase "errors excepted," to cover such "mistakes."

His last inference is precisely of the same character as the two preceding; and is not in its nature likely to involve the author in any serious or shameful consequences, by being disproved. "On the contrary," he says "the reports, during different years of the period for the last eight years, prove, that while the civil population, and in some instances the children in particular, were affected to a great extent with epidemics, the cavalry troops at Piershill escaped, and enjoyed immunity." (p. 119.)

The military returns show nothing positive or particular about the condition of the "civil population," and consequently are of no authority in their case. We humbly think, however, that nothing is more probable than that "the cavalry troops at Piershill escaped, and enjoyed immunity" from these "epidemics," with which, "in some instances, the children, in particular, were affected to a great extent." A regiment of dragoon guards, or even dragoons, labouring under hooping-cough, or the croup, or of whiskered hussars afflicted with measles, would be rather an uncommon incident in military

surgery, and one which, were it to arise, would most assuredly not be referred to the odoriferous exhalations arising from our author's favourite "meadow lands." There will be less difficulty in connecting Dr Simpson's established excess of disease with the meadow lands, than in referring the prevalence of these epidemics to which we have just alluded to the same origin. The author of "Foul Burn Agitation" is, therefore, equally safe in this inference as in the others.

At page 116, in his second "arithmetical fact," for the pamphleteer has numbers of "arithmetical facts," as well as "inferences," he says, "So far from Piershill being above *all other* collective cavalry stations, it is *very much* lower than Glasgow and Hamilton." If this is meant to refer in any way to Dr Simpson's statement on this subject, and from what precedes it, we rather think it does, we must leave the author to choose between the alternative of a gross mistake, or a want of candour.

It is here inferred, that Dr Simpson says, the sickness is greater at Piershill than at any one of the other collective cavalry stations; else, why the individual comparison? Now, the Doctor makes no allusion to anything of the kind. His words are, (Police Commissioners' Papers, page 43.) that the sickness is greater "at Piershill than in the collective cavalry stations of the United Kingdom;" and as he speaks of "the averages drawn" from these official returns "collectively" immediately before, there can be no ground for supposing that he makes any reference to individual places, among the collective stations. The author of the pamphlet, however, having succeeded, in the absence of any counter statement, in making something favourable to his own cause out of the Glasgow returns, and as it forms one of the collective stations, he will, probably, consider himself justified in making the most of it.

In the same paragraph, he also speaks of "Dr Simpson's average of all the cavalry stations of the United Kingdom;" now he must know that Dr Simpson never made any average of the returns for the kingdom, but simply transcribed that

which is given in the official documents. These features in the pamphlet, if they should do no more, show the facility with which the author instinctively glides into error.

Dr Simpson "pretends that the sickness must be *severe* that sends a man to the hospital." (pamphlet, page 80.)

A sufficient answer to this will be found in Dr Simpson's own words: "The sickness," says he, "it may be further observed, must *be of such a degree of severity* as to render it necessary for those affected to go into hospital," (Police papers, p. 44.)

For this simple, plain matter of fact statement, Dr Simpson is charged with *pretending* that the sickness must be *severe*, and is assailed in a style so coarse and rude, that we feel assured by this time, that the writer himself will be ashamed of it, as it is wholly uncalled for by the nature of the discussion, and is perfectly unprovoked. We are at a loss to account for it in any other way than by referring it to some personal and vindictive feeling.

Every one is aware, that soldiers are admitted into hospital on ailments less serious than what are regarded as such among the mass of the civil population; but it is as well known, that they are not permitted to escape from duty on pretences perfectly frivolous. All admissions into hospital are made by warrant or permisson of the medical officer, who must be satisfied that the disease is of that degree of severity as to require professional treatment. This is evidently the "degree of severity" to which Dr Simpson refers, and we are a little inclined to think that the author of the pamphlet "knows it to be so." But this is not all; the diseases, qualifying, so to speak, for hospital admission are the same at Piershill as elsewhere, and the complaint which admits a soldier there, would also do the same at London or Dublin. A comparison of the health of different stations from the hospital admissions is therefore perfectly fair, and can lead to no error.

"That no notice is taken by Dr Simpson of the health of the wives and children of the troops at Piershill," (pamphlet, page 82.)

In this particular the writer of the pamphlet must know well that he is charging Dr Simpson with the omission of what he is aware the Doctor had no means of supplying. Only the numbers of women and children connected with each regiment are stated in the detailed monthly report, and no notice whatever is taken of the kind of disease that the individuals who are sick may be affected with. But the words of the pamphlet are so explicit on this subject that we will quote them verbatim, at once to exculpate Dr Simpson, and show the slender evidence, and the great facility, with which his accuser can arrive at a conclusion. "They are," says the pamphlet, "reported on to this extent, that where any *generally prevalent disease or epidemic, or unusual mortality*, prevails among them, the medical officer states its general nature, —its symptoms—its effects—whether mild or severe—and its supposed causes," (page 82.) Here we have no notice whatever of the ordinary sick—of the probable duration of their complaints—of the numbers that may be discharged or admitted to the sick list in any given time—or of the general or absolute amount of sickness at any one period—or for any number of weeks consecutively. The women and children appear only to be noticed by the medical officer as a collateral indication of the general health of the station at any one time. This, as every one will perceive, is more correctly attested by the accurate and detailed regimental returns from which Dr Simpson prepared his estimate.

From this, it will appear evident, that the returns in question do not supply sufficient, or any information at all, on which to found any numerical comparative statement; and without a contrast being established between the sickness and mortality among the wives and children at Piershill, and these of all the other stations collectively, as was done with the troops, no allusion to them could be of any value, as an evidence of the comparative salubrity of that station, which is the question at issue.

But, we may ask the writer of the pamphlet, what light he has thrown on the subject by his "table of figures, (No. 12.

page 118.) "showing the number of wives and children at Piershill?" He has shown their *number*, it is true,—a matter of no great moment, because their condition as to disease is the question. It makes, however, another "table in figures" which, with the uninitiated, may have some influence. Since the pamphleteer's penchant for "numerical statements" is so great, we wonder why he did not reserve a column for the horses. Perhaps the new edition will supply the omission.

"That it was manifestly incumbent on Dr Simpson to examine minutely the reports, to ascertain whether they support the medical opinions which represent the irrigated meadows as producing a particular class of diseases," (pamphlet, page 79.)

This means, we suppose, that in the author's opinion, Dr Simpson should have held himself in readiness to prove whatever any other individual said on the subject, a rather immoderate expectation on his part, and one which we think will not be generally entertained. It would have been rather superfluous for Dr Simpson in 1839 to have sought for evidence in support of an opinion given by Dr Hennen in 1813. That opinion is now public property, and, on the authority of Dr Hennen's name, will go down, as an indubitable fact in the medical topography of Edinburgh.

In the instances of Sir Geo. Ballingall, and Mr Henry Marshall, the two highest living authorities on the subject, who have given their opinions, no one expected more than a mere declaration of their sentiments. Their known professional eminence, great experience, and high standing in society, make them the objects of public confidence in such matters, and their mere opinion is consequently received as authoritative. For Dr Simpson, therefore, to have begun to fortify their opinions on the effects of these marshes, by evidence from the regimental returns, would have been alike improper and superfluous. Besides, it was altogether beyond his province. We may also observe that Professors Christison and Trail; Drs Abercrombie, Fyfe, Reid, Balfour, R. Paterson, and others; Mr Liston and Mr Skae, are not in

the habit of promulgating opinions that require confirmation by any body. We may here inquire why the author of the pamphlet has not produced some medical testimony to show that the marshes contribute to the general health, or are at least innocuous? This was a duty "manifestly" incumbent on him, and one which in justice to his favourite "meadow lands," and the "brethren of the" irrigation "faculty," he ought to have discharged.

In answer to the author of "Foul Burn Agitation," in his remark, that the medical certificates published in the Police Commissioners' Papers, were "mendicated from about a dozen out of the 270 members of the medical profession, in Edinburgh and Leith," (page 2,)—we have only to observe, that it is on a par, in point of accuracy, with the more formal inferences which we have just discussed. The opinion of the late Dr Hennen refers to the year 1813; probably before a single individual of the present Police Board was in office. Dr Barlow's and Staff-Surgeon Jemmett's opinions were written in 1831; Mr Liston's opinion was delivered in a public lecture in his class-room in London in 1835, and is extracted from the "Lancet" of that year. The opinions of the late Drs Duncan, the late Professor Russell, and the present Professor Hope, were given in evidence for the complainers at the trial concerning these marshes, in 1809. Those of the late Professor Rutherford, and Dr Farquharson, were also given at the same trial for the defenders. The four special medical certificates from Sir Geo. Ballingall, Drs Abercrombie, Peebles, and Balfour, as appears, so far from having been even procured by the Police Commissioners, were given in answer to specific questions put to these gentlemen, long before the Commissioners' Papers appeared, by the Ministers of the Crown, as to whether the Palace of Holyrood, as to salubrity, was a safe and proper place for the residence of Her Majesty.

As to the other medical certificates, if they were procured at the instance of the Commissioners of Police, the professional gentlemen who granted them, only complied with the request of a Public Board, the prime business of which is the custody of

the public health and comfort: and thereby discharged a duty which, as public practitioners and members of a profession pre-eminently liberal, was due alike to their own honour, and the community among whom they reside.

From the opinion which Dr Simpson is known to entertain, that the exhalations from such marshes as those in question, do not tend to the production of any specific form of disease, but only produce general ill health, and a greater liability to morbid action in the individuals exposed to their influence, it was not to be expected that he would extend his research into the specific forms of complaint prevalent at Piershill, unless he had done so merely as a matter of professional curiosity. He has produced facts in proof of his own opinion, which the author of the pamphlet has confirmed, and to what extent the evidence may bear on other opinions, is evidently a question beyond Dr Simpson's province. It is one, at any rate, which he cannot be called upon to investigate.

It ought also to be borne in recollection, that Dr Simpson only consulted the Piershill returns for his own information, and to test the generally prevalent opinion about the insalubrity of that station. Unlike the writer of the pamphlet, he had no personal or pecuniary interest to promote, that would reward the time and trouble of a more extensive investigation. He has, at any rate, by what he has done, established the fact of the insalubrity of Piershill, and, by his evidence, has given a form and accuracy to what was previously merely a general and vague supposition. This is perhaps the cause why he is visited with so much of the inveterate and rude abuse of the author of "Foul Burn Agitation." In this particular, the author of the pamphlet's advocacy appears to partake, in some measure, of the character of the subject.

If Dr Simpson should have exposed himself to the rudeness and abuse of those interested in the nuisance, he will at least have the consciousness of having established a fact, in reference to Piershill, of great importance to the community of Edinburgh, and one which, as we have shown, his accuser, despite his caution and evasion, has proved to be true to a fraction.

"Dr Simpson has not ventured to disclose the comparative numerical facts of the Piershill returns with others in Scotland,"—(pamphlet, page 81.)

This seems altogether a groundless objection, and had Dr Simpson compared the "numerical statements of Piershill returns with others in Scotland," he would, in all probability, have been rated for not contrasting them with those of England or Ireland. What connexion or similarity, either physical, moral, or military, there exists between Piershill and the other stations of Scotland generally, that entitles them by preference to a special comparison with it, we are utterly at a loss to discover. In the official parliamentary documents, which Dr Simpson made the standard of the comparison, the returns are calculated for the United Kingdom generally, without distinction of country or place. The only distinction recognised in them is that between Cavalry and Infantry, the accounts for which are kept separate. The nature of the discipline, exercise, and habits of the two forces renders their distinction necessary. It was evidently a desire on the part of Dr Simpson to conform to the plan observed in the official reports that prevented him from running a parallel between Infantry and Cavalry. Besides, there could be no just ground of comparison between an entire cavalry regiment, and the detachments, depots, and recruiting parties, such as are stationed at Greenlaw, Perth, and Paisley, Aberdeen, Dundee, Berwick, and Fort-George.

With the Cavalry regiment at Glasgow, however, the case is somewhat different; and here the grounds of a legitimate analogy on a first view really seem to exist. On a closer examination, however, the impracticability of carrying it into effect, with the accuracy requisite for the ends of truth, becomes apparent. The regiment stationed at Glasgow is always divided, part being stationed at Glasgow, and part at Hamilton; and the number of sick at these respective places is not distinguished, except in some cases, in the documents to which Dr Simpson had access. It was therefore obviously impossible for him to distinguish between the circumstances inducing

disease at the one locality, and those operating in the other. This circumstance, added to the facility for a correct comparison, afforded in the general returns, prevented Dr Simpson from even making the extracts relative to the Glasgow regiment. So far, therefore, from a comparison having been made and withheld, as the pamphlet insinuates, it is notorious to all Dr Simpson's friends, that a calculation was never instituted in that case. So much for the truth of the writer of the pamphlet's round assertion, that "such could not avoid being made," (page 82.) In reference to the high rate of sickness among the Cavalry at Glasgow, we have only to remark that, not having examined the returns for ourselves, we are unable to give any opinion on the subject; and from the disposition which the author of the pamphlet has shown to make up a point favourable to his cause in the case of Piershill, where the counter statement of Dr Simpson was before the public, and a defence of which was sure to follow, we must be excused for not giving such implicit credit to his "tables in figures" on this head, as, with more candour on his part, would have been the case.

We may remark, however, in reference to Glasgow, that the great humidity of the climate,—the position of the Cavalry barracks, which, so far as we recollect, is situated on the southern side of the river, in a low situation,—the smoky condition of the atmosphere of that great manufacturing city,—and the dense mass of pauperism, disease, mendicity, and crime, existing among the hordes of Irish immigrants who tenant the narrow lanes and closes, and obscure courts of that great city,—are all conditions which afford a *prima facie* evidence of a great extent of disease, and a high rate of mortality, among all resident within its vicinity.

The information contained in the official "Statistical Reports," on the nature of the evidence supplied by Infantry and Cavalry, as to the condition of the military in this country, is too valuable to be passed over. "To ascertain the degree of sickness and mortality to which the troops are liable in their native country," say the compilers of these

valuable documents, "it is not only essential that they should have been *continuously resident in this kingdom* during the period over which the observations extend, but that they *should not have been recently serving in stations where their health was likely to have been deteriorated*, otherwise the effect of disease contracted in another climate, might be attributed to that of the United Kingdom. This, of course, renders it necessary to *exclude nearly all the infantry of the line*, from our calculation, as corps returning from foreign service seldom remain longer at home than four years, and in that period *the mortality is likely to be materially influenced* by disease contracted in climates where they have been serving. The interchange of men between the service companies abroad, and the depot companies at home, also renders the returns of the latter *equally unavailable for an investigation of this nature*, except where it can be ascertained as in the case of the West India Depots, that the number returned to them is too small to affect the result to any great extent," (page 3.) The regiments of cavalry which have not been serving abroad, the household troops, and the West India Depots, are in consequence selected for the purpose of the estimate.

Here we have the reason fully explained, why the cavalry regiments are selected to the exclusion of infantry, for the purpose of proving the liability to disease, and the duration of life among the military in this country. The whole of those are known to the author of "Foul Burn Agitation," and yet, in direct opposition to the valid reasons for exclusion here given, he proceeds to institute a comparison with the depots and detachments scattered throughout the different recruiting stations in Scotland, and the cavalry regiment at Piershill. In this he takes advantage of the very increase of sickness which the compilers of the "Statistical Reports" had made the ground of exception, and, having bolstered up a return favourable for Piershill, he proceeds to draw his "inference," that that Barracks "is not more unhealthy" than the other stations in Scotland. Such a palpable subterfuge is, however, too gross to escape detection. "This will not be left where" the author of

"Foul Burn Agitation" "has been pleased to leave it; whether honestly or not, it is for him to explain." The "Statistical Reports" also supply another fact, in reference to the question of great importance, and which we will quote before entering on any numerical comparison. In speaking of the relative mortality of the troops in the three kingdoms respectively, the reporters say, "that from a rough estimate, it appears that the troops in Scotland have been *rather more healthy than in England or Ireland*," (p. 6.) Keeping this last fact in recollection, we will now proceed to consider the light which the different numerical statements throw upon the subject.

As the condition of the depots of regiments serving in the West Indies, for the reasons stated by the reporters, and already quoted, appears to afford the nearest approximation to the actual state of the infantry soldiers in this country, we will assume it as a standard with which to compare the others. We regret that in this case the amount of sickness is not stated as on small numbers, such as a regiment supplies; the rate of mortality does not afford so very accurate an indication of the comparative salubrity of different stations.

According to the Statistical Reports, (page 11) the ratio of mortality per 1000 of force, on the depots of the West India regiments is 18·5; while, according to Table No. 10. of the pamphlet, the ratio of mortality in the Castle, on the same amount of force, is only 13. In other words, the deaths occurring at the Castle are 5·5 per 1000 of force fewer than among the infantry in the country generally. This fact corroborates the statement referred to above, "that the troops in Scotland have been rather more healthy than in England or Ireland." The ratio of mortality among the cavalry at Piershill, as we have seen elsewhere, (page 13.) shows a different result. Throughout the country generally the deaths amount to 14 per 1000 of force; at Piershill they amount to near 16, (15·79) on the same number. In other words, the deaths occurring at Piershill are 2 per 1000 more than among the cavalry at all the other stations collectively. Taking, then, these two statements in relation, we obtain the startling result, that, while the mortal-

ity among the infantry in the Castle is 5·5 per 1000 less than among the depots of the West India regiments, which are held as a fair, or perhaps favourable, indication of the state of the general body of infantry in this country, the mortality occurring among the cavalry at Piershill, is two per 1000 of force greater than what it is on the same amount of force at all the other cavalry stations collectively.

If we, then, take into account the extent of immunity from sickness and death, which the troops in the Castle enjoy, owing to the elevated situation of that locality, leaving them in comparatively full enjoyment of the healthful influence of the climate of Edinburgh, which we have seen is indicated by a diminished mortality of 5·5 per 1000 of force, when contrasted with what is a fair illustration of the state of the infantry throughout the country generally; and reflect, that the soldiers in Piershill, instead of enjoying a similar or proportionate immunity, which, from that barracks being removed beyond the influence of the smoky atmosphere of the city, and situated fairly in the country, ought to be the case, the ratio of mortality among them is 2 per 1000 of force greater than among the same and similar troops throughout the country generally, we have an evidence of some local morbific influence bearing upon that unfortunate locality, to an extent which it is painful to contemplate. If not to the fulsome exhalations from the "meadow lands," to what are we to ascribe it?

It would be easy to calculate the probable amount of sickness among the depots of regiments serving in the West Indies from the rate of mortality here given; but as this would expose us to the charge brought against Dr Simpson, of dealing "in calculations of averages and general results," we will forego the corroborative evidence which this would afford, and remain satisfied with the proof here adduced in favour of the insalubrity of Piershill, and of the perfect accuracy of Dr Simpson's estimate of the amount of that insalubrity, as stated in his letter to the Commissioners of Police, on this subject.

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