

MEDICAL REPORT  
ON THE  
MAHAMURREE  
IN  
GURHWAL, IN 1849—50.  
AND APPENDICES.

---

BY

DR. C. RENNY,

*Superintending Surgeon, Meerut Division.*

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AGRA:

PRINTED AT THE SECUNDRA ORPHAN PRESS,

1851.

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MEDICAL REPORT  
ON THE  
M A H A M U R R E E  
IN  
GURHWAL, IN 1849-50.

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No. 517.

FROM THE MEDICAL BOARD,

TO THE HON'BLE J. THOMASON, Esq.,

*Lieut.-Governor of the N. W. Provinces.*

*Fort William, the 5th September, 1850.*

HON'BLE SIR,

With reference to Mr. Thornton's letter No. 206 of the 22nd February last, we have the honor to forward two letters, in original, Nos. 73 and 80 of the 19th and 22nd ultimo, from Superintending Surgeon Renny, and a document, with an Appendix and Map, entitled "Notes for a Report on a disease prevailing in Gurhwal, locally called Mahamurree or great plague." These notes give as complete a history and description of the disease, we think, as it was possible in the circumstances to obtain. Your Honor will not fail to remark that Mr. Renny has executed the laborious and somewhat hazardous task assigned to him with the conscientious and faithful regard to the obligation of duty and truth which have guided him throughout his career in the public service.

2. It appears to us, who have no intimate personal knowledge of the people and localities visited by Mahamurree, that Dr. Renny's suggestions, founded mostly on the practice of the people themselves, to check the spread of the epidemic, and purify the infected houses and hamlets, are deserving of adoption; and when the dwellings of a village have been destroyed by fire, the Commissioner will be best able to judge how far his interference may be permitted to ensure the erection in their room of habitations better adapted to ward off the access of disease, or to mitigate its character when actually established in a house or hamlet.

3. Among a people so poor, ignorant, and so much under the guidance of superstitious prejudices, and whose habits are at the same time so inveterately filthy, it may be expected to be a work of time to bring about all the salutary changes that are undoubtedly necessary to protect them from the ravages of infectious disease; but it appears to us that much may be done at once by a judicious exercise of authority to improve the construction of their houses, and to require the removal to a distance of the heaps of rotting filth that are allowed to accumulate at every door, and to poison the atmosphere of whole villages.

4. We also consider that Mr. Renny's suggestions for the accomplishment of that part of the investigation which his other important avocations prevented him from prosecuting, and which, in truth, it was scarcely within his province to prosecute, are deserving of attention, we mean the task of testing how far the disease may be amenable to judicious medical treatment, and we are confident that there will be no backwardness on the part of Medical Officers, sojourning in the Hills, to devote themselves to the enquiry.

We have, &c.

(Signed) G. LAMB, *Physician General,*

(Signed) W. STEVEN, *Surgn. General,*

(Signed) J. THOMSON, *Inspr. General.*

FORT WILLIAM, MEDICAL BOARD }  
 OFFICE, }  
*The 5th September, 1850.* }

No. 73.

FROM DR. C. RENNY,

*Superintending Surgeon Meerut Division,*

TO J. FORSYTH, Esq.,

*Secretary Medical Board, Calcutta.*

DATED SUPERINTENDING SURGEON'S OFFICE, MEERUT,

19th August, 1850.

SIR,

Agreeably to the instructions conveyed in your letter No. 1062 of the 4th March, I proceeded in April last into the province of Kumaon as before reported.

I have now the honor to submit for the information of the Medical Board, the results of my inquiry, in the form of "Notes for a Report on a disease prevailing in Gurhwal, locally called Mahamurree, with Appendix," which I trust will be approved of by the Board, as some advance towards a knowledge of the disease investigated. The copying of this has been much delayed by the business of the office.

In all the preliminary information for the journey, and in all measures taken for the prosecution of the object contemplated, I received the utmost assistance and support from J. H. Batten, Esq., Commissioner of Kumaon. The Assistant Commissioner of Gurhwal did not join me in the district; he was in bad health, and might not have been able so to promote the investigation; in all other ways he gave cordial aid, and I cannot say that by his presence he could have done more than guide me as to local particulars, which I was forced to find out for myself; but as he called for a commission, I have thought it right to state so much for the information of the Board.

Upon all measures of prevention for mitigating the disease under review, it is difficult to offer a project applicable to so rude a society and so wild a country; some of the means were so obvious that it did not appear judicious deferring them for the full report, and these were proposed at once to the Civil Authorities in a letter of 14th May, of which a copy appears in the Appendix.

There remains for me to submit, to the judgment of the Board, a plan, apparently practicable and easy, for giving medical aid in the district of Gurhwal, on any occasion of the distemper again showing itself. A certain number of Assistant Surgeons are always present at Mussooree, Landour, Almorah, and Nynce Tal, places all near the borders of Gurhwal, on sick leave; many of these are capable of duty in the Hills, especially those who have had the benefit of the climate for 10 or 12 months, and others whose health has been impaired in the plains without organic disease; some of them follow professional practice at the stations, and the Government has more legitimate right to their services if wanted. It would not be easy for me to give a list of all available at this time, because many of these Medical Officers, coming from other divisions into the Meerut circle, have failed to attend to existing orders, enjoining them to report to the Superintending Surgeon. I was not aware of their presence in the division till my late visit to the Hills. But a sufficient number of willing candidates could always be found, who placed, with the permission of his Excellency the Commander-in-Chief, at the temporary disposal of the Civil power, might be employed to give medical aid over any part of Gurhwal. Four or five, located round any infected tract, would be able, with a suitable establishment, to trace out and relieve every case within their circle of observation, and would supply what is still wanted, information regarding the disease to be gained from treatment and from dissection.

I would not wish to be supposed to recommend the services of these Medical Officers being exacted without remuneration, and the bestowing this aid has now become so indispensable as a work of humanity and necessity, that the Government will no doubt be disposed to grant, on due representation, a suitable allowance from the Civil Department; the proper amount of this would appear to be one equal to the Staff allowance of an Assistant Surgeon per mensem, for the months of the year so occupied, as only some months may be practicable, with the travelling expenses usual in the country, that is payment of the hire of coolies for each day of marching.

It has seemed to me just towards myself to append an extract, from a Journal of Proceedings, of a few days of the most active period of the journey, to exhibit to the special observation of the Board, the particular difficulties of this inquiry, and the obstacles to even finding out the disease in such a widely scattered population; and it is hoped this will

suggest to the Board the inference that as much has been effected as could be done by one individual. The same difficulties would not attend a party of Medical Officers, with more time and leisure, and establishment at command, and all co-operating over and surrounding a certain extent of country.

I have, &c.,

(Signed) C. RENNY,

*Superintending Surgeon, Meerut Division.*

SUPERINTENDING SURGEON'S OFFICE, }  
 MEERUT : }  
*The 19th August, 1850.* }

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*Notes for a Report on a disease prevailing in Gurhwal, locally called Mahamurree or Great Plague.*

I. This remarkable and very formidable distemper first broke out in the district of Gurhwal, in the province of Kumaon, in the year 1823, and a particular fact arising out of the annual religious observances of the Hindoos serves to fix this as the exact time. The disease is not mentioned in Fraser's Tour in the Himalayas in 1820, and may be presumed to have been then unknown in the district. It has since prevailed endemically in some part or other of Gurhwal, and has occasionally raged with great violence apparently as an epidemic.

Its most remarkable appearances have been as follows.

History of Mahamurree. It began near Kedarnath, in the snowy range, and for some years confined its ravages to pergunnahs Nagpore and Budhan, which form the subject of the first report upon it in 1834 and 1835; in the latter pergunnah it again prevailed in 1837, along the higher parts of the river Pindur; in 1846-47, the Mahamurree found its way to the sources of the Ramgunga in Puttee Sobhee, and devastated the village of Sarkote, situated at above 7,000 feet on a high easterly spur of the great mountain Doodoo-ke-Tolee (10,300 feet above the sea); at the same time a village in Kumaon proper, near the source of the Cosilla in Puttee Borake Rao was visited. In 1847, a village within 15 miles of Almorah west, situated among the pine forests of the Seeahee Deveen range was attacked. At the latter end of 1848, a few villages in pergunnah Danpoor, along the line of the river Pindur, were

threatened with the disease, but the alarm subsided; on the whole, the year 1848 and part of 1849, may be said to have been remarkably free from Mahamurree throughout the province. During the rainy season of 1849 it broke out with great virulence in Puttee of Chuprakote, and although the disease did not spread through the country it proved very fatal in particular villages, Murhoree and Duddolee. A rumour has gone out, that Mahamurree appeared at the last annual fair at Bagesur, but the occurrence is uncertain, and from very particular enquiries made, the presumption is that it has never reached that side of Almorah.

2. The present inquiry, instituted under the orders of the Hon'ble the Lieutenant Governor of Agra, and upon the instructions\* of the Medical Board, comprised a tract in Gurhwal, of which the base was from Bhoongdar to Kunecour, on the high road from Almorah to Sreenuggur; the research was made chiefly on the northern side of this base, by personal visits in many parts, and the rest by written reports received direct from the fiscal officers, and by verbal enquiries through means of public Chuprassces placed at my disposal, over a space of the country of which the extreme points were Bhoongdar and Kunecour mentioned before, and Lohba and Chandpoor on the north. Within this space Sarkote had suffered from Mahamurree in 1847, Muhroree and Duddolee in 1849, and during the present year 1850, the large village of Mason, on the high road between Bhoongdar and Kunecour, had been attacked, or rather the environs of it, and it was from among the villages round about it that cases of the disease were seen on the present occasion. In a village also to the south of Mason, called Bergaon, there were several fatal cases in the month of May 1850, but the information and reports were imperfect, owing perhaps to its being situated on the boundary of Gurhwal, and possibly not within the district. Through want of precise information at the time the village was not visited as it ought to have been.

3. On undertaking this investigation little assistance was obtained from any published works, or medical opinions on the subject of Mahamurree. The very imperfect account of it† in the report on the Pali plague was the only printed information to be found, and that is of minor importance in a medical point of view, not having been verified by actual observation. It very

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\* Appendix A. † Appendix B.

correctly describes the disease as a febrile affection, but only gives from hearsay the belief of the natives in its contagious nature. A manuscript report on the disease was kindly furnished by Dr. J. McCosh, formerly Surgeon of the 31st Regiment N. I., when stationed in the province of Kumaon, but it chiefly contains "Remarks on Mahamurree made on a visit through parts of Gurhwal," where the disorder had prevailed, when however he did not see a single case of the infection. From all the information procurable, it appears certain that no instance of a person laboring under Mahamurree has been witnessed by any Medical Officer till the present year; it has now been actually seen, although from necessity on a very small scale as to time and number of individual cases. All that could be found in the tract visited were inspected, and the disorder abated in the infected district, or disappeared from it, after the middle of May 1850. In the attempt here to combine all the knowledge obtained of the disease, care will be taken to keep separate the facts observed or resting upon what is considered good evidence, and other circumstances depending upon hearsay or less perfect proof, and upon the ideas and prejudices of the natives. Among the latter are many particulars that may be true, but they require elucidation; to one only is the present report decidedly opposed, namely, their fears of contagion.

4. Mahamurree is a malignant fever, of a typhus character, accompanied by external glandular tumours, very fatal, and generally proving rapidly so in three or four days; it appears to be infectious, and is believed not to be contagious. The usual symptoms of fever are present, and might be enumerated in every variety, but the cases observed were too few to rest upon them the diagnostic marks of the disease on all occasions. Heat of skin, accelerated pulse, lassitude, chilliness, nausea, thirst, a white and furred tongue, were all noticed. Headache was prominent in all, increasing to the most acute pain with blood-shot eye, and it is supposed the brain will be found the most morbid seat of disease, though all the organs may no doubt partake of the highly septic quality of the pestilence. The external swellings, suddenly rising indolent, and not very painful, are the most characteristic proofs of the malady; glandular swellings in various parts of the body, the groin, axilla, neck, and even in the legs, are described as occurring, but in the cases witnessed recently as well as those of the few

who had survived an attack, the tumours or buboes, if they can be so called in that state of incomplete inflammation and supuration, were only in the groin, a long diffused tumefaction with an enlarged gland in the centre of the size of a nut; they are looked upon by the natives as the most deadly sign of the distemper, and are really to be considered an unfavorable prognostic. Symptoms similar to those of cholera have been reported by the natives, but none at all corresponding were seen; the stomach and bowels were little affected, and the latter were inclined to costiveness. The lungs did not appear to suffer, and the respiration was not labored except in one case far advanced. From unavoidable obstacles the state of the kidneys and the secretion was not ascertained. The most remarkable circumstance in the disease is the mild nature of the entire symptoms under so rapid a termination, little febrile or other constitutional excitement presenting itself where death was certain in 24 or 36 hours. Such trifling derangement of the functions of health would be a startling and unaccountable anomaly and not to be reconciled with the speedy fatal result, had not the same thing been observed in other epidemics in India, and even in the plague itself.

5. The origin of Mahamurree is very obscure; on the  
 Origin and causes. primary causes of its arising in Nag-  
 pore and Budhan, the history of the  
 pestilence in these pergunnahs is still a desideratum; nor can it be attempted, on the short experience lately gained, to clear up the uncertainty that hangs over it. The disease is considered to arise from local causes, and, according to what is known of the fevers of Hilly countries in all parts of the world, it takes on a typhoid form; when again the course of seasons, or the state of the atmosphere, or other concomitant auxiliaries, are favorable to the propagation of the infecting miasm, the disorder spreads more generally, and strictly in accordance with the characters of other epidemics, its attacks are uncertain and capricious, destroying perhaps one or more villages, while others not far off escape entirely; it has shewn also the usual epidemic periods of commencement, violence, and decline. The exact seasons of its invasions are not fully ascertained, but in the past year it appears to have broken out during the rainy season or towards the close of it, to have continued with more or less virulence till the end of December 1849, to have reappeared in another direction in March or April, and to have abated generally over the country

in May 1850. If we are without the knowledge of the primary source of typhus, we have at least all the conditions, acting upon a great part of the population of Gurhwal, to which is rationally attributed the rise of such diseases in other countries; these are, to use simple terms, poverty, filth, and bad food or starvation; and if we examine these extremes more minutely, we shall find under each head sufficient predisposing causes for a general susceptibility to the putrid diseases in question; and the very slow improvement in these respects may also go far to clear up the extraordinary fact of so fatal a sickness having prevailed over a district for so many years. The poverty and consequent privations are understood to extend chiefly over the northern pergunnahs, those situated near the snowy ranges, where Mahamurree first appeared; the filth is everywhere, in their villages, their houses and their persons. It destroys the otherwise pure quality of the air and maintains ever round the inhabitants that contaminated atmosphere so favorable to the condensation of infectious emanations. Their dwellings are generally low and ill-ventilated, except through their bad construction, and the advantage to the native in other parts of India of living in the open air, is lost to the villagers of Gurhwal from the necessity of their crowding together for mutual warmth and shelter against the inclemency of the weather. The food of the majority is bad and insufficient. In the northern parts wheat does not grow, and even where it does, the general food consists of the small grains, a poor diet, and not nourishing enough for a cold and moist climate.

6. Mahamurree, by the name given to it from their own fears, has been held by the natives to be contagious; hence it has come to be universally reputed so from the time it was first heard of; and ostensibly from the external swellings with the synonymous name of plague, it has been conjectured, it might be identical with pestis, the plague of Egypt. It becomes therefore an important part of the present Report to give at some length the reasons for holding an opposite opinion, namely, that it is not contagious, and simply a typhus of a very malignant kind, most probably infectious at all times, and certainly so when many predisposing circumstances favor its extension.

*a.* The natives can hardly be expected to comprehend or distinguish between contagion and infection, and even with

better knowledge it must be allowed to be difficult to mark the confines of each, when we see it still disputed in Europe, whether yellow fever be contagious or not. What therefore is meant to be supported is, that Mahamurree is not propagated by a specific contagious agency, as small-pox is known, and plague is most generally acknowledged to be, or in other words, that Mahamurree is not communicated by direct or mediate contact.

*b.* In this disease, the swelling, be it of a gland or otherwise, is the only outward symptom of the kind; nothing else external has been either seen or heard of now, or mentioned in former years; all other characteristic eruptions, exanthemata, they have been called, as carbuncles, spots, petechiæ, vibices, &c. &c. of plague are wanting. In one dead body petechiæ were lately seen, but, on full consideration at the time of inspection, they were believed to have taken place after death, not having been obvious previously during life. In the above diagnostic marks the two diseases do not agree, while glandular swellings or buboes, alone, have been observed in

\* Report on a disease which prevailed in part of Kutch and Kattywar in 1815-16. Ditto ditto in Kattywar in 1819-20. Pali Report. Calcutta, 1838.

many other instances\* of typhus fever in India. There is further this distinction in the symptom between the two diseases, subject to correction on further observation of Mahamurree; in plague, a buboe has been taken as a favorable sign; in the other disease the swelling is looked on, by the natives, as the precursor of death, and even upon their information, we may take it to be the most fatal symptom.

*c.* The non-contagious nature of Mahamurree was tested in my own person, in defiance of the pre-conceived character of the disease, from actual contact with the sick; in all cases practicable, the pulse of patients was felt, the state of the skin examined, and the swelled glands touched. The Native Doctor and Compounder who accompanied me did not touch, but they approached close to the infected; and what are stronger instances of immunity, a mother whom I witnessed attending her child, and a daughter her mother, both did so during the entire attacks, and escaped the disease up to late information, since leaving the district. The parties remained free from contagion if it existed; the exemption of all from infection may have been owing to the occurrences taking place in the open air of the mountain; and the only objection against the present example, as a test of non-contagion, is that possibly

the individuals were not at the time of exposure susceptible of the disease.

d. On entering upon this inquiry, it was impossible to pass by the instruction gained from a similar pestilence in 1836, called the Pali plague. There the disease was first declared to be the contagious plague of Egypt, upon proof that seemed full and conclusive, and sufficient to warrant the preventive measures then taken regarding it; though by further time and observation it has been shewn in the Pali report to have been a typhus fever, and the buboe to have been only a symptom of its great malignancy. In that report are detailed many varieties of malignant fevers, in various countries, in which buboes and other glandular tumours have been observed. Very recently in the "Epidemic fever of 1847," in the United Kingdom, "about the face and jaws, moreover, *glandular enlargements* and chronic abscesses were very frequent."\*

e. On a retrospect of the progress of Mahamurree, from its first appearance in 1823, or from 1836, when it first attracted much notice, up to the present day, the advance of it seems to be incompatible with the existence of contagion. It has not been allowed to spread itself freely without some attempt at restraint. The native sufferers have always followed a plan of escape, originating it is true in their dread of the disease as contagious, but which ought to have been a security against the extension of contagion, and quite efficient to eradicate it. This plan of rejecting all mercy for the sick, was the reverse of what is practised in the west; instead of segregating the sick from the healthy, the latter, as soon as Mahamurree appeared in a village or on the alarm of it, abandoned their houses and fled to the forests, leaving the sick to their fate, commonly to a solitary death. Another portion, they who had the infection already in a latent form, were thus not separated, but as the infection shewed itself, these too were left alone in the jungles or wherever they were. The few who escaped the infection did not mix with their neighbours, who on the contrary kept a watchful guard to prevent any intercourse, and would have used forcible means for the purpose if necessary. It was to all purposes a cordon sanitaire, as much as when Casal Curmi was walled in and surrounded on the occasion of the Malta plague, but as in that instance it has not here stopt the disorder. Again, instead of purify-

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\* Medical Chirurgical Review, April, 1848.

ing their houses, they merely left them empty for a long period, sometimes twelve months, or allowing a rainy season to intervene; then, if any survivors returned to the village, there was no recurrence of the disease. It had selected its victims and appeared afresh somewhere else, in a more susceptible place, often at a distance and with the utmost irregularity in its attacks. Here we have a description of an endemic sickness, and, when numerous villages are attacked simultaneously, of an epidemic, carrying with it infection probably but not contagion, and indicating a local origin but one of very extensive activity.

*f.* From this general view of the epidemic, let us take a single instance, the best authenticated that was obtained, of the influence of the primary cause of the sickness over parties who did not fly from it. In a hamlet of two huts, near to Duddolee, away from other houses, were two families, connected with each other, and composed of 16 individuals in all, young and old, men, women, and children, and it will shew the crowded state in which these poor people live to add, that 30 head of cattle, large and small, belonged to them, and according to the usage of the country, would have had the shelter of the same huts in bad weather. Mahamurree appeared amongst them in July 1849, and from motives of affection or other reasons they did not separate as in villages, but kept in or near their houses, submitting gradually to the ravages of the distemper: first two died consecutively, then four, afterwards three at intervals, and so on, till 14 in all perished, and only one man and his child survived without having the disease at all. But this destruction extended from July to December or later, and admitting that the clothes and houses might be the fomites of contagion for that length of time, it is more reasonable to conclude the work to be that of an epidemic fever, more or less infectious, than that a pestilent contagion should have been so slow, and have spared even two of the number. This is also the strongest instance, obtained on the spot, of the extreme virulence of this disease, as it prevailed last year, showing the frightful number of 88 per cent. attacked, and the same proportion proving fatal. It does not appear to have been so destructive in other places, where the inhabitants scattered themselves.

*g.* Mahamurree has prevailed in temperatures beyond which it is known that the plague is destroyed or suspended in Europe and Africa. The limit of activity for it is very

small; Good\* quoting from Sir Gilbert Blanc names the extremes  $60^{\circ}$  and  $80^{\circ}$ ; Copland† gives lower numbers, fixing the scale from  $35^{\circ}$  to  $75^{\circ}$ . Now Mahamurree hitherto has appeared mostly in the villages near to the snowy ranges, and one spot has been named as high as 10,000 feet above the sea, which elevation must give a constant temperature low enough to check the plague; whereas the report is that Mahamurree has been as virulent in such a climate as elsewhere. It may be freely admitted, that at such an elevation woollen clothing, if not openly exposed to the air and sun, might retain and communicate the virus of contagion, although it fails to do so in Egypt in the healthy season; but it is more likely that the crowding together in houses, forced on the inhabitants by their poverty and the extreme cold, would give virulence to an infectious disease, even at such a temperature. Again we have seen that Mahamurree may exist in its perfect malignity at heats above the extreme range mentioned. At Bhoongdar on the 17th May, the thermometer in the shade stood at  $83^{\circ}$  maximum in the day; the place is on a detached Hill above the stream, and freely open on all sides; at Mason, or rather at Mycollee near it, where Mahamurree occurred, situated on the same stream and higher up but in a close confined glen, it may be affirmed that the heat was much greater even a month earlier. At Deghat, about ten miles lower on the same stream, in a tent nearly level with the bank, the maximum thermometer on the 19th May was  $95^{\circ}$  at three P. M.‡

*h.* The unvarying course of an attack of Mahamurree, so different from the various order of the symptoms which plague exhibits, is viewed as a proof of the former being a distinct disease. By all possible means of information it seems estab-

\* Good's Study of Medicine: London, 1825. Anthracin Pestis.

† Copland's Dictionary: London. Pestis Septica.

‡ *Note.*—The following ranges of temperature in several localities in Kumaon have been contributed by J. H. Batten, Esq., Commissioner of the Province. The mean temperature of Duddolee will be about  $61^{\circ}$ , and of Muhrree (exactly the same elevation as Kuneour) about  $59^{\circ}$  or  $60^{\circ}$ . The extremes  $85^{\circ}$  and  $30^{\circ}$  may be assumed for the greater part of *inhabited* Chuprakote; the thermometer falls to  $25^{\circ}$  sometimes, and *may* perhaps rise to  $90^{\circ}$ , but the latter must be *very* rare even in the lowest part of Chuprakote, Lohba and Chandpore. At Almorah the thermometer has been seen at  $91^{\circ}$  in a western verandah in June, and  $82^{\circ}$  *at the same time* in a northern, while inside the house it has been  $77^{\circ}$ . The extremes this year in the out-of-door shade at Nainee Tal have been  $15^{\circ}$ , and  $80^{\circ}$  (St. Loo, north side of the Tal). In the Hills the thermometer has been observed at  $105^{\circ}$  in a tent, and  $88^{\circ}$  in a grass hut on the same spot.

lished that every fatal case terminates on the third day. This by the calculation of the natives may be from 48 to 72 hours, but no instance could be found of death being longer protracted; even the few men who recovered, said they were better on the fourth day. It is not to be forgotten that this uniform progress took place in the absence of all palliative treatment, and under the most pitiable neglect. Whether active modes of cure, early applied and with better management of the sick, may be of power to alter the morbid order of the symptoms and effect a different result, is yet to be tried.

7. On the medical treatment of this disease very little can be said in the present state of information. Nothing was known before, and much knowledge could not have been expected to be acquired on this head by the present investigation. In the course of it, very limited opportunity and means were available for applying any systematic method of cure. The remedies here and

Cure and prevention. there administered were those used for the treatment of fever in general, and it is believed such therapeutic views will be found most applicable to the nature of the disease. The natives themselves seemed to abandon all sort of treatment, and no information could be gained of native practice, for there was not one person in the district, Hakeem or Baid, to exercise it; only it was reported that in Budhan blood-letting had been tried, with what success could not be determined. The condition of the blood in this disease still remains to be discovered and examined, and it may be predicated that bleeding will be found of great advantage, if resorted to in the very earliest stage of the infection. Unfortunately there are few premonitory symptoms, and time may easily be lost. After bleeding, the prompt exhibition of the most powerful antiseptic remedies may avail to counteract the putrid tendency of the disease, and thereby gain time for the alleviation of the general symptoms. Seeing the almost total failure of present treatment, attention was turned to the most practicable means of prevention, and a letter on the subject was written to the Assistant Commissioner of Gurhwal which is given in the Appendix.\* The first obvious means of counteracting the spread of sickness would be the removal of the sick instantly from the healthy, and to place them in seclusion, and well separated, for medical treatment, supposing that provided for and at hand; but as it is difficult to lead the native into new ways, even for his own good, it will

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\* Appendix C.

be a long time, ere he will be induced to throw aside part of his dread of Mahamurree and provide for the comfort of the sick, instead of thinking of his own safety by flight. Under their present fear and behaviour, the next best means of prevention is by disinfecting their houses; and since they abandon them, the easiest mode of doing so is by fire. The destruction is a slight loss to the inhabitant, as in most of them the only part burnt will be the roof, which is easily to be replaced from the forest; and as the huts are much detached from each other, only those need be destroyed in which the sickness has shewn itself; none, however, should be spared in a village upon which there is the least suspicion. This manner of expurgating the villages was recommended in the letter mentioned, and it might also have been then suggested to whitewash all the houses, inside and outside, with lime or other disinfecting materials, a custom of cleanliness more practised in Kumaon than Gurhwal. There is another measure of the very utmost importance in purifying the villages, that ought to be enforced everywhere by the most stringent regulations, namely, the immediate removal of the dead bodies, which hitherto have been left to putrify in the deserted villages, rendering them not only longer uninhabitable, but forming themselves the sources of disease, and the cause of pollution of the air, by which the virus of an epidemic is extended. The only scavengers have been the wild beasts, and chiefly the bears, for the latter have been observed by sportsmen to frequent the places ravaged by Mahamurree, and are certainly in the hills carnivorous, although commonly they live upon the crops during two parts of the year, remaining dormant in the interval, notwithstanding it is the hottest season. An interference in the domestic customs of the people may appear intermeddling on the part of the Civil Authorities, but without it the squalid and dirty habits will never be corrected in such a wild country as Gurhwal; on one point this may be exercised to advantage, by an order to remove their manure heaps from close to their dwellings. They are collected in large quantities for the occasional use of their fields, a process of tillage not common in the plains, but practised everywhere in the hills; these heaps maintain around the inhabitants a noxious atmosphere that must be baneful to them even in health, and which is the prime agent of extending pestilential miasm, whether emanating from their own bodies or produced beyond them. Finally, upon the treatment of Mahamurree, a plan will be proposed to the Medical Board in a letter to accompany this Report, for supplying medical aid over the district in the event of the epidemic again breaking

out. This may prove the most efficacious means of observing the disease from its earliest accession, and correcting erroneous views taken in the present Notes.

8. The mortality from Mahamurree is very great, not so much in actual numbers, as relatively to the small amount of population. Mortality. In the Appendix is given a table of deaths in 1834-35, and a similar table\* is appended of the number of deaths in 1849-50 up to the 28th April 1850, to which are to be added three deaths in May in the jungles above Mason, and four uncertain. The list is supposed to be inexact, from a few deaths from other causes being intermixed. It is difficult to obtain the true particulars in a country so thinly inhabited, and it is not possible to collect in the province, the data on which to assume the amount of mortality between 1836 and 1849. The recent mortality has been estimated by the Civil Authority to be probably 25 per cent. on the total population; recent enquiries would also show it to have been even greater, but the statistic details are most defective; in certain places the destruction has been very great, of which an example has been given of 14 deaths out of 16 people in one place; in the village of Sarkote in 1846-47, if the reports of the inhabitants are to be trusted, out of a population of 65 in all, 43 died, two only recovered, and 20 escaped without infection. The strong proof of the fatal nature of the disease is the small number who recover; and upon this criterion Mahamurree might be named the most pestilent disease known. It seems however, that on this point exaggeration has probably been made, and this branch of the question needs further examination. Two men only were reported as survivors of this last epidemic of 1849-50. One was brought to me, an inhabitant of Muhroree, the other was heard of at Bergaon; two more men were brought to me, said to be the only survivors of the epidemic that raged at Sarkote in 1846-47; no others were to be found, as it was affirmed, in the large tract of country gone over and examined.

9. In an enquiry like the present, it is an important element of comparison to fix the amount of population over which any unusual sickness exerts its influence, but such is the rude state of the district of Gurhwal that no probable calculation can be made of the number of inhabitants; they appear numerous in some

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\* Appendix D.

places, while on the other hand vast tracts are unoccupied. There has been no attempt to ascertain the fluctuating ratio of the population, or whether it be on the increase or decrease. One fact only is on record, from which it may be presumed that the number of people existing in the district has enlarged since the province came under the Government of the Honorable Company. In Fraser's Tour, published in 1820, it is stated,\* probably on the authority of the then Commissioner, such being the claim of accuracy for the work, that in 12 years, the Goorkhas had abstracted, in a kind of slavery, two lacs of inhabitants from Gurhwal; and as this compulsory bondage or degrading tax has not been permitted under the present rule, and as three revolutions of the same period have passed since the conquest, it may be taken for granted that the population has considerably extended itself. The Mahamurree, though greatly destructive through two-thirds of the 36 years, could not have thinned the numbers at a rate of more than a small fraction of the tax; and it may therefore be possible that the disease has been kept up, in the manner observed in other poor countries, by the pressure of the population upon the means of food. This is assumed merely as a conjecture on a point whereon exact documents are unattainable.

10. The present alarm regarding Mahamurree has arisen from the disease spreading to the south, and threatening an irruption into the district of Kumaon Proper. Hitherto it had kept, with some slight exceptions, to the ranges nearest the snow and to the oak forests. More recently it has appeared at points of less elevation, in the zone of lower pines; and it becomes a question of importance to watch its progress among the southern hills. On a point of such moment it may be expected of me to have given serious reflection upon the probability of the disease extending over the district of Kumaon Proper, and my impression is that it will not make much progress in this direction. It is impossible for me to foresee or foretell the acces-

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\* *Note.*—There is no doubt that the Goorkhas, during their tyranny, seized and sold the unhappy mountaineers, particularly of Gurhwal, in great numbers; of that country, in the course of 12 years, two lacs of people are said to have been thus disposed of: in consequence of the desolation spread around, from the seizure of his crops for Military purposes, the zemindar could seldom pay the quota of his tribute: out of a family of four or five children, they forced him to give one as a commutation, and instances have, it is said, occurred, where every one of the children were thus in succession torn away. *Journal of a Tour through part of the Snowy Range of the Himalaya Mountains.* By J. B. Fraser, Esq., Lon. 1820.

sary influences that may prove favorable, as in other epidemics, to the extension of the disease, and it may attain such a concentrated form as to extend itself against all expectations and precautions, but many advantages are perceptible that will tend to impede its advance into Kumaon. The uncleanly habits of the people do not widely differ from the others ; their means of external comfort however comparatively do ; and the better food, difference of clothing, construction of the houses, and the general condition of the inhabitants, though still capable of great improvement, are good grounds for anticipating less danger from pestilential disorders. With such views of this peculiar malady, and of its modes of propagation, it does not fall to me to propose or recommend any strict quarantine regulations or cordons, which would be indispensable in the case of contagious plague. This opinion however does not preclude the adoption of all ordinary precautions against the spread of infectious disorders ; and such preventive measures will be more easy of application in Kumaon than they can possibly be in Ghurwal.

11. "Notes for a Report on Mahamurree" would fall short of their design, if they omitted to touch upon matters of belief held by the natives respecting it ; a few of these are here enumerated together, not as things of total incredibility, but as subjects of interest, some of them deserving further examination.

The natives in Gurhwal suppose the disease to be communicated through their household articles, ordinarily a jar of ghee, from one side of the country to another. This is only part of their general belief in the contagious nature of the malady, and in fixing upon the article of traffic as the vehicle of contamination, they forget the more direct medium of the carrier of it, ignorant of the fact that non-susceptible persons may carry about them, as in the case of jail fever, effluvia sufficient to infect others, while they themselves remain outwardly in health.

Some marks of the disease are described upon native testimony, amongst others an appetite for bitter things ; this was not observed but may exist nevertheless, depending upon the deficiency of saliva as well as of other secretions, by which the sense of taste may be impaired and only to be stimulated by pungent substances ; all such symptoms, as precursory, merit attention.

The Commissioner of Kumaon in 1836 (Appendix B. No. 47, para : 4), notices the opinions of the natives as to the origin of Mahamurree, and the event narrated fixes the first appearance of the pestilence. The description also sufficiently indicates the ordinary natural causes that are ever found to generate or give acrimony to pestilential sickness, namely a large congregation of people, crowded for days together at a public ceremony, and the bulk of these people inevitably predisposed to malignant septic diseases by bad and insufficient food, fatigue, exposure and filth, to all which evils the pilgrims are well known to be exposed up to this day. For it is most probable, that the Mahamurree commenced in the crowd of these wretched devotees, among whom a few deaths in excess or any additional sickness would not be marked ; only when a few brahmins had become the victims to the same infection would the visitation be thought the penalty of "maimed rites" from having fallen upon the sacred caste. It has been said that the pilgrims still pass with impunity through villages infected with Mahamurree, but the question has not been sufficiently considered or enquired into ; they may pass through infected places without apparently suffering an attack, and yet they may carry with them an infection so caught, which may remain latent for a time, and ultimately at a distance prove fatal in numbers that are unknown and unattended to. This may be one cause, being yearly renewed, for the disease having lingered in the district for such a long series of years.

The same paragraph further notices a curious fact, fully believed in by the natives up to the present time, "that every where it appears first to have attacked the rats, and then the men." No other animals have been observed to be affected in the same manner, or by the epidemic generally ; and this belief in the destruction of the rats is so universal, and so confidently asserted, that it is difficult to withhold giving credence to the fact. If not true, the fiction is a very singular and extensive one, raised for no very obvious purpose. An opportunity of determining the truth was not gained on the present visit, because no sudden invasion of any village by the disease occurred for observation during the month of May ; it was ascertained however, that in April the village of Mason had been deserted by the inhabitants in consequence, not of the disease breaking out or any death within the place arising from it, but only of the usual fears caused by the death of the rats. This village was visited and found empty ; the people were living on the side of the hill opposite, in small huts considerably apart ; they visited the lower grounds during the

day to reap their fields, but on no account would they remain in the village in the night, avowedly from superstitious fears. Where a forerunner like this of human sickness has neither been traced out nor disproved since 1836, when it was first described upon native evidence, on which it still rests, it may be futile to attempt a solution of the coincidence, supposing it real. This murrain may be caused by poisonous food, or by mephitic vapours, and, in want of all proof upon the former, the probability is in favor of the latter; a search after these might lead to some discovery on the unknown agents of the production of Mahamurree itself.

Several authors have at various times propounded, as the causes of epidemics in India, different terrestrial influences affecting the several districts concerned; and in regard to these it may suffice to say that by the future enquirer may be found in Gurhwal all the sources of such influences. Malaria is rife in every valley and ravine, the rapid geologic changes so conspicuous on the surface of these hills leave it to be inferred that the same, or other chemical actions, are going on internally, and may give rise to morbid products; terrestrial electricity, assigned as a cause in Southern India, may be elicited by these changes, or by other agency; volcanic air, proposed as the origin of sickness in Scinde, cannot be wanting; for though no active volcanoes exist, there occur frequent earthquakes\* to facilitate the discharge of volcanic exhalations. But upon all these subjects discussion is avoided; the materials are deficient, even if there were felt the inclination and ability to pursue it. The object of the present investigation has been entirely practical, and it may be left to those who come after to put forward theoretic opinions upon this disease.

12. The difficulties have been very great of this enquiry, carried on as it has been by unassisted labors, and without the aid of any precursor to guide me; this will be the extenuation for any imperfections in these Notes. To shew the peculiar manner of the proceedings, and the personal exertions made to find out the few scattered cases in so wild a country, a journal of the transactions of a few days will be submitted for the information of the Medical Board.

(Signed) C. RENNY,  
*Superintending Surgeon, Meerut Division.*

*August, 1850.*

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\* Two earthquakes were felt this year, 1850, generally over the province of Kumaon, one on the 15th April, the other on the (13th?) May.

APPENDICES TO THE REPORT

ON

M A H A M U R R E E.

## A P P E N D I X.

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*Extract from DR. RENNY'S Journal of Proceedings upon a journey into Gurhwal, to enquire into the disease called Mahamurree.*

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*Bhoongdar Bungalow, Thursday, 9th May, 1850.*—Took a steep and long march this morning from 4 to 10 A. M. over the mountain at Chuprakote Gurh (or Fort,) down the opposite valley across the stream, and up the other mountain side, to the village of Duddolee, reported to have been so unhealthy. It is for the hills a large place, now deserted, in which the Mahamurree appeared in 1849, but only attacked the inmates of three houses. The people from all the others fled immediately to the forests, where some few also died. There are no sick to be found at present. The fields above the village are cultivated, and now full of grain uncut, the lower fields have all been let go to waste. I found some of the villagers at work, near and in the village, and they are now beginning to return to it during the day, having had performed the usual poojahs and sacrifices for the safety of the place, under the auspices of a very ill-looking Jogee, very young for such an office; but I was assured the inhabitants would still not venture to stay in the village during the night. The situation of the place is healthy, high, and well aired. On the west side is a swampy ravine, such as is seen everywhere in the hills, caused by the running springs; here they steep their hemp at the proper season. In the list of deaths given to me as having occurred in 1849-50 up to 28th April 1850, the number for Duddolee, (the fiscal division includes the whole mountain) is put down at 25, but more than half these occurred out of the village along the same mountain side. Thus 14 died at a place in the forest, half a mile or more from Duddolee, called by two names Khor or Gemindeah, and respecting which I had the best description, yet given to me, of the career of the sickness. Here were only two houses or long low huts occupied by two separate families connected with each other, the heads

being two brothers, composed of 16 souls in all, old and young, and the present instance exemplifies their crowded mode of living, for these two huts had to contain, besides 16 individuals, 30 head of cattle, large and small, at the worst season of the year. In these two huts Mahamurree commenced about ten or eleven months ago, corresponding to the time it appeared in Duddolee, and the full circuit of the disease was here better seen than on any other occasion brought to notice; for in general the healthy or unattacked fly to the near hills or forests, leaving the sick to their fate; but at this place the 16 residents kept together till 14 died, and one adult only, a man of about 30 years of age or more, with his female child of five or six years old survived. The casualties however were spread over a period of five or six months from July to December or January. First two died consecutively, then after an interval four, then three, and so on, (it is vain to attempt the precise dates) but the whole number of 14 died during several months,\* and surely this looks more like a virulent infectious fever than a contagious plague. The whole story is a domestic tragedy. At last the survivor in a sort of religious or superstitious despair, shut up the 30 head of cattle, buffaloes, cows and goats in the houses, set fire to the whole and burnt them down. He then moved with his child lower on the mountain, and built a hut in the forest. There I saw the child on my way to Duddolee, and the father was brought to me on my return. He gave the usual rude unsatisfactory description of the sickness, that it commenced with fever, and especially with severe headache (this last symptom he dwelt upon particularly) then occurred vomiting and purging, and at length swellings arose in the neck, or armpit, or groin, and death took place in three to *five* days. This is the only witness who named *five*. In every description I have yet had of the disease, the appearance of buboe is spoken of as fatal. This is contrary to what is observed of the true plague, in which buboes suppurating are often critical and salutary. I have not as yet had any mention made of petechiæ, blotches, and such like, nor do I raise the question, leaving the detail to come out naturally if there be foundation for this variety of symptom. All the natives agree hitherto that there has been no particular disorder or mortality among their cattle, but they

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\* The material facts are confirmed by the written report made to the Magistrate at the time; some discrepancies of no moment appeared in this. It was reported that a woman had accidentally set fire to the huts. This was a native fiction to smooth away dreaded magisterial anger. The occurrence as stated was told by the survivor.

universally agree that the Mahamurree is preceded or accompanied by a great mortality among the rats in their houses. The putwarree of Duddolee very strongly affirmed the one event having foreshown the other in that village. This question I put to the sole adult survivor of the two families, first indirectly and then directly. He acknowledged he had seen four dead together in the huts, but did not know of more, and even this number all at once in a house might raise the belief of its depending on some unusual cause where means are not taken to destroy the rats. The three infected houses in Duddolee had been burned down lately, that is the wooden roofs of two effectually, and the other slated roof partially. I am inclined to think this is the proper means of expurgation, in attempting to eradicate the disease by purifying the close houses of the villagers; and this, whether we look on the mode of propagation as contagious or infectious. Every house in which disease appears should be burnt down, if not the whole village. The walls may stand, it will be sufficient if fire be introduced, and the roof will give wood enough for the purpose. It were well if the fires were to be extended to the dung-hills outside their houses, if they cannot be removed to a distance. They are quite suffocating in passing through a village. As yet I see they collect them carefully for manure, and about here spread them very industriously over their fields; what they may do in higher Gurhwal I do not know.

P. M. Some actual cases of Mahamurree, reported at a distance in another direction, to be visited in the morning.

*Bhoongdar Bungalow, 10th May, 1850.*—Out from 4 to 10½ A. M., went to Mason, three miles or upwards, two miles further on the high road to Kuneour, and then into the forest. Mason is a large village on the left hand of the road, situated on a detached spur from the mountain on the south side of the valley, with much cultivation below it. To attend to this and to cut the grain at this time, the people come down from the forest in the day time, and return in the evening, afraid to stay in their houses. The village is now totally deserted by the inhabitants from fear, not of the actual invasion of Mahamurree, but of murrain among the rats, and the occurrence of four or six deaths recently in their neighbourhood, in a glen across the stream, running up to the north, on the right hand side of the road. This glen is also called Mason as belonging to the lands of the village, but has also a distinct name, Mycoollee. At the opening of the glen is a village of three or four houses through which the high road runs; these are now deserted, and two

houses were pointed out farther up the glen in which deaths had occurred from Mahamurree. In one it was said the dead bodies still remained, the sick having been left alone to their fate. The neglect of the living sick may not be overcome under their present fears, but the abandonment of the dead ought to be stopt by the Civil power, and the inhabitants forced to consume them by fire. This may be done sometimes by burning the house itself if the roof is of wood, but it may also be done with safety outside by throwing billets of wood first over the body, and afterwards throwing fire. The distance necessary to effect this is not dangerous whether the disease causing death may have been contagious or infectious. The fears of the natives are natural but ought to be removed, and for this end a little compulsion is necessary.

The object of this day's journey was to see two cases of sickness, reported to be Mahamurree, among the inhabitants of Mycoollee, living out on the face of the mountain above Mason and to the west of it. They were reported yesterday, and fever medicines were then given to be administered to them. One, a boy, died in the evening, the other, a girl of eight or ten years, is now said to have vomited the medicine when given. A fresh case, however, was presented, that of a woman of middle age, attacked since they moved into the forest, seized in fact only yesterday, (9th May), in the evening, after having been down at field work during the day. The symptoms, as now seen, would in the plains be taken as those of common fever, heat, headache, restlessness all night, shivering in the morning, and prostration of strength. The severe headache was repeatedly mentioned as the chief complaint, the shivering of the body was not visible, but a fire was lighted close to the patient for this reason or for the cold of the morning. No swelling of any gland, nor pain indicating any thing of the kind was acknowledged upon repeated enquiry. I felt the pulse which was quick but not weak, the skin was dry and hot, the eye\* was blood-shot. The sick person was sitting up when we arrived, and continued so during the examination. As some nausea was evident while we stood near, an emetic was administered which I gave with my own hand, other medicines were left to be given during the day and following morning. In the plains this would be a simple fever and easily stopt, but it may readily be imagined that the exposure to the heat of the day, the cold of

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\* The reflection arose afterwards that this was a case suitable for early bleeding; but it was the first one ever seen and gave no impression of the virulence of the disease. It afterwards proved to be Mahamurree from the infallible mark of swelling, which, however, came late: death followed about the third day.

the night, and the want of shelter either from the ground or the sky, even at this mild season of the year, will aggravate every symptom. The deficiency of all comforts must alone destroy the sick of such miserable people, although this patient was fortunate enough to be tended by a daughter of twelve or fourteen years of age, a very unusual thing amongst these villagers. It should be mentioned that the dandy coolies and chuprasies objected to accompany me from the high road into the forest. I was attended by the Native Doctor from Pasree, Pursun Singh, and the Compounder from Almorah, Bhejah Singh.

We afterwards went further into the woods to see the other patient, a thin girl of eight years or so, who had medicine given to her yesterday which was rejected from the stomach. She was attended on very tenderly by her mother. The disease was of the third days' continuance, and although the people had said she was better, there was no mark of any beneficial change. Headache was here also much complained of, and a shivering motion of the body was visible; there was great languor, a disinclination to motion, (it did not amount by any means to coma, as the child attended to every thing said by her mother, roused herself and then dropt to rest) the pulse was rapid and weak, the skin as usual dry and hot. The replies to questions were not given by herself but by her mother, and the symptoms therefore were not so minutely ascertained. In this girl the disease was evidently more advanced, and she was in a much weaker state; still in the plains the case would not be thought a serious one, nor involving any thing unusual on which to give an unfavorable prognosis, unless for the appearance of a swelling in the groin on the left side. There was a general tumefaction of the part running from the crest of the ileum to the pubis, rather on the edge of the pelvis than the groin, and in the middle of the swelling a gland was felt to be hardened. This I touched and pressed with my own fingers, it did not seem tender or painful, it was not much enlarged, only to the size of a small nut, the whole action very indolent. The commencement of this swelling was mentioned yesterday by the people who brought the report; therefore it shewed itself on the second day. The case did not exhibit any indications for active treatment under the circumstances of exposure and distance from observation, some fever medicines were left with them, but it is doubtful if they be given as directed, since before us the girl resisted taking what was given.

*Bhoongdar Bungalow, 10th May, 1850.*—Appeared Gubnoo, cultivator, inhabitant of Muhrorce, a stout healthy looking

man of 26 to 30. The village of Muhroree was attacked with Mahamurree in August 1849 up to December (Sawun to Ughun), 61 died in all, from first to last. He himself, Gubnoo, was attacked in November, and was the only individual who recovered. Very minute enquiries were made upon the disease, which were answered generally by the native expression that he was insensible, (be hosh) : this lasted for nine days. The first symptom he mentions is severe headache, then fever, upon the third day a swelling arose in his left groin, which went on to suppuration, and was opened by a neighbour on the 14th day of his sickness. He still bears the cicatrice in the middle of the left groin. On particular questioning he says that the person who opened it suffered no sickness, and is still alive. He took no medicine, his only food for nine days was water and a little sugar. The people all left the village and did not return till January ; their cattle did not sicken. He distinctly says that *after* two children had first died, the rats were found dead six or eight in a house, no other animals suffered. He knows of no other person who has survived from an attack of Mahamurree. Two others of another village have been mentioned, neither of whom has yet been brought to me.

*Bhoongdar Bungalow, 11th May, 1850.*—A report has been brought this morning that the child seen yesterday is dead ; that having taken place after three full days' sickness. There was no such mark of speedy dissolution in the child yesterday. The cerebral affection was the most prominent symptom, but it was not coma, delirium, or incipient effusion. The child certainly understood its mother's words, and even indicated its modesty under examination. The most remarkable nature of this disease therefore is its sudden termination with outwardly very little deviation from health. Another fresh case is reported among the people on the mountain-side who had withdrawn from Mycoollee. I intend to pitch my tent to-morrow on the road towards Kuncour, at the top of the mountain beyond where these people are, and to visit them on the way.

*Bhoongdar Bungalow, 12th May, 1850.*—Packets of official letters came in late last evening, that have detained me here. A case reported this morning below Budolee ; sent Native Doctor, Pursun Singh, to ascertain. The case seen by him, and described to be only the threatening yesterday of a common fever, the man being better to-day.

*Kuncour, Monday, 13th May, 1850.*—On passing over Khundia Khal this morning I visited the poor people from

Mycoollee, who had moved further up the hill, in consequence, they said, of buboes\* having the day before broken out on the woman whom I first saw on my visit on the 10th. She had, I now understood, been found dead this morning, and the sudden fatal termination of symptoms, such as they appeared three days ago, must be viewed as altogether unaccountable under present information, and must shew that only a steady course of observation of this disease in its earliest stages, with *post mortem* examination, can be of any avail to disclose the functional causes of disease. The daughter who had attended her mother complained a little of headache, but did not appear unwell; the fact of her having so attended was held sufficient to exclude her from the rest of the people, who threatened to drive her away. Advice was given to them to purify her by bathing and changing her clothes, and to keep her apart for some days, not to abandon her entirely.

At some further distance was seen another case of this disease, in a young married woman, of the same party from Mycoollee, who was alone and apparently deserted; at least a male relation (not the husband) who showed us the place would not approach near. Here the disease as now declared was of the third day, but its course must be very insidious, for there was little ostensibly to mark severe disease. In this case the first symptom of all was the appearance of an external swelling; then followed headache and fever; the former was described as sharp pain and dizziness, the latter was not severe as to heat of the skin or state of the pulse, which I felt to be moderate though languid; the tongue was white and much loaded, the eye was clear, and the chief complaint was a feeling of great lassitude; yet the patient was quite sensible, raised herself when desired to describe her ailments without sinking back again, and gave clear replies marking a sense of her condition. The swelling, or gola or golee as they called it, was hardly to be termed a buboe; it was a diffused swelling across the upper and front part of the thigh, much longer across than in width, quite out of the hollow of the groin. It was not touched, as the patient was from the first averse to shew it. In this case there was no shivering as in the two former; possibly the greater heat of the day was the cause. Suitable

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\* So I distinctly understood. The Native Doctor said otherwise at Kuneour, or rather that he did not hear it said so. The utmost pains therefore were taken on the way back to determine this fact exactly. The Compounder, Bhejah Singh, assisted in interpreting to avoid any possible mistake. It was twice clearly repeated on the same morning that one or more buboes had broken out in this woman, hence their renewed fears.

medicines were left to be administered, but it is most disheartening to attempt remedies where they are palpably so powerless, and where the main accessories of shelter, attendance, and local comfort are so entirely wanting. It was intended to have fixed the camp at or near the top of Khundia Khal, within visiting distance of the place on the mountain where the sick are, but no water could be found; afterwards the place for halting was discovered to be so far on the road, that it was thought advisable to come on to Kuneour. This unfortunately removes me from inspecting this last case, or from learning of others.

*Kuneour, 14th May, 1850.*—No intelligence nor rumour of the disease at this side of the mountain or at this place: I seem to have got out of the sphere of it entirely, and have written to the Assistant Commissioner at Paoree on the subject.

*Kuneour, 15th May, 1850.*—Business of the inquiry completely at a stand; I intend to return to Bhoongdar to-morrow, and have sent for any cases there may be at Sarkote, of those who have recovered from an attack of Mahamurree, having been told at Nainee Tal there might be some; I shall examine them at Bhoongdar, and afterwards mean to make search for cases at Bergong on the south of the high road, where the disease has been reported; I can also go from Bhoongdar to Lobha, if necessary. No fresh report of sickness from Muhroree. The head chuprasie has gone round there and by Chandpore to rejoin at Bhoongdar.

*Bhoongdar Bungalow, 16th May, 1850.*—Finding the time lost at Kuneour and no intelligence nor sight of the disease, I determined to return here, with the view of going direct to Lobha. On crossing the Khundia Khal, on the side towards Mason, I learned that the case of the young woman I saw on the 13th had also proved fatal, during the night, it was said, after I saw her, but from the state of the corpse I should think later; for I performed the duty of going close up to the body\* to witness the fact, and to give an example to the natives. In either event, whether the time of death was 24 or 48 hours from the time of examination, it is not easy to explain the cause of it from the symptoms observed, where there was so little derangement of the functions of health; the most obvious

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\* Nubbee Buksh, Native Doctor from Mooradabad, and the Compounder from Almorah accompanied me. The Native Doctor, from after-conversation, had particularly remarked black patches on the face and chest. I also noticed the latter, but considered them as having arisen after death—certainly there were no such marks on the previous visit.

inference to be drawn is, that it is the operation of some morbid poison, with little or no reaction of the system to counteract it. The total neglect of the sick by their friends, forcibly shewn in the present instance, and the terror thereby impressed upon them, must no doubt hasten the catastrophe, In the two first cases the attendance was, as far as I can hear, unexampled, in the one by the daughter over the mother, and in the other by the mother on her child ; and here I was told that both these parties continued unaffected by the disease, for I did not see them, the Mycoollee party having again changed their ground in the forest owing to this last death. This terror of the people must be overcome, for the over-precaution is unnecessary, and communication might be maintained at a moderate distance. The dread must be overruled, especially too, in regard to their treatment of the dead, for hitherto they have left the bodies to be destroyed by wild beasts, or to rot in the open air, sometimes within the villages, and undoubtedly, where formerly the mortality has been very great, this exposure of the dead has been a chief cause of the disease being kept up in the country. The source of pestilence must be destroyed, and it may be done with perfect safety to the living. In the instance of the body of the young woman seen this morning, wood (and plenty was at hand,) could have been thrown upon it from the distance to which I approached or much further, and fire afterwards ; but it was left there and would probably not be consumed, although strict injunctions were given. Out till 10 A. M. in the forest, in expectation of seeing another case reported, but on enquiring it proved to have been only a slight headache and a temporary ailment. No other cases of Mahamurree among this party.

*Bhoongdar, 17th May, 1850.*—Kooto, chataee maker of Sarkote, was brought to me, middle aged man, says Mahamurree appeared in the village about three years ago, when several of his family, male and female died ; the rats in the house first sickened and died, he says, threw up blood. After the first death in the family, they left and went into the jungles, and did not return to their house for six months ; he was himself attacked with Mahamurree ; had fever and pain in the bowels, severe headache, and was insensible for three days ; on the third day a swelling arose in his left groin, on the fourth day he got well, and the gola disappeared without inflaming ; he had no black spot or blotches on his body, nor ever heard of any one having them ; there is no Mahamurree in that neighbourhood at present ; 43 people died at the time he was ill.

Beejo, lohar of the village of Sarkote, had Mahamurree when it attacked his house and village, (five years\* ago he says) two of his family died first, and they then fled into the forest. He was ill three days; on the second day a swelling appeared on the middle forepart of his left thigh, which continued for three days with great heat-like burning, and then went off of itself without any remedy being applied; only about 20 people escaped in the village without having the disease; he and the other man were the only survivors of those who were attacked. This man too says the rats died at the first irruption of the pestilence; did not hear of or see any one of those who died, surviving to the fifth or sixth day, the fourth was the very utmost.

The Thermometer in an open verandah with northern exposure stood this day minimum at sunrise  $65^{\circ}$ , maximum at 3 P. M.  $83^{\circ}$ .

*Bhoongdar, 18th May, 1850.*—A fuller report came in yesterday from Bergong that five had died there, but at present there was no sickness; one man had recovered among those seized. In his case a buboe formed and came to suppuration; it had been opened, and being now discharging matter he could not walk so as to show himself here.

P. M.—Chuprassie Narain has returned from Chandpore, and reports that in that pergunnah a few cases of Mahamurree have proved fatal in May, at Pindooalnee and another place, but there were not more than five, and other fresh cases would be difficult to discover.

Finding that much more time and labor must be devoted to find out new cases than I can apply of either, and that the disease is at the present time to be witnessed only by accident, if it has not abated in this neighbourhood entirely, and that this is the view also taken by the Assistant Commissioner, I have determined on returning to Almorah.

*Camp Deghat, 19th May, 1850.*—Ther: maximum  $95^{\circ}$ .

*Massee Bungalow, 21st May, 1850.*—Thermometer maximum  $87^{\circ}$ , minimum (sunrise)  $64^{\circ}$ . When last at this place there occurred a good field for observing the general appearance of the common people of this part of the country at a fair

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\* As this was in 1846-47, it might be the fifth year, according to native computation.

or melah held in the bed of the river for a single day, not for purposes of traffic, but apparently for some religious Hindoo tradition. They came in tens and twenties or more, the men and women together as it were of a house or small village, with flags and the usual noisy music, the chief male personage performing a sort of progressive revolving movement before them, with a naked sword in his hand which he waved round him as he advanced; they seemed to come chiefly from the south, along the valley of the Ramgunga, judging from their way of collecting and their going off again in parties in the afternoon; they may be taken therefore to have been the inhabitants of Kumaon Proper, on both sides of the river, with only a small admixture of poorer looking people from the north; there might have been collected from 3,000 to 5,000 adults of both sexes with not many children; they were attired no doubt in their best, but this must be viewed only as a temporary cloak upon their generally uncleanly habits; they behaved in a quiet well regulated manner, and their conduct gave a favorable impression of the quietude of the Hindu population (if there were any Musulman villagers they were not recognized); the whole gave an advantageous idea of the general condition of the inhabitants of Kumaon Proper, and their general comforts and prosperity. Seeing on that day so large a collection of healthy people on the borders of Gurhwal, I could not believe a *contagious plague* to have raged for nine months within 20 miles of the assemblage, for it must have made its way there by some of the many insidious modes of its propagation and extension. The place where I actually found the disease was not above 25 miles off, and Muhroree was much nearer in another direction and in a straight line. Having since then seen some of the inhabitants of not the worst part of Gurhwal, I am struck with the marked difference between the two districts, and the great discrepancy in the civilization of both people. The part of Gurhwal too seen by me, is not the most uncultivated. Beyond the Pindur I understand, and towards the snow, the people are less cultivators than laborers, acting as coolies to the Bhooteahs, or other traders further north. They are a poor despised race, living on a precarious and coarse diet, and I do not wonder accordingly, that a putrid disease (such as I have lately seen, and perhaps not in its most concentrated form), should have broken out amongst them and have hung over them so long.

*Camp, 22nd May, 1850.*—Clouds and rain to-day—maximum Thermometer 72°.

(Signed) C. RENNY,  
*Superintending Surgeon.*

# APPENDIX A.

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## CORRESPONDENCE LEADING TO DR. RENNY'S DEPUTATION.

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FROM J. STRACHEY, Esq.,

*Senior Assistant Commissioner, Gurhwal,*

TO J. H. BATTEN, Esq.,

*Commissioner of Kumaon,*

22nd December, 1849.

SIR,

I beg to bring to your notice that the disease called "*Mahamurree*" has broken out with great virulence in Puttee of Chuprakote in this district.

It first made its appearance during the last rainy season, and up to the present time there are no symptoms of its cessation.

The disease has not spread through the country to any alarming extent, but in particular villages that it has attacked it has proved most fatal. In Muhroree and Dudoolee, two of the most considerable villages in Puttee, ninety-one persons are reported to have died within the last four months, probably 25 per cent. on the total population, and these and several other villages have been entirely deserted by the survivors.

2. My immediate object in now addressing you on this subject is to propose that an application be made to Government that a competent Medical Officer be deputed to investigate the disease, with a view to the determination of its real character, and to the suggestion of some remedies and sanatory measures which may be likely to check its progress.

3. I have at present neither the means nor the time at my disposal necessary for giving any detailed account of the nature, so far as it is at present known to us, of this disease. It is sufficient that I should state the following facts. That for about 30 years past there has existed in Kumaon and Gurhwal a disease known by the local name of *Mahamurree*, apparently identical with the plague of Syria and Egypt, the characteristic symptoms being violent fever of the most contagious nature, always accompanied with swellings under the armpit; the disease ordinarily seems to reach its crisis on the third day after its first appearance in the persons attacked. No remedies seem to be known that produce any good effect, and altogether it is impossible to exaggerate its virulence, or the terror which it inspires.

4. It appears to me that an enquiry regarding this disease has been neglected far too long already, and that not only as a question of considerable scientific interest, but as a matter of humanity, and of real and practical importance, a thorough investigation ought no longer to be delayed. Putting out of the question all considerations of present benefit, there is ample cause for enquiry as a measure of precaution for the future.

It would be foolish to assume that because this disease has hitherto confined its attacks to particular localities and particular climates, it must do so always. Experience must, I fear, rather lead us to different expectations.

I need hardly add that no ordinary qualifications would be required in a person who might be chosen for such a task. Medical knowledge and skill will not alone suffice; with them must be combined no common judgment, and the determination to face a personal risk which may be by no means an imaginany one.

I have, &c.,

(Signed) J. STRACHEY,

*Senior Assistant Commissioner.*

GURHWAL :  
S. A. COMMISSIONER'S OFFICE, }  
December 22nd, 1849.

No. 1 OF 1850.

FROM J. H. BATTEN, Esq.,

*Commissioner of Kumaon,*

To J. THORNTON, Esq.,

*Secretary to Government, N. W. P.*

*Head Quarters, dated 1st January, 1850.*

*General Department.*

SIR,

I have the honor to forward for the consideration and orders of the Hon'ble the Lieutenant Governor, the accompanying Report (in original) from Mr. J. Strachey, Senior Assistant in Gurhwal, on the subject of the fatal fever now raging in one part of his district.

2. Unfortunately when the disease was at its height in October and November, Mr. Strachey was induced to believe that the accounts of it were grossly exaggerated, and mentioned that belief to me as a reason for his silence on the subject. Recently, however, my own attention was forcibly drawn to the mortality prevailing in Chuprakote, and my own call on the Senior Assistant for immediate and full enquiries must have crossed his present report on the road.

3. Neither Mr. Strachey nor myself now entertain any doubt as to the real state of affairs, which is truly deplorable. The natives themselves are such firm believers both in infection and contagion, that a village visited by "Mahamurree" is entirely cut off from its neighbourhood, and its inhabitants would inevitably be sacrificed to the fears and rage of the country people, if they attempted to leave the forests and caves adjacent to their own desolated homes. Thus when food fails, the villagers are obliged to go to their own barns for a supply, and each such visit renews the frightful mortality among them.

4. The plague is undoubtedly coming lower and lower every year. It began near Kedarnath, in the snowy range, and for some years confined its ravages to pergunnahs Nagpoor and Budhan, in which last tract I myself recollect it alarmingly prevalent in the year 1837; in 1846-47 the "Mahamurree" found its way to the sources of the Ramgunga, in

Puttee Shobee, and almost entirely swept away the village of Sarkote,\* situated at above 7000 feet on a high easterly spur of the great mountain Doodooke Tolee, (10,300 feet above the sea). At the same time a village in Kumaon Proper, near the source of the Cosilla in Puttee Baroke Rao, was visited, and the mortality was most dreadful. In 1847, a village within 15 miles of Almorah, (west) situated among the pine forests of the Seeahee Devee range, was attacked, and the same melancholy results followed. At the latter end of 1848, a few villages in pergunnah Danpoor, along the fatal line of the river Pindur, were threatened with this disease, or rather with its return, for they had shared in the ravages of earlier years with their Budhan neighbours; but the alarm subsided, and, on the whole, the year 1848 and part of 1849 may be said to have been remarkably free from Mahamurree throughout the province.

5. A reference to the Balance Reports from Zillah Gurhwal will prove that the existence and effects of the disease have been periodically brought to the notice of the superior authorities. His Honor will find some account of the Gurhwal Mahamurree in the Pali Plague Report, published during Sir C. Metcalf's Governorship, while my own Settlement Report of 1842 makes marked mention of the same disease.

6. Hitherto we have, I think, been justified by facts in believing that however contagious or infectious the Mahamurree might be within the *circle of population locally subject to its visitation*, and that, although in every case of fresh outbreak in a new place, the people have affected to trace the infection from Budhan, &c., (generally through a jar of ghee brought from that quarter) still casual travellers, and especially pilgrims, might pass through a Mahamurree village without risk. I do not know of any mortality from this cause among the numerous pilgrims to Kedarnath and Buddrenath. Mr. Commissioner Traill never delayed nor altered his marches in consequence of Mahamurree, except so far as it affected his supply of coolies; European travellers have, within my own experience, counted the unburied and unburnt corpses in Budhan villages, and have with their servants escaped unscathed; and up to a very recent period, I myself would not have avoided† any route on account of this disease.

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\* Sarkote is nearly opposite the well known house built by Mr. Lushington at Lomana, in Lobha, now my property and Mr. Strachey's.

† And only now would avoid because I am a husband and father.

7. The question now arises, whether at the present time (whatever our past belief may have been) the Mahamurree disease of Chuprakote is a local fever of extreme malignity, or whether it is a *plague*, the spread of which may justly be dreaded. In investigating this point humanity demands whatever attention can be given on the subject of *cure*, and of remedial and preventive measures in general.

8. I need hardly remind His Honor, that Upper India occupies the Plague Latitudes of the world, and that its escape from the visitation is supposed to be owing to its *peculiar heat*; this latter peculiarity certainly does not belong to the villages in Chuprakote, or indeed to three-fourths of the localities which have been fatally visited in Nagpoor and Budhan. Muhroree is 6200 feet above the sea in a glen at the western base of Doodoke Tolee abovementioned; Dairee is near 7000 feet in the southern face of the same mountain; and Dudoolee is quite as high as Almorah. If therefore it is only heat which saves the Dooab and Rohilcund from the "plague" of Syria and Egypt, we have in Kumaon and Gurhwal both a climate and latitude exactly suited to the disease.

9. I am myself of opinion that the disease of which we are treating is in its visitations similar to sporadic cholera, that it only attacks certain localities, and that its selection of those localities is capricious,\* that the predisposition of individuals there residing is fearfully increased by the dirty and warm clothing of the inhabitants, and by the high and rank vegetation,† which surrounds their dwellings; that the disease *attains* an infectious form after its arrival in such places, and that the predisposing causes being absent or less in the white-washed villages, and among cotton-clad bathing inhabitants in Kumaon Proper, (dirty though they be) the Mahamurree fever has hitherto spared (with the exceptions formerly mentioned) the latter district. Without this particular plague, Kumaon is sufficiently unhealthy; nor do I believe that any part of the mountains from Cashmere to Sikkim is free from fevers of the most malignant character. Knowing the state of affairs within a few miles of those sanatoria, I have often been astonished at the unsuspecting ignorance even of medical men at Simla, Mussouri and Nainee Tal, who talk of the "line of fever" and the "limit of cholera" &c., which they fancy they can point out below their feet on the southern aspect of

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\* Humanly speaking.

† Chiefly hemp.

those hills. Two of the villages named by me in para. 8 are close to a locality\* especially selected by myself and family as the most desirable spot in the whole province for a country-residence, being high, open, yet beautifully wooded, and with a rapid clear river running through the grounds.

10. A matter of such grave moment should not, I agree with the Senior Assistant, be any longer left to the opinion of the local Civil Officers, whether as in my case the least gloomy one, or whether as apparent in his case one suggestive of alarming doubts and comparison.

11. I therefore solicit the earnest consideration of the Lieutenant Governor upon the painful subject now brought to His Honor's notice, and I respectfully join in Mr. Strachey's recommendation that a competent medical commission be appointed to examine into the Mahamurree disease of this province.

12. The medical men now resident in Kumaon are Mr. Faithful, Mr. Banister, Mr. Shillito, (on leave at Nainee Tal), Mr. Guise, (who expects, however, soon to be relieved from the charge of Nainee Tal by, I believe, Mr. Dunbar), and Tumeez Khan, Sub-Assistant Surgeon. Of the professional abilities of any of these gentlemen I am not a competent judge; while, as truly observed by Mr. Strachey, many other qualities besides medical skill are needed in those who may be sent to investigate our plague.

I have, &c.,

(Signed) J. H. BATTEN,

*Commissioner.*

*Kumaon Commissioner's Office :* }  
 CAMP BULLEEAH BRIDGE,  
*The 1st January, 1850.* }

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\* Cheena-khal near Chuprakote.

No. 61 OF 1850.

FROM R. THORNTON, Esq.,

*Assistant Secretary to the Government, N. W. P.*

TO THE MEDICAL BOARD, *Calcutta.*

*Dated Head Quarters, the 18th January, 1850.*

*General Dept., N. W. P.*

GENTLEMEN,

I am directed by the Hon'ble the Lieutenant Governor, to transmit the accompanying copy of a letter from the Commissioner of Kumaon, No. 1, dated 1st instant, and of its enclosure, reporting on the Mahamurree plague of Gurhwal, and to request that the Board will state what measures they would propose for investigating the nature of the disease.

I have, &c.,

(Signed) R. THORNTON,

*Assistant Secretary to Govt., N. W. P.*

HEAD QUARTERS :  
The 18th January, 1850. }

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No. 11 OF 1849-50.

FROM THE MEDICAL BOARD,

TO THE HON'BLE J. THOMASON, Esq.,

*Lieut. Governor, N. W. P.*

*Dated Fort William, the 28th January, 1850.*

HON'BLE SIR.,

We have the honor to acknowledge Mr. Thornton's letter, No. 61 of the 18th instant, with copy annexed of correspondence on the subject of the Mahamurree plague of Gurhwal, requesting us "to state what measures we would propose for investigating the nature of the disease." In reply we would suggest that Dr. Renny, Superintending Surgeon of the division in which the Gurhwal district lies, should be directed to enquire into the history and nature of the disease on the spot, when he

visits it in the course of his approaching tour of inspection, as we consider him fully competent to conduct that or any other professional investigation that may be entrusted to him.

2nd. Should he however himself desire that others should be associated with him in the proposed enquiry, or if your Honor should consider that it would be more satisfactory to obtain the report of a full Committee, we would respectfully recommend that either Surgeon T. E. Dempster, of the 1st Brigade Horse Artillery, at Loodianah, or Surgeon Campbell Mackinnon, of the 6th Battalion of Foot Artillery, at Jullundur, and the Senior Assistant Commissioner, Mr. Strachey, should be associated with him in the investigation and in the preparation of the Report.

We have, &c.

(Signed) G. LAMB, *Physician General,*

(Signed) W. S. STIVEN, *Surgeon General,*

(Signed) J. THOMSON, *Insp. General.*

FORT WILLIAM, MEDICAL BOARD }  
OFFICE : }  
The 28th January, 1850. }

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No. 206 of 1850.

FROM J. THORNTON, Esq.,

*Secretary to the Government  
of the N. W. Provinces.*

TO THE MEDICAL BOARD,

*Calcutta,*

*Dated Head Quarters, the 22nd February, 1850.*

*Genl. Dept., N. W. P.*

GENTLEMEN,

I am directed to acknowledge the receipt of your letter, No. 11, dated 28th ultimo, on the subject of the Mahamurree plague of Gurhwal, and in reply to observe that the Superintending Surgeon's report will be sufficient. You are requested to issue orders accordingly.

I have, &c.,

(Signed) J. THORNTON,

*Secretary to the Government*

*of the N. W. Provinces.*

HEAD QUARTERS: }  
The 22nd February, 1850. }

No. 1062 of 1850.

FROM J. FORSYTH, Esq.,

*Secretary, Medical Board, Calcutta,*

TO C. BENNY, Esq.,

*Superintending Surgeon, Meerut.*

*Dated the 4th March, 1850.*

SIR,

I have the honor, by direction of the Medical Board, to transmit, for your perusal, the correspondence in original, noted in the margin,\* and copy of their letter to the Lieutenant Governor, No. 11 of the 28th January last, in reply to the request that they would suggest measures for investigating the nature of the disease known as the "Mahamurre" plague of Gurhwal. A copy of the reply of the Secretary to the Government North Western Provinces, is also herewith enclosed, No. 206 of the 22nd ultimo, from which you will observe that the Lieutenant Governor considers that a report from you on the subject will be sufficient. The Board therefore direct me to request you will have the goodness to proceed to the spot at your early convenience, and when you have concluded your investigation, that you will favor them with a report of the result for submission to Government.

2. The return of the original enclosure is requested with your reply.

I have, &c.,

(Signed) J. FORSYTH,

*Secretary.*

CALCUTTA :  
The 4th March, 1850. }

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# A P P E N D I X B.

REPORT ON MAHAMURREE IN 1836.

No. 46.

FROM THE COMMISSIONER

*of Moradabad,*

TO THE ACTING COMMISSIONER

*of Kumaon.*

SIR,

During my late march through a part of the province, the prevalence of a sickness was mentioned to me by the Tehseeldar of Sireenuggur and others, which in its symptoms, as described by that Officer, so much resembled the plague, as to induce me to request you will, after instituting any further enquiries you may deem necessary, favor me with a report on the subject. It was said to have been particularly fatal in the neighbourhood of Kumrag, and it would be satisfactory to ascertain the estimated number of deaths in the several villages in which it made its appearance, and to ascertain if it has since broke out in others.

I have, &c.

15th February, 1836.

No. 47.

FROM G. E. GOWAN, Esq.,

*Commissioner of Kumaon,*

To S. M. BOULDERSON, Esq.,

*Commissioner 3rd Division, Moradabad,**Dated the 25th April, 1836.*

SIR,

I have the honor to acknowledge the receipt of your letter, dated 15th February last, to the address of the officiating Commissioner Mr. M. Smith, calling for a report on the subject of a sickness which prevailed during the past year in the district of Gurhwal, and which appeared to you, from a description of its symptoms, to resemble the plague.

2. With the view of ascertaining the estimated number of deaths, as required by you, in the several villages which were visited by this pestilence, statements were ordered to be furnished by the putwarrees stationed in the interior: the result is given below. From that detail it will be seen that the greatest number of deaths occurred in pergunnah Budhan, on this side the river Pindur, and the fewest deaths in pergunnah Chandpore. The largest amount of deaths in any one village appears to have been in mouzah Doongurree, in the first named pergunnah, where 47 persons died; in mouzah Thuralee, of the same, 32 deaths occurred, and in Kumprag, also situated in Budhan, there were twelve fatal cases. Of other pergunnahs, the largest number in individual villages is 37 deaths in village Bumote, Puttee Mulla, Nagpore, and 24 in village Thuralee, pergunnah Budhan, across the Pindur. These returns have the appearance of being generally correct, though they may possibly be somewhat exaggerated from a desire, on the part of the malgoozars and others, to make out a good case for remission of rent.

3. The symptoms and peculiarities of the disease, as detailed by the Revenue Officers, may be briefly stated as follows. Its appearance was observed to be preceded by a mortality among the rats in the village; the attack is described as sudden, attended with fever, great thirst, and an eruption of buboes or swellings under the arms and behind the knees, with a desire to eat bitter things; besides being accompanied with the usual characteristics of cholera after the appearance of the swellings, and generally terminating fatally in the space of two, three

or four days. Those who recovered were very much reduced for a long period. The name given to the disease by the natives is the same as that by which the common cholera is known, "Mahamurree," though from the peculiar symptoms it would certainly seem to be distinct from that epidemic.

4. The origin of this sickness is dated as far back as the year 1880, Sumbut Æra (1823); when, according to the information of the Tehseeldar, the late Rawul of the temple of Kedarnath, in the performance of the religious ceremony called "hom," deviated from the rules prescribed by the shasters and in consequence died, together with the brahmins who assisted at the offering. The disease is said to have thence arisen, first in puttees Bamsoo and Mykhunda, which are in religious assignment to that temple, and afterwards to have spread to the other pergunnahs, and latterly to have appeared in Budhan; and that everywhere it appears first to have attacked the rats and then the men. It has now by all accounts disappeared in Gurhwal, and would not appear to have broken out afresh in any part of the province.

5. In conclusion I annex an Extract of a letter written on the subject by Mr. Assistant Surgeon Bell, who, though he never witnessed a case, had many opportunities of hearing Mr. Traill (the late Commissioner) mention the disease in question. He terms it a fever of a putrid character resembling the plague; it was ushered in with fever, great prostration of strength, and an eruption of buboes, or glandular swellings, over various parts of the body, the latter being one of the chief symptoms of the plague; it proved rapidly fatal, its duration in many cases not exceeding three or four days. "I am not aware (he concludes) if the disease observes stated periods, and then becomes epidemic, although I cannot assign any particular cause for the disease breaking out." Mr. Bell observes that it is no doubt much aggravated when it has commenced by a want of cleanliness on the part of the people, and an impurity of atmosphere engendered by allowing immense heaps of filth and dung to accumulate in front of their houses, in many instances serving the purpose of a ladder to reach the upper story.

I have, &c.,

(Signed) G. E. GOWAN,

*Commissioner.*

*Statement of Deaths ascertained to have occurred from a prevailing mortality in Gurhwal during 1834 and 1835.*

|                                                              | <i>No. Died.</i>  |
|--------------------------------------------------------------|-------------------|
| Villages in religious assignment to the temple of Kedarnath, | 63                |
| Puttee Bamsoo, .. .. .                                       | 25                |
| Puttee Purkhundee,.. .. .                                    | 26                |
| Pergunnah Mulla Nagpore,.. .. .                              | 76                |
| Ditto Tulla Nagpore, .. .. .                                 | 60                |
| Ditto Dussolee, .. .. .                                      | 26                |
| Ditto Budhan Pindur War, .. .. .                             | 199               |
| Ditto Budhan Pindur Par, .. .. .                             | 144               |
| Ditto Chandpore, .. .. .                                     | 14                |
|                                                              | <hr/>             |
|                                                              | <b>Total, 683</b> |
|                                                              | <hr/> <hr/>       |



## APPENDIX C.

*Letter from Superintending Surgeon C. RENNY, to J. STRACHEY, Esq., Senior Assistant Commissioner, Gurhwal, dated Kuneour, 14th May 1850.*

SIR,

In execution of the duty imposed on me of enquiring into the nature of the Mahamurree disease of Gurhwal, after remaining for four days at Bhoongdar, whence I extended my researches by personal visits in the directions of Dudoolee and its neighbourhood, and of Mason and the places above it, I have now arrived, as I have the honor to inform you, at this place. It was my intention to have gone towards Muhroree, upon Mr. Batten's suggestion, but as the disease appears to have abated in that quarter, the journey may be now unnecessary. Unless therefore you have any fresh information upon which to direct my course otherwise, I purpose returning to Bhoongdar, and thence perhaps going towards Lohba, although the reports made to me shew that the disease had not reappeared there or in the Chandpore pergunnah. It would almost seem that at this place I had got out of the circle of the present distemper, for I heard (and saw) much more of it above Mason, and of its being at Bergong, south or south-west of Deghat.

I have seen only one individual (he came from Muhroree) who had survived an attack of the disease. His information was of importance, and I had expectation of seeing others of the same description, having been told there might be some about Sarkote ; I would point out that it is easier for these men to come to me than for me to reach them.

With much difficulty and personal labor I have been able to see three cases of the disease among the people who fled from Mycoollee near Mason, and they may be considered the genuine Mahamurree as they had the characteristic swelling. It will be my business to give my views to the Medical Board upon the whole facts as they may be further enlarged, but I think it right even at this time to state to you that in my opinion the disease

is not contagious plague. It is unquestionably a very pestilent fever, now endemical in the district, and occasionally running into an epidemic, and it is no doubt very infectious when many persons keep together.

To point out the means of eradicating the endemic is as yet impossible, and to correct the squalid and dirty habits of the people, which aggravate all their disorders, is very hopeless; there is however one sanitary measure I would recommend that may be immediately carried into effect. This is to burn down every house in which Mahamurree attacks one of the inhabitants. They generally abandon their houses, I have heard of only one well authenticated instance to the contrary, and facility is thus given of expurgating the huts by fire, which may be done by burning the roof, if a wooden one, or throwing more wood inside. This means of purifying infected houses (it will be useful whether we look to contagion or infection) has been already tried in some places, but not effectually and promptly; it ought to be enforced everywhere, and the advantage of it will be that the inhabitants may sooner return in safety to their abandoned villages.

Another essential measure, to be done at once, is to force the people to burn or bury the dead; at present they fly from the bodies in terror, leaving them to rot in the open air, and thus contaminate the neighbourhood, and so to propagate the cause of other sickness. There ought to be a strict police regulation that the dead bodies be burned without delay, and it may be done without contact of hands, and at an interval of space quite safe to the living; they may be consumed within the huts if left there, or even outside by throwing billets of wood from a distance. Some houses were pointed out to me at Mycoollee, near Mason, where cases of Mahamurree had occurred, and one particularly where one or more dead bodies were said to be remaining; this was close to the high road from Bhoongdar, and must stop all intercourse if permitted to continue as a customary nuisance. I am not sure that the two bodies of the patients seen by me above Mason were properly disposed of, although strict injunctions were given to the people when passing to Kuncour.

From the difficulty of finding the disease I might suppose it to be on the decline; at any rate from this cause my actual labors are much increased, and my prospects of completing any useful inquiry are greatly discouraged.

I have, &c.

*Letter from J. STRACHEY, Esq., Senior Assistant Commissioner, to C. RENNY, Esq., Superintending Surgeon, Camp — , No. 15, dated Gurhwal, Senior Assistant Commissioner's Office, 15th May 1850.*

SIR,

I have the honor to acknowledge the receipt of your letter dated the 14th instant.

2. I have received no information that any deaths from Mahamurree have lately occurred in the pergunnahs of Lohba or Chandpore, and I believe that in the part of the district where you now are, you are much more likely to see and hear of the disease than you would be in any other quarter. It appears to me therefore unnecessary that you should give yourself the trouble and labor which a journey into Chandpore would entail.

3. With reference to the preventive measures which you have recommended, I have the honor to inform you that I have issued most stringent orders regarding the burning of bodies of persons who may die of Mahamurree, and I shall take care that this important point be in future strictly attended to.

4. As regards the destruction of houses in which a person has been attacked by the disease, I have requested the instructions of the Commissioner on the subject, not considering myself authorized to order the immediate adoption of this measure.

I have, &c.

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# APPENDIX D.

## *Statement of Deaths from Mahamurree in 1849-50.*

### PERGUNNAH CHUPRAKOTE.

Muhroree, .....	.....	.....	.....	.....	61
Dudoolee, .. ..	.....	.....	.....	.....	25
Tulla Dudoolee, ..	.....	.....	.....	.....	3
Gaoree, .. ..	.....	.....	.....	.....	3
Mason, .. ..	.....	.....	.....	.....	4
Raolee, .. ..	.....	.....	.....	.....	1
					— 97

### PERGUNNAH CHANDPOOR.

Pindwalnee, .....	.....	.....	.....	.....	2
Lungta, .. ..	.....	.....	.....	.....	6
					— 8

### PERGUNNAH BUDHAN.

Soonah, .....	.....	.....	.....	.....	5
					— 5

Total, . . . . . 110

(Signed) J. STRACHEY,

*Senior Assistant Commissioner.*

28th April, 1850.

To the above are to be added three deaths in the jungles above Mason in May, and four uncertain.

(True Copies from A. to D.)

(Signed) C. RENNY,

*Superintending Surgeon.*

No. 80.

FROM C. RENNY, Esq.,

*Superintending Surgeon, Meerut Division,*

TO J. FORSYTH, Esq.,

*Secretary Medical Board, Calcutta.*

DATED SUPERINTENDING SURGEON'S OFFICE, MEERUT,

*22nd August, 1850.*

SIR,

In addition to my letter No. 73 of the 19th instant, I have the honor to submit, for the information of the Medical Board, the latest intelligence regarding Mahamurree, being Extracts of a copy of a letter forwarded to me by the Senior Assistant Commissioner, Gurhwal.

I have, &amp;c.,

(Signed) C. RENNY,

*Superintending Surgeon, Meerut Division.*

SUPERINTENDING SURGEON'S OFFICE, }  
 MEERUT :  
*The 22nd August, 1850.* }

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*Extracts of a Copy of a Letter from J. STRACHEY, Esq., Senior Assistant Commissioner, Gurhwal, to J. H. BATTEN, Esq., Commissioner, Kumaon, No. 33, dated Gurhwal, Senior Assistant Commissioner's Office, 8th August, 1850.*

*Para. 1.* I have the honor to inform you that as there is great reason for hoping that the disease has disappeared for the present, I have not considered it necessary to act on the authority which has been given to me.

*Para. 3.* The experience of the past year has shown me, that with the agency now at my disposal it is almost impossible to carry out any sanitary regulations that may be considered necessary, and even to obtain full information regarding the progress of the disease is by no means easy.

*Para. 5.* I take this opportunity of furnishing you with a statement\* of the deaths which have occurred from Mahamurree in the several villages since the disease made its appearance last year.

| <i>Puttee.</i>                                         | <i>Village.</i>  | <i>No. of Deaths.</i> | <i>Remarks.</i>                                                                             |
|--------------------------------------------------------|------------------|-----------------------|---------------------------------------------------------------------------------------------|
| Chuprakote. ....                                       | Muhroree. .. ..  | 61                    |                                                                                             |
| "                                                      | Dudoolee. .. ..  | 36*                   | * 25 deaths in Mullee Dudoolee and Khor (luga), 11 deaths in Tulla Dudoolee.                |
| "                                                      | Gaoree. .. ..    | 3                     |                                                                                             |
| "                                                      | Raolee. .. ..    | 1                     |                                                                                             |
| "                                                      | Mason. .. ..     | 4                     |                                                                                             |
| "                                                      | Mykholee. .. ..  | 12†                   | † Between the first appearance of the disease in the rainy season of 1849 and June 1850.    |
| "                                                      | Bhyrgaon. .. ..  | 6                     |                                                                                             |
| "                                                      | Wulyanee. .. ..  | 1                     |                                                                                             |
| "                                                      | Khytolee. .. ..  | 1                     |                                                                                             |
| Total in Chuprakote... ..                              |                  | 125‡                  | ‡ No deaths reported in Chuprakote since June 1850.                                         |
| Chandpoor... ..                                        | Mujyaree. .. ..  | 11                    |                                                                                             |
| "                                                      | Pindwalnec... .. | 6                     |                                                                                             |
| "                                                      | Lungta. .. ..    | 8                     |                                                                                             |
| Total in Chandpoor... ..                               |                  | 25§                   | § Between 9th March 1850 and 12th April 1850. No deaths reported since last mentioned date. |
| Budhan. .... }<br>Pindur Par. .. }<br>Pindur War. .. } | Soona. .. ..     | 7                     |                                                                                             |
|                                                        | Bumyala. .. ..   | 2                     |                                                                                             |
| Total in Budhan. .. ..                                 |                  | 9                     | Between January (?) 1850, and May 1850. Last death reported in beginning of May 1850.       |

In addition to the deaths here detailed three or four persons died in 1849, at Purkundee, puttee Lohba. No cases of Mahamurree have been reported as having occurred there in the present year.

*Para. 6.* A copy of this letter has been forwarded by me to Dr. Renny, Superintending Surgeon, for his information.

(True Extracts,)

(Signed) C. RENNY,

*Superintending Surgeon, Meerut Division.*

\* This is to be taken as a corrected statement of deaths, in lieu of the one given as D. in the Appendix. Total 159. (Signed) C. R.

No. 1170 OF 1850.

FROM J. THORNTON, Esq.,

*Secretary to the Government of the N. W. P.*

TO THE MEDICAL BOARD,

*Calcutta.*

*Dated Head Quarters, the 23rd October, 1850.*

*Genl. Dept. N. W. P.*

GENTLEMEN,

I am desired to acknowledge the receipt of your letter, dated September 5th, 1850, forwarding a report from Superintending Surgeon Renny, C. B., on the Mahamurree disease in Gurhwal.

2. The Lieutenant Governor concurs with your Board in considering Dr. Renny's proceedings on this occasion to evince great zeal and intelligence, and to be highly creditable to him as a Member of the Medical Profession, and as a servant of the Government.

3. Your Board are aware that immediately the suggestions of Dr. Renny, contained in his letter of May 14th, were received, sanction was given for the disbursements necessary for carrying them into effect. Happily the disease had subsided before the receipt of the orders, and it was not necessary to destroy any of the infected houses.

4. The disease having now, for the time at least, ceased to make its ravages, it only remains to set on foot such preventive measures as may tend to prevent its recurrence, and also to make preparations in the event of its re-appearance.

5. Dr. Renny, in paragraph 5 of his report, attributes the rise of the disease to the poverty, filth and bad food of the inhabitants of the northern pergunnahs, where the disease generally prevails. Poverty and bad food it may be difficult to remedy, but the removal of filth from their habitations and increased personal cleanliness might be attained by the people themselves, if they could only be induced to put forth their efforts cordially for the purpose. Public officers must always exert themselves, for the attainment of these objects with great caution, lest they occasion a greater degree of distress and vexation than that which they attempt to remove. Persuasion, and not coercion, is the only means they should employ. Still the local influence of a British Officer amongst a rude and

simple people, such as those who inhabit the northern pergunahs of Gurhwal, is great, and may be efficacious when employed in a kindly spirit, and with an evident solicitude only for the good of the people. It is possible that short printed papers, pointing out the danger of disease, arising from ill-built houses, from accumulations of filth in the vicinity, and from want of personal cleanliness, may contribute to the desired result. Some such measure will be recommended to the local authorities, and any expence attending it will be sanctioned.

6. When the disease actually breaks out, and its prevalence in any locality is satisfactorily established, the promptest measures become necessary. In conformity with a suggestion from the Commissioner of the division, sanction is given in such case for the immediate entertainment of a darogah on rupees 30 per mensem, and a chuprasee on rupees 7 per mensem. It will be the duty of these men to proceed immediately to the spot, and see to the enforcement of the sanitary measures which are recommended, such as burning the bodies of the dead, destroying the less valuable of the infected houses, and preventing access to the more valuable houses, till all fear of contagion has passed away. In all cases of this nature the local officer will exercise a sound discretion in awarding such pecuniary compensation as may be just and requisite to alleviate the distress or make good the losses of the poorer class of sufferers. Monthly bills for all such expences must be sent in by the Commissioner for the sanction of Government during the continuance of the disease.

7. Dr. Renny's suggestion, that any available medical men should be immediately despatched to the spot to watch the disease, and afford such aid as may be possible, is entirely approved. Their travelling expences will be paid, and they will receive the allowances of an Assistant Surgeon at a Civil station during the time that they are so employed, and so long as they remain within the limits of the province. It is probable that the employment of not more than one Officer at a time on this duty will be necessary, unless the Superintending Surgeon finds that the services of more than one person peculiarly qualified for the duty are available, and can advantageously be thus put in requisition.

8. Immediately that the prevalence of the disease is ascertained with certainty, the Commissioner of Kumaon will address himself direct to the Superintending Surgeon, inform-

ing him of the fact and requiring the services of a Medical Officer for the purpose. The Superintending Surgeon will act upon this requisition according to the usages of the department, and will apprise the Commissioner of the measures he has adopted.

9. It is of some importance that in a case of this sort, which is liable at any time to arise, the necessary measures be taken beforehand to ensure the promptest action on the occurrence of the emergency. On this account, and while recent events are fresh in the recollection of all concerned, it would be well that instructions be drafted for the guidance both of the darogah, who will be deputed by the Civil Authority, and of the Medical Officer, who will act under the orders of the Superintending Surgeon. These had better be drafted now by the Commissioner and Superintending Surgeon in concert and lodged in their respective offices against the hour of need. Copies of them should also be furnished to the Government.

10. It occurs to the Lieutenant Governor to observe that the attention of the Sub-Assistant Surgeons at the Dispensary of Almorah, and at that which will shortly be established at Sreenuggur, may be well directed to this subject. Living near the seat of the disease, and in constant intercourse with the natives of the country, who must be familiar with its features, they will have good opportunities of forming a correct judgment on its characteristics. If the disease should again break forth, one or other of those Officers, if possessed of sufficient skill and enterprize, would have before him a fine field, in which to show his humanity and ardour in his profession. It will be most gratifying to find hereafter that this suggestion is acted upon. Every facility should be afforded by the local Officers, both Civil and Medical, for carrying into effect any purpose of the kind that may be entertained by either of the Sub-Assistant Surgeons.

11. The whole of these papers will be printed in a collection of official documents regarding the provinces of Kumaon and Ghurwal, that is now passing through the press, and 300 copies will be printed in the form of a separate pamphlet, a sufficient number of which will be placed at your Board's disposal.

I have, &c.,

(Signed) J. THORNTON,

*Secy. to the Govt., N. W. P.*

HEAD QUARTERS :  
The 23rd October, 1850. }

