

MADRAS RECORD OFFICE.

Government of Madras.

Revenue DEPARTMENT.

G.O. No. <i>7</i> 1471	Press Mis
<i>75-76</i>	
Dated <i>8. 8. 19</i> 1863	

Not to be folded or roughly handled

*Proceedings of the Madras Government, Revenue Department,
8th August 1863.*

No. 75. Read the following letter from F. C. BROWN, Esq., to J. D. SIM, Esq., Revenue Secretary to Government, Fort Saint George, dated Anjarakandy, Tellicherry, 27th July 1863:—

SIR,

1. The Supreme Government of India has lately directed general attention to the remarkable efficacy of salt as a complete defence against the Asiatic Cholera, by publishing the official reports made of its successful trial upon a large body of men by Captain Wood, Political Agent in Nimar. Captain Wood states (7th May 1857, 13th March 1863,) that "the Cholera having raged greatly in the year 1857 in the city and District of Hoshungabad, and especially with great virulence in the vicinity of the Jail" under his official charge, he gave, by the advice of Dr. Beaman of Madras, the Civil Surgeon, to every one of the numerous prisoners and at every meal "an extra quantity of pounded table salt," over and above the Government allowance. "The result was that not a single prisoner was attacked with Cholera, though several persons died from the epidemic near the Jail, and many casualties took place in the 'Regimental Lines.'" During the severe outbreak of Cholera in Bengal in 1855 and 1856, its attacks were so fatal in the Central Prison at Agra, that it became necessary to empty the Jail of the whole of the prisoners, and to march them about the country to the number of 717 for a period of two months, before they were freed from the pestilence.—*Report of Dr. Murray, Medical Visitor, 1856.*

2. The quantity of salt given by Captain Wood was about a Rupee's weight a day. He writes, "This prescribed quantity taken as long as the Cholera hangs about, renders the person, humanly speaking, proof against an attack." He adds with judicious discrimination "Salt is certain in its action as a preventive of Cholera uncertain as a cure."—(*Appendix 1.*)

3. Dr. Beaman, now Civil Surgeon at Tellicherry, has followed Captain Wood by a letter from himself to the "Madras Times," in which he states that "being in medical charge of the large Jail at Hoshungabad in 1857, he was able to test upon a large scale, with Captain Wood's valuable co-operation, the use of salt in Cholera" with the entire success related by that Officer.—(*Appendix 2.*)

4. But Dr. Beaman seizes the occasion to invite the attention of every person in India to the following discovery, which he sought to make universally known six years ago through the Press of the three Presidencies, viz., that "so far back as the year 1834, about the time of the first visit of the Cholera to England, his father Dr. Beaman, senior, a London Physician of more than forty years' practice, pronounced common table salt to be an all but infallible Cholera preventive. The late Mr. Wakley of the "Lancet," warmly advocated Dr. Beaman's doctrine, and earnestly impressed it, as Coroner for Middlesex, on the attention of the Government." In 1849, when the Cholera deaths in London rose to 1,800 and even 2,000 a day, Dr. Beaman gave through the "Times" the widest possible publicity to his antidote. "In no instance, where the salt was taken, was the party stricken with the disease, and his theory has been for many years largely carried into practice in England." So testifies Dr. Beaman, junior, who returned this year from a visit to his father; and who himself bears witness to the fact, that salt proved in India as complete a preventive of Cholera among a large body of Natives collected together, and habitually marked by its fatal attacks, as salt has proved to be in England in every instance which has come under the observation of his experienced and respected father in the course of a trial of thirty years.

5. It is now more than forty years ago since peculiar local circumstances brought under my habitual notice a considerable body of Natives of both sexes and of all ages, and that my attention was arrested by observing the singular immunity from Cholera which they enjoyed during the successive times that the general population was being ravaged by its attacks. As the Cholera is again ravaging this Presidency, I respectfully solicit the dispassionate attention of His Excellency the Governor in Council to the fruit of my long Indian and exceptional experience. I ask his unbiassed consideration of the facts I have gathered together in the course of the years of patient study which I have devoted in India and in England, to tracing up to its real cause the generation of the Asiatic Cholera.

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6. For it must never be forgotten, in every investigation relative to the Asiatic Cholera, that British India stands out evilly prominent and conspicuous as the sole exception to every other country in the world, which the plague has successively travelled to, and in turn decimated. In all those countries, however deadly the Cholera may have been on its first importation, its virulence has gradually abated and worn itself out: in all of them, whether continent or island, it has disappeared wholly until it has been imported afresh to their shores in the course of the active commercial and social relations which, at the present day, encircle the earth. In India, the Cholera never dies. In India it has never ceased its ravages for an hour, from the time it first broke out in Jessore in the year 1817, forty-six years ago, down to the hour that is passing; witness the thousands of the population lately swept off in the town of Madras itself; witness what is reported from Nuggur in Mysore that "in the villages one, two, or three corpses are left to rot in each hut, the inmates having fled away in terror, while the tappal runners refuse to pass through;" witness the sitting of Committee after Committee in Bengal, all fruitless of remedy down to the latest at Cawnpore in 1862; witness the fortnightly return required from every village in the country, showing whether the Cholera prevails in it or not.

7. There is a further circumstance which distinguishes the numerous population of India, in a marked manner, from the population of every other country; that is, that it is almost wholly a vegetable-feeding population. Not only do the higher castes of Hindoos restrict themselves to a vegetable diet, but their example is followed by all persons and families of inferior caste, who desire to attain to social respect and distinction. In Sudra households that can afford the expense, a Bramin is the family cook. He, it is known, touches nothing that has had life: hence, he is a standing witness and a daily voucher of the family purity and respectability. On great festivals and annual commemorations, when food is largely distributed to guests invited and uninvited, and when, according to Eastern manners, it is a point of honor with the entertainer that they should be attracted in large numbers from every quarter, and of every caste, Bramins are the only cooks employed. Hence, both religiously and socially the observance of a vegetable diet is universally held in honor and respect by the Natives, not excepting those among the Pariahs, who, when they have acquired wealth, are the first to take this mode of showing it, and of approaching as near as they outwardly can to the Bramin. In India, therefore, two remarkable things every where meet the eye, and challenge enquiry, viz., a vegetable-feeding population, and among them, the ceaseless, spontaneous generation of the Asiatic Cholera.

8. I came to reside permanently in Malabar in the year 1822. My father was then living and residing on this property, where he habitually employed about 400 day laborers. In crop time they rose to between 5 and 600. Of the first number, about 300 persons belonged to two of the servile agricultural castes common to the Western coast. As these castes are not suffered to approach or to dwell near the castes that are free, they and their families were located by themselves on the property, in a village apart and away from all other houses, but sufficiently near to the house of Mr. Brown as to ensure to them necessary protection, and bring them under his constant observation.

9. In Malabar (as in the North of England and in Scotland) it is the honest, as well as the just, humane and immemorial rule, to pay all day laborers their wages, more than three parts in paddy, less than one part in money. Women and children are paid the whole in paddy. The laborer is thus secure of a full ration of the standard food of the country in return for his day's toil and sweat. He is not made the helpless and heartless victim of each season's vicissitude; nor of grain forestallers and regrators, nor of the periodical fluctuations in the value of the Rupee and the Pice, when coin must be got to pay the Collector's kists. In this manner were all Mr. Brown's laborers, free and servile, paid. But the servile, not being allowed to frequent the Bazaars of the country, received, old and young, besides food, clothing, fuel and lodging, a daily quantity of salt, oil, jagree and betel the necessities coming next after the four principal ones in the order of their daily wants.

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10. The salt was issued without stint. No person who has not closely observed Native life can be aware, how frightfully and universally worms are prevalent amongst the people, nor how fatal the disorder is among young children, in consequence of the quantity of raw vegetable trash they are allowed to devour. Well aware of this great mortality and of its cause, and knowing that salt was the best of anthelmintics, Mr. Brown required not only the parents should take sufficient salt for themselves and their children, but he insisted that the parents should mix the salt daily in their children's food. Evidence of its good effects soon secured the parents obedience to the injunction, and this cause of infant mortality was arrested. It was this humane purpose, the prevention and extirpation of worms, which had led for many years to the regular issue to the two castes of a large and liberal supply of salt.

11. I succeeded Mr. Brown at his decease in 1828. Ten years before, in 1818, the Cholera paid its first visit to North Malabar. It entered from the north in its regular progress to the south, spread rapidly through the country, filled it with death and desolation, and here as every where else, prostrated the population by the unutterable terror which its sudden and irresistible attacks beget. From that time to the present, its visits have continued, not exactly yearly, or constant, but intermittent; returning so suddenly and inexplicably as to lead to the belief that the poison is always being slowly and habitually generated, and manifests itself like an explosive gas, when the explosive quantity has accumulated, and poisoned the surrounding atmosphere. Once generated and actively evolved, it is propagated by the same subtle agencies which diffuse abroad the invisible and untraceable miasms of the plague, the small pox of typhus, and all epidemics, in the manner witnessed in all countries.

12. Throughout every part and in every class were the successive visits of the Cholera more or less fatal, one only excepted, our villagers of the servile castes. Not one fatal case occurred amongst them: the few attacked recovered in a few hours, under the administration of the stimulant remedy kept ready at hand for the use of all applicants.

13. This singular immunity excited my surprise, and naturally fixed my attention. I gave to it patient, careful and sedulous examination. The means and the opportunity of observing it were as complete and inviting as they were peculiar. The objects were constantly before my eyes in their daily lives. From the year 1799, the year of their arrival and settlement on the property, an accurate record of their births and deaths had been kept, in order to mark their relative increase or decrease. The free castes were also so habitually before me, as to attract attention to them by the contrast of their mortality with the freedom shown by the servile castes. I diligently and concurrently noted both in every thing relating to their ordinary mode of life: their habitual food, their clothing and lodging, their inner life and out-door work and exposure. In no one particular, except in the one of having a regular and sufficient supply of salt, could I find that the food or mode of living of the servile castes differed in any appreciable manner from those of the free laborers, with whom they daily came in contact, and worked in common. Except from Cholera, from no other disorder common to both and to the country, did the servile castes show an immunity. My observation at that time ceased only on my return to England in December 1837. During all those years, not one fatal case occurred among my villagers, at the time that the Cholera was making its usual ravages upon the population around. Hence, the conviction was tardily, and I may say reluctantly, forced upon me, that if a sufficiency of salt made those persons "Cholera proof" to use Captain Wood's expressive words, so a deficiency of salt to correct and sanify the habitual vegetable food of the Natives, could be no other than the cause which generates in their bodies the poison of the Asiatic Cholera.

14. During all those years the Company's Salt Monopoly existed in full vigour. The Collectors drew a commission of 5 per cent. upon their "extra collections," among which salt yielded the largest sum. In Bengal, the numerous Salt Agents were allowed, as Sir C. Trevelyan states, a commission of no less than 10 per cent. upon the amount of their salt sales. Every attempt to draw attention to the Salt Monopoly was met by the stereotyped phrase, "the Company must have money."

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15. That the continued effects of the Monopoly are not merely to stint the use of salt in the interior, but to put it beyond the reach of the great majority of the people is attested by Major General Sir Arthur Cotton in his report on the Godavery of the 12th July 1850—Sir Arthur writes:—

“The present price of Salt in the interior, 4 or 500 miles from the coast, is quite sufficient to prevent its use to anything like the extent that health requires. It is, indeed, a grievous thing to see a necessary of life, which God has so abundantly provided, so that in many places it is literally like sand on the sea shore (being produced spontaneously) placed by means of the two items, of an enormous duty and as enormous a cost of carriage, beyond the reach of the great majority of the people in the interior. The salt that can be got for nothing or for a Rupee or two per ton on the coast, I found selling in the interior at 1 Anna a pound, fifteen times the price in England; and allowing for the difference in the value of money there, about 1,120 times as dear as in England. All the way up the river, the first question continually put to us by the people on the banks was, ‘will you bring us salt?’ A person can hardly conceive the eagerness with which the poor people enquired for it, and bought it when it was sold from the steamer a little below the usual price. If the present excessively severe duty is still to be levied, we can still reduce the price in the middle of the country to less than one third of the present cost, and this alone will be an incalculable boon to the people. Even in wealthy England, it was decided that essential as salt was to health, it was bad economy to lay any duty at all upon it. How much more is it incumbent on our Government to do what can be done to reduce its cost in this poor country, where the people live entirely on vegetable food?”

“It is well ascertained that, where the price of salt is sufficiently low, the consumption is very great among a people living on grain.” Sir Arthur estimates at 15 lbs. a head, or 100,000 tons a year, the natural demand for salt of the fifteen millions of people whom the Godavery would supply. In the Mauritius, it is a frequent complaint among the coolies that half an ounce of salt a day is insufficient to season their food, which is no doubt more of an animal kind there than it is in India. The issue of this allowance to them, as part of their legal rations, is a proof that the Indian Government consider about 12 lbs. of salt a head as the minimum quantity on which a Native taken to the island can preserve his health. The salt statistics of India are no where accessible in a shape to show how far the general consumption of the country exceeds or falls short of the Mauritius minimum. But Mungo Park bears affecting testimony to the feeling engendered by a privation of salt. “In the interior (of Africa) the greatest of all luxuries is salt. It would appear strange to a European to see a child suck a piece of rock-salt as if it were sugar. This, however, I have frequently seen, although in the inland parts the poorer classes are so very rarely indulged with this precious article, that to say, ‘a man eats salt with his victuals’ is the same thing as saying, ‘he is a rich man.’ I myself have suffered great inconvenience from a scarcity of this article. The long use of vegetable food creates so painful a longing for salt, that no words can sufficiently describe it.”—*Travels*, Vol. 1, page 417.—(*Appendix 3*).

16. In 1847, the year after the establishment of free trade, I published a pamphlet in London on the Indian Cotton question. In showing how injurious the Salt Monopoly is to every branch of Indian agriculture and production, I also briefly showed how, according to my conviction, the Monopoly was likewise the parent of the Asiatic Cholera. My friend, Mr. Wakley, struck with the corroboration which my facts and reasoning gave to the rationale of the Cholera practice, introduced and advocated by his friend, Dr. Beaman, senior, at once communicated them to the latter, and brought me acquainted with this well known and respected Physician. Dr. Beaman gave me his paper published in the “Times” (*Appendices 4 and 5*); he copied the facts he found in my pamphlet, and declared to me in writing “that he does not entertain a doubt as to the salt Monopoly being the parent of the Asiatic Cholera.” Such, to this day, continues to be his steadfast conviction.

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17. A flesh eating population derives from this food a portion of its necessary supply of salt. But where the food is only partly animal and the rest vegetable, there it is notorious as it is throughout Europe, that the quantity of salt thus obtained is quite insufficient for healthy nutrition, and is invariably increased by a quantity taken at every meal. Hence, the universal salt-cellar on every table in Europe, whether of rich or poor: hence, the vigilant pains taken by parents to beget in their children an early taste for salt in their food whether the food be animal or vegetable.

18. Dr. Liebig teaches how necessary this domestic care is. His minute researches into the vital agents, and his instructive investigations of their action on the vital functions, furnish the striking and conclusive explanation, why a privation of salt, partial or total, among a vegetable-feeding population, if not at once fatal to life, must produce among them disease of an unusual and formidable character. He thus writes, (*Chemistry of Food*, page 110), “An animal living inland obtains in the seeds, herbs, roots and tubers which it consumes, only Salts of Potash, the chief organic constituent of its flesh but no Phosphate of Soda, a compound never absent from its blood. And when, in inland countries, the food does not contain common salt enough to produce the Phosphate of Soda necessary for the formation of blood, then more salt must be added to the food.”—(*Appendix*: for an instance of severe Scurvy breaking out for the want of Potash in the diet.)

19. Dr. Liebig continues in another work (*Letters on Chemistry*, his physiological illustrations of the same subject) he says, “The quantity of common salt usually amounts to upwards of one-half of the total weight of all the incombustible substances in the blood of man and of animals. The great proportion of common salt in the blood is sufficiently remarkable to be considered, with reference to the question of its necessity, as a condition of the vital process. Salt serves in the organism to assist and promote the most universal changes. There is no fluid of the animal body in which Chlorine (derived from salt) is absent as a constituent. Moreover, when we consider that the efficient free acid, often occurring in digestion, is Hydrochloric Acid, which is derived from common salt, all these facts, taken together, seem entitled to be regarded as irrefragable proofs of the necessity of the presence of salt for the vital process, and of the addition of salt to the food of men and the fodder of animals.” Another Physiologist, no less accurate than eminent, Dr. Prout, observes on the same subject: “Of this important secretion of the stomach (chyme) Chlorine is an ingredient, it would seem a necessary ingredient, for the secretion in its healthy state always contains more or less of chlorine, the powerful influence of which seems mainly to contribute towards effecting the combination of the aliments with water. The source of this Chlorine, or muriatic acid, must be the common salt which exists in the blood.”—*Stomach and Renal diseases*, page 455. *Appendix 6*.

20. An examination of the phenomena of Cholera, guided by the direct light thrown upon them by these profound investigations into the principles of health and nutrition, render possible only one conclusion. An attack of the disorder is thus accurately described by Dr. Snow, a London Physician: “Cholera commences with an effusion of fluid into the alimentary canal, without any previous illness whatever, and the subsequent symptoms are the result of the change in the blood, occasioned by this effusion of its watery part. The analysis of the blood of Cholera patients, performed by Drs. O’Shaughnessy, (in India), Garrod and others in England, proved that its thick and tarry condition was caused by the loss of a great part of its water, together with a portion of its saline constituents.” In other words, the stomach being deficient of its necessary Chlorine, the combination of the vegetable aliments with water, in order to form healthy chyme, cannot be effected, and all the fluids of the body being tainted by the absence of Chlorine, the poison of Cholera is generated and given out. The affinity of the water of the blood with the fibrin is destroyed, the water separates, and is poured by the absorbents into the alimentary and intestinal canals and is discharged almost continuously out of the body. The fibrin that is left stagnates in the arteries and veins; with the circulation, the animal heat departs, and is at once followed by hopeless collapse and insensibility. “In this state,”

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adds Dr. Snow, "the general symptoms could be removed for a time by the injection of a weak saline solution into the veins."—(Appendix 7.)

21. That an infusion of salt and water introduced into the body, not through the veins, but in a partial manner simply through the pores of the skin restores the circulation and revives animation, was shown in a most striking case of Cholera treated in India by Sir Hugh Rose, the present Commander-in-Chief in India. The man attacked was speechless, senseless, pulseless and all but breathless. Sir Hugh and an Arab Surgeon immersed his legs "in salt and water as hot as bearable," 11 or 12 minutes sufficed to cause the blood to "liquify and swell in the veins." An ankle vein being opened, "the blood, of the color of the darkest claret and very thick began to run slowly, quickening and gaining, as it flowed, a more natural color. The patient spoke, and asked for food. He ate, and said he felt well. His skin became less adhesive, his dark color diminished, and slow pulsation gradually returned."—(Appendix 8.)

22. Such was the immediate and marvellous operation of salt in subduing the poison of Cholera in the body of a patient, so hopelessly infected by it as to be at the point of death. What is the effect of salt upon the poison, after it has been generated in the human body, and has been given out in such quantity as to taint the surrounding atmosphere and prove mortal to those who breathe the deadly miasm. Mr. Herapath of Bristol, one of the first Chemists of his time, made the Cholera his study from its first appearance in that city, where it was very fatal. The persons who suffered most were those who washed the linen and clothes of Cholera patients and were exposed to come in contact with the excreta of the latter. In 1849, Mr. Herapath wrote as follows: "the principle of preventing infection from Cholera, by destroying the miasm by Chlorine, is mine. I take pleasure in adding that, from the most extensive personal experience amongst infected Districts, and from the information received from others, I have no doubt that effective fumigation from Chlorine is a complete preservative against Cholera." We thus see that the action of Chlorine within the human body is to prevent the generation of the Cholera poison; that its action without the body, when the poison has been generated and evolved is to seize upon and destroy it. (Appendix 9.)

23. From these proofs and facts it results demonstrably,

- (1.) That salt taken in sufficient quantity with the daily food, is at all times indispensable to the healthy vital functions of the human organism.
- (2.) That where the food is vegetable, a greater quantity of salt is necessary to correct and assimilate this food, than when the food is animal.
- (3.) That where this quantity of salt is either insufficient, or habitually altogether absent from the food, disease of an unusual type must be engendered.
- (4.) That the population of India is a vegetable-feeding population, of whom multitudes have been for a series of years, and continue to be, by the operation of the Salt Monopoly, wholly deprived of the quantity of salt indispensable to health.
- (5.) That it was amongst this population the Asiatic Cholera was first generated and broke out; it is amongst them that the Cholera has never ceased to be generated and to rage.
- (6.) That in the instances, where bodies of the Natives have taken sufficient salt internally with their daily food during virulent Cholera, such bodies have been shielded from attack and made "Cholera proof," as effectually in India, as numerous persons in England have been protected from Cholera, during the last thirty years, by the use of sufficient salt in their daily foods when Cholera prevailed around them.
- (7.) That Chlorine, the active principle of salt internally, is also proved to be the powerful chemical agent, which completely destroys the poison of Cholera externally, when it has been generated and infected the surrounding air.
- (8.) That it is from India that the earth has been constantly scourged with the Asiatic Cholera.

24. To these deductions, I will add one more corroboration taken out of India, viz., that on tracing the mortality of the Cholera in all the countries it has successively ravaged, whether in Europe or out, whether under the Line or within the Polar Circle, it would be

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invariably found, that the attacks have been most fatal and most prolonged in those, in which there exists a Salt tax or a Salt Monopoly. (Appendix 10.)

25. After this narrative, few persons will dissent from the justice of the sentence which Dr. Liebig passes upon the Salt tax, at the close of his physiological and chemical researches into the vital necessity of salt for every vital process of human and animal life. He says, "of all taxes on the Continent (whence he writes) the Impost on salt is the most odious, the most unnatural, and the most disgraceful to human reason. We may here see that more wisdom is displayed in the instinct of an ox or a sheep than in the arrangements of a being who, strange to tell, often regards himself as the image of HIM, who is the perfection of all kindness and of all reason."—*Letters on Chemistry.*

26. I must be suffered not to mix up in this letter the subject of the origin of the Cholera with the subject of the revenue yielded by the Indian Salt Monopoly. Mr. Ballard, the Collector, has recently asked my opinion upon the material modification and improvement he desires to introduce into the selling machinery of the Monopoly, so as that salt shall yield the same Government revenue, while accompanied by much relief to the consumer in the increased facility of obtaining this necessary. Nothing better can be suggested, as regards these ends, than the Collector's proposal. But there can be no thorough relief to the people as long as the tax exists in any shape nor any solid gain to the Exchequer. The financial evils of a Salt Monopoly, in prohibiting the creation of national wealth in an agricultural population, are as obvious in India at the present day as they were palpable in the kingdom of Naples thirty years ago, when Lord Palmerston gave the Neapolitan Minister a spirited lecture upon it. He said, "a Salt Monopoly is a very objectionable way of raising a revenue, and very injurious to the interests of any Government, which so imperfectly understands the science of Political Economy."—(Appendix 11.)

27. There is a tax, correct in principle fiscally and morally, which, if judiciously resorted to, would admit of a large and immediate reduction being made in the price of the Monopoly Salt, and ensure its ultimate abolition with sure prospective gain to the revenue. I ask leave to make this tax the subject of a separate letter. No man is more alive than myself to the necessity of maintaining the revenue of India to the full level of the expenditure required to ameliorate the general condition of the people, and to meet the charge of defraying the great material wants of the country. In proof that this is no new solicitude on my part, I now make known for the first time the letters to and from Lord Canning and from Colonels Jameson and Balfour, showing the share I had in originating the Military Finance Commission, whose timely labors alone saved the country from imminent bankruptcy in 1859.—(Appendix 12.) On this ground I venture to prefer my present request.

28. Not to lengthen this letter inconveniently, I have put in the Appendix the numerous proofs and authorities there are, direct and collateral, all establishing the truth of my proposition. To them I also solicit the attention of His Excellency in Council.

No. 76. ORDER THEREON, 8th August 1863, No. 1,471.

1. The Government will await Mr. Brown's promised communication.
2. Meanwhile a copy of this letter will be furnished to the Public Department for communication to the Medical authorities.

(True Extract.)

(Signed) J. D. SIM,

Secretary to Government.

To F. C. Brown, Esq.
To the Public Department.
Exd. S. T. Augustin.

country. Instead of encouraging the enterprise and wealth of Englishmen not serving under them, to find opportunities of employment in their vast empire, they have done their utmost to keep both out, although the principle of the Charter Act is obviously violated by the embargo. A wise and paternal Government would have acted very differently, but then such a Government would have had nothing to conceal, nor yet any reason to apprehend danger from the influx of independent men, not manacled by a bond. The Company have loved darkness, because, if not exactly conscious that their deeds were evil, they had a painful misgiving as to whether they would bear the light; and so it will continue to the end of the chapter. In Bengal, perhaps, a better state of things prevails, but that is no merit of the Court of Directors. They are there committed to many expensive works by the unfettered decision of the Governor-General, who gives his care and expends all his liberality on behalf of the province immediately presided over by himself."

This is the state of things at Madras in the year 1847. What is their state in London? That the Madras Railway Company, with its shares all taken, its capital subscribed, its surveys made, and its trafficables carefully computed, have been absolutely driven, in May 1847, to the necessity of dissolving, from the impossibility, as publicly stated by their Chairman, Mr. John Arbutnot, of obtaining from the Directors of the East India Company any answer to the respectful letter addressed to them. The Ceylon, Trinidad, and other Railways not only get answers from the Colonial Office, but a guarantee of 5 per cent. interest on their outlay.

APPENDIX II, (p. 27.)

TRADE OF SINGAPORE.

(From the Singapore "Free Press," Dec. 1846. Quoted in the "Times," 6th March 1847.)

"The whole commerce of the place is steadily increasing, and shows what a perfectly free trade can effect in a place having no commerce of its own—mere wilderness. Yet with this successful example before their eyes, our rulers appear unwilling to extend the principle to other places similarly circumstanced. The whole expenditure of Singapore are more than covered by an excise-duty, which does not affect its internal commerce; yet the man for regulating is allowed its full course at Hong-Kong, and Aden is loaded with duties and port-charges—

	Import	Export
1844-5.....	£4,832,033.....	£4,732,040.....
1845-6.....	6,005,912.....	5,945,796.....

The spice culture of Singapore was begun seven years ago. On pepper, the annual produce is now 38,000 picul; gambier, 85,000 picul, from 800 plantations, value two dollars per picul. Coconut trees, 100,000. There are 80 miles of excellent roads. The population is 60,000, of whom the Chinese amount to 35,000. The revenue in 1843 was rupees 500,087, the expenditure, rupees 401,020. The maximum price of land is 10 rupees per acre, the minimum 5 rupees. There are no customs or harbour dues of any kind."—*Statistics of Singapore*, 1844.

APPENDIX

THE MONOPOLIES OF THE EAST INDIA COMPANY.

The major monopolies are the universal ones of salt and opium, and the partial one of tobacco; the minor and partial monopolies are those of cardamums, wild bees' wax, wild turmeric, wild seed-lac, and some other articles of a like kind, which the bounty of Nature produces spontaneously in the woods and forests of India, and which are monopolised and annually farmed out by the Company as sources of public revenue. The name, the nature, or the number of them, or the revenue they yield, is nowhere to be found or learned in any official document printed by that body.

Some public discussions which have recently taken place on the subject of the foremost of these exactions, the giant salt-monopoly, are calculated to raise the belief that the tax is in a great measure partial, and its operation chiefly confined to Bengal and the subordinate provinces of that Presidency. No error nor misconception can possibly be greater, for the very reverse happens to be the case. Not only is the monopoly of this necessary of life universal throughout India, but cruel and oppressive as it avowedly is in Bengal, yet nevertheless its extreme effects are in a degree there mitigated, first, by the circumstance of frequent periodical sales of the Company's salt being held at Calcutta, at which the quantity put up can always be regulated according to the demand; secondly, by the facility of comparatively cheap water-transport furnished by the river Ganges and its numerous tributaries which, like a main artery with branching veins, pervade and permeate all the provinces, and enable salt, since the abolition of the transit duties, to be distributed throughout their extent at more or less cost, and brought within the visible reach at least of all the population inhabiting the valley of the river. Far otherwise is it with the great body of the natives dwelling in the heart of the Penin-

Salt.

sula of India, remote from the sea, having not the blessing of a navigable river, and destitute even of a practicable road giving them ready access to the coast and to Nature's great storehouse of salt. That multitudes of them must habitually go altogether without this necessary, is abundantly plain from the following testimony. Mr. Wilkinson, the Bombay Revenue Commissioner, says in his letter already mentioned to Lord Wharncliffe, p. 21,—“It is proved by statistical returns that the natives of the Deccan, *one hundred and fifty miles from the coast*, consume per man only one-third of the quantity of salt consumed by the natives of the Concan” (the coast). At p. 50 he says: “From Panwell, the port of communication with Bombay in the direction of Calcutta and the great cotton district of Berar, the made road extends only to Ahmednuggur, a distance of about 150 miles, and has no branch in the direction of Sholapoor and Hyderabad,” (i.e. in the direction of two principal cities South and North of the line). The distance between the two extreme points here mentioned, Bombay and Calcutta, is 1185 miles; midway is, therefore, 592 miles, 150 of which, proceeding eastward from Bombay, is a made road, but with few or no made lateral branches. At this short distance from the source of supply, and with this facility of a good communication thus far, the cost of the Company's monopoly-salt is at the very least three times its cost on the coast, which again is about 1000 to 1500 per cent. above its natural price. What then must be its cost when carried 442 miles farther in the interior, whither there is no made road at all for transporting it? If a bushel of salt, costing five shillings at Brighton, cost sixteen shillings when brought to Birmingham owing to the expense of transport, what would be its cost when arrived in Sutherland or Caithness, supposing that there were no road thither, that the people in these two counties were compelled to buy none but Brighton salt, and were as poor again as they now are, by reason of being interdicted from growing the natural produce of their land? But the line of 592 miles by no means represents the longest distance which the Company's salt has to be transported in many directions, where there exists not a mile of made road, much less 150 miles, before it can be brought within reach of the native consumer in the interior. If it could arrive there, it is clear that it would exchange, weight for weight, nearly with silver, if the natives had silver to give for it; but as they have not, as ninety-nine hundredths of them have nothing left after paying their revenue, but just raw produce enough to subsist upon the year through, it is equally clear that the great bulk of them, thus circumstanced, must habitually go altogether without salt.

The weight of this burthen, instead of being relaxed, has of late been increased. Thus, in 1844, twenty millions of the

money of the natives of India having been spent in the crusade in Afghanistan, and the revenue of the country having fallen about two millions short of the expenditure, the price of the Company's monopoly-salt was at once doubled; and the reason publicly given for resorting to this item in "the ways and means" was, that there remained no other visible article than salt which could be more highly taxed. In that year I received the following letter, dated April, from a sea-coast town of Madras—"The odious and oppressive monopoly of salt has been lately raised cent. per cent.; that is, salt is now sold in the Bazars at 2½ seers (weight) per fanam, instead of 5 seers as before. The use of this necessary is thus forbidden to the lower classes of people, who now resort in increased numbers to the salt marshes to collect the deleterious earth from which they extract a substitute. Inland they have not this resource, but must go without altogether." In this maritime province, washed for 150 miles by the sea, where the making or the collecting of salt is altogether prohibited, and where all the salt consumed is imported from another Presidency, this act of inhuman rapacity defeated itself. The previous monopoly price was as high a tax as salt would bear, and the revenue instead of increasing has since decreased; but at the cost of a vast increased amount of intolerable human suffering among the classes of natives, who before contrived to consume a fraction of the necessary. In the native times, 50 seers of salt sold for the same money as the East India Company now sell 2½!

But what is the condition of the human frame when deprived of salt?

The researches of the most eminent modern chemists establish that which the experience of the Bramins of India, living on vegetable food, long since led them to discover as a physiological fact, that an essential constituent of the blood, and an essential element in the process of healthy nutrition, are the two substances forming the principal ingredients in common salt, namely, muriatic acid and soda. The great German chemist and physiologist, Liebig, says; "The presence of free muriatic acid in the stomach, and that of soda in the blood, prove beyond all doubt the necessity of common salt for the organic processes."—*Animal Chemistry*, p. 161. Our own distinguished countryman, Dr. Prout, observes; "Of this important secretion of the stomach (chyme) chlorine is an ingredient—it would seem a necessary ingredient; for the secretion in its healthy state always contains more or less of chlorine, the powerful influence of which seems mainly to contribute towards affecting the combination of the aliments with water. The source of this chlorine, or muriatic acid, must be the common salt which exists in the blood."—*On Stomach and Renal Diseases*,

p. 467-6. What, then, are the effects upon the human body of even a deficient supply of this necessary essential to health and life? Dr. Graham, a well known medical writer, says; "Salt is a natural stimulant to the digestive organs, and seems absolutely necessary to the health of the animal body; for those who neglect it as an article of diet, have a weak and depraved digestion, and engender worms, often with frightful rapidity." But what are the effects of an utter and compulsory want of it? The same writer also tells us in a note on the above passage; "A mode of punishment formerly existed in Holland, which places the effects resulting from a total disuse of salt, more especially in moist climates, in a striking point of view. The ancient laws of the country enacted that certain convicted men should be kept *on bread alone, unmixed with salt*, as the severest punishment that could be inflicted on them in their moist climate. *The effect was horrible: these wretched criminals are said to have been devoured by worms engendered in their own stomachs!*"—*Modern Domestic Medicine*, p. 23. Be it noted that this effect was produced upon these persons by confining them to a vegetable diet uncorrected by salt. A diet wholly vegetable is the diet of numerous classes in India, and a diet almost wholly so is the diet of the rest of the population. A punishment, therefore, the most horrible and loathsome which human barbarity ever devised in the dark ages for the torture of the worst criminals, is the fate which the East India Company maintain and defend as one of their principal fiscal resources, and which they deliberately run the risk of inflicting, in this the nineteenth century, upon the millions of innocent men whom humane England has confided to their governance! Not only do multitudes of natives die annually in the interior, of disease produced by the want of a sufficient supply of salt to sustain life in a healthy state, but no man who has used his opportunities of observation among them can entertain a doubt, that many of those who survive and are met with in every part, victims to the most loathsome and miserable diseases, gradually making them objects truly horrible to behold, owe the origin and the inveteracy of their sufferings to the same cause, which converts the blood in their bodies into a mass of corruption.

Again, from the diseased state of the body habitually induced upon the sufferers, there necessarily results an impaired vigour of the intellectual powers; and the physical cause of weakness, further reacting upon the moral feeling of helplessness and insecurity, produce and explain the general indifference, the apathy and inertness of character, for which their English rulers are ever foremost to reproach the natives. Removed far away from these deteriorating and depressing influences, placed as labouring Coolies in any colonies from Ceylon to Guiana, suffered to maintain a healthy existence, and their

minds receiving the stimulus of hope and energy derived from reaping for themselves an adequate reward for their labour, the very same men immediately vindicate the truth, the beauty, and the universality of the laws of human nature, and show themselves capable of doing all that men can do, or are elsewhere expected to do.

Cholera its origin But superadded to the suffering it is my firm persuasion, derived from observations made on a considerable number of natives of the labouring class, and extending over a long period of years, that the effects of the Company's salt-monopoly are very far from being confined to the waste of life annually inflicted upon the people by the gnawings of internal, lingering, disease. It is well-known that the Asiatic cholera broke out for the first time in the heart of the Company's territories; and although the pestilence has since swept over the whole earth, ravaging in turn every country, and striking down in a few hours the titled and the rich in the palaces of England, as it had laid low the humble and the poor in the huts of India, yet it has never deserted its original seat, and is known always to rage there with more or less virulence and fatality; sometimes smouldering for months, then bursting forth afresh and spreading *without apparent cause* for miles, and defying all that science or skill have hitherto attempted or devised to stay its deadly course.

All attempts to trace its origin to specific local causes, or to particular atmospheric influences, or to detect it in some peculiar and poisonous, terrestrial, or vegetable exhalations, have altogether failed. But however much medical writers and observers differ in opinion as to the primary source of the scourge, they have ascertained and enumerated every other to which it cannot be ascribed. Their writings, therefore, enable us to profit by the exhaustive mode of reasoning, and to say confidently, that the poison of the Asiatic cholera is not ascertainably generated in, or given out by, the air, the water, or the earth. There remains but one other source to which it can rationally be ascribed, and that is an animal one. If this presumption be taken as no more than a clue which may guide to the truth, it will be found that the pestilence was first generated and appeared amid a population, with whom the want of a sufficient supply of salt for the purposes of the perfect assimilation of their vegetable food, and the healthy constitution of their blood, was a condition predisposing to unusual disease, to which they had been habitually subject for a series of years. This cause, like the constant quantity in a problem to be solved, was always present and in operation among them, and was the sole circumstance which distinguished the normal condition of that population, as regards food, soil, climate, labour, exposure, from the condition of any other intertropical population.

Among the latter, the Asiatic cholera has never been known to be self-generated, and to break out spontaneously; nor, when introduced from other countries, has it ever proved so uniformly destructive to life as in India. On the contrary, in those countries its virulence has abated after a time, and it has altogether disappeared and left them. In India it never disappears, but constantly attacks afresh the population among whom it was originally engendered, showing that, among them, the primary cause of the pestilence is ever present and more or less actively evolved. No other more probable source for its generation can be assigned than this one, namely, an insufficiency of salt for the purposes of healthy alimentation; which insufficiency, by habitually depraving the mass of vegetable food taken into the stomach, and the blood elaborated from that food, depraves all the secretions of the human body, and gives birth to a subtle poison which is exhaled from all its inner and outer surfaces, and seizes with deadly tenacity and irresistible rapidity upon all the springs of life. The congested state of the whole mass of the blood in death from Asiatic cholera, shows that the fluidity of the blood, and, presumably, its vitality, were destroyed before death; effects which I firmly believe will be traced to the absence in the blood of the essential constituent which it derives from salt. Of this fact, however, I cannot entertain a doubt, for every succeeding year has strictly verified it; and that is, that among a numerous class of native labourers, distinguished in no essential particular from other classes around them except in being always and regularly supplied with a sufficiency of salt, the Asiatic cholera has in no instance broken out spontaneously, and has always yielded to early remedies. The same remark will be found to hold good of the natives who are transported as Coolies to Mauritius, to Jamaica, to Trinidad, and Demerara, where they can obtain salt in abundance. The cholera has *never* broken out or been self-generated amongst them. The same remark will be found to hold good, although in another way, of the European countries visited by the scourge. Its ravages were most fatal in those where salt was most scarce and dear. In France, for example, where there is a tax on salt of 1½d. per lb., the population suffered infinitely more than in England, where salt is untaxed. Once generated, the poison is of course propagated by the same mysterious and universal agencies which spread abroad the plague of some countries, the yellow fever of others, and the malignant typhus and remittent fevers of our own. This, according to my intimate conviction, is the origin of the Asiatic cholera; its continuance among the natives may be ascribed to the same ever-present cause, and its constant recurrence with unabated virulence to the constitutional predisposition to engender the poison which has been produced, by its seeds having

* This passage was written by me before disbelievers in chemistry appeared in England (1857)
T.B.

been used for the same purpose for a long time.

Believing, as I firmly do, that it is devilish fiscal engine to be found, on strict, competent, and unbiased investigation, to be the real parent of the most deadly and destructive pestilence which has ever fallen on the race of mankind, it seems beneath the gravity of the subject to descend to notice the immoral injuries with which the monopoly is fraught to the immediate interests, as well as to the every-day comfort and happiness of the population exposed directly to its operation. And yet to approach whatever to a right appreciation of its past and present effects upon that vast population can be arrived at without a notice of these points.

present effects upon that vast population can
without a notice of these points.

It must be borne in mind that the only open defence for the Directors of the East India Company attempt to make for the continuance of their salt monopoly is its necessity. They contend that there is in England no native able to rise and compete with them, and relying upon the advantage they possess, in the arguments of the salt monopoly, the manufacturers of Cheshire, in the studied absence of facts and reasons, can do no more than assert that a monopoly, the Directors and their supporters assert, that if the Company do not monopolise the manufacture and the sale of salt to the natives, there exists not, throughout India, any other taxable source, whence the same amount of revenue can be raised; and they contend that this is a reasonable and sufficient, for casting upon the advocates for the abolition the burthen of pointing out some fund for adequate taxation other than this means necessary of life.

Taking the condition of India to be what these gentlemen describe it, and admitting that one hundred millions of natives over whom the Directors have so long exclusively ruled, have not among them all at the present hour consumable wealth sufficient to yield yearly £1,500,000, the revenue derived from the salt monopoly; I shall attempt to prove that the necessity asserted, and the inference attempted to be fastened upon it, are utterly devoid of foundation. I will take for illustration the Presidency of Madras: a presidency which has been the longest under the wholly exclusive rule of the Company—which has had an uninterrupted internal peace of forty years—where the salt-monopoly has been most rigidly enforced—and where the public revenue has regularly and progressively declined during that long period of profound peace.

The Presidency of Madras possesses an almost continuous line of sea coast beginning at Ganjam, in latitude 19° North on the East, or Coromandel Coast, rounding the peninsula to the South in latitude 8° , and then bending upwards and Northwards to Sadashapur, the last town in the province of Canara, where the line ends in 15° North on the West, or Malabar

Appendix 1.

Official Papers.

Efficacy of salt as a preventive of Cholera.

Captain J. C. Wood, Political Agent in Nimar to Major R. J. Mearns, ^{Pl. Agent} ~~London~~
 Sir Mannpoor 14 March. 1863.

—The subject of Cholera is one of such stirring interest in India that any light thrown upon it cannot fail to engross the attention. I therefore beg to bring the matter to your notice with the hope that the preventive system will, through the medium of Government, have a fair trial in various parts of India?—

"I point to facts with a view to encourage the immediate adoption of the system. The matter requires no argument, it requires a trial, and I feel confident that the simple prescriptions will be attended with incalculable benefit not only to our European Troops but to all classes of people in this country? —

Captain J. C. Wood, Deputy Commissioner, to C. B. Thornhill, Esq.
Inspector General of Prisons, N. H. Province.
Sir
Archambault, 7 May 1857

"I have the honour to inform you that Cholera having raged greatly in the city of Hochungabad and in the District, I gave the Prisoners in the Jail an extra quantity of salt on the recommendation of the Civil Surgeon, Mr. Beaman -

"The result, I think, has been that not a single Prisoner has been attacked during the prevalence of the Cholera the last month, though within the same period several persons have died from that epidemic in the vicinity of the Jail, and many casualties have taken place in the Regimental Lines..

"Each Prisoner was allowed $4\frac{1}{2}$ mashes in addition to the quantity prescribed ^{for} one pie weight. —

Signed J. C. Wood

Appendix 2. — A notice bearing date 1844
Dr. R. B. Pearson, with his paper, "On the Cholera," in the Medical Times &
Gazette, and the Proctor's Not Cholera, is made to appear in the

"My attention was called, yesterday, to a paper, which is published in
of your paper, in which Dr. Pearson's cholera preventive is introduced
— and brought prominently before the notice of the Madras public —
say once more, because it is now six years ago, since I first endeavoured
with the kind and ready assistance of the Bengal, Bombay and
Madras preses, to urge upon the public mind the great sanitary im-
portance of this very subject. Being at that time in medical charge
of the large jail in Dhokungabad, I was able with the valuable coopera-
tion of the Commissioner Captain J. C. Wood, to test the plan upon a
large scale — with what result the public have been already told.

"About the year 1834 or 1835, the subject was, I think (for I have nei-
ther book nor paper of reference near me just now) first brought for-
ward by my father in London, and common table salt pronounced
by him to be an all but infallible cholera preventive.

"The late Mr. Wakley, during the many years of his able editor-
ship of 'The Lancet,' warmly advocated Dr. Pearson's doctrine, and
endeavoured earnestly to draw the attention of Government to the sub-
ject. In July 1849 the Editor of the Times gave circulation to Dr.
Pearson's theory, and it has been for many years, in England,
largely carried into practice. —

"During part of the autumn of 1849, while the weekly mortality
from cholera in London was from 1600 to 1800, and once ex-
ceeding 2000, in no instance where the salt was taken was the party
stricken with the disease. —

"Dr. Pearson is a London physician, and has practised in
the metropolis upwards of 40 years. —

"The quantity of salt taken should be what the stomach will
bear without exciting thirst or after inconvenience; for an adult a salt
spoonful or tea spoonful morning and evening, and two salt spoon-
fuls with dinner are amply sufficient. Children should have
proportionately less, but it is important that it be taken at three more-
or-less equidistant periods — namely, with breakfast, dinner, tea or supper.
Dr. Pearson prefers its being swallowed with a meal. In this man-
ner sufficient chlorine is taken into the stomach to destroy the poison.

Appendix 3-

Livingston's Journals in South Africa. p. 26.

"When the poor, who had no salt, were forced to live entirely on roots, they were often troubled with indigestion. Such cases we had frequent opportunities of seeing at other times, for the district being destitute of salt, the rich alone could afford to buy it. The native doctors, aware of the cause of the malady, possibly some of that ingredient with their medicines. The doctors themselves had none, so the poor resorted to us for aid. We took the hint, and henceforth cured the disease by giving a teaspoonful of salt, minus the other remedies. Either milk or meat had the same effect, though not so rapidly as salt. Long afterwards, when I myself deprived of salt for four months, at two distinct periods, I felt exceedingly for that condiment, but I was plagued by my great longing for the above articles of food. This continued as long as I was confined to an exclusively vegetable diet, and when I procured a meal of flesh, though boiled in perfectly fresh rain-water, it tasted as pleasantly saltish as if slightly impregnated with the condiment. Milk or meat obtained in however small quantities removed entirely the excessive longing and dreaming about roasted ribs of fat oxen, and bowls of cool thick milk gurgling forth from the big-bellied calabashes; and I could then understand the thankfulness to Mr. D. often expressed by poor Bathurst women, in an interesting condition, for a very little of either."

Appendix 4:

Sir Arthur Cotton (8 June 1859) to Government.

"The cost of salt at Nagpore, for instance, I reckon would be, if prepared as below proposed.

Per ton	Per cent price at Nagpore, Nagpore, 1859
Manufacture &c. — 1 Rupee	Rupess, or more than 8 times the estimated cost and have no doubt, it can be made in any quantities, perfectly pure and white, and delivered into boats for transport, at One Rupee a ton.
Duty — 25 "	
Carriage 500 miles at 2 1/2 pice per mile — 6 "	
Sundries — 5 "	
Total Rs 37 per ton	

should it have gained access. —
"In conclusion, Mr. D. is the poorest condition that this simple plan, if carried out, would afford the most efficient protection to our civil and military interests, or other quarters where a holocaust may occur, and the duty is one of the proper consideration of health and of all persons directly or indirectly concerned."

Appendix 5.
PREVENTION OF CHOLERA.

by Dr. Benjamin Smith, M.D. of London

On the 18th of July 1849, the Editor of the "TIMES" was pleased to circulate the substance of the following observations.

I now affix my name as the Author, at the solicitation of friends, who consider the important recommendation mentioned below, likely to command greater attention, when known to emanate from a medical practitioner, who has for thirty-five years been a zealous student of the healing art.

The sanitary measures recommended by the Board of Health, are, I admit, judicious; calculated to operate favourably by improving the habitations and general condition of a very numerous class, and so far diminishing their susceptibility to a variety of diseases. In every respect they are unobjectionable. Nevertheless, I firmly believe that the influence they exercise in preventing attacks of CHOLERA, is of an extremely limited character.

I therefore venture to suggest an ANTIDOTE against SUSCEPTIBILITY to CHOLERA, be the exposure what it may,—and I believe it to be all but infallible.

This Antidote is "COMMON TABLE SALT."

Do not doubt, when I laud thus superlatively a simple natural product. My conviction has long been, that in the vegetable and mineral kingdom will be eventually discovered, (however difficult and abstruse may be the search), remedies for, or antidotes against, all diseases which have a tendency to shorten the allotted period of human existence—for in this department of medical science a very wide field is yet entirely unexplored.

What is salt? And how can it operate as a PREVENTIVE to CHOLERA?

Common Salt is a compound of CHLORINE and SODIUM, in the proportion of 60 parts of Chlorine and 40 parts of Sodium in the 100. CHLORINE, it will be admitted, is the most powerful disinfecting agent with which we are acquainted. I have frequently by its agency alone disinfected a house from the poison of malignant scarlet fever; and it is equally serviceable as a purifier of the atmosphere in all infectious diseases. The efficacy of SALT in preventing attacks of CHOLERA is dependent upon a portion of its CHLORINE being evolved in the stomach; and by its action upon the inner membrane of that organ—in which the germs of the disease are seated, and where the first symptoms are generally experienced, the Cholera poison is infallibly destroyed.

The Medical Members of the Board of Health, Gentlemen justly holding the highest rank in our profession, believe the cause of Cholera to exist in the atmosphere, and that the disease is not propagated by human contagion. In this opinion, to a limited extent, I concur. They also believe the poison to be inhaled, the blood thereby becoming diseased, and that the violent diarrhoea and vomiting, which precede the fatal symptoms, are but the effort of nature (the vis medicatrix nature) to rid the body of the CHOLERA POISON. In the latter important particular, and I am governed by comparisons that I believe to be unanswerable, I entirely differ. It is my opinion that in every case the POISON of CHOLERA attaches itself to water, or other fluids or substances of a vegetable or animal nature, and on being swallowed with such matter, is brought into direct contact with the lining membrane of the stomach, its dormant period there being very brief, before the painful and distressing symptoms are manifested. I think, if the poison of Cholera were inhaled, and entered

the blood through the lungs, from our be-
longer.

I wish it to be in mind, that while the weekly mortality from Cholera, in this metropolis, during part of last autumn, was from 1600 to 1800, and once exceeding 2200, in no instance, where to my knowledge the SALT was taken, was the party stricken with the disease.

The following is my doctrine—

Condition which especially predisposes to an attack of CHOLERA, is a weakened state of the membrane of the stomach, and alimentary canal. This condition is so decidedly obviated by the use of common salt, which should be pure and PERFECTLY CLEAN, with our meals, that I believe nine-tenths at least of the cases, which would otherwise occur, may be prevented by having recourse to this simple addition of food.

The quantity taken should be what the stomach will bear without creating thirst or after inconvenience; for an adult, a salt-spoonful morning and evening, and two salt-spoonfuls with dinner, or by weight the eighth of an ounce per diem, divided into three portions for an adult, are amply sufficient; children should have proportionately less, but it is imperative that it be taken in substance with the food, and at three nearly equidistant periods,—viz. with breakfast, dinner, and tea or supper, or when parties dine late, with breakfast, luncheon, and dinner. It should be taken with every meal. In this manner, sufficient CHLORINE is taken into the stomach to destroy the poison, should it have gained access; if not, the antidote is rather salutary than otherwise. The CHLORINE may be set free, by the secretion of the stomach partially decomposing the salt; but give Nature the elements, and she will convert them to a wise and useful purpose.

I am also satisfied that Peppers, in moderation, are useful additions to our food, when Cholera is prevalent, and Cayenne pepper superior to other kinds.

Begin to observe that salted meats, and other preparations into which salt enters, or is dissolved being brought to table. Broths, soups, &c., are in their action upon the stomach totally different to salt in its pure state. Chemical change produced on salt by heat and its long admixture with animal or other matter, destroys its preventive character, but renders solids or fluids, thus impregnated, in many instances, injudicious. Warm clothing, wearing flannel next the skin, ventilation, cleanliness, good food, and generous living rather than the reverse, I much recommend.

I wish to remark that those who are in error, who suppose fresh fish to be the cause of the disease in question, are mistaken; indeed, taken moderately, they are the cause of the disease in question.

In two days after eating the quantity of salt in substance with the food in the manner above recommended, persons will be less susceptible to the influence of CHOLERA. Its daily use, however, must be persisted in, for CHOLERA affects the district or locality.

Entertaining the firm conviction that this simple plan, if pertinaciously carried out, would afford efficient protection to our soldiers, sailors, and civilians in all countries where CHOLERA may prevail, I strongly urge the subject as one worthy of the profoundest consideration of all parties directly or indirectly interested.

My humble efforts and explanations are always at their command.

32, King Street, Covent Garden,
November, 1851.

GEORGE BEAMAN, M.D.

Dr Beaman to F. B. Brown

32 King Street, Covent Garden,
6 March 1855.

Dear Sir,

I may accept my best thanks for the loan of your important and highly interesting work. The facts you adduce as to the Salt Monopoly being the original cause of Cholera in India, I believe to be quite conclusive. You give the name. The antidote it may yet be in the power of the East India Company to furnish. How explicit and striking are your details! Indeed, I should like to copy, with your permission, every line on the Salt question, but that would occupy me a full week, and I would not ask to keep the Pamphlet so long. Perhaps at no distant period you will grant me the privilege and pleasure of discussing this grand question.

Believe me Vtze, &c., George Beaman.

F. B. Brown to Dr Beaman M.D. 105 Pall Mall, 9 March 1855.

Dear Sir,

I fully intended to answer in person your note of the 6th but have been daily prevented. It was to express my gratification at having met you, who professionally have made the Asiatic Cholera the subject of study from the time of its first appearance in England, and at learning that you coincide in opinion with me, who studied the phenomena of the pestilence for many years in India, that its generating cause is no other than the Salt Monopoly. In case I should not have the pleasure of finding you at home, I leave this note to say, that I will send you the number of the Spectator Newspaper, of the 10th February 1849, containing a long letter from me on the generation of the Asiatic Cholera. As I have no other copy than this one and cannot procure another, I must ask you to be so good as to return it to me after perusal.

Believe me Vtze, signed, F. B. Brown.

Dr. Beaman to F. C. Beaman.

32 King St. Covent Garden.
18 March 1855.

My dear Sir,

I have perused with much interest your important letter in the Spectator, December 2. I am, and feel very much obliged to you. It contains an extract from a little paper of my own published many years ago, in which I was pleased to see introduced with so much more emphasis. I do not entertain the slightest doubt, as to the salt-monopoly being the parent of Asiatic cholera, and now the salt-monopoly perpetuates the existence of this terrible scourge. What human law can justify such a state of things! How dreadful to contemplate!

If you could again spare me your Pamphlet for four or five days, I should like to extract much that I read of important matter bearing upon the salt question. I send with pleasure some of my "Prevention of Cholera" letters, of their truthfulness I am now more convinced than ever.

Believe me &c &c &c, George Beaman.

Edinburgh Review No 191, p. 285, July 1851.

Chemical Physiology. The mineral matter of the flesh of animals contains much Potash and Phosphoric acid, but scarcely any Soda; and only a small percentage of oxide of iron; that of milk contains, along with much potash and acid, a considerable portion of Soda also, but still less iron than is found in flesh; while the mineral matter of blood contains only a small percentage of potash and phosphoric acid, but nearly half its weight of common salt, and from 7 to 10 parts of oxide of iron. How very striking to the physiologist are such results as these, - how suggestive of applications to the arts, the wants, and the welfare of the whole human race!

Appendix B.

Dr. Prout on Stomach and Renal Diseases, p. 467.

"Supposing the Phlogine, or inimic acid found in the stomach, to be derived from the common salt existing in the blood and in the stomach, another question arises - What becomes of the Soda from which the inimic acid has been separated? The Soda remains behind, or is absorbed into the mass of the blood, and a portion of it is no doubt requisite to preserve the weak alkaline condition essential to the fluidity of the blood. But the larger part of this Soda is probably directed to the liver, and is elicited with the bile in the duodenum, where it is thus again brought into union with the acid, which had been separated from the blood in the stomach. These observations, illustrating the importance of common salt in the animal economy, seem to explain in a satisfactory manner that instinctive craving after this substance which is shown by animals."

Parkes Chemical Dictionary, p. 119.

"Muriate of Soda is of great use to the animal creation. Horses are very fond of it, and cows give more milk when supplied with it. - Dr. Mitchell relates, that in the back settlements of America, whenever this salt abounds, thither the wild beasts of the forest assemble to regale themselves; and that some of these places are so much frequented, that the ground is trodden to mud by them. The natives call these spots licks, or licking places. In some parts of Africa, large herds of cattle travel from great distances at stated seasons, to enjoy the marine plants which grow on the coast, and are saturated with sea salt. The fattening property of our own salt marshes is well known to graziers and farmers. - Mr. de Gout, in his history of the Cooran-sut tree, tells us that the inhabitants of those parts of Hindostan and China, which border on the sea coast, sprinkle their rice fields with sea water, and use no other manure; and that in the interior of these countries, they sprinkle the lands with salt before they are tilled, and that this practice has been followed for ages with the greatest advantage."

(See the next page for confirmation)

Appendix continued.

The use of salt in Agriculture by Cuth. Johnson, M.D. 1848.
Nature has printed out in very intelligible language the
value of common salt for gregarious animals. Hence
the wild cattle of India are remarkably fond of salt, and
often take advantage of this instinct to tame them.
The cattle near the salt springs of Osh, seek their water
at certain seasons of the year. The Caribbees of Lapland are
equally impelled at certain seasons to the sea water;
and in many of the warm countries of the East, the
domestic cattle cannot exist without salt. The owners of
the great herds of horses flock to watering places, and it has
been used pretty generally of late years for the
sheep of England. There appears to be an undetermined
instinct in the animal, which prompts it to seek for salt.
It is probable that the farmers who give salt to their
livestock, have observed that they consume more salt in
certain places, when feeding on grass or hay, than when
fed on Mangel Wurzel or Turnips. Now this is explained by
the fact, that common salt exists, if at all, in very small
proportion in the corn with which stock are commonly fed,
in the grass or in hay; whilst, on the other hand, it is
found in very considerable proportions in the roots alluded to.

The animal, therefore, when feeding upon these roots,
is supplied in their substance, with nearly, if not quite,
a sufficient proportion of salt for all its requirements.
Nature does not prompt it to take more. But when it is
supported on other foods, in which salt exists in only very
small proportions, then it is that the animal seeks an
enlarged supply from other sources. Let us then, not neglect
these instructive indications of Nature. In all our researches
we can never seek for a safer and a more certain guide.
If her replies are not always intelligible to us, we may be
assured that it is we, who are ignorant, and not Nature,
who is working by laws uncertain or unmeaning.

"It is now more than a quarter of a century since I

ected the action of salt as a remedy, under various
ends. 1. The property of salt in small proportions, of promoting
the decomposition of the animal and vegetable remains
retained in all cultivated soils. 2. Its various effect on in-
sect vermin, and its tendency, when applied to foliage, of
aiding in the destruction of weeds. 3. Its stimulating power
on growing plants. 4. Its power to preserve the juices of plants
from the effects of summer heat. 5. Its power to preserve the
temperature of the atmosphere. 6. The
increased power which salt confers on soil, of absorbing
the moisture of the atmosphere. The trials of ten to it
in years (from the time the salt tax was abolished) far from
producing any material alteration in our opinion of
these but powers assigned to salt have rather tended to
strengthen them. (See also Prof. Johnson's *Chemical Agricul-*
culture)

Appendix 7.
Asiatic Cholera. The Lancet - 10 March 1855.

15
" Dr. Snow said, he considered nothing was more satisfactorily proved,
respecting cholera, than that it was communicated from person to per-
son. But the communication of a disease required a morbid mate-
rial passing from one individual to another. A malady could not be
propagated by any immaterial influence. — The fact of all the gene-
ral symptoms of cholera being removed for a short time, by inject-
ing the veins with a few pints of warm water containing a little bicar-
bonate of soda and common salt, proved that these symptoms did not
depend either on poisoning of the blood, or any influence acting on the or-
ganic system of the nervous. Dr. Snow concluded that a disease which
commenced with an affection of the alimentary canal, and was commu-
nicated from person to person, must be propagated by the morbid mate-
rial being swallowed, by its increasing and multiplying in the stomach
and bowels, and then passing off in the ejections and dejections."

Salt in cholera. Letter to the "Times", 16 August 1854.

" I saved most of my patients in 1849 by small doses of Calomel
frequently repeated, a mixture of shubarb, aromatic confection, spirits
of ammonia, camphor julep, and pepper water, together with half-pint
draughts of salt and water, the patient being always much improved
after such draughts though a repetition (return) of the sickness was pro-
duced." Signed, M. R. L. S. D. S. D.

"The Times" 17 August 1854.

" The ice should be powdered by beating it in a coarse cloth or bag —
If a teaspoonful or two of common salt be added, the temperature of
the draught is further reduced, and the remedy more effectual — The
writer has seen vomiting cease after two draughts of this mixture." —
Signed, Medico.

by Dr. H. Rose, Surgeon, at Sand Hills, 9th, October 1858.
Treatment of Asiatic Cholera in the late or the winter.

Sir, I have the honor to acknowledge the receipt of your letter of the 2nd inst. in relation to the treatment of Asiatic Cholera in Syria was told me by my son, Colonel Rose, four or five years ago. As that disease has now again made its appearance in this country under an aggravated form, I take the freedom of sending you particulars of it, as then stated by him to me, as the best means of forwarding an object we all have in common - the interests of the public health. I am &c. &c. Dr. H. Rose, Surgeon, at Sand Hills, 9th, October 1858.

"A Greek Christian, an inhabitant of a place near Beyrout, where the cholera was making ravages five or six years ago, was in a state of collapse. The man was speechless, his skin was nearly black, his eyes were quite closed. The man was speechless, his skin was nearly black, his eyes were quite closed and staring, and under them was a dark blue cavity; his skin was bitter and sticky, and quite cold and clammy; the pulse had ceased totally, as I felt myself, and a low breathing was the only sign of life. An Arab Surgeon and myself agreed to attempt the cure of this man by the treatment stated by Mr. Barker (late Consul-General in Egypt) to have been adopted with almost unvaried success in India - that is, immersion of the legs in salt water, as hot as bearable, up to the knees, and vigorous friction of the legs with salt water until the veins swell; then opening the veins above the ankles, and letting such a quantity of blood therefrom as the medical attendant thinks proper. The patient was thus immersed, being so weak that it was necessary to support him in a chair, and, as well as I remember, 11 or 12 minutes immersion sufficed to cause the blood to liquify and swell the veins, as was perceptible; the patient was then taken out of the hot salt water, and the veins above the ankles were opened, when the blood, the colour of tar, and the veins above the ankles were opened, when the blood, the colour of the darkest claret, and very thick, began to run slowly, quickening and gaining a more natural colour as it flowed. The patient showed signs of a return to his natural state; he spoke, and asked for food; he ate, & said he felt well; his skin became less adhesive, the dark colour of his person diminished, and slow pulsation gradually returned. After a few hours the patient died, as the surgeon stated, from exhaustion; but on a reference to Mr. Barker's advice he discovered that he had made a mistake, and not conformed to it, having taken from the patient very much more blood than he ought to have done. But it was at least ascertained, that this saline treatment of Mr. Barker produced the beneficial result which

had been at the time from the ...
 of the ...
 Hugh Rose

Appendix 9.

Chlorine gas a preservative from Cholera.
 Bristol 10 October 1849.

Mr. Geo. Harpeth, to the Spectator.
 Sir, I perceive in your last week's publication, a letter from
 "Mr. Reid, M.D." in which he says there is no special plan
 written on books, or stated in practice, for producing an
 atmosphere of chlorine gas. — The principle of preventing
 infection from Cholera by destroying the virus, by chlorine
 is mine. — I take pleasure in adding, that from the most
 extensive personal experience amongst infected districts,
 and from the information received from others, I have no
 doubt that effective fumigation with chlorine is a complete
 preservative against Cholera.

Appendix 10

Prof. Med. and Chirurgery Socy. Meetg. = 28 Feb'y 1855.
 "Dr. Webster remarked, that in Paris, the fatality of Cholera
 was last year (1854) three times greater, according to population,
 than in London: the ratio in Paris being 1 death in 84 inhabi-
 tants, whilst in London, it only reached 1 in every 234.
 At Messina, in Sicily, the Cholera proved more fatal
 during last summer, than in any other locality throughout
 Europe. Nearly half the population fled from the city
 through fear, out of the 40,000 who remained, there was 1 death
 in 3: on the 28th & 29 August, the most fatal days, there died
 1300 & 1400 persons."

Dr. Badham's Rose Halimata. p. 67.

"The Salt of Rone is at present monopolised by one or two
 rapacious Halimata, who farm it from Government, and
 alone fatten, whilst all the poor of the Papal States are pining
 in vain for a supply. The article is so dear that many go
 entirely without it, while the Fiscal waters of the Great Sea
 are keenly protected by a vigilant Coast Guard, who form
 see next page

Appendix 10 continued

a cordon, and pace the shore anxiously, as if on the lookout for an invasion. Amongst the novelties that struck us with most surprise on returning to England, after a lengthened sojourn in this land of monopoly and misrule, was the prodigality with which our own poor use salt. When for the first time we beheld our gardener actually dressing the asparagus beds till they were white under the deposit, we thought of how many hundred loads there were at Naples which would have rejoined to pick up a very little of the large quantity that seasoned our grounds, to season their unsalted bread and insipid minestrone.

(There is a stringent salt-tax in Rome & Sicily in France and in Prussia & Russia generally have been decimated at successive visits of the cholera. J. C. B.)

Report of the Bd of Health 1852. — "The Globe" 26 August

"When dirt, dampness, overcrowding, open cesspools & ^{poor} physicians charged with the propagation of this new pest, an American Dr. McNaughton, observes — "As the Asiatic cholera is so very peculiar, and as confined quarters and impure air have existed in all ages of the world in every large town, without producing such a disorder until recently, it is manifest that something more is superadded to these common influences to cause an attack of cholera."

Sir Robert Harcourt on the Industrial Resources of Ireland -

"A substance, which is the basis of more chemical manufactures than any other is common salt. It yields chlorine, and is thus the original material of all the beautiful arts which involve bleaching processes. It yields soda, and this is an ingredient in soap, in glass, and numerous other substances not so universally known. In curing provisions, and as a manure, it is of extensive use; and as a condiment, it becomes part of our daily food. There is probably, no one material, the absence of which would occasion so many deficiencies in the habits of a civilized people as salt."

Necessity of salt to soldiers on service

Lieut. Col. the Honble A. Gordon sent the following Peninsular General Orders, issued by the Duke of Wellington, to Sir G. Prevost at the Talavera in March 1808, prepared by these remarks from himself.

"At the risk of provoking a smile from those accustomed to live without a thought of what are the necessities of life, I will mention salt as an important article for which provision should be made (in the event of war or invasion); for when men are removed from the habitations of civilized life, and forced to remain at inconvenient stations, as frequently happens on service, there may be abundance of cattle and flour for beef and bread, but without salt they would find themselves subjected to the greatest inconvenience."

General Orders by the Duke of Wellington in the Peninsula. Plasencia 15 July 1809.

F. G. O.

"It is very desirable that Officers commanding Companies should endeavour to procure salt in sufficient quantities for their own."

Baratza 27 November 1810.

F. G. O.

"The Commander of the Forces reminds the Commanding Officers of Regiments of the inconvenience which the troops have suffered from the want of salt occasionally during the campaign, and he urges them and Officers commanding Companies to make their own take care of the salt they occasionally arrive with their salt meat."

See next page.

plied with the salt, the flesh rot, and living is predominant in animal
 feeding plants which contain Phosphate and other bases, along with
 some kind of phosphorus, produced in the body of the Phosphate.
 It is indispensable to the formation of blood, which is a material living
 substance, and is in the blood, and is the basis of it, and is the
 only basis of Potash. It is decomposed with the salt of Potash, and is the
 main basis of the Phosphate of lime, and is the main basis of the
 basis, the chief organic constituent of its flesh is but not Phosphate of lime
 in compound, never absent from its blood. (See below the table of the
 Food, p. 100) Phosphate of Potash is multiplied by their vegetable products
 and Potash is an essential ingredient in the blood of the human body.
 H. B. & R. B. L. & P. & M. & C. & S. & T. & U. & V. & W. & X. & Y. & Z.

F. C. Brown Esq
 to Rt. Honble Viscount Canning Esq.

My Lord,

The local papers have published the Financial Notification of
 the Supreme Government of the 22nd February last.

There is an officer in Bombay who by universal consent, from the
 Governor to the Knight, is regarded as the first authority in all matters
 of Finance. That officer is Colonel Samson, the present Military Au-
 ditor General.

Colonel Samson has made Indian Finance his special study
 for the last 30 years. I have heard him say among his friends, whom
 he has known for the last 30 years, that he believed he could spend a saving of
 one million in the public expenditure, without in any way
 and efficiency of any department. This was said before the Mutinies
 and the loss of the high character and position of the person
 who said it, I think it a duty, in the present grave state of the Finance
 of India, to tell your Lordship what Col. Samson's well matured
 opinion was at the time he spoke.

I have the honour to

Dear Sir, P. B. Esq. to L. Canning Esq. Fort House, Calcutta.
 to F. C. Brown Esq. 28 March 1859.

My dear Sir,

I am desired by the Lord General to thank you for your
 letter of the 10th inst, relative to Colonel Samson's knowledge of Financi-
 al matters.

Yours faithfully, A. L. B. Boring.

Madras 24 November 1859-

Colonel Samson to F. C. Brown Esq.

- I have had the pleasure to receive your kind letter of the 17th instant. I
 assure you my attainments and Financial knowledge are very very far
 below the estimate, which you have so kindly formed of them. I entered
 on my present duty, with very great misgivings as to my ability to perform
 it. - I fully appreciate the motive with which you addressed Lord Canning
 but I would rather that he had employed any other person. - I will,
 however, do what I can, and stay at all events until the hot weather sets
 in, and I have every hope that the Government of India will not regret
 the appointment of the Finance Commission. - I will be very glad
 of any suggestions to assist our labours. -

See next page.

London 3 September 1862.

Colonel Balfour to a friend.

"— You have thought well of the work of the Military Finance Commission, now the appointment of the Commission is due to Frank Brown — When at Bombay in 1855, he had a conversation with Col^l Jameson, and then wrote to Lord Lanning (in 1857) pointing out that there was a good opening for doing good by calling on Col^l Jameson for his views about reduction of expenditure — On this Lord Lanning wrote to Col^l Jameson, who replied in a very excellent letter, on which Lord Lanning acted, by appointing three Commissioners (one from each of the Presidencies). — The first intimation of the formation of the Commission which reached Col^l Jameson, was conveyed to him in a Madras newspaper, which mentioned my name as a member of the Commission, & which was very favourable to me. The good which you have done for the Commission is therefore traceable to my friend Mr. Brown's suggestion, and I am proud of the opportunity which your Pamphlet affords of making known the obligations India owes to Mr. Brown for one more patriotic act."

Yours truly,

Sir Bartle Frere's Minute on the Commission.

"— He was in danger of forgetting that the measure of appointing the Military Finance Commission was the turning point in our financial difficulties, and the reductions which have been the direct consequences of that measure, and which but for that measure, would never have been attempted on so effectual a scale, have been the real efficient causes of our present improved financial position."

St. Mary's

Dec. 1816/53.

St. Mary's
Dec. 1816/53.

St. Mary's
Dec. 1816/53.

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8th Aug 1863
1863

W. H. W.

The full rule
and the me-
asures provided
can be seen in the
copies of the
letter which he
furnished to the
Able for con-
to the health
in the air.

L. R.

8th Aug 1863

1863

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