

# **The therapeutic actions of muriate of lime / [J. Warburton Begbie].**

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## XXIV.

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### THE

# THERAPEUTIC ACTIONS OF MURIATE OF LIME.

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and Reprinted from the 'Edinburgh Medical Journal' for July, 1872.*)

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AFTER being held in high esteem as a remedy during a considerable period of time, the muriate of lime has of late years passed almost entirely into disuse. The circumstances which have determined this loss of favour are not difficult to discover, and will be exhibited in the brief historical sketch of the remedy to which I shall proceed before endeavouring to show that the muriate of lime possesses therapeutic virtues sufficiently eminent to justify its restoration to a place in professional confidence.

*Muriate of lime, calcis murias, hydrated chloride of calcium, hydrochlorate of lime, the chloride of calcium* of the British Pharmacopœia, is formed by neutralising hydrochloric acid with carbonate of lime, adding a little solution of chlorinated and slaked lime to the solution, filtering, evaporating until it becomes solid, and finally drying the salt at about 400°. <sup>1</sup> In the British Pharmacopœia, chloride of calcium retains a place; but while its dose is mentioned, its importance is only recognised on account of the power it possesses of absorbing water. It is extremely deliquescent in the air, very soluble in water, and

<sup>1</sup> 'British Pharmacopœia,' page 61.



also readily so in rectified spirit. The salt is used in the preparation of chloroform, muriate of morphia, and ether, and likewise in the rectification of spirits. A solution of the chloride of calcium and a saturated solution of the same, are employed as tests, the former for recognising citric acid in citrate of potash, the latter to determine the purity of the spirits of nitrous ether. Formerly, the only officinal preparation of the muriate of lime was its solution in water, the *calcis muriatis solutio* of the Edinburgh, *calcii chloridi liquor* of the London, and *calcis muriatis aqua* of the Dublin Pharmacopœia.

Chloride of calcium is, in large doses, an irritant poison. Dr. Thomas Beddoes administered three drachms and a half of the calx muriata, undiluted, to a dog about six months old. The dog was soon affected with quick breathing and snorting, with convulsive but vain efforts to vomit, and a profuse secretion of saliva, and in about six hours he died. Upon opening this animal the whole of the thoracic viscera were found apparently in a sound state. The villous coat of the stomach, and of the small intestines a great way down, was exceedingly bloodshot. In many parts it was almost black, and converted into a gelatinous slime, which could be taken off by the fingers with great ease.<sup>1</sup> When exhibited in large doses to man, the muriate of lime excites nausea, vomiting, and sometimes purging, causes tenderness of the precordium, quickens the pulse, and occasions faintness, weakness, anxiety and trembling and giddiness. In excessive or poisonous doses, disorder of the nervous system is manifested by failure and trembling of the limbs, giddiness, small contracted pulse, cold sweats, convulsions, paralysis, insensibility, and death. When given in small and repeated doses, it produces increased secretion of mucus, of urine, and perspiration.<sup>2</sup> In adverting to the cathartic properties of chloride of calcium, Sir Robert Christison observes, these have not been particularly examined in its pure state, but it is a convenient remedy of this class when given along with other purgative

<sup>1</sup> 'Observations on the Medical and Domestic Management of the Consumptive; on the Powers of Digitalis Purpurea; and on the Cure of Scrofula,' by Thomas Beddoes, M.D. 'Annals of Medicine' for the year 1801, by Andrew Duncan, sen., M.D., and Andrew Duncan, jun., M.D., vol. i, ustrum ii.

<sup>2</sup> Pereira's 'Elements of Materia Medica and Therapeutics,' vol. i, p. 630.



salts; and it forms almost the only active ingredient of some powerful mineral waters.<sup>1</sup> This holds true of the springs of Airthrie (now better known as Bridge of Allan), Pitcaithley, and Dunblane, all in the County of Perth.

Muriate of lime appears to have been earliest employed as a remedy in disease by the distinguished French physician Fourcroy,<sup>2</sup> who, along with certain Dutch physicians of his day, had much confidence in its power over scrofula. In Germany also it was used about the same time, chiefly, however, on account of the high estimate of its virtues which had been expressed by Fourcroy.<sup>3</sup> At the close of last century and commencement of the present, the remedy seems to have been largely employed and highly prized by many distinguished physicians in our own country. Foremost among these is Dr. Beddoes.<sup>4</sup> The want of success which had attended the use of calomel, sponge, steel, Peruvian bark, tepid salt-water bathing, muriate of barytes, and all the other remedies which were commonly employed, had led Dr. Beddoes to make trial of a remedy which, to use his own words, "was strongly recommended in scrofula by some foreign writer, the muriatic acid saturated with lime, or muriate of lime as it is now styled." Dr. Beddoes gave the remedy to nearly one hundred patients in various conditions of life, the dose being from ten drops of the saturated solution for young children, to two drachms for others, three or four times a day. Dr. Beddoes remarks, that there are few of the common forms of scrofula in which he has not had successful experience of the medicine. In proof of this he gives several cases.

The first case is that of a boy, seven years old, with light hair and eyes, and distinct blue veins winding beneath a fine skin. He had a voracious, nearly insatiable appetite, a protuberant belly, with wasted limbs, and frequent slimy stools. In

<sup>1</sup> 'Dispensatory,' page 233.

<sup>2</sup> Antoine François de Fourcroy, born in Paris, 1755; died in 1809.

<sup>3</sup> Thus, Hufeland, in his treatise 'Ueber die Natur Erkenntniss-mittel und Heilart der Skrofelkrankheit,' Jena, 1795, bears testimony to its use, chiefly on the authority of Fourcroy. "Fourcroy," he writes, "rühmt es sehr." *Calcaria muriatica*, or *calx salita*, was also the basis of a German nostrum, known about the same time as Niemann's. See Phœbus, 'Handbuch der Arzneiverordnungslehre,' p. 95.

<sup>4</sup> Op. cit., page 205.



the evening he had chills, succeeded by heat and night-sweats. The pulse was generally 120 or above. He had taken, without benefit, almost every medicine against worms, or tabes mesenterica, particularly calomel, both in small doses, so as to affect the mouth gently, and in larger, so as to operate smartly on the bowels. A dose of ten drops of muriate of lime, raised gradually to forty, and which the child took with pleasure in small-beer or coffee, began first by stopping the purging, then gradually diminished the hectic flush, and in two months restored the child to health, which has now been permanent for above two years.

The next case, remark the Doctors Duncan, who have quoted both cases in their notice of Dr. Beddoes's work in the 'Annals of Medicine,' 1801, is perhaps no less remarkable. A young lady, aged thirteen, had a very dilated pupil and slender make, in addition to personal appearances nearly the same as those mentioned in the last case. Dr. Beddoes found her with an equally protuberant belly, which became remarkably large, as well as tense in the evenings; she had wasted limbs, frequent loose stools, hectic fever, feet œdematous at night, short cough, and difficult respiration. In three days after beginning to take twenty drops of the muriate of lime, which were gradually raised to sixty drops, the purging ceased. The appetite for animal food soon became strong but natural. In nine days the feet ceased to swell, the hectic symptoms decreased, and the cough disappeared in the course of the third week. In five weeks the forearm, accurately measured round the thickest part, had gained full three quarters of an inch; and at the end of the sixth week no appearance of disease remained.

I have reproduced these cases of Dr. Beddoes because differing in no important particular from instances of a similar kind which have fallen under my care, in which the muriate of lime has apparently been the means of effecting a very salutary change. In the treatment of the chronic diarrhœa of young children, associated with prominence of the belly and hectic symptoms, I am able to bear a strong testimony to the value of the muriate of lime. A few years after the time of Dr. Beddoes's publication, there appeared a paper in the earliest volume of the 'Edinburgh Medical and Surgical Journal,'<sup>1</sup> by Dr. James

<sup>1</sup> Page 147, 1805.



Wood, physician to the Newcastle Infirmary and Dispensary, in which the author observes, "It is not improbable that the muriate of lime is used, and with as much advantage, in every part of the kingdom as it is in this place. With regard to the northern part of it, at least, this probability is much increased by the circumstance of its having obtained a place in the late Edinburgh Pharmacopœia. Still, as I have not met with a single report of the virtues of this invaluable medicine, nor even any allusion to these, in any of the works intended for the quick dissemination of medical facts, I cannot any longer withhold to the more immediate and general practice of the medical world the muriate of lime as a valuable remedy in scrofula and other states of debility." The same writer further states, "I would feel in some degree accountable for the sufferings of all in this complaint (scrofula) if I were not to endeavour to make known, as much as in my power, that these sufferings may be relieved, and frequently entirely prevented, by the remedy I have mentioned." Dr. Wood used the muriate of lime largely in the treatment of incipient phthisis pulmonalis, in all the external forms of scrofula, in rickets, and in all cases of hectic from great discharges. He further mentions that Mr. Ingham, one of the surgeons to the hospital, found the remedy to possess great powers in discussing tumours and obstructions of different kinds. In 1808, the late Dr. James Sanders of this city published his important work on 'Consumption,'<sup>1</sup> and in it we find the following very decided statements:—"I think that I have ascertained that the muriate of lime has a more powerful effect in removing indolent scrofulous tumours than any other substance used as a remedy, but that when they become open sores it is almost useless. This is a very manageable substance; the dose of it may be gradually increased from five or six grains, three or four times a day, to two drachms; during its administration no particular change of regimen is necessary; and I have never observed it produce any disagreeable effects, except of the slightest kind, after its use has been long-continued, and the quantity of the dose had become very great. Six years ago, I observed with admiration its effects on a young lady, who was

<sup>1</sup> 'Treatise on Pulmonary Consumption, in which a New View of the Principles of its Treatment is supported by Original Observations on every Period of the Disease,' &c., &c. Edinburgh, 1808.



so disfigured by these swellings that the apex of her head was that of a cone resting on the whole superior or atlantal aspect of the trunk."<sup>1</sup> In the case thus described by Dr. Sanders, the remedy was continued for six months, with the result of the neck resuming its proper shape, and scarcely any enlargement of any gland remaining. He adds, that he has never administered muriate of lime in similar circumstances without producing the most beneficial effects. The chronic enlargement of the lymphatic glands in the neck, associated with a similar condition of the parotid and submaxillary glands, and frequently with fulness of the tonsils, is the form of disease in which I have most frequently had the opportunity of exhibiting the muriate of lime, and my experience of its use in such cases has been so satisfactory as to lead me cordially to join with Dr. Sanders in the remark—"It would give me infinite pleasure if the utility of this remedy in such complaints were completely established." That Dr. Sanders had abundantly satisfied himself of the efficient operation of this remedy may be inferred from the circumstance, that it is in closing his discussion of its use as a deobstruent that the following passage occurs:—"Is there anything more absurd than that life, incomparably the most valuable of all possessions, indeed that without which there is no possession, should be treated with less care and skill than any common article of furniture? We will not allow a footstool to be repaired but by the most expert joiner, while we entrust our lives to the rashness of empiricism."<sup>1</sup>

Through the kindness of Dr. Moir, I have had the opportunity of reading a manuscript lecture of the late eminent Dr. James Hamilton, for the first forty years of this century Professor of Midwifery in the University of Edinburgh, in which, when discussing the treatment of rachitis or rickets, the following occurs:—"The tonic medicines which have been employed are the bark, preparations of iron, and the muriate of lime. According to my experience, preparations of iron and the muriate of lime are the most useful tonic medicines of this disease." In another part of the same lecture, which is devoted to a consideration of the nature and treatment of scrofula, Dr. Hamilton speaks in high terms of the efficacious operation of the muriate of lime in that disease. Dr. Anthony Todd Thompson asserts

<sup>1</sup> Page 112.

<sup>2</sup> Op. cit., page 118.



that he has seen more benefit from its continued use than from any other medicine.<sup>1</sup> Dr. de Vering, after bearing a decided testimony to the therapeutic virtues of the muriate of baryta and the muriate of lime in scrofulous affections, indicates his preference for the latter on account of its effects being less violent, and the remedy not requiring the maintenance of the same precautions in its administration.<sup>2</sup>

It would be easy to multiply the references to equally favorable expressions of opinion regarding the therapeutic action of the muriate of lime; I have, however, preferred to cite the testimony of physicians who were distinguished as men of careful observation and matured experience in their own day, and of whom either the personal remembrance or the fame still lives. To be impartial, I have to confess that, at the very time when the muriate had its chief appreciation, and was more commonly employed than either before or since, there were some physicians of undoubted eminence, and one indeed of deserved renown, who had failed to discover its possession of signal therapeutic virtues. Dr. John Thomson, to whom I have just alluded, in his well-known and esteemed treatise on Inflammation, has thus expressed himself:—"Three of the neutral salts have acquired great celebrity for the cure of scrofula, and it is remarkable enough that these should all have been muriates. The first of these was muriate of soda, given as it exists in sea-water. Nothing can be more satisfactory than the evidence which is on record of its efficacy. In reading this, one only wonders how so efficacious a remedy should ever have fallen into neglect. The second, the muriate of barytes, was introduced to the notice of the public under the most favorable auspices, and its antiscrofulous powers extolled by all degrees of men in the medical profession; yet it has had a much shorter-lived reputation than sea-water or its successor the muriate of lime. How long this third muriate will be permitted to enjoy its present fame I shall not venture to say. Not much longer, however, I should imagine, from what I have seen of its use, than till a new remedy shall be found out by those who are still sanguine in their hopes of dis-

<sup>1</sup> 'Dispensatory,' 8th edition, p. 748.

<sup>2</sup> 'Manière de Guérir la Maladie Scrofuleuse.' Par le Chevalier Joseph de Vering. 1832. Page 34.



covering a specific for scrofula. To such of you as are but imperfectly acquainted with the past history of the *materia medica*, and the uncertain nature of medical evidence, in so far as it relates to the operation of remedies for the cure of chronic diseases, the accounts before the public of the virtues of the muriate of lime in curing scrofula must appear satisfactory and complete. It will be well if a little reading or experience does not soon lead you to suspect that the reporters of its efficacy have not, any more than the reporters of the efficacy of the muriates of soda and barytes, learned to distinguish in every instance between a cure and a recovery. Till that distinction, however, is made, and is adhered to more strictly than appears to have been hitherto done in reporting the effects of the remedies employed for the cure of scrofula, a little scepticism, even with regard to the antiscrofulous virtues of muriate of lime, may, I conceive, be safely enough indulged.<sup>1</sup> Few will be prepared to call in question the general appositeness of these remarks, and the interest attached to them is increased owing to the fulfilment of the prophecy made by their distinguished author. In watching the treatment of cases in which muriate of lime has been given, I have been the more careful to abstain from accepting without rigid scrutiny the facts which have seemed to establish the therapeutic action of the remedy, on account of the opinion of Dr. Thomson, just quoted, and of others, to which, with the exception of two, I need not particularly refer.<sup>2</sup> Mr. Benjamin Phillips remarks: "I am not satisfied that it has any very evident action upon scrofulous glands. I cannot say that I have ever seen a case in which, in the absence of other influences, the discutient power of this medicine has been clearly manifested."<sup>3</sup> "Since the publication of the earlier editions of this Dictionary," wrote Mr. Samuel Cooper, "I have seen the muriate of lime given in several cases of scrofula, but without any beneficial effect on the disease."<sup>4</sup>

<sup>1</sup> 'Lectures on Inflammation,' by John Thomson, M.D. 1813. See page 196.

<sup>2</sup> See 'A Practical and Historical Treatise on Consumptive Diseases, deduced from original Observations, and collected from Authors of all ages.' By Thomas Young, M.D. London, 1815.

<sup>3</sup> 'Scrofula: its Nature, its Causes, its Prevalence, and the Principles of Treatment.' See page 285.

<sup>4</sup> 'Dictionary of Practical Surgery,' 6th edition, page 1031.



Professional confidence in any remedy might well be unsettled by the expression of opinions so conflicting as those which have now been cited. I do not mean to attempt to reconcile them.

*"Non nostrum inter vos tantas componere lites."*

Candidly, however, I feel as if the very decided statements, with appeals to extended experience, made by Drs. Beddoes, James Wood, Sanders, Anthony Todd Thompson, and Hamilton, were more than equal to the negative conclusions of Dr. John Thomson, Messrs. Phillips, and Cooper. That the adverse opinion respecting the use of muriate of lime led in some measure at least to its being less employed as a remedy, admits of little doubt; but another and more satisfactory explanation of the circumstance lies in the introduction into practice of iodine and cod-liver oil, the former more especially, as medicinal agents in cases of exactly the same nature as those in which the muriate of lime had been employed. To Dr. Coindet, senior, of Geneva, is due the merit of having discovered, in 1820, the medicinal virtues of iodine, while cod-liver oil, long previously regarded as a panacea, in domestic practice, particularly, however, in strumous disorders, has, since the period of the introduction of iodine, very gradually risen into the well-merited position in professional confidence which it now occupies and bids fair to maintain. To Percival, the elder Bardsley, Scherer, Williams, and chiefly to Dr. Bennett, is this to be ascribed.

The cases in which I have had occasion most frequently to employ the muriate of lime have been instances of struma, the most notable feature of which was the enlargement of the lymphatic glands in the neck. In the earlier cases which fell under my observation, recourse was had to the remedy, either because what appeared to be a fair trial had been already given to iodine, or its preparations, chiefly the iodide of potassium, and syrup of the iodide of iron, or to cod-liver oil. Frequently both iodine and cod-liver oil had been employed without appreciable benefit, or it had happened that these remedies had disagreed—that, owing to the occurrence of sickness and anorexia in the instance of the oil, or of pain in the stomach, coryza, and gravedo in that of iodine, the remedies could not be persistently taken. Under such circumstances, then, muriate of lime was prescribed. For several years, however, with a



growing and latterly extended experience of its virtues, I have not hesitated to order the remedy when no such proof was afforded, either of the failure, or of the intolerance on the patient's part, of the other medicines. I am not able to affirm that the remedy has always, that is, in every case, answered my expectations—of what remedy, even among our “*summa remedia*,” does an experience of that kind hold true?—But it is in my power to assert, that in many instances of very great enlargement of the cervical glands, and several examples of other maladies, which will be shortly referred to, have apparently yielded to its use. The subjects of the former of these cases have been for the most part young persons of both sexes, who have presented more or less unequivocally the aspect of a strumous habit of body. In a few there has been a more general enlargement of the lymphatic glands, not confined to the neck on either side, there has existed glandular swelling in the axillæ and inguinal regions, while there was also reason for believing that some at least of the deep-seated lymphatics of the pelvis were affected.

Muriate of lime requires in such cases to be taken for a considerable time—for weeks, it may even be months—before its beneficial effects are visibly produced. Usually, however, in the course of a few weeks there occurs a certain degree of softening in the glandular tumour, and the component glands in the mass come to be separately distinguishable. With the gradual subsidence of the enlargement there is a notable improvement in the appearance of the patient, owing to a favorable change in respect to both appetite and digestion. Observing in some instances a tendency to the recurrence of the glandular swelling, after the discontinuance of the muriate of lime, I have thought it advisable to counsel its being taken with regularity for a very considerable period after the entire disappearance of the cervical fulness. I have lately seen three patients who have been taking the medicine with the greatest regularity for two years, eighteen months, and a year respectively. Muriate of lime is best taken in milk, but some patients prefer it in water. Generally speaking, I have recommended it to be taken after meals, twice or thrice daily. The salt has a mawkish disagreeable taste, which the milk in part or wholly conceals. Although far from pleasant, patients rarely complain of the



taste after they have taken the muriate of lime for a short time, and by many, a liking for it is gradually acquired, so that there results in time a much greater disinclination to stopping than to continuing its use. Young children are for the most part readily persuaded to take it. My experience of the value of muriate of lime as a deobstruent in glandular affections has been gathered both from hospital and private practice; and I feel satisfied that in my endeavours thoroughly to test the efficiency of the remedy, it has been in my power, as it has certainly been my desire, to eliminate every conceivable source of fallacy. In hospital and dispensary practice, the muriate of lime has been prescribed for patients whose malady had clearly been intensified by faulty, usually imperfect, diet, as well as by exposure. In private practice, on the other hand, there has been illustrated the influence of hereditary transmission in overcoming the most favorable conditions as regards diet and regimen.

I cannot venture to say in which class of instances, drawn from very different spheres of observation, the powers of the remedy have been most notably produced. One young woman who was sent to the Infirmary from Berwickshire by a medical friend, presented on her admission a deformity of neck which was really frightful, and which nourishing food, and that of the most suitable kind, albuminous and oleaginous, and the diligent use of both internal and external medication for many months, had proved insufficient to overcome. Muriate of lime during this patient's three months' residence in the Infirmary had produced a very decided amelioration, and its continued employment for a much longer period after her return to the country, an altogether satisfactory result. I have frequently had occasion to see two patients, both females of the better classes, whose strumous cervical glands have proved a great cause of annoyance and of mental depression, and in whom the muriate of lime has never failed to produce a marked subsidence of the deformity after its use has been continued for a period of weeks. The remarkable feature in these two cases—and I have seen the same thing, although less notably, in others—is, that after the muriate of lime has been discontinued for a little time, the glandular swelling always returns, but it invariably yields to the influence of the remedy when again employed.



Surely in such an experience as this, there is abundant proof of its therapeutic action. I had lately the satisfaction of recognising, not without some difficulty at first, a young lady, for whom I had prescribed the muriate of lime on account of very extensive enlargement of the glands on both sides of the neck, some of which had suppurated, and by so doing had occasioned increased deformity. This patient had taken the muriate of lime for fully a twelvemonth, having previously consumed large quantities of cod-liver oil, and various of the preparations of iodine and iron, without any benefit whatever. Returning, not for the purpose of receiving further advice, but of exhibiting her changed appearance, I found that cicatrices, with a very trifling hardness of some small glands, alone remained. Several professional friends have, during the past twelve years, informed me of the gratifying results they had witnessed in cases of a similar nature, which had fallen under their observation or more immediate care.

The permanent nature of the cure in many such cases has always appeared to me to offer a further encouragement for the employment of the muriate of lime.

Another form of disease which is apparently benefited by the muriate of lime is met with in childhood, and makes a near approach in its symptoms and general character to the *tabes mesenterica*. I have observed the exhibition of the remedy in such cases to be followed by the cessation of a protracted diarrhoea and of exhausting perspirations, by a subsidence of fever, hectic in type, by improvement in appetite, the gaining of flesh, and a gradual restoration to the condition of health. In the grave disorders of the alimentary canal occurring in children, the muriate of lime is useful in arresting looseness of the bowels, in promoting digestion and favouring nutrition. I have frequently prescribed the remedy, and been gratified by the results obtained from its use, in cases of children stopping short of any definite disease, but characterised by depraved appetite, loss of flesh, pallor of countenance, protuberant belly, wasted limbs, and more or less of febrile excitement, the latter presenting an intermittent or remittent type, and usually attended by two distinct paroxysms of fever during the twenty-four hours. Dr. Wood, to whose use of the muriate of lime I have already referred, found it most efficacious in the treatment



of *tabes mesenterica*, on account of its checking purging, diminishing the hectic fever, allaying the inordinate appetite which sometimes characterises that disease, and in many cases, he says, ultimately restoring the patient to perfect health. The red appearance of the point and edges of the tongue, associated with diarrhoea and more or less of sickness and failure of appetite—an assemblage of symptoms in children which points to the administration of lime-water, often a most effectual remedy—may be with equal advantage treated with the muriate of lime in repeated doses.

Twenty years ago, when a student in Paris, I was witness to the treatment of lupus by the then eminent physicians of the Saint Louis Hospital, M. Cazenave and M. Devergie. Both insisted strongly on the constitutional treatment of that formidable malady. In the wards of the latter, I saw many instances of lupus exedens materially benefited, and some apparently cured, by the administration of cod-liver oil—in much larger doses, however, than we have been accustomed to give the remedy in this country. It was in the Hospital of St. Louis, in 1850-51, that for the first time I saw patients taking cod-liver oil, not in spoonful doses, but in large glasses or tumblerfuls.<sup>1</sup> Passing from the *clientèle* of M. Devergie into that of M. Cazenave, I found the muriate of lime being prescribed, from a just sense of its remedial powers over a disease so intimately connected as lupus is with the scrofulous constitution. Cazenave gave the muriate in this fashion: a scruple was dissolved in a quart of water, and a teaspoonful of the solution was given every morning, while the dose was increased by a spoonful every four or five days until the patient took twelve spoonfuls a day.<sup>2</sup> In some cases of lupus which have fallen under my own care, I have prescribed a combination of these remedies; cod-liver oil

<sup>1</sup> 'Traité Pratique des Maladies de la Peau,' par Alph. Devergie. Paris, 1857.—"Mais si l'on réfléchit que c'est le seul moyen qui ait guéri sans le secours d'aucun autre, que pendant dix ans j'ai suivi pas à pas les effets des diverses médications préconisées pour combattre cette maladie, et qu'aujourd'hui j'emploie l'huile de foie de morue d'une manière générale de préférence à tout autre moyen, le médecin insistera sur son usage, et saura donner à des malades tout le courage qu'il leur faut pour avaler le matin et le soir un très grand verre d'huile."—(Page 651.)

<sup>2</sup> See 'Manual of Diseases of the Skin,' from the French of M. Cazenave and Schedel, translated by Dr. Burgess (page 258).



in smaller doses than M. Devergie has recommended, and with it the muriate of lime. It was in watching the favorable course of one such case, in which there existed good ground for believing that the local malady owed its origination not only to an inherited highly strumous constitution, but to an acquired syphilitic taint, that I became impressed by the conviction that the muriate of lime possessed some virtue, as I am satisfied cod-liver oil does, of an antisymphilitic nature. This much I am able to affirm, that its alterative powers in certain cases of cutaneous eruption intimately connected with syphilis, more especially lupus exedens and non-exedens, and in local psoriasis, also in some instances of ozæna and chronic tonsillitis, have appeared to me quite unmistakable.

The recognised dose of the muriate of lime is from 10 to 20 grains; but the solution of the old Edinburgh Pharmacopœia forms a convenient mode of its administration, and in that form I have habitually prescribed it. Fifteen drops of this solution, containing about ten grains of the muriate of lime, may be considered an average dose for a young adult or adolescent; and with such a dose given thrice daily in milk, I have usually commenced; gradually the dose may with advantage be augmented to nearly thirty or forty drops; it is, however, not advisable, by reason of its occasionally producing such unpleasant effects—as nausea, sickness, pain in stomach, and loss of appetite—to elevate the dose still further. I have thought that a little period after food is the better time for its administration, but this is not of much importance—many patients taking it with advantage either shortly before or during meals. In the instance of any young children to whom I have frequently administered it, the dose must of course be apportioned according to age. I have given it to such in doses of three to ten drops. Very speedily in some cases, these chiefly of the nature of diarrhœa and feeble digestion with attenuation in children, I have witnessed its beneficial effects—quite as speedily, indeed, as we observe the operation of lime-water as an antacid and alterative. When given in the more chronic ailments, to which reference has been made, and more particularly in the strumous enlargement of glands, a rapid curative action is not to be looked for. Under such circumstances, indeed, the persistent use of the remedy is called for. I feel thoroughly satisfied,



however, that in so prescribing and continuing the muriate of lime, the physician and patient may look forward with confidence to its beneficial operation. Weeks, months, a twelve-month, are surely not to be considered as very lengthened periods of time for the removal of a malady which has existed for many years, and possibly bid defiance to all the other means of treatment which may have been employed. It has been my lot within the past three or four years to prescribe the remedy for patients who have thereafter passed temporarily from my observation, but at the end of months, twelve months, or even a longer time, having meantime, conformably to exhortation, diligently continued the remedy, have again presented themselves, to afford the most gratifying proof of the therapeutic action in their cases of the muriate of lime.

I have very seldom witnessed the production of any disagreeable effects, and rarely had occasion to interrupt the medicine. In a few instances I have found that a smaller dose than that usually prescribed appeared to agree better, and to work out the therapeutic action of the remedy most satisfactorily.

No notable physiological feature has presented itself to my notice while watching with care the therapeutical action of the muriate of lime. Conformably to the experience of experimenters, I have observed the acidity of the urine to be lessened during the administration of the remedy. Dr. Parkes mentions that the result on the urine of the exhibition of muriate of lime is a considerable increase in the amount of lime.<sup>1</sup>

Lime, in the form of phosphate or carbonate, is an essential constituent of the body. As phosphate it is found in all the solids and fluids. Always united in the solids with organic substances, as an *element of constitution*, it is scarcely second in importance to water.<sup>2</sup> It is in the bones that phosphate of lime chiefly exists, and its absence in due proportion from the bones is made evident by what we observe in disease. Carbonate of lime is found in the bones, teeth, and cartilage, and, as a salt entering into the composition of bone, is only secondary in consequence to the phosphate. These principles are largely supplied to the economy by the food which we consume. In

<sup>1</sup> 'The Composition of the Urine in Health and Disease,' page 166.

<sup>2</sup> 'The Physiology of Man,' by Austin Flint, jun., M.D., "Introduction," page 40.



selecting the chloride of calcium as a therapeutic agent, it is not to be overlooked that, much as chemists have differed regarding the nature of the free acid of the gastric juice, whether hydrochloric or lactic, it is admitted that, besides the acid in question and pepsine, there exists in the solid residue a considerable amount of chlorides and phosphates; and of the former, chloride of calcium is one. We have, then, the satisfaction of knowing that in prescribing the solution of the muriate of lime we are not introducing into the stomach a poison—although I do not undervalue the therapeutic action of poisons—but an agent which, in the healthy state, has its existence in the gastric juice. I am not in a position to affirm, that just as rachitis or rickets is the result of a diminished supply of phosphate of lime to the bones, so the form of that malady in which I have been recommending the employment of muriate of lime may depend on the reduction, or possibly absence, of this substance from the gastric juice. This much we know, that scrofula is essentially a blood disease, transmissible from parent to child, as is the case with rheumatism, gout, and other maladies, the hereditary nature of which is universally admitted, working deterioration in the circulating fluid, and through it, from which their nutrition is derived, injuriously affecting the solid tissues of the body.<sup>1</sup> Of the operation of muriate of lime in scrofula, and more especially in that form of scrofula distinguished by enlargement of the lymphatic glands, I entertain no doubt, having recognised it again and again. To offer a satisfactory explanation of this action I am not prepared, but must rest satisfied by having directed attention to one or two particulars of some importance. I do not wish to be supposed as entertaining a low opinion of iodine as a remedy in scrofula, for the action of which, although we all admit it, it is almost impossible, as Dr. Headland observes, to invent a satisfactory explanation. So far from depreciating iodine, I have very frequently occasion to prescribe it; and in the instance of scrofula associated with anæmia, as we so often find it in the children of the poor resident in towns, have found the syrup of the iodide of iron to be almost as useful as an improved diet and change of air. Let us, however, be, if possible, still further armed against this dreaded and ever formidable foe,

<sup>1</sup> See Headland's 'Action of Medicines on the System,' page 206.



and if, in addition to iodine and bromine, and barium and cod-liver oil, we have muriate of lime, we may, in contending against it, be, I hope, the surer of victory.

I have thus endeavoured to bear a strong testimony, founded on no inconsiderable trial, to the therapeutic virtues of the muriate of lime—virtues which have, in my opinion, been of late years unjustly overlooked.

Permit me, in concluding, to remark that my attention was earliest called to the remedy by one to whom I owe the best lessons I have had in my profession ; to his teaching, therefore, any good which may possibly result from this statement regarding the therapeutic actions of a remedy in which he was wont to place confidence, must be ascribed ;

“ For in my mind  
Is fixed, and now strikes full upon my heart,  
The dear, benign, paternal image, such  
As thine was, when so lately thou didst teach me.  
\*       \*       \*       \*       \*       \*  
And how I prized the lesson, it behoves  
That long as life endures, my tongue should speak.”<sup>1</sup>

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<sup>1</sup> Dante, ‘Dell’ Inferno,’ Canto xv, Cary’s translation.











