

struggle for life. It appears by no means improbable that, if a carminative antispasmodic draught could have been promptly administered, and a small quantity of blood taken from the arm, a temporary recovery might have been brought about. It could, however, have been only temporary, for the coats of the aneurism were so thin that rupture into the pericardium must soon have occurred.

The portion of the aorta covered by the pericardium being destitute of the external cellular coat, true aneurisms of this part of the vessel are not converted into false aneurisms, but fatal extravasation takes place from rupture of the pericardium. Aneurism opening into the pericardium has been regarded as rare by Laennec, who never met with a case; and also by Dr. Hope, who states that he did not meet with one until the year 1830. Mr. Arnott, the house-surgeon to the North Dispensary, informs me that, during the five years he has been attached to the institution, he has found rupture of aneurism of the aorta into the pericardium in three cases in which he was called upon to make an examination for the coroner. In all of them, death occurred very suddenly, and had been preceded by scarcely any symptoms of disease, so far as could be discovered. It may also be observed, that very little inconvenience or injury of the general health is produced in many cases of aneurism and general dilatation of the coats of the aorta. At present I am in the habit of seeing two patients, both of whom have well-marked physical signs of disease of the aorta, and yet present no constitutional disorder beyond dyspnoea on exertion, and liability to catarrhal attacks. One is a woman, about fifty-six years of age, who, nearly a year and a half ago, came under my care on account of dyspnoea, cough, and, at that time, loss of voice. She had then a harsh, rasping murmur, audible over the whole anterior part of the chest, but loudest in the course of the aorta towards the upper part of the sternum, where it was accompanied with thrilling sensation. She has since had several attacks of a similar kind, when she has caught cold, but has always been relieved by an expectorant mixture, with squills and compound tincture of camphor. The other is a man, forty-four years of age, who came to me in November last, with precisely similar physical signs of disease of the aorta, and with great difficulty of breathing, from bronchial affection, accompanied with torpor of the liver. The bronchial affection being subdued by expectorants along with mercurial purgatives, the difficulty of breathing was only felt when considerable exertion was made, and he has now for some time followed his ordinary occupation, and enjoys good general health.

June, 1845.

(To be continued.)

ON THE MEDICINAL USES OF THE BICARBONATE OF LIME, DISSOLVED IN EXCESS OF CARBONIC ACID, IN SOME CASES OF INDIGESTION.

By W. R. BASHAM, M.D., Physician to the Westminster Hospital, &c.

THE use of lime-water has been long appreciated as an effective remedy in some forms of indigestion. As an antacid—using the term in its ordinary medical sense—it ranks high among the most powerful of the alkalies; and in the treatment of irritable gastric, follicular gastric, and congestive gastric dyspepsia, it has always proved a most salutary remedy, in the latter form of the disease quickly relieving that most prominent and distressing symptom—heartburn; and in the two former species of indigestion, lessening, in the first, the irritable state of the stomach, occasional nausea, &c.; and, in the second, relieving, in a most marked manner, the frequent attacks of pyrosis to which such patients are more or less subject.

My experience in the treatment of these forms of dyspepsia by limewater has, from the opportunities the Westminster Hospital affords me, been considerable, and I rely upon it as a most valuable remedy. But in the use of it, particularly among private patients, a frequent objection is made to it on account of its nauseous and unpalatable taste.

The simplest vehicle for its administration is milk. By some it is given in a vegetable bitter; but there is a serious objection to this form of taking it, inasmuch as these vegetable bitters are frequently injurious in those forms of dyspepsia in which lime-water is most serviceable. It is three years since—while observing the effects of limewater in a variety of cases among the out-patients of the Westminster Dispensary—I had occasion to recommend its use to a gentleman suffering from a severe form of irritable gastric dyspepsia, but to whom its nauseous taste was an almost insuperable objection. I accidentally recommended him to take it in half a tumbler of soda-water, as commonly prepared; the power possessed by many of the aerated continental waters of relieving these symptoms equally with

limewater, justifying me in the inference, that in the form of super or bicarbonate of lime with soda, a partial and imperfect imitation of the seltzer or St. Parize waters was effected, the efficacy of the earth not being diminished—nor was I disappointed. At this time, my friend Mr. Maugham, without being at all aware of my suggestion of this mode of giving lime-water, mentioned to me the result of some experiments he was then conducting on the incrustations of boilers by carbonate of lime, and in one experiment, on adding carbonic acid to lime-water, and redissolving the milky precipitate by excess of carbonic acid, and accidentally tasting the product, he was surprised to find the solution both palatable and refreshing. He subsequently prepared some more carefully, and desired to know what effects on the stomach or its disorders such a bicarbonate of lime would produce. Struck with these chemical facts, so much in unison with my accidental suggestion to use limewater with free carbonic acid, I readily acceded to a proposal to observe the effects of the bicarbonate of lime rendered soluble by excess of carbonic acid, in those forms of indigestion in which it might be presumed, from the known effects of limewater, that such a preparation would be efficacious. Cases were selected from time to time from among those suffering from the common form of indigestion, characterized by heartburn, flatus, acid eructations, &c., and most frequently met with among shoemakers, shoebinders, tailors, sempstresses, household servants, and others, leading a sedentary and oftentimes an irregular life.

The water was prepared in a manner similar to soda-water; and an unlimited quantity being placed at my disposal, I had an opportunity of witnessing its effects in a number of persons suffering principally from the symptoms above mentioned. It quickly relieved the heartburn, and checked the acid eructations, and these symptoms abating, the flatulent distress quickly disappeared. No other remedy was administered while drinking the water.

That lime in a state of carbonate should prove thus beneficial in these derangements of digestion ought not to surprise us, when we recollect how abundantly it is supplied to us by nature. Lime is present, in more or less quantity, in all water; it is an essential ingredient in common water; any water deficient in a salt of lime is flat and most insipid. It is present in all the mineral waters both of this country and of Europe, whether they be saline, chalybeate, sulphurous, or carbonated, in the form either of sulphate, carbonate, or chloride. In the carbonated or aerated waters it is more particularly present, in considerable quantity. Now these waters are highly esteemed for their efficacy in those very forms of dyspepsia in which medicinal limewater is serviceable. A reference to the analysis of the principal carbonated springs will at once show how much their salutariness depends on the solution of carbonate of lime in carbonic acid, or rather, in the presence of bicarbonate of lime with excess of carbonic acid.

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	Carbonic acid in cubic inches.	Carbonate of lime in grains.	Carbonate of soda in grains.	Carbonate of magne- sia in grs.
Seltzer	17	3	4	5
Pymont	26	4.5	10
Pouges	30	12	5	1.2
St. Parize	22	11.5	1.5
Bristol	3.5	1.5
Kreutzbrunner of Marienbad	125	4.13	8.26	3

with sulphate of soda, 39.72, chloride of sodium, 12.45, &c.

The great celebrity and efficacy of the last of these is doubtless to be attributed to the large amount of saline ingredients and the moderate laxative effect induced. The aerated or carbonated waters have been employed from the time of Hoffmann down to our own period, with an unvarying testimony and an undeniable experience of their remedial power and utility in many dyspeptic disorders. Now, all these waters contain a considerable quantity of lime held in solution by carbonic acid, and their sparkling, brisk, agreeable flavour, and their power of retaining an excess of carbonic acid, dissolved even under ordinary atmospheric pressure, is entirely dependent on this earthy carbonate thus dissolved. Their curative influence is also entirely dependent on this ingredient; and I do not doubt that their medicinal value would remain unchanged if the other carbonates were absent, the total efficacy of the water being dependent on the lime it contains as a bicarbonate dissolved in carbonic acid.

The springs at Pouges, in the south of France, between Paris and Lyons, are celebrated for their influence and effect in those forms of indigestion for which carbonated waters are usually prescribed. Now, the Pouges' spring contains the maximum of lime, in the form of carbonate uncombined with sulphates or chlorides, of any mineral water—viz., twelve grains to the pint,

or, according to Dr. Thomas Thomson, 112.96 grains to the imperial gallon, which is 11.29 grains to the pint. Highly effective in many disorders, whether of the stomach, kidneys, or bladder, these waters owe their remedial and beneficial operation to the lime they hold in solution. They are remarkable, also, for allaying acidity of the stomach; this property is specially dependent on the carbonate of lime they contain. It is a singular fact, that cattle are remarkably fond of these carbonated acidulous waters, and this, notwithstanding the presence, in some, of a large amount of saline ingredients, as in the waters of Vichy.

Dr. Thomas Thomson, in the "Cyclopædia of Practical Medicine," states that cattle having drunk these waters once will eagerly endeavour to repeat the draught, if possible, and will even ford and cross large rivers for the purpose. Their beneficial effects being chiefly attributable to the carbonate of lime, which they contain, it is but a just inference that limewater artificially saturated with carbonic acid would produce like effects. The trials recently renewed with this preparation of lime, have in a most marked manner confirmed the opinion formed two years since, when this subject was first brought to my notice.

Limewater is exceedingly difficult to impregnate with carbonic acid gas, so as to produce a clear effervescing liquid, and it gives off at the ordinary pressure of the atmosphere its excess of carbonic acid in a correspondingly slow degree. The water may be left for hours exposed in a glass, and will retain sufficient carbonic acid to prevent the insoluble carbonate from appearing; and it is not until after exposure for five or six hours that any trace of the minute rhomboid crystals of the carbonate can be detected, even under the microscope; the manufacture of this preparation of lime in the ordinary soda-water apparatus, was therefore impossible, it became necessary to procure reservoirs, in which the gas could be generated under a pressure of from five hundred and sixty to six hundred pounds on the square inch, equal to from thirty-seven to forty atmospheres. This pressure is considerably reduced in bottling. But it is found that only under such pressure can a perfectly clear solution be obtained. It was found also that the common soda-water bottle was not strong enough to resist the great expansive power of so large an amount of carbonic acid; absorbed under such pressures. A patent has therefore been secured for the preparation of the water, and the bottle used in the manufacture has been registered, the shape of which, upon mechanical principles, is calculated to resist a greater expansive force than any other form. The term *carrara* has been given to this preparation of lime, from Carrara marble being the source whence the oxide of calcium is obtained. The chalk, and other forms of carbonate of lime of this country, are always contaminated with foreign ingredients, and it has been found that if the oxide be not perfectly pure, the resulting bicarbonated water possesses a very disagreeable, unpalatable flavour. Carrara marble is well known to chemists to be among the purest examples of uncontaminated carbonate of lime.

The particular forms of indigestion in which this preparation of lime has been observed to be most serviceable are, the irritable gastric, follicular gastric dyspepsia, and a form most frequently met with in London, among particular classes, occasionally of chronic character, the symptoms unquestionably depending on a congested state of the mucous surface of the stomach, and the symptoms, in the majority of cases, agreeing in type with the inflammatory gastric dyspepsia, as described by the late Dr. Todd, of Brighton, but which I have been in the habit of calling congestive, or chronic congestive dyspepsia, as the case may be of recent or of long standing; heartburn, occasional gastrodynia, pain at the epigastrium, furred, brownish, clammy tongue, and thirst, being the most marked symptoms common to such cases.

In many of these cases, the fur on the back of the tongue has a brownish-yellow hue, and there is a disagreeable alkaline or bitter taste in the mouth; and if a piece of reddened litmus be placed on the tongue, the secretions will be found strongly alkaline. There is great thirst, particularly on first rising in the morning, and frequently an accumulation of thick tenacious mucus about the fauces and pharynx, which is hawked up with some difficulty. There is seldom any great loss of appetite, except in the more chronic cases, nor do the bowels always exhibit any very marked irregularity. The urine, however, is either high-coloured and scanty, or more copious, and depositing minute orange-red grains of lithic acid. Such symptoms often depend merely on high living, or irregularity and imprudence at table; among the poorer classes, on the intemperate use of fermented liquors. In more aggravated cases, patients will complain of a burning sensation, or even pain proceeding along the gullet to the stomach, chiefly excited on swallowing either fluids or solids, and followed by a hot and similar unpleasant sensation in the præcordium, and generally lasting from a few seconds to a minute

or more after ingesta has been swallowed, constituting the true gastrodynia. The symptoms now mentioned are common to some forms of complicated indigestion, but they are common also to the temporary derangement from which the stomach suffers after a succession of imprudent excesses at the table, and are unquestionably dependent on a congestion of the mucous membrane of the stomach and upper portion of the digestive organs. This state of things, if neglected, not unfrequently terminates either in chronic congestion, or inflammatory gastric dyspepsia. Carbonic acid dissolved in water acts as a sedative on the mucous membrane of the stomach; and from the large quantity condensed by the absorbing power of the lime, I explain its beneficial effects in these conditions of the stomach.

In another class of cases, where uneasy sensations are referred to the stomach during the process of digestion, accompanied by nausea, and not unfrequently rejection of a portion of the previous meal, with attacks of water-brash, the stomach being empty, there is also a characteristic state of the mental functions, hypochondriasis, and depression of spirits. In two such cases lately under treatment, and occurring in patients sedentarily employed, this Carrara water, taken frequently in quantities, not exceeding a large wine-glass for a dose, very speedily and surprisingly relieved the water-brash; and when dyspeptic patients lose any of their most distressing symptoms, on which they have perhaps been anxiously solicitous, the relief obtained gives them confidence to pursue the other and more important directions of regimen and diet, on which their ultimate cure mainly depends. These cases are illustrative of what has been termed, irritable gastric dyspepsia.

The follicular secretion of the stomach performs an important part in the process of digestion, and any excess or deficiency of this secretion is attended with more or less uneasy symptoms and deranged digestion, occasional attacks of cramp in the stomach, or sensations described as such, with ejection in the morning, or even when the stomach is empty, of a glairy, viscid, mucoid fluid; frequent attacks, also, of water-brash, with acid eructations and accumulations of flatus of a most distressing character. The acid eructations and flatulence are frequently the most prominent symptoms. In several such cases lately treated at the Westminster Hospital, the antacid properties of the Carrara water have very effectively diminished the acid secretion, and abated the frequency of the attacks of pyrosis. These symptoms relieved, the flatulent distention soon subsided.

It must not be inferred that this bicarbonate of lime is useful as a remedy in all stomacheal affections. There are some forms of the disease in which it would be, indeed has been, as injurious as in others it has been beneficial and efficient.

In all cases of dyspepsia marked by atony or debility of the stomach, great oppression after eating, drowsiness, and lethargy, cold clammy extremities, hands and feet being generally moist, with a cold exhalation, an aspect of anæmia, and general indications of a want of vigour and power in the assimilative processes, such an agent as the Carrara water would be most injudiciously employed. The least distention of the stomach is, in such cases, attended by sensations of distress and oppression, and any fluids containing carbonic acid generally bring on such sensations. Again, in those dyspeptic affections in which the duodenum is the principal seat of the disorder, such a remedy would be uncalled for, if not hurtful.

I have found this Carrara water of much use as an adjunct to, and even as a vehicle for, other remedies. In the thirst of fever, in the irritable condition of the stomach in the early stages of what is sometimes called gastric fever, drunk in small quantities at a time, or even *ad libitum*, it has proved more grateful to the patient, more effective in relieving the intolerant thirst, and far easier of administration, than the common effervescing draughts. The sulphates of magnesia or soda, the tartrates of potash and soda, by being first dissolved in a small quantity of water, and this water then added, are deprived of much of their nausea and repugnant flavour. One great advantage this preparation possesses over all other artificially prepared carbonated waters, is the length of time it retains an excess of carbonic acid after the cork is withdrawn: the contents of a bottle may be taken in small quantities in intervals spread over some hours, and if the cork be merely replaced in the mouth, its effervescing briskness is retained to the last ounce. It never becomes nauseous, for if poured into a tumbler, and freely exposed to the air, it does not lose its palatableness for many hours.

To those who are fond of effervescing drinks, this water will prove a most agreeable substitute for soda water. It may be drunk at table with sherry, hock, Sauterne, or with small quantities of French brandy, and forms a very agreeable and wholesome beverage; with the wines it neutralizes their free acid, and renders them more wholesome. I have lately suggested to a gentleman who frequently suffers from heartburn soon after

breakfast, with a tongue more or less coated with yellowish fur, and an intolerable thirst, (which symptoms, however, are invariably dependent on free living and convivial indulgence,) to have a lump of the Lake Wenham ice broken into coarse fragments, and being put into a half-pint glass, to pour over it a bottle of Carrara water: this was directed to be sipped—not taken at a draught—as a twofold means of relieving heartburn and quenching thirst: this kind of thirst being dependent on the state of the secretions of the mouth is never relieved by copious libations. He tells me he never took so agreeable a remedy, and that it effectually removes both heartburn and thirst.

I am anxiously watching the effects of this water in cases of diabetes mellitus, and as soon as sufficient observations are obtained, both in this disease and in the lithic acid diathesis, it is my wish to lay the results before the profession.

July, 1845.

CONTRIBUTIONS TO THE PRACTICE OF MID-WIFERY.

By J. HALL DAVIS, M.D., Physician to the Royal Maternity Charity.

Uterine hæmorrhage in the sixth and seventh months of pregnancy accidental and unavoidable.—Treatment, with some remarks on the indications for the use of the “plug.”

MAY 9th, 1844.—My attendance was required in the case of Mrs. G—, aged thirty-two, residing in my immediate neighbourhood, previously in good health, pregnant of her third child, and six months advanced in her gestation. Late on the previous evening she had been taken with flooding, which she supposed had been caused by a fright, having been nearly run over by a horse. Early on the following morning, after the escape of some coagula of blood, the hæmorrhage had ceased. I found her at my visit, at midday, as follows:—Pallid, having prior to the occurrence been of good colour; pulse quick, sharp, but regular; extremities cold, not clammy; sense of throbbing in the head, with giddiness, increased by the upright posture; she had felt faint, but had not decidedly fainted; had had no pain in the back, had experienced slight painful sensations in the lower part of the hypogastrium, but none of a bearing-down character. I directed her to be kept exceedingly quiet in bed, the room to be kept cool, all drinks to be taken cool; nothing in the way of food, but a little weak broth, farinaceous diet, and no stimulating drinks. Fifteen minims of dilute sulphuric acid in water every four hours. This plan—with the exception that she was allowed, the hæmorrhage not returning, to leave her bed at the end of two days, maintaining still the horizontal posture—was continued for about a week, when she had sufficiently recovered to walk out a little. She was, however, cautioned against incurring fatigue, lifting heavy weights, or making any strong exertion.

JUNE 21.—At two A.M. the hæmorrhage returned, without any apparent cause, but not copiously, and I was requested by Mr. Browne, her attendant, to see her. My visit was made at a quarter past twelve. On examination, per vaginam, I found the orifice of the uterus closed, the nipple-like projection of the lower segment of the uterus was evident, corresponding to the period of her gestation, which was about six weeks short of the full term. The head of the child could not be felt through the anterior walling of the uterus behind the pubes, consequently the ballottement could not be practised: the reason of this became apparent subsequently. The hæmorrhage was moderate, and had not produced even faintness. She had completely recovered from her first attack in May. She had had no pain; the pulse of good volume and strength. I suggested to my friend, for the present, a repetition of the same measures and precautions, precisely as before, and the expediency of his watching his patient closely.

On the afternoon of the following day the hæmorrhage became profuse, and the patient extremely faint, her face pallid, the pulse small; when, being sent for, I immediately determined, as the hæmorrhage continued, upon the use of the plug. A broad bandage was at the same time applied firmly around the abdomen. She was desired to remain quiet upon the bed, was allowed a little beef-tea from time to time, and was visited at intervals. At half-past eight in the evening, there having been active pains during the previous two hours, the plug was removed. The hæmorrhage had been effectually suppressed. The mouth of the womb was now dilated to the diameter of two fingers' breadth, but admitted not of further extension, to enable the hand to be introduced. At intervals of ten minutes and a quarter of an hour the pains were repeated, the membranes becoming tense during their presence, and projecting slightly through the uterine orifice. An edge of the placenta could be felt in front of the head, on passing the finger up, in the absence of pain. At half-past one

A.M., the pains having very much slackened in force, some ergot of rye was exhibited, which had the desired effect of increasing their strength, but the flooding returned to a considerable amount. Upon being sent for, and finding the orifice of the uterus not perceptibly more dilated than at my former visit, and not dilatable, I now ruptured the membranes, and discharged the liquor amnii, hoping thus to put a stop to the flooding, and not wishing again to put her to the inconvenience inseparable from the use of the plug. The hæmorrhage was thus arrested for an hour, and then returned, and she again became faint and pallid. The orifice of the uterus being now only so far dilated as to admit of the introduction of the tips of three fingers, disposed conically, with considerable difficulty, I was compelled to return to the use of the plug, and applied the bandage to the abdomen a little more firmly, and now prescribed an opiate in a full dose, with the view, if possible, of relaxing the rigidity of the uterine orifice, and of procuring her some refreshing sleep.

Visit, ten A.M.—She had had three hours sleep, and felt greatly better. The plug last employed, in the absence of sponge, consisted of pellets of old linen; it had permitted of a very slight return of hæmorrhage; nevertheless, her pulse was softer and fuller, the extremities warm, and the faintness had ceased; the pains had subsided; the urine was drawn off by the catheter, and the plug was made more efficient by the introduction of some pieces of sponge. At one P.M. she had had some trifling grinding pains in the small of the back, but none of a bearing-down character, the plug was therefore allowed to remain; there had been no oozing of blood since the last visit. At nine P.M. the same kind of pains had occurred at intervals, but none of an expulsive kind. Being wearied by want of rest, and the teasing character of the pains, another full opiate was exhibited, and she was left with the plug in the vagina, as a safeguard against return of hæmorrhage. At one A.M. Mr. Browne was sent for. She had had three hours' refreshing sleep, and had been awakened by the pains, which were now strongly bearing. The plug was removed, and a still-born, blanched, and premature child, was quickly expelled, with the cord twisted round its neck.

The placenta was thrown off by the action of the uterus into the vagina, without hæmorrhage, at the end of forty minutes, and thence removed; the bandage previously round the abdomen was tightened, and the uterus was left firmly contracted.

JULY 11th.—The patient was sufficiently recovered to walk out without risk, having improved steadily under the judicious care of my friend, Mr. Browne.

Remarks.—As soon as the mouth of the uterus was sufficiently dilated to admit the finger within it, the lower edge of the placenta was distinctly felt in front of the membranes of the ovum, and in attempting to pass the finger higher up, between them and the walling of the uterus, I was prevented from doing so by the placental attachment. That portion of the membranes which presented at the mouth of the womb was uncovered by placental tissue, and through it the head was found to be the presenting part. The head of the child had not previously been detected, nor, indeed, could it now, through the uterine walling, by the ordinary vaginal examination; nor, consequently, had it been practicable to practise the “ballottement,” as in cases of normal pregnancy, by reason of the intervening attachment of the placenta to the cervix.

This patient sustained a hæmorrhage, in the first instance, in the sixth month of pregnancy, from an obvious and accidental cause—a fright. She recovered from this at the end of a week, so as to be able to walk out, and we hoped that there would be no return of it. On the 21st of June, six weeks subsequently, the hæmorrhage recurred, without any obvious cause, which led me to suspect it to be of the unavoidable kind, the result of “placenta prævia,” which proved to be the case.

I had recourse to the “plug,” preferably to discharging the liquor amnii in the first instance—a practice which I have pursued with success on many occasions,—that the advantage afforded by the bag of waters entire, in dilating the uterine orifice, might be retained, and to facilitate the operation of turning, should that proceeding become necessary. The material of the “plug” which I employed, and which I consider preferable, by far, to any other, was sponge, introduced in separate pellets, until the vagina was completely filled from its uterine extremity to its outlet, a measure answering the twofold object of stopping the flooding, and, by its irritation, inducing the action of labour; a broad bandage was at the same time applied to the abdomen, so as to afford an uniform support to the walls of the uterus. The patient was thus placed in a state of perfect security against hæmorrhage, until the pains of parturition should be instituted; indeed, until it might be presumed, from the continuance of the pains, and their character, that the orifice of the uterus had dilated sufficiently for the safe passage of the hand into the uterus, and performance of the ope-