

**The treatment of exophthalmic goitre : based on forty-five consecutive cases / by A.D. Rockwell.**

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**Publication/Creation**

New York : [publisher not identified], 1893.

**Persistent URL**

<https://wellcomecollection.org/works/aju8znh5>

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# Medical Record

*A Weekly Journal of Medicine and Surgery*

Vol. 44, No. 14.  
Whole No. 1195.

NEW YORK, SEPTEMBER 30, 1893.

\$5.00 Per Annum.  
Single Copies, 10c.

## Original Articles.

### THE TREATMENT OF EXOPHTHALMIC GOITRE, BASED ON FORTY-FIVE CONSECUTIVE CASES.<sup>1</sup>

By A. D. ROCKWELL, A.M., M.D.,  
NEW YORK.

IN considering this strange and intractable disease I shall enter into no speculations as to its pathology, for the reason that all explanations of the phenomena that attend it are in the main conjectural. Neither shall I take time in discussing its etiology or its well-known symptoms, for these can be found in every textbook on Neurology, with little variation of detail. The evidences of pathological anatomy have thus far been so thoroughly negative that we are left to the symptoms alone for guidance in treatment.

These are, however, so positive and suggestive as to afford ground for a rational therapeutics, the end of which must be to regulate and give tone to nerve force, and to equalize the circulation.

In an experience including the treatment of forty-five cases of exophthalmic goitre, dating from 1876 to the present time, a period of sixteen years, I have been enabled to clinically study the disease very thoroughly, and form an opinion as to the benefits to be derived from certain methods of treatment not altogether in accord with prevailing opinions. In short, I hold that the prognosis in this disease is better than is generally believed, and if my results have been more satisfactory than others that have been reported, it has been due to a more rational use of the remedy which has been my main reliance, and greater thoroughness and persistency in its application.

The remedy to which I refer is electricity, and while I by no means exclude the administration of drugs in the management of this disease, they are in my hands regarded as supplementary to the chief remedy, and subject to changes according to the indications in each individual case. The surprising lack of unanimity of opinion in regard to the efficiency of medicinal treatment is due to the fact that, not only have those drugs that have proved beneficial in some cases failed to do good in others, but sometimes a drug that has in one case proved palliative has in another seemed to do harm. Iron, for example, is a universal remedy that is perhaps in the majority of cases fully indicated and is well borne, but I have occasionally found it to be productive of unpleasant symptoms even when anæmia existed, and have been compelled to discontinue its use. The statement of Von Graefe, that iron is useless in the height of the malady, but that it does good when a certain amount of improvement has occurred, is an observation of value, and founded upon an extensive experience.

My own experience has not been very favorable to the use of quinine, strychnia, or arsenic, and I now rarely administer them, and I believe the iodides often do more harm than good.

Belladonna has been highly recommended, and is undoubtedly of value. Carbazotate of ammonia I have used in but one case, but discontinued it after ten days, on account of the gastric disturbance that it seemed to occasion. Digitalis is by some believed to be useless in this

disease, on the theoretical ground that it directly stimulates the muscular fibres of the cardiac vascular system. While the value of this remedy is now well recognized, there still exists much difference of opinion as to the method of its action. It has been regarded as a tonic, a stimulant, and as a sedative. The latter view, as is well known, was taught by Trousseau long ago, who held that it occasioned contraction of the superficial blood-vessels, thus producing diuresis, very much on the same principle as the action of fright or cold. In a recent discussion<sup>2</sup> Professor Crocq held that digitalis was not a sedative nor a cardiac tonic any more than alcohol is a tonic to the brain. It is simply a stimulant. Another view is that digitalis acts on the pneumo-gastric and sympathetic nervous system, thus regulating the action of the heart. By one the remedy is believed to act only on the left heart, by another on the right heart as well, retarding the action of both. But whatever theory is accepted, obstinate experience will not wheel into line at the command of any theory, however plausible.

On the theory of the stimulant and tonic action of digitalis I hesitated for a long time to use it in this disease, but when I finally came to put it to the test of actual trial I was most agreeably disappointed in the results, especially when combined with certain other remedies to which allusion is made further on.

If the heart seems abnormally strong in exophthalmic goitre, this is not by any means always the case. Very frequently there is enfeeblement of the myocardium, and digitalis is in many cases useful in slowing the rapid systole associated with it. The condition of the heart thus becomes improved by the physiological rest it obtains through prolongation of the diastole.

Yet, like iron, digitalis may under certain conditions prove not only useless but harmful; but like iron, and especially in combination with iron, it possesses undoubted value. In what may be termed sthenic cases, where the excitability of the heart is great without enfeeblement, digitalis is certainly contra-indicated, and one such case will be found in this report. In this case good results were obtained by substituting *veratrum viride* for digitalis.

*Strophanthus* has received high commendation, and on theoretical grounds it is recommended in preference to digitalis. While both tend to lengthen the interval between the contractions of the heart, *strophanthus* is supposed to contract the calibre of the arterioles in less degree than digitalis, and is to be preferred as not increasing the work of the heart to the same degree as the latter.

In conjunction with digitalis or *strophanthus*, and iron, ergot and bromide of zinc seem to me to be distinctly valuable, and I have no hesitation in saying that a combination of these remedies will more nearly fulfil the indications in the majority of cases of exophthalmic goitre than any other single remedy or combination of remedies. There are probably to be found few, if any, who will not accord to electricity an important place among the remedies indicated in exophthalmic goitre, and unlike some others mentioned, it cannot, if judiciously used, do harm even in those cases where it does no good.

Gowers, who does not in general accord to electricity a very high place in therapeutics, yet says that in this disease it is followed in many cases by a distinct fall in the frequency of the pulse (amounting to 10 and even 20 beats per minute), and sometimes by a slight diminution

<sup>1</sup> Read before the Pan-American Medical Congress, Therapeutic Section, September 7, 1893.

<sup>2</sup> Academy of Medicine, Belgium, January 28, 1893.



in the size of the thyroid. In one case he observed the pulse fall from 90 to 72, a lower rate than had been counted during the preceding two years.<sup>1</sup> He adds, however, that such effects are usually transient, although repeated applications certainly sometimes cause a slight degree of permanent improvement. He has not seen more than this.

Even such results as Gowers describes are not to be despised, but the difficulty with his efforts, and with others who have written upon this subject, is the utter inadequacy of the strength of current used, and, above all, so far as my observation goes, in the incomplete and haphazard way in which the applications are administered. Gowers would use a weak galvanic current, sufficient to cause merely a slight tingling of the skin, while others who have written extensively upon the subject are content with two or three milliamperes. These authorities do not seem to appreciate the fact that in the therapeutic use of electricity they are dealing with a hide-bound body which offers such a resistance to the passage of the current that our ingenuity is taxed to its utmost in order to overcome this resistance and get into the body a sufficient quantity of electricity to appreciably affect the cerebro-spinal system and the nervous system of vegetative life, the pneumo-gastric, the great sympathetic, including the vaso-motor system of nerves. These large current strengths cannot, of course, be used with small electrodes applied in the ordinary way over the region of the sympathetic and vagus in front of the neck, and from the mastoid process along the inner border of the sternocleido-mastoid muscle to the manubrium sterni. Here, although the current strength should be much higher than is usually recommended, it is rarely possible to exceed ten or fifteen milliamperes. For the greater strength of current, large electrodes, preferably of sculptor's clay, should be applied both to the back of the neck (cilio-spinal centre) and solar plexus. With electrodes in this position I have frequently used as high as sixty milliamperes, and with results the most beneficial.

I do not, however, recommend such apparently heroic treatment. Idiosyncrasies vary, and there is probably no remedy to the effects of which there is a more varying degree of susceptibility than to electricity. Every case is a law unto itself, and should be studied independently, with the exercise of judgment and common-sense in its management.

But if my results in the treatment of this disease have been exceptionally good, I attribute it in part to the fact that I have not confined my efforts to the use of drugs and the galvanic current alone, but have in many instances combined with these methods the most thorough and persistent treatment by the method of general faradization. While the methods of Eulenberg and Gutman in using simple localized faradization in the vain attempt to affect directly the sympathetic, and the faradization of the precordial region by Vigoroux and Charcot, may possibly do some good, they cannot compare in efficiency with general faradization, a method which has been abundantly tested and which rests upon a sound physiological basis. What localized faradization is to an individual part or organ, general faradization is to the whole body. In exclusively localized faradization the increase in the processes of waste and repair and improvement in nutrition are mainly confined to the part which is traversed by the current, but in general applications these effects are appreciated by every part of the system. The improvement which each part or organ receives from the treatment reacts upon every other part, and every effect becomes in its turn a cause. While, therefore, I consider electricity of rather more importance than any other remedy in the treatment of this disease, yet in many cases the most rigid and conscientious observance of certain fixed rules in regard to eating and drinking, and the avoidance not only of excess in every department of mental and physical hygiene, and even the repression of ordinary and legitimate emotion and passions, become

very essential. For the majority of these forty-five cases of exophthalmic goitre I am indebted to the kindness of the various members of the profession, most of whom have watched with interest the progress of the cases and have noted both the successes and failures.

I do not propose, however, to relate the failures nor to report in detail the cases (only too many in number) which experienced only partial and incomplete relief. Some absolute failures occurred, but not many. It is rare, indeed, that through the combined method of hygiene, diet, drugs, and electricity, the disease fails to be in some degree favorably influenced, for out of these forty-five cases there were but three that received no benefit whatever, and these were not even temporarily relieved.

Twenty-seven of these cases were benefited, some of them in very great degree, others only slightly. Some of those that were much benefited relapsed and received further treatment with good results, while others have been lost sight of and their subsequent history is unknown. In fairness, however, it must be said, that while the most persistent treatment failed to do more than slightly improve many of these cases, some of them, which otherwise possibly might have been benefited, discontinued treatment after a comparatively short period.

Fourteen of these cases either fully or approximately recovered, and as the first six have been reported,<sup>1</sup> I shall very briefly allude to them, giving in full only the eight more recent cases.

CASE I.—Mrs. G—, aged about forty years, was referred to me May 3, 1876, by Dr. S. S. Purple, and during the treatment, and for many years after, until her death, was under the constant observation of Dr. J. J. Griffiths, of New York. Pulse was violent, and from 115 to 140; exophthalmus prominent, and thyroid considerably enlarged. First symptoms, three years previously. Approximate recovery, the only symptoms remaining after several months of treatment being slight exophthalmus and thyroid swelling with occasional cardiac palpitations.

CASE II.—Mrs. H—, aged forty-two, came March, 1877. Pulse, 85 to 90; goitre quite large, but no exophthalmus; recovery.

CASE III.—Mrs. E—, aged thirty-one, sent by Dr. I. B. Read, of New York, October, 1878. The three cardinal symptoms present. Pulse, 120 to 125, and occasionally 150; recovery.

CASE IV.—John L—, aged twenty-nine, came July 6, 1879. The three cardinal symptoms present in marked degree. Pulse, 125; recovery.

CASE V.—Mrs. C. H—, came September, 1879, with the three cardinal symptoms well marked. Pulse, 110; recovery.

This case examined on one occasion by Dr. P. B. Porter.

CASE VI.—Miss M—, aged twenty-two. Referred to me by the late Dr. C. B. Belden and by Dr. J. E. Stillwell, of New York, October 18, 1879. All three symptoms present, the exophthalmus and thyroid enlargement in greater degree than the excitation of the heart, which beats only at the rate of 88 per minute; recovery.

CASE VII.—Miss B—, aged about twenty, was referred to me June 11, 1882, by her physician, Dr. A. R. Carman, and by Dr. Richard Van Santvoord, of New York. This case was a very aggravated form of Graves's disease.

The eyes were unusually prominent, the goitre large, and the pulse seldom if ever under 140, and frequently reaching 160. The beginning of her symptoms dated back between two and three years, and had gradually reduced her until she was unfitted for all active effort. The patient received some seventy applications, resulting in a permanent recovery. Her present condition, ten years since the cessation of treatment, is this: Pulse, 75 to 85, with hardly a perceptible enlargement of the thyroid or protrusion of the eyes. The patient's general health is,

<sup>1</sup> Disease of the Nervous System, p. 1214.

<sup>1</sup> New York MEDICAL RECORD, vol. xviii., No. 11.



and has been, excellent for years, and she can engage without restraint in all the ordinary pleasures and activities of life.

CASE VIII.—Miss D—, aged twenty-nine, was referred to me by Dr. Stephen Wickes, of Orange, N. J., March, 1885, with the three cardinal symptoms of the disease well developed, the exophthalmus, however, being much less marked than the other two.

The pulse when ordinarily tranquil was 125, sometimes considerably higher, and on one occasion under excitement it beat at the alarming rate of 175 per minute. The heart was slightly enlarged, and the systolic murmur, which is so frequently present in these cases, was unusually loud and could be distinctly heard, even when the ear did not touch the chest.

The disease was not of recent origin, for some four years before, when nursing a sick relative and subject to much physical and mental strain, she first observed symptoms of disturbed heart action, and shortly after the throat and eyes both became affected.

The patient was under observation and treatment until April, 1886, a little more than a year, and in that time received eighty-five applications of electricity, with the result of a gradual but steady improvement not only in the condition of her general nervous system, but in the special symptoms characteristic of the disease. The systolic murmur entirely disappeared, the pulse sank to a permanent rate of about 80, and the eyes resumed their natural appearance. Her general health is excellent.

CASE IX.—Miss R—, aged twenty, was brought to me on November 16, 1887, by Dr. F. Myers, of Fort Worth, Tex.

The thyroid was only slightly enlarged, but the eyes protruded to a degree that greatly altered her expression, and was the source of much annoyance. The heart pulsed at the rate of 120 per minute, but on occasions of excitement and physical fatigue I have counted it as high as 150. These symptoms had existed some three years, but all her bodily functions were normal, and, contrary to what is usually observed, her general health and strength first-class. This was one of the few cases that have come under my observation when digitalis seemed to do harm.

Whenever it was given in any considerable dose, either alone or in combination, the excitability of the heart was undoubtedly increased, and this effect I attributed to the fact that, associated with the over-excited cardiac contractility there was absolutely no enfeeblement of the heart muscles. Strophanthus proved equally unpleasant in its effects, while veratrum viride was found to exercise the most salutary influence. No other drug was given for its direct effect upon the heart, and the treatment was practically confined to electricity alone and extended over a period of fourteen months. From November 16, 1887, to March 23, 1888, she received sixty-six applications, with an interval of rest until October 17, 1888, when she received forty-seven additional treatments between that date and January, 1889. During the first two months of treatment there were but slight evidences of improvement, but during the following two months the eyes became less prominent and the goitre perceptibly decreased in size. In March, when she temporarily discontinued treatment, the pulse had not only fallen to 100 beats per minute, but was not readily susceptible to ordinary emotional or physical causes. Seven months after, when she returned, I found her in about the same condition as when she left. Resuming treatment on October 17th, she perceptibly gained during the next three months, and was finally discharged as approximately cured, the pulse seldom rising above ninety, with but slight evidences of exophthalmus or thyroid enlargement. The patient has since married.

CASE X.—Mr. B—, aged about thirty-five, was referred to me by Dr. E. Hochheimer, of New York, January 5, 1888, with comparatively slight but persistent evidences of the disease. The pulse was 100, with slight swelling of the thyroid. There existed neurasthenia with extreme melancholy, and while there was hardly any ex-

ophthalmus, there was present the somewhat rare symptom of obstinate oedema of the eyelids. The patient fully recovered after forty applications of electricity, extending over a period of three months.

CASE XI.—Mrs. M—, a widow aged thirty-one, consulted me January 9, 1888, with the following history: Five years before, her first child was born after a prolonged and unusually severe labor. She convalesced slowly, and in a few months more or less began to notice an undue activity of the heart, with shortness of breath, whenever she ascended the stairs or walked more rapidly than usual. These symptoms did not greatly increase until about two years ago, when the heart began to give her more trouble, and she first noticed a "strange appearance about the eyes and a fulness in the neck." The eyes were now very prominent, the thyroid about as large as a small hen's egg, and the pulse-beat from 128 to 135 per minute. She was markedly anæmic and extremely nervous. The patient was under treatment from January 9th to April 7th, and then again from June 8th to July 29th, receiving in all some fifty-five applications of electricity.

Recovery has been approximate and permanent. The eyes are perhaps slightly more prominent than natural, but not to a degree to excite comment. There are only traces of the enlarged thyroid, while the heart pulsates at a uniform frequency of between 80 and 90 per minute. Her general nervous condition also improved to such a degree that she now counts herself a well woman.

CASE XII.—Mrs. E—, aged thirty-four, was seen with Dr. J. H. Gunning, of New York, April 21, 1888. Four years before, she had miscarried, and subsequently had worried much over domestic troubles. Three years before, her heart began to trouble her, and soon after she observed a slight protrusion of the eyes and some enlargement of the thyroid. When Dr. Gunning and I first saw her the eyes were prominent, but the gland was only slightly though perceptibly enlarged. The pulse ranged in frequency from 115 to 135, and on one occasion we counted it at 165. The patient has lost much flesh, menstruation was irregular and profuse, and with a generally nervous condition was associated a very decided muscular tremor whenever she attempted to move the hands, simulating in marked degree the tremor of paralysis agitans. The patient was under treatment, with some intervals of rest, for seven months. During this time she received seventy-three applications of electricity and was discharged approximately cured. The pulse never rose above 100 and was usually at 85, the tremor had entirely disappeared, and the eyes were quite normal.

CASE XIII.—Miss S—, aged twenty-five, came to me August 6, 1890, through the kindness of Dr. W. T. Giddings, of Gardiner, Me., with well-developed evidences of Graves's disease. The eyes were slightly though distinctly protuberant. The thyroid gland was enlarged to the size of a very large almond, while the pulse beat at the uniform rate of 120, running up, however, on slight exertion, much higher. All exercise was exhausting, and ascending the stairs especially so. That the disease was not of recent origin was evidenced by the history given. As far back as 1885, while a pupil at Wellesley College, the act of recitation would cause her hands to tremble and perspire, her heart to beat tumultuously. When the cause of excitement was over, the heart would resume its normal action; but she noted, as time went on, that this instability of the heart-beat became more frequent and prolonged, until finally it "went wrong" always, as she expressed it. It should be stated that the patient was somewhat anæmic, and since the age of fourteen has suffered from myopia and astigmatism. In 1887, and then again in 1889, she had slight attacks of the grippe, which occasioned a decided increase in the severity of her symptoms. The symptoms, however, that were most distressing, if not the most serious, were the frequent and terrific headaches from which she suffered.

These were associated with intense nausea, lasting some twenty-four hours and recurring almost every week. The



patient was first treated through a period of seven months to March 19th receiving some thirty-seven applications of electricity, improving gradually in every symptom.

In July treatment was again resumed and continued until she had received some twenty-five additional applications. To this date the patient, who is under constant observation, retains all the benefit that she at first received. The pulse is 70 to 80, the eyes normal, and the thyroid enlargement gone. More perhaps than all else, she has been so relieved of the distressing headaches and nausea that it is only at long intervals that they occur, and with no great severity.

CASE XIV.—Mrs. J., aged thirty-four, was referred to me by Dr. George W. Harrison, of New York. She was in an extremely nervous condition, with a very decided enlargement of the thyroid, a pulse of 130, but no exophthalmus. She first observed some disturbance of the heart-action three years before, and a few months thereafter she detected evidences of a swelling in the throat. This patient was treated every day for two weeks, when she was obliged to leave town, but in that brief period, contrary to my expectation, all the symptoms were very decidedly alleviated. After a thorough and prolonged séance of galvanization of the sympathetic, central galvanization and general faradization, the pulse invariably subsided some fifteen or twenty beats, only to rise somewhat during the next few hours. It was every day noticeable, however, that the pulse beat with less violence and frequency, and when she left town it rarely rose above one hundred.

The method of treatment adopted by me was carried out by her family physician, Dr. J. W. McLaughton, of Austin, Tex., and according to a communication from the patient, the pulse finally reduced to 80 and 85.

## THE USE OF ACONITE IN THE TREATMENT OF TETANUS.

BY L. L. VON WEDEKIND, M.D.,

UNITED STATES NAVY.

HAVING recently successfully treated a serious case of tetanus, using in conjunction with other drugs large doses of the tincture of aconite, and believing, from close observation of the case and the behavior of the drug, that the patient's recovery was due in large part to its beneficial action, I give for these reasons a summary of my notes of this case.

The exciting cause of the trouble I believe to have been the tropical influence of eight degrees north, assisted by an ulcerated tooth; without this tropical influence I imagine nothing peculiar would have occurred.

We lay in the harbor of Corinto, Nicaragua, for nine days, sailing thence south. On June 11th, at sea, one day out from Corinto, the patient, a hale and hearty man of about thirty years, reported at morning sick call, complaining of inability to move the jaws. He had for three days been suffering with a toothache, though an examination of the affected part shows no swelling. The jaws firmly locked and the muscles of the face, neck, and back rigid. Much pain in the back and neck. Face anxious and eyes wide open and staring. Pulse, 110; temperature, 102.4° F. Owing to the locked jaws and tightly drawn lips, speech is very indistinct. Patient put to bed, and at 9, 11 A.M., 1, 3, 5, and 7 P.M., or every two hours during the day, the following mixture was given: Tr. opii, ℥ xv.; chloral hydrate, gr. xx.; potass. bromid., gr. l. This was mixed with water and administered through the spout of a feed-cup, while patient was in a reclining position. Whiskey and beef tea given whenever patient was thirsty.

At 4 P.M. of the first day, no effect of the medicine was noticed, not a wink of sleep, and pain still well marked. The temperature at 3 P.M. had reached 103.8° F., when ℥ v. of tinct. aconite was given and repeated at 4 and 5 P.M. At about 5 P.M. the patient dropped off asleep and slept until 7 P.M. After the administration

of the aconite, a change was noticed: pain less, and a gentle moisture in general over the whole body, also a marked feeling of relief.

The opium and chloral were now at work, and the rest and sleep gained from their action retarded the rapidly reducing strength.

At 7 P.M. the temperature was 102.6° F., and the patient was given a bath of equal parts of cold water and alcohol. Every four hours during the night the opium mixture was given, and the aconite every three hours. The action of this drug was noticed early, and though the dryness of the throat was exceedingly distressing, the general relief was so marked that the dose was only reduced when the effect upon the general system was undoubted.

At 9 A.M. of the second day the temperature had reached 104.2° F., with a pulse of 120. The aconite administered in about eighteen hours amounted to about three-quarters of a drachm, still its controlling influence upon the temperature seems to have been slight. However, without it, the temperature might have gone much higher.

The opium mixture was given as on the first day. The pain in the neck and back, though less, is still very severe and sleep is almost impossible. Bath of cold water and alcohol frequently given; thirst very great and the mouth and throat dry. At 3 P.M. the temperature, despite both external and internal treatment, reached 104.8° F. Tr. aconite ℥ v. every hour for three doses now given, this in addition to that regularly given during the day and night.

At 7 P.M. of the second day the effect of the drug was such as to almost prostrate absolutely the patient, still, relief after the administration of the hourly doses was, as he expressed it, "heaven to him." Sensation almost gone, tingling marked, and the temperature 1° less. The asthenia, owing to the drug more than to the disease, though very marked, is not alarming. Opium mixture every three hours from 6 P.M. At midnight the pain of the muscles of the neck and back was such as to render sleep impossible. No aconite had been given since 6 P.M., and the effect of that previously administered had worn off. Patient was now given of chloral, 25 grains; bromide, 50 grains, tr. opii, ℥ xxx., and 5 drops of aconite. At 3 and 7 A.M. the opium mixture of the first day was repeated.

Third day.—Passed a restless night; treatment same as on first day. At 4 P.M., temperature 103.6° F., and pulse, 130. No change in the rigidity of jaws, pain slightly less, though the agony in back and neck exceedingly marked and very prostrating. The opium mixture given every four hours, aconite ℥ v. every three hours, and its action very closely watched. Stimulation as necessary.

Fourth and fifth day as above in general progress and treatment. On the evening of the fifth day, the jaw very minutely relaxed; the flat handle of a silver fork can enter between the teeth. Temperature, 101° F.; patient sleeping better.

On the sixth day the opium mixture every five hours, and aconite every four.

On the seventh day, temperature, 100° F.; jaws somewhat relaxed and movable through about half an inch. The muscles of the back and neck exquisitely tender.

On the tenth day the jaws wholly relaxed and all medication ceased.

From the facts obtainable in reviewing the above case, the conclusions I reach are: That the temperature was controlled to some extent—very probably to a great one—by the aconite; this balancing, the saving of strength thus obtained, as opposed to the loss occasioned by the drug. If of reflex action in incipency, and continuous throughout the whole course, this disease should in great measure be controlled by aconite, judging by its known physiological action. I am almost positive of its ability, in this disease, to assist the action and consequent relief and benefit obtained by the exhibition of opium, chloral