

**An effectual and simple remedy for scarlet fever and measles : with an appendix of cases.**

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AN  
EFFECTUAL AND SIMPLE REMEDY  
FOR  
SCARLET FEVER AND MEASLES:

WITH  
*An Appendix of Cases.*

BY  
CHARLES WITT,  
MEMBER OF THE ROYAL COLLEGE OF PHYSICIANS; AND MEMBER OF THE  
ROYAL COLLEGE OF SURGEONS, LONDON.

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*FOURTH EDITION.*

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1865.

HERBERT AND MARY ROBERTS

SCARLET FEVER AND MEASLES

ROYAL COLLEGE OF PHYSICIANS	
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HERTFORD:  
PRINTED BY STEPHEN AUSTIN.

## PREFACE TO THE FIRST EDITION.

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THE writer of the following pages submits to the notice of his brethren of the profession and the public, a medicine which he has found, from long and varied experience, to be a sure and simple remedy for the cure of Scarlet Fever and Measles.

Doubtless, it may appear to many a somewhat startling novelty, that the *Sesquicarbonate of Ammonia* should be put forward as a specific of this valuable kind; but the writer deems it to be as valuable in these fevers, as the disulphate of quinine is acknowledged to be in intermittent fevers.

No discovery, however, is claimed in giving it such a description. Its use, for this purpose, was introduced at the beginning of the present century, by a physician of some provincial celebrity, before it became adopted as a system by the late Mr. Wilkinson. The pupils and private friends of the latter gentleman have naturally followed him in the use of the same remedy, and with the like success; but, as it does not appear that any among these have as yet publicly testified to its value, the writer, as one of his friends, has here undertaken the task.

He hopes for the attention of the profession to what he has to state; and if he can obtain such indulgence, he does not fear,—however imperfectly he may plead the cause,—the fullest investigation of its intrinsic merits. Reference has chiefly been made to the dangerous malady of Scarlet Fever; the prevalence

of which since Christmas 1857, and its fatality, even in the families of many medical men, has been his motive for printing these pages. Of the excessive mortality which so lamentably attends this scourge, the following statistics supply almost incredible evidence. From the Registrar-General's report, it appears that the deaths in London alone, from Scarlet Fever, during the last ten years, amount to 27,360; and those in England and Wales to 176,046. It is, however, generally epidemic somewhere; and the great number of its victims in all classes of society, continues to be one presumptive proof, that the best method of treating Scarlet Fever hitherto remains a problem to be solved. The treatment here recommended will be found entirely consistent with the pathology of these disorders; otherwise, it might justly be pronounced empirical, and undeserving the attention of practical and scientific men.

*May, 1858.*

## PREFACE TO THE SECOND EDITION.

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IN publishing a second Edition, the Author thankfully acknowledges the several printed notices which have treated so favourably of this essay, as well as the many written communications addressed to him, by distinguished members of the profession. He has nothing to retract, or to modify. The only additions are:—some further directions for the administration of the medicine; a theory or rationale of its action; a notice of its proved efficacy in some other disorders; and additional interesting facts respecting it.

*January, 1859.*

## PREFACE TO THE THIRD EDITION.

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THE demand for a third Edition satisfactorily proves, that the object of the author in originally publishing this pamphlet, has been, in some measure, accomplished. He trusts that the efforts already made, to diffuse information on the use of the sesquicarbonate of ammonia, will be seconded by all who have had opportunities of testing it. Personally, he is well assured, that, by the treatment proposed, a vast amount of misery, pain, and anxiety will be spared, both to the patient and to the practitioner.

Since the first issue of this pamphlet, very few cases of failure have been communicated to the author, and these have been admitted by the relators

to be exceptional. On the other hand, many witnesses have declared their satisfaction and surprise, at the beneficial effects which have so speedily resulted from the use of this simple medicine.

Few medical men, in active practice, make record of their cases; but in one instance where this was done, the ascertained result has been, that out of several hundred cases of Scarlet Fever, treated within the last six years with the sesquicarbonate of ammonia, the deaths were at the rate of one per cent. Before this remedy was made known to the correspondent who supplies this information, he had to attend cases of Scarlet Fever scattered over four parish unions widely apart, where, previously, deaths had been painfully frequent; but he now expresses his conviction, that success must result wherever the prescribed treatment is faithfully carried out.

On the other hand, another medical man, who was relinquishing his practice, urgently recommended to his successor the adoption of this treatment, which he had employed in the same locality for twenty years, and during that period he had rarely lost a patient from Scarlet Fever. The succeeding practitioner would not be convinced, either by arguments or by facts, of the value of a treatment so novel to him, and he rejected it accordingly. The result was, that in his first year, out of one hundred and six cases of Scarlet Fever, no fewer than the fearful number of seventy-four proved fatal.

In 1858, in a public school in London, where quinine and acids were chiefly relied upon, the deaths from Scarlet Fever were at the rate of rather more than ten per cent.

A few days after the first edition was published, the author was gratified by the receipt of a letter from Mr. Henry Jackson, the senior surgeon to the Sheffield Infirmary, expressing his great pleasure at the publication of a method of treating Scarlet Fever and Measles, with which he and his father had long been familiar. Both these gentlemen had, in common with Mr. Wilkinson, derived their knowledge of the ammonia treatment from Dr. Peart. They had used no other treatment for upwards of fifty years; and during that long period he states, that only four deaths from Scarlet Fever had occurred to them. Of these, two were children who died in a room, under the boarded floor of which, open cesspools were afterwards discovered. In consequence of this discovery, an investigation was made in the other two instances, and it was found that the drains, which passed beneath the floor, were open from decay, in several places. In these four cases, it may not be incorrectly said, that death ensued from *drain* fever in a scarlet dress.

The late Dr. Baly at once adopted this treatment as soon as the author made it known to him; and he often expressed his conviction that its merits were by no means overstated, and that he had been thereby enabled to save many patients who, in his belief, would otherwise have died.

The author feels, that any addition to the weight of evidence and medical testimony brought forward in these pages, is wholly unnecessary; and that he has only to continue his endeavours to make the treatment of Eruptive Fevers by ammonia more and more known, to ensure ultimately its general adoption.



## PREFACE TO THE FOURTH EDITION.

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IN the publication of a fourth Edition of this essay, the author can but express his satisfaction at the steady progress which the ammonia treatment of Scarlet Fever is now making.

In the London Hospital Reports, just published, will be found at page 159, vol. I., a paper by Dr. Down, "On the Treatment of Scarlet Fever by the Sesquicarbonate of Ammonia," in which further testimony is adduced, of the efficiency of the treatment here advocated. An abstract from this document is inserted in the Appendix.

C. W.

30, *Spring Gardens, S.W.*,  
*January, 1865.*

AN EFFECTUAL AND SIMPLE REMEDY  
FOR SCARLET FEVER, ETC.

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It is upwards of thirty years since the late Mr. Wilkinson assured the author, that the result of his treatment of Scarlatina and Measles with the carbonate of ammonia,\* for twenty years, was, that *he had not lost a single patient*; and he further stated, that, after having treated these disorders by this agent, he rarely, if ever, had any of the usual unfavourable consequences to contend with. Mr. Wilkinson was well known, in his time, as an elegant scholar and a finished gentleman of the old school; his judgment, skill, and experience, combined with active benevolence and success, in the practice of his profession, have rarely been surpassed; and it may be added, (for this is important to the purpose in hand), that he was a man of the most scrupulous integrity: an entire reliance may, therefore, be placed on his statements.

The question naturally suggests itself, why he did not make public a treatment so important and so successful? He endeavoured to do so; but it is to be regretted that he failed in adequately attracting public attention. What he says, relative to this subject, is contained in his short and valuable work on

\* This medicine, formerly called the volatile alkali, has since successively received the names of subcarbonate, carbonate, and sesqui-carbonate of ammonia.

*Cutaneous Diseases*,\* to which class scarlatina does not properly belong. This may be one reason why he failed to attract that degree of attention to the subject which it deserved.

But another, and certainly a powerful, cause operated against the recognition and adoption of this practice; *it was new*, and had never been a part of the doctrine of the schools. Scarlatina was then regarded as a purely inflammatory disorder; and the proposal to administer what was thought to be an irritant in a fever, was looked upon as a heresy; for which the medical mind of the day was unprepared. The same views, unfortunately, are yet too generally prevalent; and inasmuch as many experienced members of the profession unhesitatingly admit their entire want of confidence in the ordinary modes of treatment, there is clearly a reason why one, confessedly of great practical value, should receive a more general consideration. The author's medical friends, to whom this practice was before unknown, and to whom it has been fully explained, have shown the greatest readiness to afford it a fair trial; and without a single exception, they have all uniformly since expressed their conviction of its surprising efficacy.

That the subject may be laid fully before the reader, the following remarks, relating exclusively to Scarlet Fever and Measles, are extracted from Mr. Wilkinson's book, now long out of print. He says:

“ In the year 1803, I attended several cases of the scarlatina maligna, with Dr. Willan and the late Dr.

\* *Remarks on Cutaneous Diseases*, by J. H. Wilkinson, London; printed for John and Arthur Arch, Cornhill. 1822.

Hamilton. It is well known that the disease raged most fatally during that period, and we lost four of our patients out of five in one family. Never were men more puzzled to know what remedies to adopt: all which Dr. Willan has recommended in his publication were employed. Emetics, purgatives, calomel, and antimony; many other diaphoretics; opium, wine, and acids; bark, blisters, decoct. contray, with oxymel of squills; application of cold water, gargles of different descriptions, fumigations, etc., all without the least good effect; all without making the least sensible impression upon the disease in any of its stages.

“One fine girl, about eleven years of age, in high health and spirits in the morning, was attacked, an hour after, by the disease, and destroyed in thirty-six hours. . . .

“About this time, Dr. Peart published his *Practical Information on the Malignant Scarlet Fever and Sore Throat*, in which he describes the wonderful effects of the subcarbonate of ammonia, and considers it to be endowed with a specific power over that disease. Like other practitioners, he was continually lamenting the loss of his patients by that dreadful malady, till he employed the subcarbonate of ammonia in the manner he describes; and *from that moment he did not lose one patient out of nearly three hundred.*

“When I read this account, I immediately inquired after the character of Dr. Peart, and finding that he was most respectable, both in talent and probity, and engaged in very considerable practice, I had no reason to doubt the truth of his statement, and therefore immediately adopted his remedy. . . . *And*

*I am happy to be able to declare, that from that moment to the present, a space of seventeen years, I have not only never lost a patient in the above disease, but have never had a case of the kind that has ever appeared dangerous, or that has ever given me a moment's anxiety. . . .*

“In addition to my own testimony of the powers of this medicine, I have that of my friend, *Mr. Ricardo*, whose opinion is highly valued by all who know him, and who will not be thought to give too much credit to the virtues of any one particular remedy. He writes as follows:—

““I have received your letter requesting me to state the result of my experience of the effect of subcarbonate of ammonia, in the treatment of measles and scarlatina. As I employed this medicine at your suggestion many years ago, I lament that I have not placed on record any particular cases, many such having been under my care; but, perhaps it may be sufficient for your purpose that I am able to declare, that the exhibition of subcarbonate of ammonia in such cases has been attended under my direction with constant success. You know that I am situated in the neighbourhood of many schools which I am in the habit of attending; and, *during the twelve or fourteen years in which I have employed the subcarbonate of ammonia, I have not lost a single patient of some hundreds whom I have attended in the above diseases.*

““As an additional circumstance in favour of this remedy, I must mention that I lost two patients whom I attended with another medical gentleman, where I had not sufficient influence to have the ammonia employed. To be as particular as my memory and my present ill state of health will allow me to

be, I must state, that among the paupers I have lost two or three children; but the administration of the medicine was evidently neglected by their nurses, as was every other attention necessary to give the patients a chance of recovering.'

"Dr. Willan does not appear to have put to the proof the assertions of Dr. Peart upon so interesting a subject as scarlatina maligna; instead of which, he quotes only from its publication, without giving any opinion upon it. He observes: 'A physician near Gainsborough, considers volatile alkali to be endowed with a specific power over the malignant scarlet fever and sore throat. He dissolves two drachms of the carbonate of ammonia in five ounces of water, and directs the patient to take half a tablespoonful, or two teaspoonsful every two, three, or four hours, according to the urgency of the symptoms. If the difficulty of swallowing abate, and the patient wish for it, a little cold water may be added to each dose. Cold water, or toast and water, may be drunk at pleasure. The above remedy was given in every form and in every stage of the scarlatina. "Some," says Dr. Peart, "were glowing with universal efflorescence; in some, the extremities were swelled; in others, foetid ulcers appeared; in most, the throat was swelled and inflamed, often ulcerated, and respiration almost prevented: but, in the most alarming cases, a scorching fever, and raging delirium, rendered the patient's situation horribly distressing; yet, in all these variations of the disease, the volatile alkali was my specific, which I administered to between two and three hundred patients, successively and successfully." The immediate effects of the remedy are stated to be a

diminution of heat, of fever and delirium, and a disposition to sleep. It is hardly necessary to mention that during the exhibition of this remedy the bowels should be kept in proper order; and that, if at any time there should be an accumulation, four or five grains of the hydrarg. submur. should be given; gargles likewise should be employed.'

"Dr. Peart does not attempt to theorise upon the subject; content with the success of his remedy, he cares not in what manner it operates; but I will take the liberty to state, that I depend not upon its diuretic, nor its diaphoretic qualities, but believe that it possesses the power of increasing the strength of the arterial action, at the same time that it diminishes its frequency; that it supports the *vis vitæ* without increasing the heat or irritability of the system; and by such means counteracts the tendency in the scarlatina anginosa and maligna to ulceration and sloughing, and all the other evils which sometimes attend this dreadful disease. But, to effect such purposes, it must be given, as Dr. Peart has prescribed, in a state as strongly stimulating as it can be swallowed. . . .

"I hope I shall not be thought to have expatiated too much upon the virtues of a remedy which I have found so efficacious in my own practice; *but I have seen so many cases of scarlatina and rubeola, treated by others with the common antiphlogistic remedies, which have been so lingering, and have left such ill effects in the system, that I feel it my duty to urge the employment of the subcarbonate of ammonia as extensively as possible.*"\*

The only other English medical writer who alludes to the employment of this medicine, is Dr. Lettsom,

\* The words printed in italics are not so in the original of the above passages.

in his "*Reflections on the general Treatment and Cure of Fevers*," 1722. He speaks of ammonia (under its old name) as follows: "Whether the volatile alkali proves an antiseptic internally, *is not yet ascertained*, but its good effects in fevers are *established by numerous facts*; it is stimulant, antispasmodic, and very diffusible. On the last account its operation is transitory; it should, therefore, be given at short intervals to procure any benefit."

In other countries the ammonia treatment has found advocates. Dr. Strahl, of Philadelphia, has made public his faith in it; he considers it a real specific for the cure of scarlatina: and Dr. Reicken, of Brussels, has written at length on the surprising effects which he has found ammonia to have over certain epidemics, more especially, scarlatina.

As to the administration of this medicine, nothing can be more simple. The dose to be given is regulated by the circumstances of the case, that is, according to the severity or mildness of the symptoms. Dr. Peart gave six-grain doses in cases of unusual severity. Mr. Wilkinson rarely prescribed less than three grains, increasing the dose, according to the ages of the patients, to ten grains; repeating it more or less frequently, according to the urgency of the case. In the Appendix will be found a case (No. 3) in which as much as *seven grains* were administered every hour, for the space of twenty-four hours, and during every alternate hour, for the next like space, not only with perfect safety, but with complete success.

A gentleman in extensive practice in Hampshire, to whom the author had mentioned the use of the sesquicarbonate of ammonia in scarlatina, and who



has since habitually used that remedy with unvarying success, states, as the result of his experience, that almost any quantity may be administered with safety and advantage. As far as the general and extensive use of ammonia is concerned, it may not be unimportant to mention, that it is quite inexpensive. The mischief of counteraction by acids during the administration of ammonia is a point requiring especial notice. Great care must be taken that no acid drinks, nor acid fruits of any kind, shall find their way into the sick-room. Most lamentable instances have occurred, where the efficacy of the medicine has been altogether destroyed, by the neglect of this caution.

In the practice of medicine, as in all other pursuits, unless every procedure be strictly adhered to, it is unreasonable to expect success. Any departure from the directions laid down, is alike an act of dishonesty towards the physician, and an injury to the patient. The well-known aphorism of Hippocrates bears especially on this point, viz.: "Not only, therefore, must the physician attend to what is immediately imperative in the case, but it is important that the patient himself, those who are about him, and even external things, all must assist towards a cure."

The best drink in scarlatina, measles, and all eruptive fevers is pure water, and that in an almost unlimited quantity: there is of course no objection to the occasional use of toast and water, or tea.

Perfect quietude is especially required under the operation of this medicine. The patient is thrown by it into a sleepy state, as nearly as possible resembling the repose of health, and as long as that inclination remains, which is much to be desired, it should not be

interrupted. In aid of this, the room should be somewhat darkened.

The state of the air in the patient's room is a matter of importance. Chills must be carefully guarded against. It is scarcely credible, without personal experience of the fact, how extremely sensitive the skin becomes in scarlatina, and how painfully alive it then is to the slightest exposure to cold air. Besides the prevention of needless suffering from this cause, there is danger of checking the full development of the eruption. This check is the chief source of those serious complications which so often follow this disorder. At the same time, care must always be taken that there is an abundant supply of *pure* air. When the eruption has declined and the fever is subdued, the restrictions as to acid drinks and fruits are not so necessary; and the adoption of a light and nourishing diet becomes important.

It is imperative, when trial is made of this medicine, that it be done in all its integrity, and with a full reliance on its beneficial effects; that it be given, not only in the requisite doses, but simply and *alone*, not even with any of its combinations; and that it be constantly borne in mind, that the prospect of success is the greater in proportion as it shall be administered instantly on the supervention, or even the suspicion, of an attack.

The use of purgative medicines in this disorder requires much care and discrimination; and none but those of the mildest character should be administered.

On this head it is necessary to take a glance at the pathology of scarlatina. The generally received

opinion is, that this disorder originates from the imbibition of a poison which has a contagious source in some miasma; that about eight days are occupied in, what may be called, the incubation of the malady; that at the end of this period, the process of expelling this poison from the system is set up, viz., by throwing it out upon or by means of the skin, the mischief caused to which part of the human organisation is easily repaired without injuriously affecting the constitution. If the powers of nature be healthful, and her efforts properly seconded, not thwarted nor lowered, this salutary progress of the disorder takes place as a matter of course. Should nature fail, however, in the effort to throw off the poison in this simple manner, by fixing its action on the outer membrane of the body, it takes a course attended with more or less danger; it may settle upon some of the internal organs which perform functions in common with the skin, viz., the lungs or the kidneys, giving rise to effusions, or to general dropsy:\* or the pericardium or the membranes of the brain may suffer, and the integrity of these important structures may be destroyed. It may also settle on the liver, or on any of the glandular structures of the system; a termination by no means uncommon.

It will be seen, therefore, that the settling of the disease on the outer skin is the exact result to be desired. The object is not to subdue what is looked upon as disordered action, so much as to *sustain* this curative effort of nature. A medicine, therefore, which will so act as to destroy the poison, without

\* For a mode of speedily relieving this affection, see a paper by the author in the *Lancet* of 19th of October, 1861.

interfering with this salutary process, must prove the most effectual agent in the cure of this disorder. If this effort be checked by the injudicious use of purgative and saline medicines, the case is prolonged, and the chance of recovery not only made doubtful, but the foundation is laid for all those ailments which are so well known to follow scarlet fever and measles.

As to emetics, the use of them in scarlatina is decidedly injurious; and bleeding is still more so. The hot bath is a dangerous experiment; in the case of a boy, fourteen years of age, convulsions and death immediately followed his immersion.

MEASLES, being a kindred malady, requires precisely the same treatment, and the same results will follow. If treated with ammonia, it will prove neither a dangerous nor a protracted disorder; there will be the same immunity from any distressing consequences; there will be no cough, no delicacy of the lungs, laying the foundation for consumption, etc. The history of this malady proves its fatality at times: in 1672, it is on record that 300 died weekly in London of measles, when the population was only one-seventh of its present number.\* The New Hebrides Islands have recently been scourged with this disorder: at Aniteum in particular, 1100 are said to have died out of a population of 3500. During the last ten years the deaths from measles in London, according to the Registrar-General's Report, have amounted to 14,756; and in England and Wales, to 75,736.

The notion of a specific antidote has been decried by some as irrational, but, as opposing and counter-

\* Old and New Bills of Mortality, by J. Angus, Esq., in the *Statistical Journal*, vol. xviii. p. 117.

acting agents are recognised in other divisions of the natural world, why should they not exist in the animal economy? The difficulty is to discover them. Known medicines of this class are but few, but there is no reason why the number should never be increased. Boerhaave (in his Aphorisms *De Cognoscendis et Curandis Morbis*, 1391-92-93), expresses the hope that a specific antidote might one day be found even against the poison of the small-pox. The sesquicarbonate of ammonia is the only medicine yet known which appears to have any decided effect upon this terrible malady.

The question has often been asked, what is the rationale of the action of ammonia? It may, perhaps, be difficult to account altogether for the remarkable phenomena which it exhibits, or to give a theory which is perfectly satisfactory; yet the following reflections will assist in the investigation. In the first place, its administration in these disorders, produces sleep, although it is known not to possess any narcotic properties; and patients become tranquillised immediately after it has been taken. Whether the seizure be accompanied by affection of the brain, or of the lungs, or of the bowels, indicated by headache, by cough, or by abdominal tenderness, each of these symptoms ceases upon the system being brought perfectly under its influence, which usually takes place in six or eight hours. Its beneficial effects are observable, in the majority of cases, just at the very time when patients might be expected to become worse. When administered, even after alarming symptoms have set in, without the appearance of any eruption, the eruption is produced, and the bad symptoms simultaneously cease. Again, when severe symptoms exist,

with the eruption in an excessive degree, a diminution of the eruption will take place, often within a few hours, and the bad symptoms will subside. Even when local mischief has already set in, either from peculiarity of constitution, or from delay in the use of the ammonia, its influence is often immediately felt, and the diseased action arrested. Lastly, these good effects are produced as effectually in patients whose constitutions, from their healthfulness, require no aid from stimulants, as in those evidently deficient in bodily vigour.

Do not these facts afford some explanation of the definite action and the properties of this medicine? Do they not shew, that shortly after it has been taken, it may be absorbed and mixed with all the circulating fluids of the system; and that, by some process of animal chemistry, it has the effect of destroying or of neutralising the irritating poison with which it has commingled? Non-medical observers have remarked that it seems "to *kill* the disease:" at least, nature is rendered equal, through its agency, to the task of throwing out the poison upon the surface. The sesquicarbonate of ammonia may be said to act neither as a sedative, nor as a stimulant, but positively as a *specific* or *antidote*—the highest commendation assignable to any medicine.

It has been asserted, as an argument for the use of stimulants in these disorders, that brandy and wine exert a beneficial effect; but has this ever been proved? and are they not much more likely to aggravate such disorders, than to aid the natural powers in subduing them?

The question was put in the first edition of this

essay, "Whether ammonia might not be beneficially used in some *other* disorders?" If the correctness of the pathology of the principal disorder, here treated of, be admitted, the conclusion seems inevitable, that Small-pox, Erysipelas, and other eruptive fevers, must be included in the same category. This, indeed, Mr. Wilkinson proved most satisfactorily to be the case; and his views have since been fully confirmed by the extended experience of others. Even with reference to that fearfully fatal disease, Diphtheria, the author has received several communications assuring him of the successful use of the ammonia; and one correspondent states, that, out of twelve cases, he had not lost one after having administered it. Among a mass of similar testimony, a most respected practitioner, in Yorkshire, mentions that in the treatment of Bronchitis in infants, he has found ammonia, in doses of one grain every hour, to be the most successful that he has ever adopted.

It is impossible but that fatal cases must now and then occur. Various material influences will, at times, counteract the effects of any medicine, however powerful; it is then simply the case, of one natural force exerting itself in a superior degree to another. The miasma from drains and cesspools, *continuously* poured forth, and rendered at times specially virulent, by some electric agency, is productive of a state of constitution in those exposed to its influence, which renders them prone to succumb to any disorder. Certain peculiarities, also, on the part of the recipients of the poison, render it more injurious to them than to others. The brains of the children of drunkards, for instance, particularly those who have died of *delirium tremens*, are

always highly sensitive and excitable; and they suffer more severely than others from febrile action of any kind. It is, therefore, illogical to say, that what has been proved to be a remedy under ordinary conditions, is not a remedy, because its powers are occasionally found unequal to cope with phenomena which rarely occur.

Scarlet Fever had long baffled the efforts of medical science. It is on record that in the year 1700, the only surviving son, out of seventeen children, of the Princess Anne and Prince George of Denmark, died of that disorder, for which he had been improperly treated\*—an event, however, which had the momentous consequence of changing the dynasty of these realms.

The analogous effect of ammonia upon the bites of all poisonous snakes, to that which it exercises in the disorders now treated of, is a very suggestive fact. It has been long and generally acknowledged, in those districts of England where the viper abounds, that when such poison has been infused into the system, ammonia is *the* antidote.

In Mr. Buckland's interesting work, "*Curiosities of Natural History*," he describes the fearful consequences

\* "The Princess Anne kept the eleventh birthday of her son, the Duke of Gloucester, with great rejoicings, little anticipating the result. The boy reviewed his juvenile regiment, and presided over a grand banquet. He was very much heated and fatigued. The next day he complained of sickness, headache, and sore throat; towards night he became delirious. The family physician of the Princess sought to relieve him by bleeding, but this operation did him no good. Dr. Radcliffe was sent for by express. When he arrived at Windsor Castle, and saw his poor little patient, he declared the malady to be the *scarlet fever*. He demanded 'Who had bled him?' The physician in attendance owned that the Duke had been bled by his order. 'Then,' said Radcliffe, 'you have destroyed him.' The event justified the prediction of the most skilful physician of the age."—STRICKLAND'S *Life of Queen Anne*.



of the absorption of the poison of the cobra-di-capello, in his own person. Instantly on perceiving its effects, he swallowed some of the solution of ammonia known as sal-volatile. He has since informed the author that the quantity taken was nearly two table-spoonsful; that he drank it as a thirsty man would water; that the relief was "marvellous and instantaneous;" and that he is convinced that it saved his life. In an instance of snake-bite related by Dr. Livingstone, after excising the wounded parts, he gave the patient strong doses of ammonia, and she recovered. In other cases of snake-bite in India, ammonia has been plentifully given with the same success. These instances are cited as proofs unquestionable of the powerful working of ammonia in the animal economy.

The Hon. Robert Boyle, in his Essay on the Blood, describes what he calls "The Spirit of that Liquor," which he proves to be ammonia. The more recent experiments of Latini and Valle, prove that ammonia is evolved in expired air. If, then, its existence in the blood, in a certain proportion, is essential to health, or is generated as a corrective of the morbid poisons, which the system is continually liable to imbibe, may not an increased proportion, artificially introduced, effectually counteract the poison of some bodily disorders? And there is one very curious fact yet remaining to be noticed: ammonia is the *only* known substance capable of preventing the coagulation of the blood when out of the body.

That the continuance of the present frightful death-rate of scarlet fever and measles\* will depend

\* From the Registrar-General's Reports, it appears that, during the ten years ending 1859, the deaths in England and Wales from scarlet fever and measles amount to 251,782.

on an inefficient treatment, as will its diminution on an appropriate one, no one will dispute. That the sesquicarbonate of ammonia does possess the properties ascribed to it, as a curative agent in these disorders, the testimony adduced in the preceding pages places beyond all doubt. The author, therefore, feels that, in advocating the use of this remedy, he cannot be charged with having proposed any utopian scheme; and he submits, that, in a matter of such vital importance, the refusal to give it a trial, or to investigate its merits, involves a serious amount of responsibility.

## APPENDIX OF CASES.

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### CASE No. 1.—SCARLATINA.

A lad, about twelve years of age, was sent home from a military school, attacked with scarlet fever. He had taken nothing but a gentle aperient, and on his arrival was put to bed. Four grain doses of the sesquicarbonate of ammonia, dissolved in a little water, were administered every three hours, with an extra dose occasionally during the day. Tea and toast and water simply were given to him. In twenty-four hours, the eruption was thrown out all over the body; on the next day, it began to decline; and on the third day it had nearly disappeared: the medicine was then taken every six hours for two days and was continued for a day or two more, thrice daily. Suitable nourishment at the same time was given, and in a week he was well. A few gentle aperients alone were required.

It may be said that this was a simple case; but it is related only as an example of hundreds of others, which have proved simple on account of the treatment; and with the same treatment most cases will have the same speedy termination, and with the same absence of any *unfavourable consequences*. In a case in which suppuration took place in one of the glands of the neck, after the subsidence of the eruption, it was discovered that the patient, who was a delicate youth, had improperly been called out of his bed more than once, while the disorder was at its height, to see a dying relation. This exposure was sufficient to cause the mischief which followed. The swelling, however, quickly disappeared, and the recovery was perfect.

And here a caution may be added against applying leeches to enlarged glands in these cases; the bites are apt to ulcerate, leaving ugly marks on the neck. Even where matter does form, simple poultices alone are required.

## CASE No. 2.—SCARLATINA.

The ammonia is administered with advantage *at any of the earlier stages of the disorder*, and may also be substituted with the best effect at an advanced stage, *for any other treatment*.

Scarlet fever had broken out in a large school, not far from London, and about a dozen boys were attacked. One of the most severe cases was a fine healthy lad of about twelve years of age, a member of a family in which two other children had, on a former occasion, suffered from a severe form of scarlet fever, and both had been successfully treated with ammonia under the author's care; consequently he was requested to see the present case. A grain of calomel had been placed on the boy's tongue, the action of which had left him in a suitable state for the operation of the ammonia. The medical adviser of the school had never heard of this treatment, but no time was lost in its immediate adoption. The case exhibited all the usual symptoms of the disorder in a most marked form. The skin throughout was of the colour of a boiled lobster; there was sore throat, furred tongue, headache, pulse 120, with restlessness and depression, and more or less delirium. Five or six days had elapsed since the commencement of the attack, but the eruption showed no tendency to decline, nor was there any abatement of the symptoms. As the boy afterwards expressed it, he felt "as if his blood were all on fire." Five grains of the sesquicarbonate of ammonia were now given every three hours, in a little water slightly sweetened, and on the next day all the symptoms were found to be relieved. The boy had slept much, and was more composed; the pulse was slower, and the redness of the skin already diminished. He continued to improve daily, without interruption, and in due time nourishing diet was given.

So manifest was the improvement in the above case, even on the second day, and so completely was the surgeon a convert to the treatment, that he requested the author to visit his own son, who was ill with the disorder, and had an enlargement of the submaxillary gland of the size of a turkey's egg. Even with this complication, the medicine took its usual effect; in twenty-four hours the boy had become cheer-

ful, and able to speak more distinctly; the swelling was already reduced to a third of its former size, and soon disappeared altogether. Every patient in the school was now unhesitatingly placed under the same treatment, and all of them rapidly got well, without a single case of enlarged gland, or any other unfavourable result. They were sent for several weeks to a country house belonging to the Principal of the school, by way of quarantine, previous to their return to their respective homes.

It is generally supposed that the infectious power of scarlatina remains in the body six weeks. It is not improbable that the ammonia so affects the poison that this power of infection, as to time, is considerably reduced; but the facts bearing upon this point require further investigation.

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#### CASE NO. 3.—SCARLATINA.

The following case is an instance shewing the occasional necessity for large doses of the ammonia. During the past year the author was called to a young lady, supposed to be labouring under inflammation of the bowels. There certainly were several of the symptoms of that disorder; but, instead of bleeding, the treatment pursued was chiefly of a cordial character, and in three days she was relieved for the time from pain, and left her bed apparently well. In two days more, however, she was seized with fearful difficulty of breathing, which lasted for eighteen hours; from this she was also relieved without bleeding, and all again seemed right. Soon after, a restlessness and disturbance to a very alarming extent succeeded, and for three days and nights there was no sleep. Her distortions of countenance were so great, that, from having been previously remarkable for her beauty, this characteristic was altogether lost; while her naturally gentle and amiable disposition changed to one so exacting and imperious, as severely to try the patience of all about her. Although she did not lose her consciousness, it seemed as if the case would end in mania. On the ninth day, the faintest possible pinkish blush was discovered on her chest; and then arose the conviction that it was a case

of scarlet fever.\* The administration of the ammonia was at once commenced, and, owing to the gravity of the symptoms, in large doses. A solution containing seven grains to each two tablespoonsful of water was therefore prepared, which dose she took every hour for the space of twenty-four hours. The eruption then came fully out in a most perfect form. The same dose was, next day, repeated every other hour for the next twenty-four hours, when the eruption began to decline fast. All cerebral disturbance ceased when the eruption became general; she slept profoundly; perspiration ensued, and the pulse became less frequent. Thus, in forty-eight hours this patient had taken, with the best results, 252 grains, or more than half an ounce, of the sesquicarbonate of ammonia. The same dose was taken thrice, daily, for two days more, although at the end of the third day, or at least at the beginning of the fourth, the eruption had completely disappeared; thus rapidly had the disorder run its proper course. With the exception of the usual peeling of the skin, no other indication of her having suffered from the disorder followed. The case occupied, on the whole, thirty-five days, for the last ten of which, the citrate of iron and quinine was taken, with a few grains of rhubarb, daily. Instead of any deterioration of the general health following this severe attack of scarlet fever, as is so often the case in those who have been subjected to the ordinary treatment, the patient in this case obtained a degree of health, as well as of beauty, which she had never previously enjoyed.

This case is instructive, as shewing how, when nature's efforts to throw out the poison on the skin had failed, the peritoneum was the membrane first affected; next the membrane lining the lungs, as shewn by the extreme difficulty of breathing. The third irregular effort fixed the poison on a still more dangerous site, the membranes of the brain. Now, if upon either of these three occasions, violent purgatives or the lancet had been resorted to, it cannot be doubted that the powers of nature would have been exhausted, that the eruption would never have been thrown out, and that death would have ensued.

\* This young lady was in lodgings in London, and it was afterwards discovered that, at the very time, some children were lying ill with scarlet fever at the upper part of the house.

## CASE No. 4.—MEASLES.

Four boys, of the ages of fifteen, eleven, nine, and five, respectively, were seized with this malady within a few days of each other. A mild dose of jalap was given to each, and a simple solution of the ammonia was prepared, in the proportion of five grains to each tablespoonful of water, slightly sweetened with sugar. Of this solution, the two elder boys took a tablespoonful each an hour after the aperient, repeating the dose every three hours; the two younger, a dessertspoonful. None of them were reluctant to swallow their medicine, as it was diluted with an equal quantity of cold water: and they had as much toast and water as they wished to drink. The hoarse, dry, and hard cough ceased in a few hours, and the eruption appeared: on the second day it was well out; on the third it began to decline; and on the fourth it had entirely disappeared. For the next two days the medicine was taken less frequently,—about every sixth hour. As it was cold spring weather, fires had been kept up in their bedrooms day and night; and, with the aid of beef tea, veal broth, and other suitable nourishment, they all rapidly recovered. No other medicine was taken, and none of these children suffered from any of those serious disorders which so often follow an attack of measles.

Another child in this family was attacked with this disorder, being at the time on the Continent, and was differently treated: and though, perhaps, the most healthy of them all, suffered for two years with feeble health: abscesses formed in the scalp, and there was ulceration of the cornea in one eye, attended with an effusion of pus between its laminæ.

## CASE No. 5.—MEASLES IN AN ADULT.

A gentleman had this disorder, for the first time, in a very severe form, in his thirty-fifth year, accompanied with most intense headache. He had been ill for three days when the ammonia was commenced, of which he took ten-grain doses every second hour. At the end of six hours, the headache ceased and he fell asleep. On awaking he was plentifully covered with the eruption, and felt free from all uneasiness;

his recovery was speedy and uninterrupted. He was acquainted with the action of medicines, and, therefore, well able to observe their effects. He remarked the signal relief of his headache which followed each successive dose of the ammonia. and he declared that if children suffered as he had done, measles ought never to be regarded as a trifling malady.

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*APPENDIX TO THE FOURTH EDITION.*

A Paper in the London Hospital Reports (vol. I., p. 158), just published, is interesting, from the fact of the treatment having been fairly tried in a public institution; the patients in which are known to possess but feeble powers of resistance to all morbid influences.

From this report by Dr. Down, the resident Physician, it appears that an outbreak of scarlet fever in the Asylum for Idiots at Earlswood, in a very severe form, enabled him to test the efficiency of the Ammonia treatment, and with results which cannot but be regarded as most satisfactory.

In the space of five weeks during the autumn of 1863, one hundred and ninety-two persons, out of four hundred and forty in the establishment, were prostrated with scarlet fever; of whom ten died.

The mortality, therefore, was at the rate of rather more than five per cent.;—to judge correctly of this proportion of deaths to the seizures, additional facts must be taken into consideration.

Of the number attacked, one hundred and forty-seven were idiots or imbecile in various degrees; and of these nine, or about six per cent died: of the remaining forty-five, officers and servants, whose attacks were equally severe, fourteen of them being malignant cases, only one died; the death-rate therefore, among these last was a trifle more than two per cent. Even in this single case, scarlet fever simply put an end to an existence previously jeopardised by an attack of acute rheumatism, which had left serious heart disease, with weakness, difficult breathing, and other ordinary indications of broken health.



Among the fatal idiotic cases, not fewer than seven were suffering from disease of the lungs, previously to their being attacked; they struggled through the febrile stage, but failed to rally afterwards, and sank from exhaustion of their small share of vital power. The remaining two died from convulsions, a termination not unfrequent among the idiotic.

All the cases may fairly be classified thus: sixty-five of the simple, seventy-eight of the anginose, and forty-nine of the malignant, kind. In every case the treatment adopted was the administration of five grains of the sesquicarbonate of ammonia in an ounce of water every four hours, with suitable management as to diet, ventilation, etc.

Dr. Down adds to these statements that no trouble was found in the administration of the ammonia; that in those afflicted with ulceration of the throat it caused no pain, and in some cases that it appeared even beneficial as an application. A remarkably small number of subsequent ailments occurred; not a single case of deafness, and twelve cases of temporary dropsy only among the one hundred and eighty-two convalescents; a positive proof of the influence of the medicine on the disorder.