

**Observations on gangrenes and mortifications, accompanied with, or occasioned by, convulsive spasms, or arising from local injury, producing irritation / by Charles White.**

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OBSERVATIONS

ON

GANGRENES AND MORTIFICATIONS,

ACCOMPANIED WITH, OR OCCASIONED BY,

CONVULSIVE SPASMS,

OR ARISING FROM

*duh*

LOCAL INJURY, PRODUCING IRRITATION.

By CHARLES WHITE, Esq. F.R.S.

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MDCXC.

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## ADVERTISEMENT.

THE following observations were made in 1783, but the author was prevented publishing them by many professional engagements and other avocations. They have now been revised; and, though many cases have since occurred in his practice, and been attended with the same success, no notice has been taken of them. On dubious points too many cases can hardly be produced, but confirmed, as he is, of the facts which he has to relate, he considered it as totally unnecessary to multiply them, especially as they will receive additional strength from a Thesis which his worthy friend Mr. Darbey, late apothecary and house surgeon to the Manchester Infirmary, intends to support for a degree in medicine, and which will probably be submitted to public inspection.

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TO  
THOMAS WHITE, M. D.

TEACHER OF ANATOMY AND MIDWIFERY,

PHYSICIAN TO THE INFIRMARY AND LUNATIC HOSPITAL  
IN MANCHESTER,

HONORARY MEM. OF THE MEDICAL SOCIETY IN LONDON,

AND EXTRAORDINARY MEMBER OF THE

ROYAL MEDICAL SOCIETY OF EDINBURGH, &c.

DEAR SON,

SOME time ago I published a volume of Cases in Surgery, which I dedicated to my father, whose name you bear, but who is now, alas! no more. To whom can I more properly address the following pages than to you? The study of medicine has been your voluntary choice, and you have an

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## DEDICATION.

immediate relation to them, from having been an eye-witness to most of the facts which I now lay before the public. That you may equal, and, if possible, excel your grandfather, as a gentleman, a scholar, and as a professional man, is the sincere prayer of

Your affectionate Father,

C. WHITE.

MANCHESTER, FEB. 10, 1790.

OBSERVA-

# OBSERVATIONS

ON

## GANGRENES AND MORTIFICATIONS.

**M**EDICINE like all other arts and sciences hath had its infancy. Near two thousand years have elapsed since Hippocrates laid the first regular foundation of the study, on which the fabric, as it now stands, has gradually risen. Each succeeding age, as might be expected, improved upon the last, and either rectified its errors, or enlarged the circle of its knowledge, with additional experiments and fresh discoveries. Though much light has been thrown by the moderns on the treatment of gangrenes and mortifications, there still remains much to be done. It has been for some time universally



allowed that amputation instead of stopping, in all cases, these complaints, in many, expedites their ravages, and that we should not only wait till the mortification ceases, but till the separation is far advanced, before such an operation is attempted. In some cases, even the slightest scarifications have been known to be followed by the worst of consequences. We are much indebted to Mr. Rushworth of Northampton, and to Messrs. Ranby, Cheselden, Amyand, Shipton, Dickin, and Alexander Monro, sen<sup>r</sup>. for their communications respecting the use of the bark in such disorders, and it was, for some time, considered as a certain remedy, in every species of this disease. Our hopes were unfortunately too sanguine, and though, in many cases, it still maintains its credit, and is a very powerful and efficacious remedy, it must be acknowledged there are others where it has been exhibited with less success. Dr. Astruc, and that able and ingenious surgeon Mr. Samuel Sharp, from its failure, in their extensive practice, had less reliance on its virtues than it seems really to deserve, and were even doubtful

doubtful if it had any well founded claim to a preference to cordials in general. This, might, perhaps, be owing to its being given indiscriminately in all cases, notwithstanding they arose from a variety of causes totally different, and which naturally required very different treatment. There is one species of mortification, from an ossified artery, which has ever been and will remain the *opprobrium medicorum*. The whole art of medicine is, here in vain, exhausted, and the complaint continues uninterrupted in its fatal progress, till it arrives at the extremity of the ossification. There is another, very often to be met with in extreme old age, where little can be possibly expected from the united exertions of the greatest ingenuity and skill. That the bark will not stop all mortifications that may be, and have been, stopped by other remedies, is evident from the many trials which have been made, both of that medicine and opium, in that particular species which attacks the feet and toes, and which, though slow in its advances, is accompanied with local pain or general uneasiness. The public is under  
many

many and great obligations to the late Mr. Pott, for the criterions by which this species of mortification may be distinguished with precision, and the recommendation of large and repeated doses of opium, as its mode of cure.

I flatter myself I have found out also a remedy for another species of the disorder, but notwithstanding both these discoveries may stand the test of experience and time, the bark will still be useful in mortifications occasioned by a relaxed habit, by a broken and dissolved crasis of the blood, and those arising from a kind of acrimony attended with putrescency. And, in cases highly inflammatory, bleeding and the antiphlogistic plan will be necessary, together with nitre and the mineral acids.

In general, the conclusion, I believe, may be safely drawn, that gangrenes and mortifications, arising from different causes, in different habits, and under particular circumstances, require different methods of treatment; as in general all the different  
species

species of a disorder, ranged under one head, will not, at all times and in all cases, be cured by one and the same medicine, though curable by others.

The particular species of mortification, which is the subject of this pamphlet, is that accompanied with, or occasioned by, convulsive spasms, or arising from local injury, producing irritation, which is also of the spasmodic kind. The remedy, I have to lay before the public, is a large and frequently repeated dose of musk and salt of hartshorn, the use of which, like that of opium by Mr. Pott, I discovered rather unexpectedly and by accident. Musk and the volatile alkali, I must allow, have been given before my time; but I do not find that they have, generally, been given in sufficient quantities, or ever administered in this species of mortification; so that the full extent of their virtues, especially in this complaint, had not been before observed or ascertained.

Musk, from the high price it bears, is very liable to frequent adulterations, which

which naturally renders it less pure, and weakens its powers; and it has not generally been prescribed in a quantity sufficient to give us reason to expect any considerable effects from it. The *julepum e moscho* of the old Pharmacopœia was too trifling a mode of exhibiting the medicine, which to procure any great and advantageous consequences should be taken in substance and in large doses. In the new Pharmacopœia, indeed, the quantity is increased, from twelve grains to forty grains, under the name of *Mistura Moschata*. Of late years, I must own, its antispasmodic qualities have been determined, beyond the possibility of doubt or cavil, and, in some cases, it has been liberally applied.

In 1746, Mr. James Pringle\* ordered gr. xij. every four hours, with cinnabar for the gout in the stomach: Dr. Owen,† in 1766, gave half a drachm every four hours, washed down with volatile julep, in a convulsive case. And Dr. Huck‡ di-

\* *Essays and Obs. Phys. and Literary*, vol. II. art. 12.

† *Medical Obs. Inquiries*, vol. III. art. 21.

‡ *Idem*. art. 31.

rected half an ounce of musk and a drachm of opium in the course of twenty-four hours, which was continued, four days, for the locked jaw and opisthotonus. Mr. Wrighton,\* afterwards in 1770, gave xv. grs. of musk, with cinnabar, every six hours, successfully, in canine madness; and the late Dr. Wall† had recourse to it, with great success, in 1744, both by the mouth and glyster, in large quantities, in convulsions and many spasmodic complaints. In 1745, Mr. Reid's‡ account of the effect of the Tonquin medicine, for the bite of a mad dog, was published in the Philosophical Transactions; which remedy consisted of sixteen grains of Musk, of the purest native cinnabar and the finest vermilion, each about twenty-four grains, which was given in one dose, and repeated occasionally. Its usage in the above quantities may have been perhaps originally borrowed from the Chinese,

\* Medical Transf. vol. II. p. 192, art. 12.

† Philosophical Transf. No. 474, p. 213; and Medical Tracts republished by Martin Wall, M. D. p. 1.

‡ Phil. Transf. No. 474.

who appear to have been long in possession of it as a medicine, and have not scrupled to give forty-eight grains\* for a common dose. I find also the following curious case in Reinerus Solenander, which has probably escaped general observation, from the scarcity of this author's *Confilia Medicinalia*, in which it is inserted.

“ Mulier quædam sævissimis sympto-  
 “ matibus affligebatur: dolore capitis,  
 “ ructu, contractione corporis, dolore in-  
 “ guinis, stridore dentium aliquando in  
 “ terram cadens, sine voce, ore clauso, ut  
 “ aperire non posset: atque hæc ex ma-  
 “ tricis vitio omnia, ut laceraret etiam  
 “ vestimenta sua, et caderet in syncopen.  
 “ Remediis multis frustra factis, super-  
 “ veniens mulier quædam vetula, dedit  
 “ tredecim grana moschi et totidem pul-  
 “ sang. draconis vulgar. ex  $\frac{3}{4}$  aquæ flor.  
 “ namphæ vel flor. aurantiorum. Sanata  
 “ est nec unquam in posterum istos do-  
 “ lores perpeffa est. Idem medicamen-  
 “ tum in simili casu, a me exhibitum

\* Du Halde's History of China, vol. II. p. 227 and 228.

“ semper

“semper profuit; exhibitum autem aliquoties.”\*

Reinerus Solenander was a German, born in 1521. He studied in Italy, and afterwards became first physician to the Duke of Cleves. He published, besides other works, *Consilia Medicinalia* in five sections: the first of which is by another author, Franciscus de Gabiano; the four last are by Solenander. It is a work valuable for the account of some of the more uncommon medicines contained in it. The editions are, at Frankfort in 1596, fol. and Hanover 1609, fol.

Its principal effects, I should imagine, may be ascribed to its antispasmodic, diaphoretic, sedative and cordial properties; and it may, perhaps, be assisted, as a resolvent and stimulant by the salt of hartshorn, which, very probably, also renders the musk more active. By the united qualities of these medicines, the oscillatory

\* *Consiliorum Medicinalium Reineri Solenandri Hanovix*, edit. secunda, anno 1609, Sect. 5, Conf. 15, p. 488.



motion of the arteries is, in general, promoted, the juices become liquified, and, from their disposition to direct their effects to the cutaneous pores, and, also, their tendency to assist the nervous system, they are attended with the most beneficial consequences. Taken in another view, when the complaint is supposed to originate from a thin and acrimonious state of the blood, volatile salts in large doses and continued for some time would be unsafe, and might augment the putrefaction. They may also be hurtful in an inflammatory diathesis.

I am well aware of the uncertainty of ascertaining facts in medicine, especially when those facts are not very numerous; and I also know that mortifications will frequently proceed to a certain point and then stop, without much assistance; as if the disorder had come to a crisis, and nature, after having thrown all the morbid matter on one part, had, by her own exertions, relieved herself. In mortifications arising from cold, it is not very uncommon to see them stop as soon as the cause is removed.

removed. When I first employed this medicine, in the complaints to which this pamphlet relates, it was not from any expectations, I must own, of stopping their immediate progress, but merely to combat disagreeable symptoms such as the singultus, subsultus tendinum and other convulsive spasms. I soon found it, not only, removed these unpromising appearances, but also procured ease, sleep and a gentle diaphoresis, whilst, at the same time, the mortification regularly stopped. The circumstance struck me, but I scarcely durst flatter myself the stoppage of the complaint itself, in the first instance, was owing to the medicine, till, from repeated trials of it, I observed the same uniform effects. In most of the cases, in this species of mortification, that have fallen under my practice, it has succeeded to the utmost of my wishes, viz. when accompanied with, or occasioned by, convulsive spasms, or arising from local injury, producing irritation.

I have tried it in gangrenes and mortifications arising from other causes, and

not attended with those symptoms, but have, frequently, been disappointed in its effects.

I will now lay, before the reader, some of the cases which occurred during the first four years of my giving this medicine.

### C A S E I.

On the thirteenth of September 1778, I performed the operation of lithotomy upon Mr. Patrick, a gentleman aged sixty-two, and extracted a stone weighing between three and four ounces. The inflammatory symptoms ran very high for two or three of the first days, attended with great pain and tension of the abdomen. The antiphlogistic plan was pursued, together with anodyne fomentations and embrocations to the parts affected; but the tension and pain of the abdomen not giving way, the belly, on the fourth day after the operation, was rubbed with mercurial ointment, and it was repeated twice a day. His pulse was quick, and  
tongue

tongue dry. On the sixth, a singultus came on; there was no digestion in the wound; and the other bad symptoms continued. I directed four spoonfuls of the *julepum e moscho* to be taken every three hours. On the seventh, he remained much the same as the preceding day. After this, a little digestion appeared upon the wound; the hiccup was less frequent; the pain and tension of the abdomen abated; and all the symptoms became more favourable. I now entertained hopes of his recovery, till the twenty-seventh, when he had a violent, cold, shivering fit, and all the bad symptoms returned with greater force. His pulse was one hundred and forty in a minute, his skin dry, and tongue brown and hard, without the least moisture upon it. The hiccup was constant; the subsultus tendinum very violent; he was delirious; his belly was greatly enlarged, and emphysematous; the wound black and perfectly mortified. I had not now the least idea of his recovery; but in order to abate the singultus, and subsultus tendinum, I ordered him a bolus, containing

ten grains of musk, with the same quantity of salt of hartshorn, every three hours. He was not able to take more than four boluses in the day, and consequently only forty grains of musk with an equal quantity of salt of hartshorn. On the next morning, the twenty-eighth, a little moisture appeared upon the skin, but, in other respects, he continued as the day before. On the twenty-ninth, the musk and salt of hartshorn were continued in the same quantities, and my expectations were more favourable. His delirium abated on the thirty-first; and I prevailed on him to take, daily, eighty grains of musk with eighty grains of salt of hartshorn. On the thirty-second, he was sensibly better, his pulse did not exceed one hundred in a minute, the skin and tongue were moist, the belly began to subside, and the mortification seemed to be stopped. On the thirty-third, he continued to mend; but the eighty grains of musk, and eighty grains of salt of hartshorn, were persevered in. On the thirty-fourth, he took one hundred and  
 twenty

twenty grains of musk, and as much salt of hartshorn.

All his bad symptoms left him on the thirty-fifth; the mortified parts sloughed away, and he gradually recovered. In the whole of this case one ounce and thirty-six grains of musk were taken, and the same quantity of salt of hartshorn.

## C A S E II.

James Ogden, of Manchester, aged forty-six, was, on the sixth of March 1780, received into the Manchester infirmary, for a compound fracture of the leg. It soon became inflamed; swelled considerably with much tension; shewed little signs of digestion; and, on the fifth day, began to grow livid. The bark was given in considerable quantities; but, notwithstanding the use of it, the livid parts were completely mortified. His pulse beat one hundred and forty in a minute; his skin was hot and dry; and his tongue,

without moisture, brown and hard. A singultus, and subfultus tendinum came on; he had a wildness in his looks succeeded by a delirium. On the eighth from the accident, I directed him to take a bolus containing ten grains of musk with ten grains of salt of hartshorn, made up with conserve of roses, every three hours. He slept better, the following night, than he had ever done since his misfortune, though he had no opiate; and, the next morning, he was in a breathing sweat. His symptoms gradually abated, but he continued the use of the bolus, till he had taken two ounces and a half of musk, and as much salt of hartshorn. The mortification stopped, and the dead parts separating from the living, came away, in large sloughs; but, there was such a considerable loss of substance, that he was not able to leave the infirmary till the eleventh of December, upwards of nine months from the accident, when he was discharged cured, with a very useful leg.

## C A S E III.

On the first of May 1782, a maiden lady about forty years of age, and of a very corpulent habit of body, was seized with cold shiverings, succeeded by much fever, and an erysipelas in her face. A very sensible apothecary, who first saw her, sent her a purging potion, an aperient glyster, and some alkaline draughts, with a grain of camphor, to be taken with lemon juice in the act of effervescence, which were to be repeated every four hours. The next day the purging potion was again ordered. I saw her on the third, and found her in a state of delirium, with great drowsiness, subsultus tendinum, attended with nausea, a very quick pulse, and the face much swelled and livid. I directed her an aperient aposem with nitre, to be taken occasionally; and a bolus, composed of ten grains of musk and ten grains of the cordial confection, to be repeated every five or six hours. On the fourth, the  
nausea



nausea and delirium remaining, I ordered her to take two or three spoonfuls of the camphor julep, made with vinegar instead of water, frequently in the day. On the fifth, her stomach was more settled, but, as she disliked the musk bolus, it was changed into pills. On the sixth, she seemed much better in every respect, the musk was omitted, and the bark was ordered in draughts, to be taken three times a day. On the seventh, her face grew more painful, and an anodyne fomentation was frequently applied to it, which appeared to procure some ease. On the eighth, all the bad symptoms returned with greater violence. Her face was more livid, the delirium ran very high, and the subfultus tendinum was very troublesome, with a pulse of one hundred and thirty five in the minute. I then directed her ten grains of musk, with five grains of salt of hartshorn in pills, to be taken immediately, and to be repeated, as often as she could be prevailed upon to take them. On the ninth, she was very sensibly relieved, her sleep had been more natural, and she was in a gentle perspiration. On the

the tenth, the delirium and subsultus tendinum left her, but the musk and salt of hartshorn were continued. On the eleventh, the lividness of the face disappeared, and every symptom became much more favourable; pulse one hundred in a minute; but the musk and salt of hartshorn were repeated. On the twelfth, pulse ninety in a minute, she advanced very fast towards recovery, and took the last dose of musk that I thought necessary. On the thirteenth every bad symptom had entirely left her, and she recovered without any further interruption.

#### C A S E IV.

Susan Cheetham, of Ashton-under-line, fourteen years of age, had the misfortune of a compound fracture of the fore-arm, by a fall on the twenty seventh of June 1782, which was bandaged by a country surgeon. She was brought to the Manchester infirmary on the twenty-ninth, and, though only two days after the accident,

dent, her arm was completely mortified, almost as high as the shoulder, and the swelling and inflammation had extended even still further, and seemed to be progressive. The mortification and other bad symptoms had made such a progress, that there was little expectation she could live many hours. Of all mortifications, indeed, none are, perhaps, so often fatal, or advance with such rapidity, as those occasioned by compound fractures of the fore-arm. Under such pressing circumstances, no time was to be lost. She took, immediately, twenty drops of the tinct. theb. and, soon afterwards, a bolus containing six grains of musk and three grains of salt of hartshorn. The bolus was repeated every three hours. Orders were also given for the opiate to be repeated, as often as it was necessary to procure ease and sleep; but she had no occasion for it; the musk and salt of hartshorn answering every purpose, of that sort. The next morning, the mortification seemed to have made no further progress; she was perfectly composed; her pulse only one hundred; and the bolus appeared to have agreed with her so well, that ten  
grains

grains of musk and six grains of salt of hartshorn were ventured on, every three hours. She took, by this means, eighty grains of musk and forty-eight grains of salt of hartshorn every day, and, though a tender and delicate girl, they were so far from heating her, that every bad symptom of fever gradually ceased. The decoction of the bark was then directed; but she disliked the taste, so much, that she took very little of it. In about ten days, the mortification was not only stopped, but far advanced in its separation, and every other disagreeable apprehension vanished. The bolus was in consequence only given twice each day, and she was prevailed upon to take the bark as being less expensive. On this change of medicine every bad symptom speedily returned; her pulse became as quick as ever, and her delirium and loss of sleep were equally as troublesome. The bark was therefore thrown aside, and recourse again had to the bolus, every three hours, which soon produced the very favourable appearances that had before attended it. She continued the use of it, till she had taken two ounces

