

An inaugural dissertation on the scarlet fever, attended with an ulcerated sore-throat : submitted to the examination of the Rev. John Ewing, S.T.P. provost ; the trustees and medical professors of the University of Pennsylvania ; for the degree of Doctor of Medicine, on the tenth day of May A.D. 1793 / by Matthias H. Williamson, of New-Jersey, member of the American Medical Society of Philadelphia.

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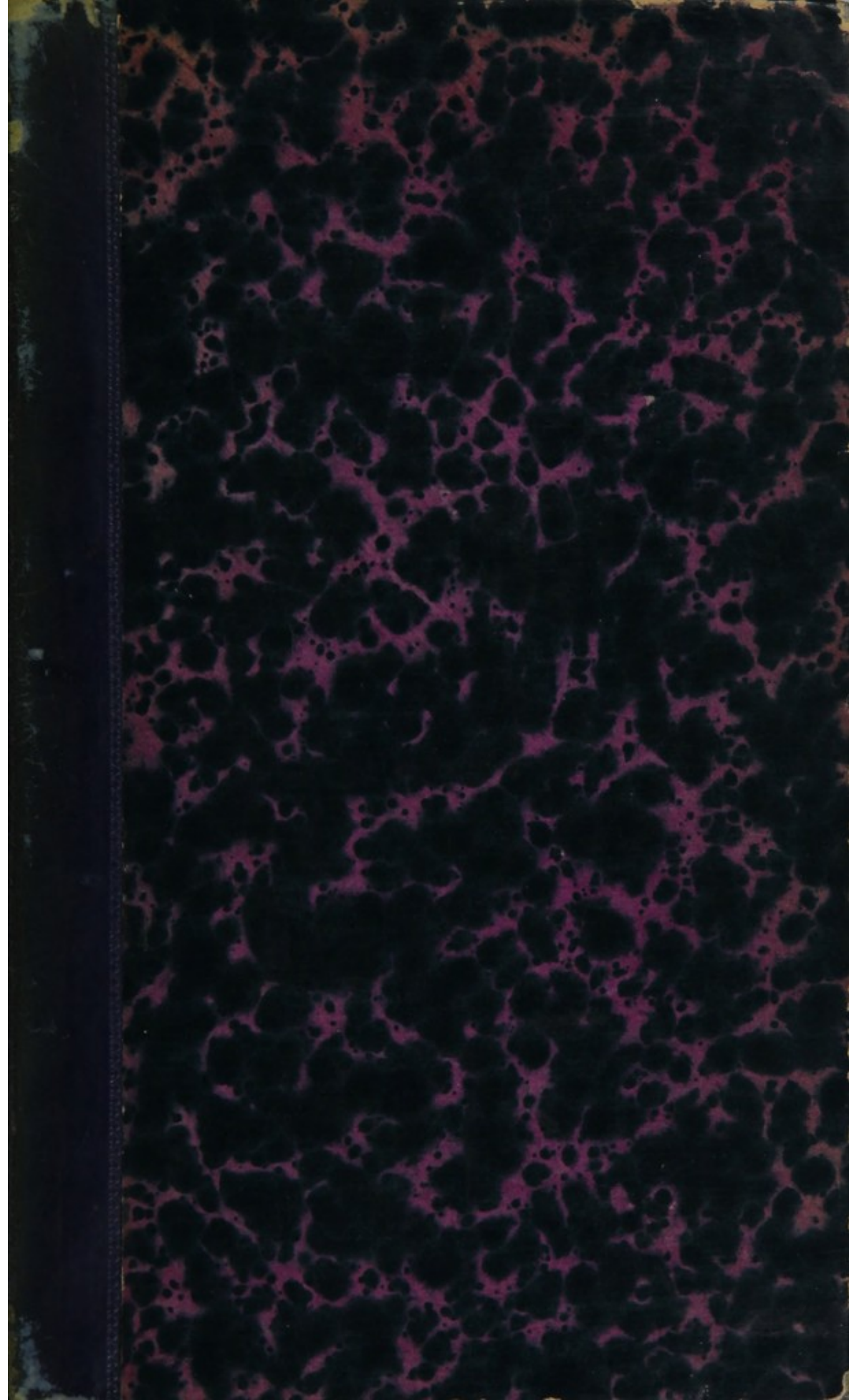
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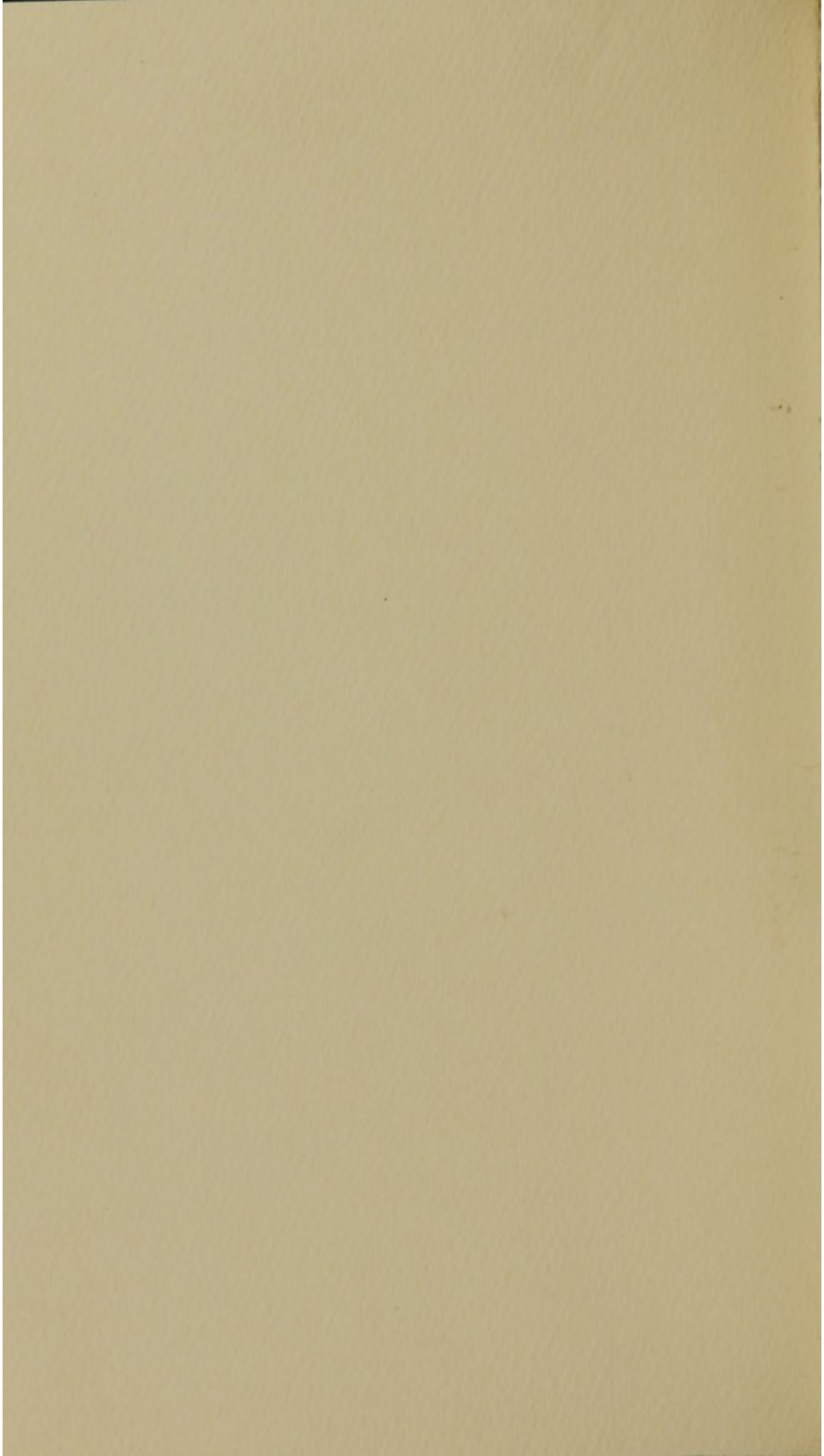
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AN INAUGURAL *the Act.*

DISSERTATION
ON THE
SCARLET FEVER,

ATTENDED WITH AN
ULCERATED SORE-THROAT:

SUBMITTED TO THE EXAMINATION OF THE
REV. JOHN EWING, S. T. P. Provost;
The Trustees and Medical Professors of the University of
Pennsylvania; for the Degree of

DOCTOR OF MEDICINE,

On the Tenth Day of May A. D. 1793.

By MATTHIAS H. WILLIAMSON,
Of New-Jersey,
Member of the American Medical Society of Philadelphia.

*Rather stand up, assured with conscious pride,
Alone—than err with millions on thy side,*

CHURCHILL.

PHILADELPHIA:

PRINTED BY JOHNSTON & JUSTICE, AT FRANKLIN'S HEAD,
No. 41, CHESNUT-STREET.

M,DCC,XCIII.

To
 WILLIAM SHIPPEN, Jun. M.D.
 CASPAR WISTAR, M.D.
 Professors of Anatomy, Surgery, and Midwifery;
 ADAM KUHNI, M.D.
 Professor of the Practice of Physic;
 BENJAMIN RUSH, M.D.
 Professor of the Institutes and of Clinical Medicine;
 JAMES HUTCHISON, M.D.
 Professor of Chemistry;
 SAMUEL POWELL CRISPITT, M.D.
 Professor of the Materia Medica;
 in the University of Pennsylvania.

To you, Gentlemen, I feel peculiarly indebted for the
 liberal instruction which I have derived from your
 Lectures; and the many private favours received during
 my studies under your direction; it is not only a
 source of gratitude, which prompts me to express
 and thank you for the same; and permit me to add the
 liberty of dedicating to you, this *Tractate de Morbis*,
 the fruit of my medical education; as a small token
 of esteem and respect, due from

Your humble and obliged
 Friend and Pupil
 W. H. WILLIAMSON

T o

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Your sincere, and obliged

Friend and Pupil,

M. H. WILLIAMSON.

C

IN A U G U R A L D I S S E R T A T I O N

ON THE

S C A R L E T F E V E R &c.

Definition.

I

define the disease to be; a contagious
from a specific contagion; attended with
of an enlarged sore-throat; and a scarlet
eruption on the body.

It is to be observed that the disease is not for the
first or original dissertation, I was not aware that
it tends to entering upon it, I should be under the ne-
cessity of entering with some of my most learned
countrymen as well as men of eminence in the
science, to support an opinion that when I
see it is to admit, or falls in with the

A N

INAUGURAL DISSERTATION

ON THE

SCARLET FEVER, &c.

Definition.

I DEFINE this disease to be; a contagious fever, arising from a specific contagion; attended, with more or less of an ulcerated fore-throat; and a scarlet redness, on the external surface of the body.

When I first chose the disease before us, for the subject of my inaugural dissertation, I was not aware, that, previous to entering upon it, I should be under the necessity of combating with some of my most learned teachers at home; as well as, men of the first rank in the profession abroad, to support an opinion, from which, I can see no room to admit, or facts to support a contrary one;

what I allude to, is; that the scarlatina anginosa and the cynanche maligna of authors are one, and the same generic disease; the reverse of which they endeavour to support; but although I respect their opinions in medicine, no less than their names, as men of deep penetration and sound judgment, yet, in considering these two diseases, as different in their nature, and consequently in their origin, I cannot agree,

1st. Because it answers no useful purpose, either to ascertain their nature or cure.

2d. It is multiplying unnecessarily, and improperly, the diseases, now almost innumerable, which the human race are daily afflicted with, and incurring upon themselves: and likewise, the technical terms, which are truly puzzling to the student, and superfluous in many parts of the science. (1)

3d. The two diseases (if they are two) are not, nor cannot be distinguished in practice, distinctly enough to constitute a generic difference, even by those who boldly assert, that this difference does really exist.

4th. There does not appear to me, to be any real difference.

(1) Note. "Who would not be alarmed on being informed that such a formidable band, such a febrile cohort as the following had invaded the earth—*febris inflammatoria, scorbutica, soporosa, putrida, nervosa, typhus petechialis, flava, sudatoria, colliquitiva, ardens, hectica, cephalalgia, beliosa, erysipelacea, synocha, synochus, paludosa, verminosa, maligna, &c. &c.* And after being thus informed, who could be surprised to find that death walked with a hastened step through the land.† To lay hold of the occasional symptoms which arise from the difference of constitution and other circumstances, and erect them into new diseases with terrifying names, burdens the memory, and tends to darken rather than elucidate.

† ——— Nova Februm

Terris incubuit cohors;

Semotique prius tarda necessitas

Lethi, correpuit gradum.

Hor. lib. i. carm. 3.rd

Moor's Medical Sketches P. 270.

ence in their nature or quality ; but, only in the degree, or quantity of the disease.

On this last point, the three preceding principally turn ; the truth of this therefore is next to be ascertained ; which I shall attempt by observing ;

1st. That when either disease appears as an epidemic, it is always accompanied with more or fewer cases of the other ; which proves next to a demonstration, that, they must both arise from the same cause, and the same cause, *ceteris paribus*, always produces the same effect.

2d. The cynanche maligna or ulcerous sore-throat, if it was a disease of its own peculiar nature, would invariably produce the same disease, in all the persons who receive its contagion ; but this is far from being the case, for some of the infected have only the simple scarlet fever of Sydenham, (2) which is without any affection of the throat, with a fever so slight as to continue but a day or two, and is not attended with the least danger—in another, it produces a more formidable set of symptoms, or the scarlatina anginosa of Sauvages (3)—while a third will be seized with the disease, in its most aggravated and dangerous form, or the cynanche maligna—And, are we then to suppose, that those three persons, all infected by the very same contagion, can have three different diseases?—Will one, and the same cause produce three different effects?—When the small-pox will produce the measles, or the measles the chicken-pox, I will answer in the affirmative.

3d. As the cynanche maligna often produces the scarlatina anginosa, or a still more mild form of the disease ;

(2) See Sydenham's works.

(3) Sauvages *Nosologia Method.* ed. 4. to. Class. iii. G. viii. Sp. 6.

so will the latter, and the scarlatina anginosa produce the cynanche maligna, or the most dangerous form of the disease;—this may be added to the second observation, and admit of the same conclusion.

From these facts then, (which I believe no person can deny) it appears, that at whatever time this disease is epidemic, it is accompanied with all its possible varieties, from the most mild to the most malignant; and, that different persons, after being exposed to any given form or variety of the disease, are liable to be affected in any form whatever; and, that because a person has received the infection from another in its mildest degree, we cannot prognosticate from this circumstance, what will be the danger of their approaching disease (4).

It is not to be understood from what I have said; that, because the diseases are the same, the symptoms must also be the same; or that the disease requires, or will admit of the same treatment in different persons, or even in the same person at different periods of the disease: by no means, for in one the disease appears inflammatory, and, in another putrid; the first requiring the antiphlogistic; while the other demands the antiseptic plan of cure.

This may to some, seem sufficient to constitute a different disease; for in the two patients, the remedies are directly opposite, and consequently (say they) the diseases, for the cure of which they were prescribed, must be opposite; but to this I have only to observe; that there is scarce a disease we are acquainted with, in which the treatment in different persons, or even in the same person, at different times, is not diametrically opposite, and in some,

(4) *Note.* This is to be taken with a certain limitation, as it is evident, that if the contagion, which is the cause, is more powerful; the disease, which is the effect, will, *ceteris paribus*, be more severe.

to greater extremes than in the scarlet fever (5). Are there not an inflammatory and putrid finall pox, meazles, purperal fever, pneumonia, &c. ? Do not topical inflammation of the eyes, throat, &c. rheumatism, gout, consumption, dysentery, apoplexy, palsy, &c. require, like the disease before us, an opposite treatment, depending on the state of the system in the different persons affected, and in the same person at different times?—And must they from this circumstance, be considered as different diseases, and receive a new name? certainly not.

But, there is another argument adduced against my opinion, which is insisted upon, as in some degree conclusive: it is this;—That the scarlatina anginosa seizes persons but once in their lives; whereas, having the cynanche maligna is no security against a second attack.

This may at first seem to have some weight; but I deny the position, and very much doubt, whether the cynanche maligna was ever attended with the pathognomonic symptom of the disease, viz. the scarlet efflorescence, twice in the same person; if this was not the case, and the patient had only a sore-throat, with what is called a putrid fever, he could not be said to have had the disease—Every physician, who has seen it epidemic must have observed, that it is the reigning disease of the season, as it were; and, that scarce an acute disorder occurs at this time, without more or less of pain or soreness of the throat (6)—But, because this bastard symptom intrudes itself in these cases, can it change the name or nature of the original disease? Or, should this symptom seize a person, at the same time with a common putrid fever in a crowded jail or hospital, would it be proper to conclude that this person had the cynanche maligna?—No, its diag-

(5) *Note.* When I say scarlet fever, I mean, that attended with an ulcerated fore-throat, unless the contrary is expressed.

(6) See Huxham's works, vol. 2.

nosic symptom is not present, and the others are not sufficient to constitute the disease without it. During the last summer, after being frequently exposed to the contagion of the disease, I was seized with a violent ulcerated sore throat, but had not the scarlet efflorescence, nor could the disease be called any thing except an ulcerated sore throat; but if accidentally, I had been affected with a typhus fever at the same time, I have no doubt, that my disease would have been stiled the cynanche maligna, but with as little propriety, and as little security against a second attack, as if the fever had been absent.

History of the Disease.

The contagion of this disease attacks persons of all ages, but more frequently children than adults; it seldom however, affects the former, under two years of age, or the latter when more than fifty.—Among children, it is almost equally incident to the male and female, but in adults the number of the latter, considerably exceed that of the former, perhaps owing to their greater delicacy; or, with more probability, on account of their being more frequently employed in attending the sick, and consequently, more exposed to the contagion.

At the first approach of the disease, the patient is affected with a great degree of languor, lassitude and oppression at the præcordia, with a dejected countenance and spirits, and irregular flying pains over the body, particularly in the back and limbs: To these precursors, succeed giddiness of the head, chilliness and shiverings like those preceding an ague fit, which are soon followed by flushes of heat, and these alternately succeed each other for some time, till at length, the latter becomes constant and intense, and forms a principal complaint throughout the disease.—During this time, there is a

great diminution of strength, attended with great anxiety, violent nausea, sometimes vomiting, or diarrhœa or both; though very often neither, particularly in adults, who are sometimes very costive.—The patient complains of an acute pain in the head; of heat and soreness, rather than pain of the throat; a stiffness of the neck; difficult and painful deglutition, attended with a quick and laborious respiration; and frequently, a hoarseness of the voice and a cough: In some, the face is red and swelled; in others pallid and sunk; the eyes are sometimes inflamed, and frequently watery as in the measles; the breath is hot and burning to the lips, and at length, becomes intolerably offensive, even to the patient's self: although the heat be great, they generally complain less of thirst in this, than any other acute disease.—The tongue is soon covered with a white, cream-like furr; sometimes it is dry and furred, with a yellowish or brown coat in the middle and at the root, while the sides and edges are moist and red; sometimes however, the whole tongue appears of a red colour like raw flesh; and in those, in whom the malignancy of the disease is very great, the tongue, together with the whole internal fauces, put on a black, gangrenous appearance.

If the mouth and inside of the throat be examined soon after, or at the same time with the first attack of the disease, the uvula and tonsils appear swelled; this sometimes takes place to such a degree, as even in the beginning, to threaten strangulation; and these parts, together with the velum pendulum palati, the cheeks on each side near the entrance into the fauces, and as much of them, and the pharynx behind as the eye can reach, appear of a glossy red colour, which is commonly most observable, on the posterior edge of the palate, in the angles above the tonsils, and the tonsils themselves.

But sometimes, instead of this redness, or soon after it, the parts are variegated with several broad spots or patches, of irregular figures, and of a pale white color, (7) furrounded with a florid red ; and they soon increase to such a size, as to cover one or both the tonsils.

This white color by degrees, becomes more ash-colored, and it may now be discovered, that it is really a slough, concealing an ulcer of the same dimensions.

All the parts of the fauces above mentioned, are liable to these ulcerations ; but they generally are first discernable in the angles above the tonsils, and on the tonsils themselves, though they are often to be seen in the arch formed by the uvula and one of the tonsils ; and also on the pharynx behind ; on the inside of the cheeks ; and on the base of the tongue, which they cover in the manner of a thick furr.

The appearance of the ulcers are greatly diversified in different patients, according to the mildness or violence of the disease ; in some, instead of these sloughs, only a superficial ulcer, of an irregular figure, appears in one or more of these parts, scarce to be distinguished from the sound, but by the inequality of the surface it occasions ; in others, they put on a more virulent appearance, are deeper and greater in number, and they discharge an acrid sanies, which excoriates the parts, with which it comes in contact.

In these severe cases, the inside of the nostrils as high up as can be seen, frequently appear of a deep red or al-

(7) *Note.* "This whiteness commonly appears like that of the gums, immediately after having been pressed with the finger ; or, as if matter ready to be discharged was contained underneath."—Fothergill's Works, vol. 1.

most livid color; and after a day or two, a thin, corrosive sanies, or with it, a white putrid matter, of a thicker consistence, flows from them. The trachea is sometimes excoriated, and pieces of its internal membrane is spit up, with much blood, and corrupted mucous; and sometimes it occasions a troublesome cough, with a peculiar sound of the voice.

The parotid glands on each side commonly swell, and grow hard and painful to the touch: If the disease is violent, the neck and throat are surrounded with a large ædematous tumour, sometimes extending itself to the breast, which, by straitening the fauces, increases the danger; and sometimes the whole body is ædematous to such a degree, that an impression made by the finger will remain a considerable time.

On the second day of the disease, though sometimes as late as the fourth, and in some violent cases on the first, efflorescences appear upon the skin, of a crimson or scarlet hue, as if the juice of raspberries had been smeared over it; sometimes in small points hardly eminent, but for the most part, in patches of an irregular figure, first on the face, neck, and breast, from thence gradually spreading to the upper, and lower extremities; affecting particularly the hands and fingers, which feel stiff and swelled, and are very painful when artificially bent, or otherwise roughly touched.

During the progress of the disease, all the symptoms are aggravated; the fever, anxiety, and restlessness become more considerable; the difficulty of swallowing greatly increases; the head becomes more giddy, painful, and heavy, with constant watchfulness and frequently delirium; and some are in a stupid, comatose, and almost insensible state, often starting and muttering to themselves.

In some the skin is smooth, without the least appearance of pimples or pustles; in others, a great number of small red points, of a color more intense than that which surrounds them, appear on the arms and other parts. They are larger, and more prominent in those subjects, and in those parts of the same subject, where the redness is least intense, which is generally on the arms, breast, and lower extremities; sometimes, they are so very small, as not easily to be seen, but at the same time may be felt, as they give a sort of roughness to the skin.

By this time the vomiting and diarrhœa, if they have been present, commonly abate; but this is not always the case, for an universal scarlet eruption will sometimes appear without the least abatement, nay even with an aggravation of some of the symptoms; (8) it may however be considered as a good sign, when a kindly eruption breaks out on the second or third day.

The duration of the efflorescence varies considerably in different subjects; it however in general turns brown in three or four days; the skin becomes rough, and peels off in small branny scales, though very frequently in large, thick, and jagged pieces; but notwithstanding, it does not always afford relief to the patient, particularly in more malignant cases.

Besides the scarlet color already described, there are frequently, small circular or irregular spots of a livid color about the breast, thighs, knees, and elbows; there likewise sometimes appear about the wrist and fingers, a great number of little white viscicles, which on exami-

(8) *Note.* Dr. Huxam informs us, that he saw two patients die of a most raging phrenzy, who were covered with the most universal scarlet rash, he ever saw, so that, as in the most highly confluent small-pox, it seemed only to denote the quantity of the disease.—Huxham's Works, vol. 2.

tion, are found to consist of an elevation of the cuticle, and to contain nothing but air.

With the symptoms mentioned, the fever continues, with a hot and dry skin: the pulse is generally weak, quick, and irregular; in some, it is hard and small; in others, soft and full, but without that strength and firmness, which usually attends equal quickness and heat, in genuine inflammatory diseases.

A great debility appears in the animal functions; the spirits are considerably dejected; the eyes and countenance shew evident marks of langour and depression.

The urine in some is very little different from the natural; in others, it appears crude like whey; but, as the disease advances, it becomes more yellow, and soon after marks of recovery have appeared, it commonly grows turbid, depositing a lateritious sediment.

Towards night, the fever and restlessness increase; a delirium now comes on, if it hath been absent during the day; this symptom appears in some, even on the first night; and, in the most dangerous cases, it is among the first symptoms: the delirium seems to differ considerably, from the like affection in other diseases; the sick commonly answer the questions properly, that are put to them; but, with an unusual quickness; and they talk to themselves incoherently, when left alone.

In the morning the scene is changed; the symptoms which were aggravated the night before, suffer a remission; which takes place to such a degree, as to be noticed by persons not conversant in medicine:—a sweat, more or

less profuse, sometimes breaks out : from this time, they are easier during some hours, and complain of a faintness, more than the rest of their sufferings ; but this respite is of short duration, for as night approaches, an exacerbation of the fever, &c. take place, sometimes with redoubled violence.

This is a history of the disease in its most usual appearances ; but, there is scarce another disease mentioned by nosological writers, in which the symptoms vary more, in different persons : in some, it is so mild as scarce to confine the patient, having only a slight nausea and fever, with a few mild, superficial ulcers in the throat ; which are sometimes totally removed, by an emetic and a few gargles : in others, these symptoms will be somewhat aggravated, with a good pulse, &c. and by a proper treatment, the disease will vanish in a very short time.—But, in others, from the original severity of the disease, from neglect, or ill treatment, or from all of them combined, the disease shews all the marks of an exalted putrefaction ; the eyes are dead and glossy ; the teeth shining and black ; the gums grow spongy, and loose their natural color and consistence ; the whole internal fauces put on a black, gangrenous appearance ; a diarrhæa exhausts what little strength is remaining ; the arteries flutter, rather than beat ; their strength and vigour being exhausted, are unable to withstand the impetus of their semivital contents, the blood ; which is discharged from the nose, ears, eyes, and other parts : with these inauspicious symptoms, a subsultus tendinum, delirium, and coma will continue ; with cold, clammy sweats on the face or extremities ; the heart and lungs deprived of ~~their~~ their due vitality, and unstimulated with their accustomed force, refuse to perform the offices destined to their

charge, when death, by closing the tragic scene, relieves the miserable sufferer.

The disease has no regular crisis; some grow better from the first day of its attack; but, more commonly under proper treatment, the disease is removed on or before the seventh; sometimes however, it will continue to the fourteenth, or fifteenth day; and instances have occurred, of their being carried off in less than twenty-four hours.

When the disease has run its course, and the patient begins to recover, the symptoms proceed in the following order: After a gentle easy sweat, the heat and redness of the skin, grow less; the pulse becomes more slow, equal, and firm; the breathing soft and free; the external swellings of the neck, except those of the parotid glands, subside; the tongue becomes clean; some degree of vigour and quickness return to the eyes; gentle sweats continue, with a desquamation of the cuticle, and plentiful expectoration; the sloughs cast off in a kindly manner, appearing clean and florid at the bottom; the ulcerations fill up; the sleep is natural, and without confusion; the patient is composed during the waking state; and the appetite for natural food returns.

The prognosis, or the probable event of the disease may be learned from what has been said—in proportion to the violence of the disease, or the inability of the patient to bear it, we are to expect the danger.

In the diagnosis, it is necessary that we should distinguish the disease from the inflammatory fore-throat, measles, croup, &c. in this however, there will be no difficulty; when we compare the symptoms of the diseases, and at the same time take into consideration, the predisposition of the patient, and the nature of the prevailing epidemic:

but should there be any doubt, we should be very cautious in applying debilitating remedies, as a few hours waiting, will always decide.

Causes of the Disease.

These are 1st. the remote: 2d. The predisposing or predisposition: 3d. The occasional or exciting: 4th. The proximate: The first produces the second, and the third acting upon the second, produces the proximate; which is in reality, the disease itself.

The remote causes are many and various; among which however, the most common are, intemperate weather; exposure to damp or cold night air; a deficiency of good aliment, or a sufficiency of such as is not of a nutritive, or healthy quality; other diseases of which the person is recovering; impure air, arising from putrid animal or vegetable substances; fear from any cause; improper or tyrannical treatment to children; (9) inattention to cleanliness, &c.—these are never sufficient of themselves to produce the disease, but concur towards it by producing;

The predisposing cause; which I suppose to be, debility, combined with a specific mobility of the nervous system; without the latter the disease can never be produced, and the former in a certain degree, seems to be necessary, to render the latter more susceptible of;

The exciting or occasional cause; which every person knows to be a contagion sui generis; but, from whence this contagion arises; after being absent twenty years or longer, or what gave rise to it at first, is a matter not easy

(9) Note. I allude more particularly to the tyranny of school-masters, which to my certain knowledge, is often inhuman; this therefore, is a fruitful source of disease, as well as misery to the unfortunate little sufferers.

to conceive—perhaps, it may be produced by a chemical combination of two other contagions; or, by some particular contagion, combining with some unknown quality of the air, but this is only conjecture.

How, or in what particular manner, this contagion when applied, operates so as to produce the disease, may be difficult to explain; I however, think it sufficiently probable, that it is not necessary for it to be absorbed, and conveyed to the circulating mass; but that it acts primarily on the throat, lungs, and stomach, where it produces its morbid effects; and from sympathy, more particularly with the latter, the whole nervous system is brought into consent (10).

That this or any other contagion, has any specific or fermentative power, in dissolving or putrifying the blood or animal solids of the body, I cannot allow; but rather suppose, that it does it, by directly destroying the energy of the brain, and diminishing the vitality or living principle of those parts, and consequently their properties as living organized matter; and this I consider as the proximate cause of the disease.

Having said what I think sufficient, respecting the description, causes, diagnosis, and prognosis; and proved, as I expect, the identity of the scarlatina anginosa and the cynanche maligna, I shall next treat of the cure; but previous or preparatory to which, would wish to make some observations and enquiries, concerning the disease;

(10) Note. Dr. Lind mentions the case of a boy who died of a malignant fever; during the latter part of his illness, as Sir John Pringle was feeling his pulse, he (Sir John) was suddenly affected with nausea delirium and other symptoms peculiar to the disease. In this case, the disease must have been communicated directly through the medium of the nervous system.—Lind on hot climates.

in order if possible, to ascertain its true nature, and most proper method of cure.

1. The disease is produced by contagion, which is a sedative, and tends directly to destroy that energy of the brain, which keeps up the healthy equilibrium, between the excitability and excitement of the system; therefore, the natural tendency of it is to debility, putrefaction, and death: or, what amounts to the same, the vitality or living principle of the blood and animal solids is so much diminished by the deleterious effects of the contagion, that they are, to that degree, subject to the laws of inanimate animal matter.

2d. This contagion, thus acting on the nervous system, would destroy it; but, as there is a power in the living animal body to preserve itself; or an effort to throw off whatever is inimical; it is here excited, provided there is a sufficiency of strength in the body; or, if the vis morbi or effort of the disease, is not so great, as to strangle the vis preservatrix or healthy effort of the system; if the former is the case, the disease puts on the form of the scarlatina anginosa; but if the latter, that of the cynanche maligna.

3d. This healthy effort of the system, as it depends on its own strength for support, cannot continue long; unless its antagonist, the contagion, is very mild; for, it hath a direct tendency to wear itself out; and at the same time, the excitability and excitement of the system.

4th. Is this a state of direct, or indirect debility? certainly the latter; though not owing as many suppose, to the direct stimulus of the contagion, but to the excessive re-action of the system.—This I shall apply to practice in another place.

5th. When this effort or re-action of the system hath worn itself out, by the excessive exertion which was necessary ; it must then yield to its destroyer, unless supported by medicine.

6th From what cause are we to expect death in this disease ? does it not, in almost every instance, depend on debility and putrefaction ?

7th. Is it ever produced by the excess of arterial action or excitement, which I call the healthy effort of the system ; by inducing topical inflammation of the brain, lungs, or other vital organs ; or by mortification like excessive local inflammation ? I believe never, unless improperly treated by heating, stimulating, and what are called sudorific medicines, and even then very rarely.

The Cure.

In treating of this, I shall divide the disease into two species.

1st, Where there is a deficiency of excitement, and sometimes of excitability ; or a defect of action, with debility and symptoms of putrefaction : which may be discovered in the temperament, pulse, countenance, appearance of the skin, tongue, throat, gums, state of the bowels, &c. as specified in the history of the disease.

2d. Where it is attended with too much excitement and excitability, or inflammatory symptoms : which may be discovered in the temperament, pulse, skin, countenance, appearance of the throat, tongue, &c. &c.

The first I shall call the typhus, and the second the typhoid species.

The general indications of cure in the typhus species are ;

1st. To evacuate stomach, in which the materies morbi seems to exist.

2d. To remove or obviate debility, and the symptoms of putrescency.

The first is to be effected by an emetic ; but as a vomiting frequently attends the beginning of the disease, it is not always necessary to have recourse to artificial means ; here we may use camomile tea, or any other warm diluent, with the addition of a few grains of Ipecac. if necessary, till we have obtained the desired effect ; after which, if the vomiting should continue, it would be most prudent to check it ; as it would be apt to debilitate to no good purpose.

But, should nature be dormant in this respect ; it is a practice, as proper perhaps, as it is general ; to begin the cure by an emetic (11), which strikes at the very roots of the disease, and if administered early, will frequently put an end to its progress immediately (12).

(11) *Note.* Ipecacuanha is preferable to tart. emet. as it is not so apt to pass over the pylorus and affect the intestines ; which is much to be feared.

(12) After the operation of the emetic ; bathing the feet and legs with warm water will be proper, and if called in the very beginning, a sudorific anodyne may probably assist the emetic and pedeluvium, in obtaining a solution of the disease ; this they do, not only by simply evacuating the stomach and producing rest ; but the first effect of an emetic is to raise the excitement of the system ; which being assisted by the warmth of the water, and stimulus of the opiate, produces sleep and perspiration, by raising the system to its natural healthy point.

As the ulcers of the throat are continually generating the very seeds of the disease ; which falling into the œsophagus, are swallowed, and act as a new cause upon the stomach ; and by passing to the intestines produces, or increases the diarrhœa : it will therefore be proper, to give an emetic every day or two, and oftener, unless extreme weakness should contraindicate it ; the relief they afford is surprising ; it would seem, that they gave strength and vigour to the system during their operation ; they remove the languor, anxiety, pain of the head, delirium and nausea ; they prove useful by promoting expectoration, when the lungs or trachea are affected ; in all cases they greatly relieve and cleanse the throat ; and they moreover prepare the stomach for the reception of such medicines, as may be deemed necessary.

But, the practice of giving antimonial wine, or tart. emet. hourly, through this species of the disease, to keep up a determination to the surface, or remove the spasm of the extreme vessels, as it is called ; does not appear to me, to be founded in reason, or supported by any proper experience ; for, instead of answering any good purpose, it not only proves an irritation to the intestines, but tends to destroy the tone of the stomach ; and the proper medicines are either rejected by vomiting, or their effects are counteracted or destroyed by the continual nausea arising from the antimony—Who, even in health, under such circumstances, could digest a beef-stake ; or relish a glass of wine?—Would all the tonics of the materia medica cure a simple dyspepsia, if given with antimony ? What are we then to expect in a disease, where the powers of life are nearly exhausted, for want of proper support?

That this medicine answers any good purpose as a sudorific, I cannot believe—It is the opinion of many, that almost all acute diseases depend on, or at least are supported by, a suppressed perspiration or a spasm of the ex-

trême vessels; in this however they are grossly mistaken; for if that was the case, they would always be cured, after the cause was removed; but a sweat often occurs in this disease, without any such effect.—Dr. Robinson (13) as well as Sir John Pringle (14) on malignant fevers, which in this particular: are not materially different from the disease before us; observed, that a profuse sweat often broke out, without affording any relief; a suppression of this discharge, therefore, could not, in these instances, have been either the cause, or support of the disease.

A suppressed perspiration, spasm, or whatever it may be called, is an effect, and not the cause of the disease; it is therefore unphilosophical to use such remedies for its removal, as shall prove injurious, and still leave its cause remaining—Although I before said a gentle, universal perspiration was a favourable symptom, I now say that it is not to be brought about by these means, or by hot stimulating substances; but rather by the relaxing powers of the warm bath, or pediluvium; or a yet more certain and durable method is, by such medicines, as shall restore tone to the system, and raise the excitement to the natural healthy point (15).

Before returning from this digression, I must take notice of a very fashionable remedy for the cure of this disease; I mean calomel; this is by almost every physician,

(13) *Note.* Robinson on Jail or Malignant Fevers.

(14) Pringle on the diseases of the Army.

(15) If the system is either above, or below a certain point of excitement, sleep cannot take place: If in a fit of grief the system is either above or below a certain point, tears cannot flow: Neither can a sweat arise under similar circumstances. In the first case, to produce sleep, would it not be ridiculous to tie the person in bed, and plaister up his eyes; and in the other instance, would it not be equally so, if we should attempt to produce tears by sticking needles, or throwing sand in his eyes? Not more so, than attempting to raise a sweat by the means commonly employed.

(at least as far as my acquaintance extends,) considered as a specific; It was first suggested by a Dr. Ogden of Long-Island, who published his discovery shortly after; but, as I have not had an opportunity of perusing his essay, I know not how he accounts for its favourable operation.

I am sorry to doubt the Doctor's experience, but I must say this much of his specific; that I have seen it given repeatedly, but never perceived the least benefit from it; neither do I believe it is possess of any specific virtues; or a medicine to be depended on in any dangerous case, without the assistance of others; and from its known evacuating powers, it may, and I am certain often does, prove highly injurious—Dr. Bard, of New-York, it is said, lays much stress upon its attenuating virtues; but I should be glad to know, what necessity we have here for such medicines.

But mercury is a universal stimulus, particularly to the glandular system; (16) upon this principle, it is a valuable remedy in the venereal disease, dropsy, epilepsy, and I think I have seen it do service in the typhus fever in the Pennsylvania Hospital: upon the same principle, it may, if given with caution, be of service in this species of the scarlet fever.

I cannot think it of any use as producing a salivation, for it would come in too late; as children, who are commonly the subjects of the disease, are not so easily affected in this way by mercury; and even if this could be produced, it is certain, that every preternatural evacuation be it ever so small, must be injurious.

But to give the medicine every chance, I have no objections to its being combined with the emetics, as it might

(16) Note. Cullen's Materia Medica,

at least be useful as a topical application to the ulcerated parts : and it may cautiously be given to answer other indications where it could do no harm ; but what I have principally in view in giving my opinion thus freely, is, not that it should be entirely rejected without further trial ; but, that it should not supersede the administration of other remedies (17).

The second general indication is to be effected by tonics or antiseptics, and stimulants; the chief of which are, Peruvian-bark, wine, mineral acids, opium, vol. alkali, and vitriolic ether.

After an emetic, it is the general practice to order a dose of calomel to be given every four or five hours ; but this medicine, as it is not to be depended on, should never interfere with our second indication.

Bark is a most valuable, and indispensable remedy ; whether it acts primarily upon the stomach and by sympathy on the whole system, or whether it is absorbed, it is a powerful tonic and antiseptic ; and a few drachms of it given in time, before the tone and excitability of the stomach are entirely destroyed by the ravages of the disease, will have more effect, than as many ounces given at a later period. There is no propriety in waiting for a remission of the fever and a moist skin ; but it is to be given immediately after the operation of the emetic or the next morning without any regard to this ; and the higher the fever, the more necessity is there for this excellent febrifuge ; as it abates the heat, diminishes the quickness, and increases the slowness and vigour of the pulse.

(17) Note " Where fashion leads, the language of reason seldom prevails. To swim with the stream, is considered by the majority of mankind as the easiest passage through life."

When an intense heat of the body is present, what I have just recommended may, and I have no doubt will appear to many, contrary to plain reason and sound philosophy; but to me it is certain, that this preternatural heat may arise from two opposite remote causes; one requiring tonics, and the other debilitating remedies; the truth of this may be easily seen after giving nitre in this species of the disease; for it never fails to increase the heat and restlessness; and if that is the fact, which no person of observation will deny; it is an unavoidable conclusion, that bark is in these cases, the most natural and effectual remedy: (18) This will not only apply to the scarlet fever, but to every febrile disease of that type.

Neither the infusion, decoction, or tincture of the bark are to be depended on; but let it be given in substance, in large quantities, and often repeated, both day and night, without any long intermission; and should it be rejected by the stomach, or the patient refuse to take it in sufficient quantity; let it not on this account be laid aside, but the extract is to be administered by injection in large doses, with the addition of wine and a few drops of laudanum:—Likewise cataplasms, composed of bark and camomile flowers boiled in vinegar, with the addition of a little camphor, may be applied to the throat, and other parts of the

(18) *Note* "The bark has a purgative effect on some constitutions, and is very apt to increase a diarrhæa when there is a previous tendency to it: in such cases it is proper to add the powder of Cascarilla, which generally answers all the purposes of an astringent, and is preferable to the Elect. e Scordio, or any other medicine of that class, because it operates with the bark in all its other intentions: If the Cascarilla should not succeed, as it is of the utmost importance to stop the evacuation, we must give small doses of ipecac. joined with the ext. ligni Campachensis; one or other of these remedies is generally efficacious; at least it is always right to try them before we have recourse to opiates, which should be the last resort."

Manning's Practise of Physic p. 247.

body, and should be renewed every four or five hours.—
The feet and legs should be bathed in a similar decoction,
five or six times a day; and cloths impregnated with the
same, may be applied round the legs and thighs.

Wine is to be given at the same time with the bark,
either combined, or in alternate doses: it removes the
depression of spirits, anxiety, heat, and restlessness of the
patient; renders the pulse less frequent and more firm;
supports the vis vitæ; promotes easy perspiration; and re-
sists putrefaction:—It should be of the best quality, and
given in large quantities; it is surprising to see how
much may be drank in this disease, without any signs of
ebriety; and if a sufficient quantity cannot be taken in-
ternally, as is often the case, it will be proper to bath
the whole external surface of the body with it, several
times during the day.

If there should be a tendency to a diarrhæa, Port wine
mulled with spices, as possessing an astringency, would
be most useful; but otherwise Madeira would be pre-
ferable.

Mineral acids are excellent tonics and antiseptics; the
vitriolic is most commonly used; the marine, howe-
ver, is highly recommended by Dr. Fordyce (18) and
others—they may both be given with advantage, either
with the bark and wine, or separately diluted with water.

Opium being a very valuable medicine in low fe-
vers, (19) may with the same intention, be given in this;

(18) Note. Fordyce on fevers.

(19) Wall on the use of opium in low fevers.

It removes irritation, and prevents the tendency to, or checks the present diarrhæa; and by raising the excitement to a certain point, produces a refreshing sleep; it raises the spirits which are commonly languid; it increases the force of the circulation which is weak and quick, and a more proper sudorific cannot be employed; whether it proves so by relaxing the spasm, or by raising the excitement of the system to a certain height or point, is a matter of very little consequence to me; all I wish to shew at present is, that it is a useful medicine in this species of the scarlet fever.

Volatile alkali may be used where a stimulus is wanted, particularly in the latter stage of the disease; when the vital powers are languid, and the excitability and excitement are greatly destroyed.

This medicine being the product of putrefaction, we are cautioned by the learned Dr. Huxham, against using it, as he thinks it will affect the fluids of the body, so as to dissolve and render them alkalescent; but I will venture to assert that there is no foundation for this; and that the medicine may be given with evident advantage, in almost every low fever, without any restriction on this account.

Vitriolic ether may likewise be used, as a diffusible stimulus and antispasmodic.

Whether blisters as a general remedy may ever be admitted, I am not able to determine; it is said, however, that they have been applied with benefit, to relieve the throat and head (20); for which intention they seem ve-

ry well adapted ; but, their use as a general stimulus may be obtained with more safety, by stimulating cataplasms ; though both in general I believe might be dispensed with : and the frequent instances of the former producing mortification, strangury, and other distressing symptoms ; together with the want of success attending their application, I think should have very great weight in deterring us from their use in any case.

To what extent cold air may be admitted, is not to a certainty ascertained ; it will however depend in a great measure on the state of the patient ; 62 deg. of heat will generally be sufficient, and when the temperature of the body is above 98 deg. we may apply cool air in proportion ; viz. in the ratio as the heat of the body is above 98 deg. we may diminish that of the air below 62 deg. but no guide is so certain as the patient's own feelings, and to them we must temperate the air if possible. (21).

Pure air is absolutely necessary : the room must therefore be properly ventilated ; the bed should be placed in the middle of the room, and without curtains ; the patient should not be confined to it, but should sit up as much as possible ; and when this is impracticable, the lying posture should be attended to ; as the most natural, which is upon one side, is the least debilitating ; the bed and body linen should be frequently changed ; no more persons should be admitted into the room than are necessary in attending on the sick, as they diminish the purity of the air ; branches of trees, or what is better, shrubs in a vegetating state may be placed in the room with advantage during the day,

(21) *Note.* Chemistry teaches us that evaporation is a powerful means of producing cold ; we may therefore have the patient's apartment sprinkled with water or vinegar for this purpose ; and keep the hands and feet of the patient moist with the same, by way of answering artificially the purpose of perspiration, which is a natural evaporation.

as they absorb the mephitic air, and emit in its place what is pure.

The air may likewise be rendered more pure, or at least agreeable, by the acid air or spirit of sea salt; which may easily be procured by the decomposition of common salt with the vitriolic acid; and also the steams of vinegar are very agreeable, antiseptic, and refreshing.

The food should be light, nourishing, and antiseptic; principally from the ferinaceous vegetables, as panado, sago, salep, &c. with Madeira or Port wine.—The summer fruits, such as apples roasted or boiled, peaches, oranges, cherries, currants, mulberries, &c, unless contraindicated, may be plentifully eaten.

The drink should be agreeable and antiseptic: water with plenty of wine, and acidulated with the mineral acids; and by way of change, good pure cyder: and they should be moderately cool, if more agreeable to the patient.

The general indications of cure in the typhoid species, are,

1st. After evacuating the stomach, as directed in the typhus species: to moderate the re-action of the system by proper remedies.

2d. To restore tone to the system.

In every case, or species of this disease, we are not to lose sight of the tendency which it has to terminate in putrefaction; we must therefore in fulfilling our first indication, proceed with caution and œconomy.

Bleeding is a remedy, the most powerful of any we are acquainted with, in diminishing the action of the system; but from what has been said it must be evident, that it is not adapted to the disposition of this disease; I cannot therefore approve of it in any case, unless there would be danger from its omission, of an inflammation of the brain, lungs, or other vital organs; or unless the arterial action appeared greater than the animal œconomy was able to withstand; in which cases, a judicious physician may venture to take a few ounces; but should be very careful how he repeats the operation.

My reasons for objecting to this evacuation are. 1st. Because the increased action for which it is prescribed, is but temporary and accidental. 2d. It reduces the system too suddenly, and consequently, does not allow sufficient time for the contagion to become insensible to it:—It is a law of the nervous system; “that by a continued application, it becomes insensible to an impression (22);” when this takes place with respect to the contagion, its specific mobility is destroyed; which is the reason why that of the small-pox, measles, scarlet-fever, &c. cannot produce the same disease twice in the same person; but should debility be induced, while the contagion is acting with its full force, the patient will be in danger of sinking under the disease; 4th. I do not believe the blood to be the seat of the disease; although it is affected in the same manner as the rest of the body. 5th. Even in cases which seem to require the evacuation, it seldom or never relieves; it must therefore in these cases increase the disease.

The remedies then, which are to be employed to answer this indication are; cold, neutral salts, vegetable acids, summer fruits, and cool drinks.

Cool air in this species of the disease may undoubtedly be applied with the greatest safety and advantage; some

are fearful of its suppressing the eruption, but I am confident there is no foundation for this.

Neutral salts are very great sedatives : nitre hath been known to lower the pulse immediately after it was administered (23) ; it may be given often, and in pretty large doses, unless it should increase the symptoms, and the addition of a small quantity of tart. emet. in some cases may not be amiss ; but the cathartic neutrals as Glaub. Epfom. Rochelle, &c. are to be used with great care, as their effects might be dangerous, and this intention may better be answered by a little manna, fenna, tamarinds, ripe fruits, &c.

Vegetable acids and summer fruits are very agreeable and refreshing ; they may be used with advantage as refrigerating antiseptics.

The drinks should not be in the least stimulating, but such as lemon or lime juice and water, apple-water, or simple spring-water ; and as for the temperature, let us be guided in a great measure by the desire of our patients.

In this species of the disease I consider Dr. Ogden's specific, upon the principle that I admitted it might be useful in the other, as highly improper, except as a local remedy to the ulcerated parts.

Blisters have little to do here, they may however be applied to the throat when considerably swelled and inflamed ; but are of no use as general remedies, and will be found in almost every case to increase the disease ; and perhaps a linament composed of vol. alk. oil and camphor might be substituted for them even as local remedies, with as much advantage, and without the pain and uneasiness unavoidably attending their use : But common cataplasms as local applications, cannot answer any good purpose, as they grow stiff and uneasy to the patient, particularly in warm

weather ; and in general, I believe will be found to do more harm than good.

These are the remedies to diminish the preternatural arterial action, which sometimes occurs in the beginning of the disease ; but for its radical cure, we must frequently have recourse to our second indication, which is to restore tone to the system ; to do this, we are not to wait for a sweat, or remission of the fever ; but as soon as the symptoms will admit, must lay aside the refrigerating, and fly immediately to the tonic, antiseptic, and stimulating plan ; neither are we to be dilatory and wait till the strength of the patient is exhausted ; but begin as early as possible ; always remembering that we had better be too soon than too late (24) ; in the former case, the effect will be of very little consequence, and but temporal ; as we may always desist if we find it necessary : but in the latter, it is too often eternal, as all the bark and wine in America would be ineffectual in restoring the excitement or tone after the excitability was destroyed.

After having found this indication to be proper ; the bark, wine, and remedies mentioned for cure of the typhus species of the disease, must be given with a liberal hand, and in nearly double quantities ; as we here have

(24) *Note.* " That inflammation of the throat, which ends in what they call a putrid sore throat, is singularly insidious : During the first days, it differs little in its appearance from the sthenic sore throat. The general symptoms are also similar ; the pulse scarce exceeds the measure of the sthenic pulse in its frequency and other characteristics ; but for some time the whole disease appears with gentleness and tranquillity excepting that a constant rejecting by spitting of a tough mucous matter is troublesome. At last when head is not made against it by means of the most powerful diffusible stimuli, a period arrives, when all the symptoms are precipitated into a bad state, when the pulse becomes very quick and remarkably small, when the strength over the whole system sinks ; and now it is not a moderate portion of diffusible stimulus, not before administered, that will stop the much lamented death of the greatest ornament * of human nature."

Brown's elements of medicine, ccxiii.

* Alluding to a lady who died in consequence of mal-treat-

direct debility superadding itself to indirect, to encounter.

But we must expect to find many cases of this disease, where neither bark or wine can be given with safety, and where the opposite plan will do harm: this is a difficult case; but the best thing I can recommend, is to do nothing, unless it is to keep the patient cool; the air pure; administer a little of the specific, if nothing forbids; and wait for a change of the symptoms, so as to determine what will be the proper plan of cure.

I have hitherto said nothing of gargles; they are very important remedies, and should never be neglected, but used as often as possible in both species of the disease: they cleanse the fauces; and dispose the sloughs to cast off, and the ulcers to heal; they should be more particularly used before the patient eats, drinks, or takes his medicines. Those children who are not capable of using gargles, should have them injected with a syringe; and the persons who attend, should frequently wash their mouths with a linen rag, made wet with diluted spirit of salt.

In the very beginning of the complaint, astringent gargles are very proper; such as a decoction of bark, solution of white vitriol, allum, &c. after the parts are ulcerated, we may use some of the following according to the state of the ulcers; viz. lime or lemon juice and water; brandy with a little loaf sugar; tincture of bark; expressed juice of black currants either alone or combined with ardent spirits or brandy; tincture of myrrh; mel egyptiacum: and there are a variety of others, but the spirit of salt, combined with honey or tinct. of roses, is recommended by Dr. Fordyce, as superior to any he ever tried.

When the ulcers appear of a gangrenous, or malignant nature; fixed air, as being powerfully antiseptic (25),

should be conveyed to the parts by means of a tube ; and the humid vapour of vinegar should be drawn into the mouth by the sick, as often as convenient.

Before I conclude this dissertation ; I shall briefly point out the causes of the fatality, or rather of the want of success in curing this disease : these are,

1st. The admission of bleeding.

2d. Trusting to inert medicines, such as diaphoretic antimony ; pulv. contray. comp. crocus metallorum ; vinum croceum, &c. &c.

3d. Prescribing nitre, to remove the heat and delirium in the typhus species of the disease, when it always increases both.

4th. Giving tart. emet. to produce a sweat in the same situation.

5th. Giving heating, stimulating substances to determine to the surface, when instead of this, they determine to the brain or other vital organs.

6th. Confining the patients to their bed.

7th. The indiscriminate use of blisters.

8th. Waiting till the third, fourth or fifth day, for a remission of the fever, or till the patient is dying, to administer the bark ; and during this time, trusting to the inert and dangerous medicines mentioned.

9th. Giving it in the trifling form of decoction, infusion, or tincture in so rapid, and dangerous a disease ; or omitting it entirely if disagreeable to the patient.

10th. Giving ardent spirits, brandy, or the physicians favourite of his own palate, instead of good old Madeira wine.

11th. Trusting to calomel to the exclusion of other remedies, implicitly believing in its specific virtues.

12th. Giving it with this idea in such doses, as to purge the patient to death.

