







OBSERVATIONS  
ON  
PHAGEDÆNA GANGRÆNOSA.

IN TWO PARTS.

I. THE HISTORY AND CURE OF THE DISEASE, DEDUCED FROM OBSERVATION AND EXPERIENCE, AND CONTAINING A SIMPLE AND EFFECTUAL METHOD OF TREATMENT.

II. AN INVESTIGATION INTO THE HISTORY OF THE DISEASE, AS IT IS TO BE FOUND IN THE WRITINGS OF VARIOUS ANCIENT AND MODERN AUTHORS.

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BY

H. HOME BLACKADDER,  
SURGEON.

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preceded by chronic inflammation, and great induration.

*Phagedæna Gangrænosa.*—

To these species of Phagedæna, others might, perhaps, with propriety be added; but as the farther prosecution of this part of the subject is foreign to the immediate purpose of these Observations, it is left until a more convenient opportunity present itself.

It is perhaps unnecessary to observe, that, in the preceding remarks on the different species of Phagedenic Ulcers, nothing in the nature of accurate definition has been attempted; the object being, rather to attract more attention to the subject, by pointing out how much something of the kind is wanted, and at the same time to exhibit the principles by which the author was guided, in attempting an improvement in the received nomenclature, so far as it respects one of this particular class of surgical diseases.

How far the author has succeeded in the execution of his task, must now be left to the candid and impartial decision of his readers. He cannot conclude, however, without acknowledging the obligations he is under to his highly valued friend, Dr. Theodore Gordon, Physician to the Forces. Neither that gentleman, it is true,

nor indeed any second person, has to answer for the many faults in the language, and, possibly, errors in the sentiments, that are contained in the following pages—for these the author is alone responsible ; but he is, nevertheless, deeply indebted to the kindness, both past and present, of his friend ; and he must therefore beg his permission to make this public testimony of the sincerity of his gratitude, and of the lively interest which he feels in his prosperity and welfare.

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## PART FIRST.

THE HISTORY AND CURE OF GANGRENOUS PHAGEDENA,  
DEDUCED FROM OBSERVATION AND EXPERIENCE, AND  
CONTAINING A SIMPLE AND EFFECTUAL METHOD OF  
TREATMENT.

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“ Morbos non eloquentia sed remediis curari.”

CELSUS.

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TO

**SIR JAMES M'GRIGOR, KNT.**

PHYSICIAN EXTRAORDINARY TO HIS ROYAL HIGHNESS THE PRINCE  
REGENT, DIRECTOR-GENERAL OF THE MEDICAL DEPARTMENT  
OF THE ARMY, FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS,  
AND OF THE ROYAL SOCIETY OF EDINBURGH, ETC. ETC.

**THE FOLLOWING OBSERVATIONS**

ARE

(BY PERMISSION)

**MOST RESPECTFULLY DEDICATED,**

BY HIS VERY GRATEFUL AND

HUMBLE SERVANT,

**H. HOME BLACKADDER,**

*Staff Assist. Surgeon.*



## P R E F A C E.

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**T**HAT the subject of the following observations is not one of considerable importance, is an opinion which the author is not prepared to expect from any one, whose information and experience necessarily infer respect and consideration. He is aware, indeed, that there exists, at present, no small inclination to place a high value, and to attach rather an exclusive importance, to some of the more daring parts of Operative Surgery ; but, while he is willing to allow, that such subjects are in themselves not without interest, he is still inclined to believe, that they are most fitly ranked with the monstrosities of nature, and that they are calculated to attract attention, rather from their singularity, than from any great or general advantages to be derived from them : The one shews what Nature can sometimes do of herself ; the other, what injuries she can put

up with from the hand of man ; and, doubtless, both are objects of laudable curiosity. But who would wish to see his art come to that pass, when only such credentials as contain a list of the number of carotid arteries, hip-joints, &c. he has operated upon, are considered valid for the reception of a surgeon into the confidence of the public? Would he not rather join one of our old and respectable Army Physicians in saying—"How to obviate and remove the most common causes of military" or civil "diseases, is, with me, a more momentous consideration, than to aim at setting off my own importance, by filling the reader's mind with matters of mere speculation, or to detain him with subjects which can come before him but very rarely."

Some, however, may be disposed to think, that as the disease, the history of which it is proposed to investigate, is, comparatively, but seldom to be met with, excepting in Army and Navy Hospitals, and there, principally, during a time of war, the subject is ill-timed, now that, as it is hoped, a permanent peace has been established. That it may be ill-timed in regard to the interests of an author, is allowed; but not so in regard to that of the subject. The season of war is a period of action—peace affords leisure for reflection; and, whatever may be the extent of our wishes,

there is but too little reason to hope, that mankind have as yet approached that second golden age, when the history of war shall be perused for the same purpose, and with equal reliance on the truth of its relations, as we now do those of the Arabian Tales. We ought, therefore, rather to prepare ourselves for the worst; and, profiting by a time of rest, endeavour, by means of past experience and reflection, to make ourselves better prepared to meet, and, if possible, to obviate the consequences that may be expected to result from a renewal of hostilities. For, on such occasions, it is generally found, that, amid the pressure of immediate duties, there is but little time left for other purposes. But it is necessary to observe, that the disease in question is not confined to Military or Naval Hospitals; it may be met with even in private practice; and in large Civil Hospitals, insulated cases at least are by no means an unfrequent occurrence, though, in such situations, it generally presents itself under a much milder form, than where circumstances are more favourable for its evolution.

The author is fully aware of his defects; and it is with much diffidence that he submits the following pages to the inspection of the public, being conscious of no claim to its attention on

the score of literary merit; yet he is, at the same time, well convinced, that the results of experience may prove useful, even though presented in a very homely garb. And where is professional experience to be had, or improvement to be made, if not in Military Hospitals? “C'est dans les Armées, c'est dans les Sieges que la Chirurgie triomphe; c'est-la que les effets et non pas les paroles font son éloge.”—DIONIS.

The author was first induced to collect his observations, on the subject of Gangrenous Phagedena, from a recommendation to that effect by Dr. Leonard Gillespie, Physician to the Fleet—a gentleman who is well known to be an original writer on that disease, and with whom he had the pleasure of becoming acquainted, on returning from the British army of the Peninsula, in the summer of 1814. With the exception of a few verbal alterations, and, in general, very obvious additions, he accordingly, at that time, prepared the *First Part* of these Observations, with the intention of having it inserted in a periodical publication. A circumstance, however, which it is not necessary to explain, withdrew his attention from the subject; and, till a comparatively short time ago, he has wanted either leisure, or opportunity, for again reverting to

it. As to any farther explanation, he believes he cannot do better, than adopt the language of a medical writer, on a like occasion :

“ No man publishes an opinion to the world, even on the most trivial occasion, without some view to himself, to others, or to both ; and custom has established an almost universal law, by which an author is bound, either to discover his real motives, or to devise some plausible and handsome excuse for his own boldness. The writer of the following sheets, without affecting any uncommon share of philanthropy, would not willingly have risked the favourable opinion of his friends, had he not been persuaded, that the practice he has recommended is founded on rational principles, and will not fail to be of some use to the distressed.”

Phagedæna, or Phagedenic Ulcer, is a term which has long been in use with writers on surgery, in treating of the history and cure of Ulcers ; and has been employed to designate those foul and irritable sores, which exhibit a constant disposition to spread or enlarge, and which, in their progress, are frequently marked by an evident loss of substance. By modern writers, its application has been more restricted ; being generally confined to those spreading ulcers, which are



not confined to any one texture, but which most commonly have their site in the integuments and cellular substance. On the other hand, that eating ulcer, which occurs only in parts having a glandular structure, such as the testicles, parotid glands, &c. has been strictly denominated cancer. Cancer, however, is perhaps as much allied to what has been called true Phagedena, as the different species of this latter disease are to each other; yet very little attention has been paid to their accurate discrimination, even though thus found to differ very widely, and in not a few important particulars. It is generally allowed, that the subject is in no small degree interesting, while, at the same time, very little has been done to remove the difficulties with which it is surrounded—*much still remains to be done*, being the general conclusion to almost every separate treatise on the subject.

A distinct classification, tending to establish an accurate diagnosis, must always be an object of importance, in attempting to elucidate the history and cure of diseases. Hence the comparative perspicuity which has been introduced into the science of Physic, notwithstanding the imperfections under which the most approved nosological arrangement is still allowed to labour. Surgery, however, has, in this respect,

very little to boast of; for even a tolerable nomenclature still continues to be a desideratum. This deficiency, which can only be satisfactorily accounted for, from the real or supposed difficulty attending the undertaking, is particularly felt, as it relates to the subject of Ulcers generally, and Phagedenic Ulcers in particular.

On this account, and without pretending to much nosological acumen, I would take the liberty of suggesting, with reference to the latter of these affections, some such arrangement as the following; hoping that it will be found, in some degree, calculated to facilitate an inquiry into the nature and cure of the different species of a disease, well meriting more attention than has yet been bestowed upon it.

**DIV. II. PHAGEDÆNA.**—That form of ulceration which is marked by a constant disposition to extend; and which, in its progress, is frequently attended by an evident loss of substance.

*Phagedæna Simplex.*—A foul, hollow, and irritable ulcer, produced and kept up by simple or mechanical irritation.

*Phagedæna Cahectica.*—An irritable, foul, and hollow ulcer, with irregular, ragged, and sometimes inverted edges, and an acrid, sa-

nious discharge—occurring on the lower extremities of individuals of depraved habits, or who have been long deprived of the necessaries and comforts of life.

*Phagedæna Venerea.*—A foul, not always irritable ulcer, sometimes convex, most frequently hollow, with raised edges, and surrounding induration—occurring most commonly on the parts of generation, and the mouth, subsequent to impure intercourse.

*Phagedæna Hydrargyrosa.*—A very irritable, and rapidly progressive ulcer, with reverted edges, and acrid, sanious discharge, supervening upon a previously existing sore, or commencing in the fauces, on the scalp, or extremities, after an excessive or imprudent use of mercury, particularly in cold, moist climates.

*Phagedæna Herpetica.*—An irregular, foul, irritable, and creeping ulcer, with sharp edges, and a viscid, sanious discharge, for the most part confined to the integuments, and particularly those of the face.

*Phagedæna Cancrosa?*—An extremely irritable, foul, and irregular ulcer, with an ichorous and very acrid discharge, occurring in parts having a glandular structure, and

OBSERVATIONS  
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PHAGEDÆNA GANGRÆNOSA.

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CHAP. I.

CIRCUMSTANCES CONNECTED WITH THE HISTORY AND  
CURE OF THE DISEASE.

**P**HAGEDÆNA GANGRÆNOSA, is the name by which I mean to designate that disease which is, in this country, usually denominated Hospital Gangrene, and which is familiarly known to the French surgeons, under the appellation of “la Gangrène humide des hopitaux.” It has also been taken notice of by different writers under various other names, such as the Putrid, Scorbutic, Contagious, Malignant, Gangrenous Ulcer, Hospital Sore, Pourriture d’Hôpital, &c.

The introduction of new names into the already too numerous catalogue of diseases, is seldom attended with much benefit; but if, as I believe, the affection which I now mean to consider, be a disease “sui generis”—if, while in

some particulars it bears a considerable resemblance to certain other diseases, yet in its nature and method of cure be essentially different—if, finally, the names by which it has been distinguished, be more calculated to confound several diseases together, than to point out an accurate line of distinction, and thereby rather to mislead the inexperienced practitioner than to assist his discrimination,—then, in such circumstances, the adoption of a new name is no less requisite than allowable, and I trust, that the one which I now take the liberty of proposing, will be found sufficiently correct for every useful purpose.

Gangrenous Phagedena is one of those diseases which, happily, seldom falls under the observation of civil practitioners; but, on the other hand, it is one of those which army and navy surgeons, during a time of active hostilities, are frequently called upon to resist with all the resources of their art. No disease requires more circumspection, and personal attention, on the part of the surgeon; and, when the circumstances in which it occurs—the occasional rapidity of its progress—the extent of its ravages—and fatal tendency are considered, it may justly be esteemed one of the most dreadful diseases to which mankind are subject.

One of the most common situations in which this disease discovers itself, is among the wounded, soon after a general engagement. The uncertainty which necessarily attends all great military operations, renders it frequently impossible to provide sufficient accommodation near the scene of action. Such hospitals as can be procured soon become crowded with patients; and it is often necessary to transport a part, or all the sick and wounded, to a considerable distance, for the purpose of procuring them the benefit of a more safe or

commodious situation ; but whether it be that the wounded have been immediately received into an hospital, or have been previously carried to a considerable distance from the field, in either case Gangrenous Phagedena is extremely apt to make its appearance, and to be disseminated with alarming rapidity.

When it has supervened upon a wound, its progress towards a fatal termination is, in some instances, extremely rapid. The discharge from the wound may, perhaps, be observed, for some days, to be less healthy, and the general appearance of the sore less favourable. At the evening visit, the inflammatory symptoms may be considerably increased, though not to such a degree as to excite any serious apprehensions ; yet, before morning, gangrene shall have taken place, exhibiting itself in dark-coloured patches in the immediate vicinity of the sore. In the course of the day, these gangrenous patches become more extensive—in a few hours the pulse sinks, and the sufferings of the unfortunate patient speedily come to a close.

If the progress of this disease be commonly less rapid, the frightful ravages which it not unfrequently commits on the human body, are such as to render even the death of the patient an object of desire, both to himself and to the most humane of his attendants. Among other cases of this kind which have come under my notice, there was one in which the half of the cranium was denuded, the bones having become black as charcoal, and the integuments detached posteriorly to the second cervical vertebra, and anteriorly to the middle of the zygomatic process of the temporal bone ; and this was originally a superficial wound of the scalp. In another case, the muscles, large arteries, and nerves of both thighs

were exposed and dissected—the integuments and cellular substance being entirely removed, with the exception of only a narrow stripe of the former, which remained on the outer side of the thighs. \*This was also originally a simple flesh wound. In other instances, the cavities of the knee, ankle, elbow, and wrist joints, were laid extensively open, and, in one unfortunate case, the integuments and cellular substance, on the anterior parts of the neck, were destroyed, exhibiting a horrid spectacle, the trachea being also wounded. These few instances, will be sufficient to give an idea of the extensive ravages which this disease is liable to commit; and, with regard to its fatality, that is but too well ascertained, by the numbers of brave and deserving men who have been untimely cut off by it, from the service of their country.

† So far as I have learned, Gangrenous Phagedena is one of those diseases which was but little attended to by the older writers on surgery. It is at least certain, that we have no very distinct account of it till a comparatively very late period. During the wars, however, in which Europe has been engaged, with but little intermission, for nearly half a century, and which have extended to all parts both of the Old and the New World, army and navy surgeons, particularly those of England and France, have had but too frequent opportunities of becoming acquainted with this disease. We find, accordingly, that during that period several writers have taken more or less notice of it; but, as I shall afterwards attempt to prove, their descriptions are either deficient or inaccurate, their opinions unsatisfactory, and their method of treatment generally inert, and but too unsuccessful.

During the late war in the Peninsula, and notwithstanding the indefatigable exertions of the Inspector-General of Hospitals, seconded by unremitting attention on the part of the medical officers in general, to every thing that had a tendency to promote the comfort, and restore the health of the sick and wounded, opportunities for observing this disease were unfortunately not wanting. I have learned from good authority, that few, if any, of the large hospital stations were, at one time or other, entirely exempted from it, and that in some of them its ravages were very extensive. It is obvious, however, that this ought not to be a matter of surprise; for there are many reasons for believing, that it is altogether impossible to prevent the occurrence of this disease, and when once introduced into a large surgical hospital, many circumstances combine to render it extremely difficult, if not impossible, to prevent its being more or less disseminated.

The first opportunity that I had of becoming acquainted with Gangrenous Phagedena, was at the general hospital which was formed at Passage, a small sea-port town of Guipuscoa, in the province of Biscay. It will not therefore, I trust, be considered superfluous, to give a short topographical account of that place, more particularly as I am not singular in the opinion, that the symptoms of diseases do in general, suffer more or less modification from the influence of external circumstances.

About two miles to the east of St. Sebastian, there is an inlet from the sea, the banks of which are partly occupied by the town of Passage. This inlet is surrounded with high hills; and from an entrance extremely narrow, and



overhung by high and perpendicular rocks, it extends inland to the distance of about three quarters of a mile, and terminates in a large natural basin, from which the rising grounds gradually recede. This basin, though now nearly choked up with mud, so as to be incapable of admitting even small transport vessels, was once a principal rendezvous for the Spanish navy. The canal, or that part which extends from the basin to the sea, can still contain several hundred vessels, secure from every accident, excepting from the effects of heavy swells in the Bay of Biscay; which, however, are very serious, as was repeatedly and severely felt by the English transports, and other vessels lying in the harbour.

With a few exceptions, the town is made up of old, narrow, and ill-constructed buildings, having generally three floors, but in miserable repair, and not a few in a state of dilapidation.

The long narrow street, or lane, of which it principally consists, had been originally cut out of the base of the hill, many of the houses having the lower half of the back wall rudely formed out of the natural rock, and in several places the street lies so low, as to be on a level with the sea at high water mark.

Before the fall of St. Sebastian, and when first occupied by the English army, the number of the inhabitants of Passage was stated to be from sixteen to eighteen hundred, principally Biscayans, with a small mixture of French and Spaniards from distant provinces, and of perhaps the very worst sort; living in the midst of poverty, but proud, even to a by-word—filthy beyond description in their persons and houses—depraved in their morals, and violent in their passions—

sunk in the grossest superstition, and commonly using a language uncouth, and but little understood,—they presented to the view of an Englishman, a picture of every thing miserable and degraded. The excessive use of intoxicating liquors, seemed to be the only vice to which they were not addicted; but it is almost impossible to conceive how society could have existed, had that additional excitement been given to passions already so violent and inflammable. \* It was a rare thing to see a man of an advanced age, though in almost every house might be found one or more women upwards of sixty years of age, and enjoying a good state of health. The children, notwithstanding extreme inattention to cleanliness, and a poor watery diet, were in general active and healthy, arriving early at the state of maturity, but always remaining rather below the middle stature. †

The destruction of St. Sebastian was the means of adding greatly to the population of Passage; and the great concourse of persons connected with the army, and others of various descriptions that soon followed, so completely filled up the town, that the cellars, stables, and even the arch-

\* Most people, it must be confessed, are more capable, or more willing, to remark the faults and vices of others than their own. When the Biscayans wished (which was not seldom) to use reproachful language to our countrymen, they never omitted the term "*drunken English*;" and it cannot be denied, that the frequent occurrence of that mischievous and most disgusting practice, gave but too just occasion for such a reproach.

† A common breakfast for a child of two years of age, consisted of a piece of dry bread, with a raw apple, or even a few raw and unripe beans, and a cup of vapid cyder. For dinner they had bread, with apples stewed in oil, or a few sodden pease, or a salted pilchard, with the same drink as at breakfast. When sickly, a small cup of chocolate, made of the consistence of thick cream, but without milk or sugar, was considered a sovereign and almost universal remedy.

ways, were, during the night, promiscuously occupied by men, boys, mules, and horses. Almost every house in the town was equally crowded; and in the evening, the floors of the apartments frequently exhibited a most unseemly mixture of the sexes, not less revolting to English ideas of delicacy, than the confined exhalations from their bodies, and the indescribable annoyance from vermin, were injurious to health, and destructive to every species of comfort. It was stated by good authority, that for some time the number of human beings crowded into this small town, amounted to upwards of seven thousand.

The climate of this part of Spain, owing to its northern exposure, proximity to the sea, and the mountainous nature of the country, is, during the winter months, extremely moist, cold, and changeable, and subject to frequent and violent storms. The winter season of 1813 was, as asserted by the inhabitants, more severe than usual.\* From the month of October to April following, it rained almost incessantly, and sometimes in such deluges, and accompanied with such violent gusts of wind, as threatened to carry every thing before it. The mountains were either covered with clouds, or, what was more common, were, with the subjacent country, enveloped in dense fog.

The thermometer was seldom observed to stand higher than 55° Fahrenheit, but still less frequently so low as 32°, the winds blowing generally in an east, or north-easterly

\* This they attributed to the presence of the English, the reputed authors of every evil, and whom they emphatically denominated “dogs;” a term which with them is synonymous with heretics, and, expressing very distinctly the opinion which they were led to form of such characters, points out one of the principal sources of their general dislike, or rather hatred and contempt, of our countrymen.

direction. Towards the end of December, and in the midst of cold rainy weather, with occasional showers of sleet, we were surprised by the occurrence of a violent thunder storm; and again, in the last week of January, a similar occurrence took place. On this last occasion, the storm commenced during a fall of snow, which had lasted nearly twenty-four hours; and it continued, with little intermission, for three days and nights, accompanied by a furious wind and torrents of rain.

In the midst of this dreary weather, the wind sometimes shifted suddenly to the west or south, producing a clear sky, with brilliant and hot sunshine; but, in the course of a few hours, the clouds began to descend from the mountains, the rain to fall, and the wind to blow, renewing a general melancholy aspect on the face of nature, which tended greatly to oppress the animal spirits, and requiring no small exertion to resist its influence. When the wind shifted to the north, and remained in that quarter from twenty-four to forty-eight hours, which occurred only three times in as many months, a cold, clear, and dry atmosphere, and a remarkable improvement in the state of patients affected with fever, were the consequence; but when it again changed to the east, relapses, and aggravation of the symptoms in those labouring under febrile diseases, were equally certain to follow.\*

What tended much to render this climate still more uncomfortable, was the want of the usual means for producing

\* A daily register of the weather, with occasional remarks on its apparent effects on diseases, and comprehending a period of several months, might have been here introduced; but brevity is an object which has been particularly kept in view, and it is presumed that the abridged account which has been given is all that is requisite on the present occasion.

an artificial increase of temperature, few houses in Spain being provided with a proper contrivance for heating the apartments, during the winter months. In respectable houses, this is commonly done, by placing burning charcoal in a large brass vessel, (the lower classes using coarse earthen plates for the same purpose,) which is set in the middle of the room; but as there is frequently no vent for carrying off the smoke and fumes, the windows and doors require to be kept open, to prevent the pernicious consequences which arise from inhaling the carbonic gas: Hence their apartments, in winter, never approach to what can be termed comfortable.

At Passage fuel was always scarce, and the wood extremely bad, being either green from the mountains, or pieces of wrecked vessels, recently picked up from the sea. Here, however, even the most respectable inhabitants, were not much accustomed to the use of stoves or fires in their rooms, being usually satisfied with a few red embers in the kitchen, around which, in the evening, the whole family enjoy their chocolate, roasted garlick, or boiled chesnuts and vapid cyder, with great seeming contentment.

If I have given a true, though brief description of the situation, climate, and circumstances of the inhabitants of this place; and if to this it be added, that there were, during the greater part of the autumn and winter seasons, three British hospitals, with seldom a vacant bed; that the inlet, or canal, was generally crowded with vessels, so as to form a complete forest of masts; and with all this, that there occurred no particular mortality, that there was even no epidemic disease, nor above three casts of fever among the

inhabitants that bore any marks of a malignant character : \* If all this be correct, then it must follow, either that Passage is not so unhealthy a place as some were disposed to believe, or, what is equally probable, that the system of medical police which was adopted, was of such a nature, as to overcome all the difficulties that were opposed to it. Much certainly depended upon the principal medical officer, Mr. Higgins, Deputy-inspector of Hospitals; and, so far as I may presume to form an opinion, no officer was more fitted for the duties of the station. By a system of unremitting activity, close attention, and rigid impartiality, united to all that constitutes the gentleman and officer, he not only exhibited an excellent pattern for imitation to the junior officers, but excited a general interest, and diffused a spirit of emulation, in the discharge of their several duties, not less conducive to the good of the service than to the immediate and future interest of individuals. Passage, however, notwithstanding some defects as a general hospital station, commanded several important advantages. In the immediate rear of the army, and affording the accommodation of a large, well protected, and, in general, safe harbour, within a few days sail of the mother country, it soon became the general store-house of the army, and the point at which all reinforcements were landed. It was also found to be the most convenient place,

\* The prevailing diseases among the inhabitants were inflammatory affections of the thoracic and abdominal viscera. The women were very liable to tooth-ache, particularly during the periodical irritation of the system. By far the greater proportion of deaths were of persons advanced in life, and the common cause assigned, was grief on account of the melancholy but inevitable effects of war.

from whence to send such of the sick and wounded as were likely to require a considerable time before they could be fit for active service, and for whom accommodation had been provided at Bilboa, and Santander, while those who were become totally unfit were embarked for England.

From what has been stated, it must be obvious, of how much advantage it was to the sick, to have almost every thing necessary for their comfort so much at command, or so easily procured from England, and elsewhere. Even live oxen were shipped over in excellent condition, and in great abundance: Medicines, surgical and hospital materials, could not, of course, be long wanting. Indeed, after witnessing the almost incessant disembarkation of troops and horses, the landing of provisions and warlike stores of all descriptions, and observing, at the same time, the ease and expedition with which every thing was accomplished, it was not surprising to hear even a Frenchman express his astonishment "how any thing could resist us, seeing that, by our ships, we carried all England along with us wherever we went." The erection of the portable wooden hospitals, which are capable of affording so comfortable accommodation, in otherwise difficult circumstances, attracted particular attention; yet, such is the nature of Spanish gratitude, that a high premium was demanded, not only for the buildings in the town which were occupied as hospitals, but even for the small spot of waste ground which was occupied, during the winter months, by these portable hospitals! \*

\* How striking the contrast which has since been exhibited by the Flemish after the battle of Waterloo! Columns may moulder, and bridges tumble into ruins, but the exalted philanthropy displayed on that memorable occasion by the inhabitants of Brussels, has erected for itself a monument—"monumentum perennius ære"—lasting while suffering continues to be the lot, and compassion the solace of humanity.

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PREVIOUS to giving a particular description of Gangrenous Phagedena, it may not be improper to state, somewhat more minutely, the circumstances under which it first met my observation, and which led to the particular mode of treatment that was adopted.

In November 1813, I was appointed Resident Officer of Division A. Hospital, which was situated near the northern extremity of Passage, and on the margin of the inlet. This building consisted of two contiguous houses, one of which had formerly been chiefly occupied as a marine store-house, but more lately used as a barrack by the French. As left by them, it had been found in a state of extreme filthiness; but was speedily cleared out, white washed, and repaired, so as to render it as comfortable as the nature of the building would admit. The ground floor was occupied as a store-house for the arms and necessaries of the patients; the three remaining floors being converted into wards, capable of containing altogether about two hundred patients. From the site and nature of this building, it became an object of no small difficulty and importance to guard against excessive ventilation, during the winter months. There were no glazed windows, their place being supplied by folding-doors; hence darkness, or too great exposure to the external air, became almost inevitable, and could only be partially remedied by substituting thin canvass, stretched on frames, in place of the doors.

For a short time previous to the period referred to above,\*

\* Some may be disposed to think, that a number of particulars have been detailed with unnecessary minuteness. There were reasons, however, which



I had charge of two wards in this hospital, into one of which three patients were admitted, with simple flesh wounds of the lower extremities. They were young, healthy, stout looking men, and were able to walk about without experiencing much inconvenience. I remarked, however, on removing the dressings from their wounds, that the nature of the discharge, and the general appearance of the sores, were somewhat different from any thing I had before witnessed; but attributing this appearance to the effects of irritation, probably caused by irregularities, which are not easily prevented when patients in their situation are transferred from one hospital station to another, I contented myself with applying such dressings, † as left the sores as much as possible to the operations of nature; and, separating them from the rest of the patients, for more particular observation, I administered an opening medicine, ordered an abstemious diet, and enjoined as much rest and quietness as possible. In the course of twenty-four hours, appearances had changed so much for the worse, as to induce me to lose no time in bringing their cases under the particular consideration of the senior officer of the hospital, Mr. Alexander Baxter, Surgeon to the Forces, now Deputy-Inspector of Hospitals—a gentleman, for whose obliging attentions, privately as a friend, and publicly as superior officer, I cannot omit taking this opportunity of expressing my most grateful acknowledgements. Upon laying these cases before Mr. Baxter, I soon learned that I had to attend to a ~~disorder~~ with

originally induced the author to make a plain, unvarnished, but *particular statement of facts*; and these reasons are *not yet* wholly done away with.

† Fine lint, wetted with cold water.

which I was practically, and in a great measure theoretically, ignorant. I had also the mortification to learn, that it had made extensive ravages in other hospitals; that medical officers were much divided in opinion, both with regard to its nature and method of treatment; that very indifferent success had attended any kind of treatment which had been hitherto put in practice; and, finally, that the most active means, and the strictest attention, were necessary to prevent its farther propagation. I also received particular instructions relative to the treatment of these patients. As an external application, emollient cataplasms were disapproved of, and a lotion, composed of the Nitrate of Potass, dissolved in vinegar, was recommended to be kept constantly applied to the sores. This application, which was continued for three days, occasioned violent and incessant pain, while the disease was in no degree arrested in its progress. In one of the cases, a musket-ball had passed through the lower portion of the gastrocnemii muscles of the right leg, lacerating their fibres. At this period, one-half of the external, and part of the internal muscle, had become detached, and hanging out from the upper part of the sore, in the form of a large putrid mass of flesh, were removed by the knife, without occasioning any uneasiness to the patient. But, owing to the removal of these patients, at this time, to another hospital, I had no longer an opportunity of watching the progress of their complaint. Every article of bedding, clothes, &c. which they had used, was carefully removed from the ward, and by this, and other precautionary means, the disease was effectually rooted out from the hospital.

About three weeks after these patients were sent from the hospital, all those who remained, and were in a state to

be removed with safety, were sent to Santander, for the purpose of making room for a number of men, most of whom had been recently and severely wounded. After the admission of these new patients, it was discovered that four of them were affected with Gangrenous Phagedena; and, according to their own account, their wounds had been so affected, from six to ten days previous to their admission into this hospital. From these four cases, but particularly from one of them, the disease was communicated, from one patient to another, until it extended to every ward in the hospital; and such was the rapidity of its progress, that in less than two weeks, a great proportion of the open sores had become affected with it.

Notwithstanding my having been previously accustomed, for a number of years, to the common effects of diseases and accidents to be met with in private practice, and though conversant with the accumulation of diseases to be met with in hospitals, such was the scene which was now exhibited, that no language can express the melancholy horror which it produced; nor is it easy to conceive any combination of human sufferings, more calculated to excite those feelings of compassion for our fellow creatures in distress, which are so wisely implanted in the human breast. On this occasion, every exertion was certainly made to alleviate the distress of the unfortunate sufferers—every known means, every thing that was likely to prove beneficial, was had recourse to—but in vain; still the disease made progress, bidding defiance to every exertion of the medical officers, and almost every variety of treatment. In some cases it was attacked through the constitution, and in other cases by topical applications. Of the latter kind, cooling and antiseptic lotions, resinous

liniments, fomentations, emollient, fermenting, and antiseptic cataplasms, tinctures, and dry powders of almost every description, were had recourse to, but with equal want of success. Every thing, indeed, at this period, seemed calculated to impress the idea, that this disease was one of the "*opprobria medicinæ*," and that its cure must, in a great measure, be left to the operations of nature. This is a sentiment, however, which certainly ought never to be encouraged, but least of all in circumstances similar to those now referred to.\*—The human mind, indeed, cannot always withstand a continued pressure of anxiety, perplexity, and disappointment; and, in such cases as the present, it cannot be wondered at, if the despair which so frequently seizes upon the patients, should be in some degree communicated to their attendants, seeing that they were so little able to afford any adequate assistance. It is in such circumstances, that it becomes of importance for the surgeon to invigorate his exertions, by a recollection of the general principle, that, in the art of healing, nothing is impossible; for we not unfrequently find, that, when apparently in the most desperate circumstances, even a trifling accident will lead to the most fortunate and unexpected events.

Under these impressions, and seeing that nothing which had hitherto been tried proved effectual in arresting, or even greatly mitigating, this dreadful disease, it appeared, that the only way of arriving at a more effectual method of treatment, would be still more carefully and minutely, to

\* Can a surgeon, in any case, be justified in giving over a patient to his fate, merely because he has what is called gone the round of the usual and authorised remedies without relief? Some there may be who may consider such a question superfluous; and it were fortunate if every one could subscribe to the same opinion.

watch the progress of the complaint through its different stages, and thereby endeavour to acquire a more intimate knowledge of its character.

There was at this time abundant opportunity for entering upon such an inquiry, and certainly, had a heart-felt willingness been all that was requisite, that one quality could not be wanting, in any one connected with the hospital. Along with the usual duties of a resident officer, I had charge of a ward, containing from thirty to forty patients; and though, in this instance, there was no accommodation within the walls of the hospital for the resident officer, it was still necessary to be almost constantly present with the sick. Of the patients, whom it was my duty to dress and otherwise attend, there were at first only two-thirds affected with Gangrenous Phagedena; ultimately, however, they were all of that description, the wards that were then placed under my charge being appropriated for patients labouring under that disease. Even in that comparatively small number, there was an opportunity of seeing the disease in all its stages, and also of watching its commencement in those not as yet affected by it; while, at the same time, all the other cases that were in the hospital lay equally open for observation.\*

It was in the possession of such an opportunity, that I endeavoured to recommence my acquaintance with this disease; and, after closely and anxiously watching its phenomena, and the effects of the different remedies that were employed, I at length became satisfied of the accuracy of the following particulars:—

\* It is perhaps necessary to state, that this hospital was of that description which is termed a Transfer Hospital, and that though it could at no time contain three hundred patients, there were, in the course of the autumn and winter, nearly as many thousands admitted and discharged from it.

1. That the morbid action could almost always be detected in the wound, or sore, previous to the occurrence of any constitutional affection.

2. That the constitution did not, in several instances, become affected, until some considerable time after the disease had manifested itself in the sore.

3. That when the disease was situated on the inferior extremities, the lymphatic vessels, and glands in the groin, were observed to be in a state of irritation, giving pain on pressure, and were sometimes enlarged before the constitution shewed evident marks of derangement.

4. That the constitutional affection, though sometimes irregular, was in many cases contemporary with the second or inflammatory stage.

5. That all parts of the body were equally liable to become affected with this disease.

6. That when a patient had more than one wound, or sore, it frequently happened that the disease was confined to one of the sores, while the other remained perfectly healthy, and that even when they were at no great distance from each other.

Relying upon the correctness of these observations, it became an object of importance, to have an opportunity of bringing them to the test of experience, by attempting that method of cure to which they clearly pointed. I accordingly took an early opportunity of stating, generally, my views upon the subject to the senior officer, and, as on other occasions, I had the pleasure of being listened to with the most obliging attention. I was informed, however, that it was the general opinion among medical officers in the army, that Gangrenous Phagedena was a *constitutional disease*. Upon making farther inquiry, I found that the method of

cure, modified by the various theories which different individuals had adopted, was particularly directed to the diseased action of the system. While one employed very copious venesection, another poured in as much bark and wine as the stomach of the patient could retain; a third considered opium as the principal medicine to be trusted to; while others, more cautious, trusted in a great measure to nature, with the occasional assistance of emetics, laxatives, diaphoretics, and anodynes.

Notwithstanding the discouraging impression, which this information was calculated to produce, it was not sufficient to remove the conviction which I felt in the accuracy of the preceding observations; and I could not avoid taking another opportunity of stating it as my opinion, that, if any thing could be found effectually to destroy the diseased action in the sore, it would also be found to effect the greater part of a cure; and that, were it consistent with the present ideas of medical officers in the army, to treat this disease agreeably to the aphorism of Hippocrates, "that diseases which medicine will not cure, must be referred to the knife, and if that prove unsuccessful, *recourse must be had to cauterly*"—I did not entertain a doubt, but that such a practice would be followed by the most happy events. Since the days of Wiseman, the cauterly has been held by British surgeons in general disrepute. Every thing is liable to be abused, and in this way, many useful remedies have been condemned and laid aside, while their prudent and cautious employment, might doubtless have often been attended, in cases otherwise hopeless, with the very best effects. The employment of the cauterly was, on this occasion, considered inexpedient; but I was given to understand, that I was at liberty to use any remedy, that was not inconsistent with the

general practice and opinions of British military surgeons. Under these circumstances, the Oxide of Arsenic occurred to me as an article, that was probably possessed of powers sufficiently active for effecting the purpose intended, and of supplying the place of a more powerful, though less gentle remedy. This preparation of arsenic, from its being seldom or never asked for, was unfortunately not to be found in the Apothecary's stores, and, upon making inquiry at the civil practitioner of the town, I was informed, that it could not be had nearer than Tolosa; and that even from thence, owing to certain civil regulations, there would be considerable difficulty, and great delay, in procuring it.

Fowler's solution of arsenic, is a medicine which is furnished to hospitals on foreign stations, on account of its well known good effects, when used internally in cases of inveterate intermittent fever. Its employment as an external application, was certainly never intended; yet, if too strong for that purpose, it could readily be diluted; and if found too weak, it might be rendered stronger by evaporation, and thereby made to supply the want of what may be considered a more appropriate preparation.

Having accordingly resolved upon making trial of this solution, I selected two severe cases, in the inflammatory stage of the disease. One of them had originally received a superficial gun-shot wound, on the inner side of the knee-joint, but at this period the sore was upwards of three inches in diameter, highly inflamed, the whole knee being swelled, and the pain excruciating, so as to make the patient cry out incessantly. The other had been wounded through the leg, and thigh, but in every other respect, the state of his sores was similar to that of the former.

• Diluting the arsenical solution with an equal part of wa-



ter, I commenced its use by applying it to the whole surface of the sores, by means of pieces of fine lint, having previously carefully removed the glutinous discharge. Each of the patients were then provided with a small gajlipot, containing a quantity of the diluted solution, and pieces of fine lint cut into the shape, but a little larger than the sores; and they were ordered to keep their sores constantly moist with the solution, and to renew the lint, at least once every two hours. As this application occasioned a considerable degree of smarting when first applied, they were each provided with an opiate pill, but accompanied with a strong recommendation not to use it, if it could possibly be avoided, and, by way of encouragement, they were promised a certain and speedy cure. On visiting my patients next morning, it was impossible not to be struck with the change in the expression of their countenances—from that of acute pain, mingled with despair, to that of ease and gratulation. Upon inquiring whether their instructions had been strictly adhered to, I was answered, “Yes; thank God, we feel now as if in a better world;”—and, upon examining their sores, I found them completely dried up, and covered with a dark, semitransparent, and insensible slough, of a somewhat horny consistence. The smarting which was occasioned by the solution when first applied, had ceased, without their having had recourse to the opiate pills; and the pain, with which they had been more or less tormented, from the commencement of the disease, had also been removed, soon after the application of the solution.

It certainly was not without a feeling of particular satisfaction, that I now requested an inspection of these cases, by the senior officer. The farther progress of the disease was evidently, and completely arrested; and by suitable topical

applications (to be afterwards particularized) for assisting nature in throwing off the slough, and cicatrizing the sore, they were in no great length of time, completely cured, without having used any internal medicine, farther than what might be occasionally required to prevent constipation—and without any attention having been paid to the constitutional affection, which indeed disappeared of itself, almost immediately after the destruction of the morbid action in the sores. It is perhaps worthy of notice, that so great was the relief experienced from the use of this application, that some of the other patients had secretly applied it to their sores, before the morning visit, which, even at that season, was at an early hour.

At present it is only necessary to add, that from this period, I never saw an instance, in which this method of cure failed of success, when the remedy was timely and properly employed; that is, before the disease had made such progress, as to preclude all rational hope of success from that or any other mode of treatment. It must however be remarked, that in what has now been stated, it is not intended to include that particular instance of the disease, when it seizes upon a stump, more especially if recently amputated. This is a case attended with much difficulty, and danger, and which will be noticed more particularly afterwards.

From this period, the solution of arsenic continued to be employed with uniform success. Patients whose sores had resisted, as was said, almost every other treatment, were admitted from other hospitals and cured by it; and it was also, as I was informed, ultimately introduced into other hospitals, and proved equally successful.

In the month of April 1814, the senior officer of the hospital was relieved by Mr. Swallow, Surgeon to the Forces—a gentleman, whose polite and unassuming manners, equally secured him the particular esteem of his brother officers, as his assiduous attention to the duties of his profession, and humane regard for the feelings of his patients, have endeared his memory to the sick and wounded soldier.

A short time after Mr. Swallow's appointment, a severe attack of fever prevented my farther attendance at the hospital, and from the fatal effects of which, I was only rescued by his kind and unremitting attention—a circumstance not easily forgot, and never to be remembered but with the most lively sentiments of gratitude. Mr. Swallow was also among the first to appreciate the importance of the new method of treating Gangrenous Phagœdena; and, on after occasions, to refer the credit of the cure, and what merit may be attached to it, to the individual with whom it originated.

It has recently afforded no small gratification, to learn, that the external application of the solution of arsenic was again had recourse to, after the battle of Waterloo, in the British hospitals at Antwerp. These hospitals were under the superintendance of Mr. Higgins, Deputy-inspector of Hospitals, who, as formerly mentioned, was principal medical officer at Passage, and who was, of course, well acquainted with the success attending the method of treatment which was there adopted.

Being stationed at Brussels, previous to, and after that memorable engagement, I had not myself an opportunity of being witness to the effects of this remedy, as used at Antwerp. Some information, however, may be had on

this subject, in a Thesis lately printed at Leyden, by Dr. O'Connel, Surgeon to the Forces, who it appears had been stationed at Antwerp, and who was also for some time on duty at the hospital station at Passage, in Biscay, in the autumn of 1813.

Having mentioned the occurrence of Gangrenous Phagedena in the hospitals at Antwerp, he makes the following statement relative to the method of cure.

“ Methodus, qua in curando hoc morbo usus sum, hæc fuit: solutionem arsenici Fowleri cum aqua pura partibus æqualibus in linteo ad Phagedenam applicavi, donec secretio exsiccata esset, et eschara dura et nigri coloris formaretur; tum pro hac solutione emplastrum factum ex unguento resinæ flavæ et oleo tercibinthinæ partibus æqualibus, idque calidum adhibui, donec eschara abiisset. Jam ulcus videbatur suppurans optime et emittens pus densum, qualitatis sanæ, coloris flavi; quod cum amotum esset granulationes sanæ rubicundi coloris apparebunt. Hujus emplastrum usus continuatus est, donec legulæ emplastrum adhæsivi, vel saponis necessariae viderentur ad curationem finicndum. Diligentissime curabantur nonnaturalia et suppeditabantur nutrementa generosa; sed remedia interna non data sunt ad ulcus sanandum. Hoc igitur modo quinquaginta septem homines a Phagedena liberati et ad sanitatem perducti sunt.”  
—*Dessert. Med. Inaug. de Phagedena, &c.* page 4.

It thereby appears, that the method of cure which was introduced at Passage, had, on this occasion, been strictly followed, and crowned with equal success. Such a result was certainly calculated to afford particular satisfaction, and would, to me, have been a source of unmingled pleasure, had circumstances rendered it unnecessary to add any thing

farther to these remarks. There are certain feelings, however, implanted in human nature, which, though frequently requiring to be curbed, are nevertheless occasionally to be indulged by every one who entertains a becoming sense of self-respect; and it is these feelings which now induce me to make the following additional extract from the Thesis referred to. At page 6. is the following sentence.

“ Non silentio prætermittendum puto cognitionem curationis supra dictæ me debere amico æstimando Higgins, Inspectori exercitus Magnæ Britanniæ, et Johannis Swallow Chirurgo exercitus Magnæ Britanniæ, qui mense Februarii 1813 in oppido Hispaniæ Passages, viderunt hunc morbum et simul hoc remedium ab Inspectoro exercitus Britannici Baxter applicatum.”

“ Ingenui pudoris est fieri per quos profeceris !”

How far this account may be consistent, with *all that was known* relative to the first employment of this remedy, is a question upon which I do not feel at present disposed to enter. The tendency, however, of such a statement, is abundantly evident; and therefore “ non silentio prætermittendum.” But as most of the circumstances are already well known to many officers in the army, as well as to others of the profession, and as the gentleman, upon whom this unasked honour is attempted to be bestowed, would be the last to receive that which in right belonged to another; and moreover, as he is not under the necessity of depending upon *side means* for the support of his professional merit, it does not appear necessary to dwell any longer on this most disagreeable part of the subject:

## CHAP. II.

## THE HISTORY AND CURE OF THE DISEASE.

**G**ANGRENOUS PHAGEDENA, equally perhaps with the Plague itself, requires, on its first appearance in an hospital, the most careful and unremitting attention, not less with a view to the early application of the means of cure, than to the speedy adoption of such regulations as are considered the most effectual for preventing its dissemination.

It is well known, that many causes are productive of unfavourable changes in the appearance of wounds and sores; but as it is always best to err on the safe side, so in this instance, where there is any, even the smallest, reason to dread the occurrence of this disease, too early or too many precautions cannot be taken, with the view of securing its speedy detection; and there is this advantage, that, in a great proportion of cases, its presence may be detected in the sore almost at its first accession, and, by suitable remedies, it may, in the course of a few hours, be completely removed, and its propagation thereby effectually prevented.\*

\* This may, perhaps, at first sight appear a contradiction of what has been stated at page 5. The circumstances there referred to have no immediate connection with the disease itself; and cannot fail to be understood by those who are acquainted with the difficulties with which military surgeons have frequently to contend, and the excessive duties which are occasionally, and of necessity, imposed upon them. There doubtless would be less gas-

But, on the other hand, if it be neglected, or its presence overlooked, the consequences may be truly deplorable.

The symptoms which characterize Gangrenous Phagedena, have been distinguished into those of a local, and those of a general or constitutional nature. From numerous, and, I trust, careful observations, I have been led to believe, that the former are always the primary, and the latter the secondary symptoms. I shall therefore, in their enumeration, follow that which I have always remarked to be the natural order of their succession.

The local symptoms, though in every instance they possess a certain general character which is common to all, are nevertheless varied by circumstances depending upon—The nature of the previous injury—the texture of the part affected—the climate—the season of the year—and the constitution of the patient.

The general and peculiar expression of the sore, and the odour which is emitted from it, do not, I believe, admit of a distinct, or very intelligible description; yet they are such as cannot, in almost any case, be mistaken by those who have had sufficient opportunity, and who have been in the habit of paying attention to them. But before the disease has become fully formed, the sore has not acquired the particular appearance referred to, and the matter affording the odour may be so diffused, as readily to escape detection; the surface from which it proceeds, being as yet so very limited.

When the morbid matter, which produces this disease, has been applied to some part of the surface of the body

extending and misrepresentation, if certain civil practitioners were experimentally acquainted with these hardships and difficulties.

from which the cuticle has been removed, as by a blister, the first morbid appearance which presents itself, is that of one or more small vesicles, which are filled with a fluid, in some instances having a watery appearance, while in others it resembles a bloody serum, being more or less of a livid, or reddish brown colour. The situation of the vesicle is generally at the edge of the sore. Its size is not unfrequently that of a split garden pea; but may very readily be overlooked by those who are but little acquainted with the disease, or when its presence has not been suspected. It is also very easily ruptured, being covered by a very thin pellicle; and, when this has occurred, detection becomes difficult, until some farther progress is made, and a new train of appearances are exhibited. When the vesicle is filled with a watery fluid, and has not been ruptured, it assumes, in the course of one or two days, the appearance of a greyish-white, or ash-coloured slough; but when it has contained a dark-coloured fluid, or has been ruptured, it puts on the appearance of a thin coagulum of blood, of a dirty brownish black colour, such as blood acquires when entering into a state of putrefaction.

During the formation of the vesicle, the patient is generally sensible of a change in the usual sensation of the sore, which he cannot well describe, but which is accompanied by an occasional painful sensation, resembling the stinging of a gnat.

After it has assumed the form of a slough, it begins to extend, and spreads with more or less rapidity, until it occupies the whole surface of the original sore;—and, when left to itself, (which, however, seldom happens to be the case,)



there is little or no discharge, but the slough acquires daily a greater degree of thickness.

When the formation of the slough has been interrupted, the stinging sensation becomes more frequent, and acute: phagedenic ulceration quickly commences; and such is frequently the rapidity of its progress, that even in the course of a few hours, a very considerable excavation will be formed, while the parts in its immediate vicinity retain their usual healthy appearance. On examining this cavity, its edges appear well defined, and it is found to be filled with a thick glutinous matter, adhering strongly to the parts from which it is secreted. When this matter is removed, the secreting surface presents itself of a fine granular texture, which in almost all instances is possessed of extreme sensibility, and is very apt to bleed, when the operation of cleaning is not performed with great delicacy. At each dressing, the circumference of the cavity appears sensibly enlarged; and if there are more than one, they generally run into each other. The progress of the disease, however, is very different, in different individuals, being in some instances much quicker than in others; but it never ceases advancing, until it occupy the whole surface of the original sore. The stinging pain becomes gradually more of a darting or lancinating nature; the lymphatic vessels are, in many cases, irritated,\* the discharge becomes more copious, its colour varying from a dirty yellowish-white, to a mixture of yellow,

\* There are two periods at which the lymphatic vessels and glands are apt to become affected, viz. from the fourth to the sixth day after the morbid matter has had access to the sore; and again upon the supervention of what may be termed the secondary inflammation.

black, and brown, depending upon the quantity of effused blood that is mixed with it.

The soft parts in the immediate vicinity of the sore become daily more painful, tumified, and indurated; and, in a great number of cases, particularly in those of plethoric and irritable habits, an attack of acute inflammation speedily supervenes, and is accompanied by a great increase of pain, the sensation being described to be such as if the sore were burning. The period at which this inflammation begins to subside, is by no means regular. Sometimes it subsides in the course of two days, and sometimes it continues upwards of five; depending very much on the constitution and previous habits of the patient, as well as the treatment that has been adopted. • During its progress, the thick, putrid-looking, and frequently spongy slough, which is formed on the sore, becomes more and more moist, and of a pulpy consistence. In the course of a few days, a very offensive matter begins to be discharged at its edges. The slough then begins to separate; by and by it is thrown off, but only to prepare the way for an extension of the disease, by a continued process of ulceration, and by a recurrence of the last-mentioned symptoms.

Such are the local symptoms of this disease, when it attacks a part from which the cuticle has been removed, as by a blister. When the disease supervenes upon an old sore, where a considerable depth of new flesh has been formed, it is seldom detected until it has assumed the form of a small dark-coloured spot on some part of the surface, and generally; at the edge of the sore, as has been noticed in the foregoing variety. But, by careful observation, it has been ascertained, in several instances, that it commenced, as

in the former instance, in the form of a vesicle. The thin pellicle, covering one or more points of granulation, becoming distended with a fluid of a livid or brownish-black colour;—when this vesicle is ruptured, it speedily assumes the appearance of the dark-coloured spot, which has been stated as the form under which the presence of the disease is most commonly detected. Is it not therefore probable, that in this, as in the former instance, it always commences in the form of a vesicle? The future progress of the disease is also nearly the same in both cases; but I have always observed, that when there had been a considerable bed of new flesh formed, the phagedenic ulceration made comparatively a very slow progress, and assumed more the appearance of Mercurial Phagedœna, until the greater part of the new flesh had been destroyed, or until the morbid matter had found immediate access to what may be termed the natural texture of the part affected. This has been particularly observable when the disease had attacked a stump nearly cicatrized, after having been long in a state of suppurative inflammation; and also in cases of old ulcers, succeeding to large abscesses, where a considerable extent of new flesh had been formed. But when the morbid matter has found access to the proper texture of the part, the progress of the disease becomes quickly accelerated—inflammation, more or less acute, supervenes—a large slough is formed—and the morbid action assumes that character which is common to all forms of the disease.

When the morbid matter has been inserted under the cuticle by puncture, superficial incision, or scratch, the progress of the disease, in its early stages, can be more accurately observed than in any other instance; but, as the

symptoms which are exhibited during the first nine or ten days after Vaccine Inoculation has been performed are so well known, and have been so frequently described, all that seems necessary on the present occasion, is, to observe, that, with the following exceptions, the two diseases bear so striking a resemblance to each other as to render a particular enumeration of the symptoms unnecessary. The primary inflammation in Gangrenous Phagedena commences at the end of the second, or early on the third day; the inflammation is at its height about the sixth; when the scab begins to form in one disease, phagedenic ulceration commences in the other,—and, when allowed to proceed, soon affords sufficient proof (were such proof considered necessary) of the non-identity of the two diseases.

When the disease supervenes upon a recent gun-shot wound, the symptoms are modified by the extent of the original injury, and the degree of inflammation that is present; but, in general, when the dressings have been removed from a wound of that description, from two to three days after the morbid matter has had access to it, the discharge is found to be lessened in quantity, and to have become more of a sanious than purulent nature; the sore has a certain dry and rigid appearance; its edges are more defined, somewhat elevated, and sharpened, and, as remarked, on a former occasion, the patient is sensible of a change in the usual sensation in the sore, and he also complains of the occasional stinging sensation, resembling that produced by the sting of a gnat. At this period, but sometimes a day or two later, the integuments at the edge of the sore become inflamed, the surface of the sore itself assumes a livid or purple colour, and appears as if covered with a fine pellicle, such

as is formed on a coagulum of blood. When left to itself, this pellicle gradually increases in thickness, forming what has been termed a slough; but the progress of the disease is, at this period, very uncertain, being in almost no two instances alike. Generally, in the course of from five, to ten, or fifteen days, a thick, spongy, and putrid-looking slough, is formed over the whole surface of the sore, and which is, more or less, of an ash, or blackish-brown colour, as there happens to be a greater, or less quantity of effused blood mixed with it during its formation, and which probably depends on the irritability of the sore, and the degree of inflammation that is present. When the pellicle is destroyed, as frequently happens, in the process of cleaning, it is not in every case reproduced; but, instead thereof, an offensive matter begins to be discharged, which becomes daily more copious, is of a dirty yellow colour, and ropy consistence, and which adheres to the sore, so as not to be removed without considerable difficulty. The substance which formed the apparent bottom of the wound, is raised up, and, pushing back the edges, makes the sore appear considerably enlarged. The edges, which are usually jagged or pectinated, become extremely irritable, of a deep red colour, and dotted on their inner surface with numerous, small, elevated, and angry looking points, which may be considered as one of the characteristic marks of the disease. The surrounding integuments become indurated and inflamed, assuming, not unfrequently, an ansarine appearance; and the patient complains of a constant increasing pain, which is always described to be of a burning and lancinating nature. The colour of the integuments, in the vicinity of the sore, becomes more and more of a dark red, or livid colour, arising

from the violence of the inflammation, which is of an erysipelatous nature, and which is apt to terminate in gangrene and sphacelus. It must be observed, however, that in, perhaps, no two instances are the inflammatory symptoms exactly alike: in some they are extremely mild, in others equally violent; and this admits of a ready explanation, from the great difference in the constitutions, and the previous habits of the individuals affected.

When the disease attacks a large recent wound, such as the face of a stump, it sometimes occupies the whole surface of the sore from the first, as when it attacks a gun-shot, or other wound of small external dimensions. At other times it commences at, or near, the lips of the sore: but of the latter, I have only had an opportunity of seeing two instances, in both of which, the disease had been of several days standing, and had the form of a foul and irritable ulcer, which was covered with a dirty brown matter, and was about half an inch in diameter; but, in the course of four or five days, it occupied the whole surface of the sore. Under whatever form this disease may at first make its appearance, when once it has advanced to that period, when it occupies the whole surface of the sore, its progress is, *cæteris paribus*, in nearly all cases alike.

If the climate, season of the year, constitution, and previous habits of the patient, have been such, as to induce an inflammatory diathesis, the local inflammatory symptoms, are more or less acute, as all, or only some of these causes have been operative; but when the habits of the patient, climate, &c. have had an opposite tendency, the local inflammation is very mild, and not unfrequently it might be said to be almost altogether wanting. When the disease occurs in a

patient of the former description, it generally happens, that, from the seventh to the fourteenth day, an attack of acute inflammation supervenes upon the sore—the slough becomes softer, and of a pulpy consistence, matter, of a strong and peculiar odour, and of a dirty brownish grey colour, begins to ooze out at its edges, and becomes daily more copious.—The inflammation gradually subsides, the slough becomes loosened, and finally detached, leaving the subjacent muscles, bones, fascia, or ligaments, fairly exposed: but, as formerly noticed, the inflammation which extends to the surrounding integuments, and which is evidently of an erysipelatous nature, is, when violent, very apt to terminate in gangrene, and sphacelus, in some instances proving rapidly fatal.

When the patient is of a debilitated habit, and when other circumstances are unfavourable to the production of acute inflammation, the slough remains long adhering to the sore, the discharge becomes very copious, and burrows under the integuments, by which they are deprived of nourishment, and fall into a state of sphacelus.

After the slough has been thrown off, it has sometimes, though rarely, happened, that the sore has gradually assumed a healthy appearance, florid granulations have sprung up, while new skin has begun to form at the edges; and though this healthy process has been repeatedly interrupted, by a slight recurrence of phagedenic ulceration, (in the form of Mercurial Phagedena,) a cure has been ultimately effected, by the almost unassisted operations of nature.

It most commonly happens, however, that after the muscles are exposed, they continue to be gradually dissected; their connecting cellular membrane is completely destroyed;

and they are left covered with an offensive greasy-looking matter, which may possibly partly consist of the cellular and fatty substance in a state of decomposition; as it exactly resembles that which occurs on the muscles of a dead body, to the great annoyance of the anatomist, when attempting to make a dried blood-vessel preparation, during the continuance of warm moist weather.

If the body of a muscle has been wounded, previous to the accession of the disease, it swells sometimes to a great size, and quickly assumes the appearance of a large coagulum of blood, being altogether deprived of irritability. When it has not been wounded, but has become inflamed, it generally assumes a pale colour, with an appearance as if distended with a fluid, and occasionally, before losing its vitality, acquires a very surprising bulk; but, when no inflammation has supervened, the muscles become of a pale brick colour, are daily more and more wasted, and the patient loses all power over them.

During the progress of the disease, in the muscular system, the phagedenic ulceration continues to undermine the integuments; which, being deprived of nourishment, are seized with gangrene, and, from time to time, large sloughs are thrown off, until this unnatural dissection has extended so far, as to render the animal powers no longer capable of supporting its ravages. When the ligaments, or fasciæ, are the parts which have been exposed, the progress of the disease is, in most cases, limited, for a time, to a lateral direction, being prevented, by the texture of such parts, from extending inwards; for it is very evident, that, in proportion to the vascularity of the texture of a part, is its power of resisting the action of phagedenic ulceration diminished,



*et vice versa*, and we accordingly find, that tendinous parts, in a state of inflammation, are not long in being destroyed by it. When the bones are exposed by this disease, they very soon lose their vitality, changing first to a brown, and ultimately to an ebony black colour. In such cases, the factor of the discharge becomes almost insupportable.

During the progress of the disease, hemorrhage from the small vessels on the surface of the sore, is a common occurrence; but, in its more advanced state, some of the larger blood-vessels are very apt to give way, and this is found to be no uncommon cause of a fatal termination.

When a stump is the site of the disease, and when the patient is of a plethoric habit, or accustomed to live freely, the symptoms soon begin to indicate the existence of an intense inflammatory action, through its whole substance—the tumefaction, pain, and heat, increase rapidly, so that, in a few days, the stump shall have acquired more than twice its former size, being, at the same time, much indurated, and causing the most excruciating pain. In this state, the patient has, in some instances, become delirious; and has been cut off by an effusion taking place into some of the large cavities. It more commonly happens, however, that gangrene seizes upon the integuments, and cellular substance; large sloughs are thrown off; and, some of the large blood-vessels giving way, the patient sinks under the effects of repeated hemorrhage—For it is commonly found, that the usual modes of stopping hemorrhage from a stump, are in such cases either inadmissible, or totally inefficacious.

When the previous habits of the patient, and other causes, have been of such a nature, as to induce a state of debility,

the progress of the disease in a stump is more gradual, but it is ultimately little less fatal: the inflammation is much less acute, there is comparatively but little tumefaction, and the pain is much less severe, but the discharge is much more copious, and the cellular substance connecting the integuments and muscles, is rapidly destroyed; and, though hemorrhage generally occurs much later in this, than in the former instance, it is nevertheless the most common cause of death in patients, whose stumps have become affected with this disease.

The constitutional symptoms of Gangrenous Phagedena, have, in no instance that I had an opportunity of observing, preceded the local,—unless it be held as an exception, when the disease has supervened upon a stump, after amputation has been performed, on account of the previous effects of the disease. The period at which the constitution begins to exhibit symptoms of irritation, is extremely irregular. Sometimes it is so early as the third or fourth day, and sometimes even so late as the twentieth. The countenance of the patient first begins to assume an anxious or feverish aspect; his appetite is impaired; his desire for liquids increased; his skin becomes hot, and his tongue covered with a white mucus. His bowels are generally rather constipated, than otherwise; and his pulse is rather what may be termed irritated, than accelerated; but, as formerly noticed, with respect to the local symptoms, the disease assumes more of an inflammatory, or typhoid character, as the particular causes producing these modifications have been predominant.

When an inflammatory diathesis prevails, the system

becomes gradually more irritated, until an attack of acute inflammation seizes upon the sore, and which frequently happens about the end of the second week. At this period, the pulse is frequent and sharp; and it is not uncommon for the patient to be seized with one or more shivering fits, exactly resembling the cold stage of an intermittent fever, and for which it has been repeatedly mistaken. This cold fit is succeeded by a great increase of heat; but it seldom, if ever, terminates in a profuse perspiration. In several instances, the cold fit has been followed by a discharge of bilious matter from the intestines, by which the violence of the reaction of the system seemed to be mitigated, as the feverish symptoms gradually abated in their violence. If the progress of the local symptoms be not arrested, the patient's strength becomes daily more and more exhausted, by the severity of the pain, and want of rest; the fever loses its inflammatory character—the constitutional powers gradually give way; and, unless an almost wished-for hemorrhage occurs, to put a more speedy termination to his sufferings, death at length arrives, and seems to be the effect of extreme debility, from a complete disorganization of the system.

When the disease has a typhoid character, the patient labours under a constant low fever; his pulse is small and frequent; his appetite and strength gradually fail; his countenance is expressive of extreme misery and despair; and he at last sinks, retaining his mental faculties unimpaired to the last. A colliquative diarrhœa is not a constant occurrence; but it not unfrequently takes place, towards the conclusion, and hastens the fatal termination.

It is of some importance to attend to the Diagnostic Symptoms of this disease, as there are other diseases to which it

bears a resemblance, and with which it seems liable to be confounded, but from which it is, at the same time, essentially different; and these are, *Phagedena Cahectica*—the *Mercurial Phagedena*—the *Scorbutic Ulcer*—and that morbid action which supervenes upon a wound, when the constitution becomes affected with some other Acute Disease.

What has been termed a simple phagedenic ulcer, is supposed to be so well known, that it may appear strange, that any difficulty should be experienced in distinguishing it; yet, in some constitutions, and when the original injury has been a superficial sore on the integuments, Gangrenous Phagedena puts on, for a time, so much the appearance of the simple phagedenic ulcer, that I know of no distinctive marks, but the remarkable retroversion of the edges of the sore, which occurs in the former of these affections, and which, so far as my observation goes, is a never-failing symptom.\*

When Gangrenous Phagedena supervenes upon an old sore in which a deep bed of new flesh has been formed, it presents, for a time, a considerable resemblance to Mercurial Phagedena; but the glutinous nature, and peculiar odour of the discharge, in the former, along with the history of the case, will, in general, afford a sufficient diagnosis.

When this disease occurs in ships of war, after having been a long time at sea, or in naval hospitals, it is liable to be confounded with the Scorbutic Ulcer, more particularly

\* The sore which is peculiar to Gangrenous Phagedena, very often assumes a circular form; and hence, by some, this has been considered a characteristic symptom of the disease. This circular form of the sore, however, is not peculiar to Gangrenous Phagedena, and it is also not unfrequently wanting—the local symptoms being often modified by the nature of the previous injury, and the texture of the part affected.

when circumstances have been favourable to the development of both diseases ; but as I have had an opportunity of seeing only one case, in which the two diseases seemed to be combined, I rather choose to leave this part of the subject to those, who can speak from more extensive experience, than venture upon statements, which are unsupported by personal observation—For a single case of any one disease, is, in my opinion, of little more use than certain antiquarian curiosities, which are fit only for adepts in speculation and hypothesis.

When an acute disease supervenes upon a wound or sore; but particularly when a Remittent Bilious Fever attacks a patient, who has recently suffered amputation, the healthy action in the sore is rapidly changed, if not prevented; and it assumes a very unhealthy aspect. If the adhesive or suppurative inflammation has commenced, it is suddenly arrested; the lips of the wound open; the discharge becomes copious, greasy, and fetid, and of a dirty grey colour; the muscles shrink; the bone protrudes; and, in its whole appearance, the sore exhibits a considerable resemblance to Gangrenous Phagedæna in a patient of a debilitated constitution. It is in general, however, pretty evident, in such cases, that the constitutional affection precedes the local, and even continues to be of primary importance. A yellow suffusion frequently discovers itself in the eyes; the tongue, also, has more or less of a yellow tinge; and, not unfrequently, the whole surface of the body becomes of a dingy yellow colour. Phagedenic ulceration, and consequent sloughing of the integuments of the stump, never occurred in any case, that I had an opportunity of observing; and an extensive hemorrhage was also of much less frequent

occurrence, while acute inflammation supervening upon the lungs, liver, or intestines, was a common cause of a fatal termination.

That species of Erysipelas which has a typhoid character, and which is understood to be of an infectious nature, is said to be one of those diseases, which is liable, particularly in large civil hospitals, to supervene upon wounds and ulcers, and may therefore have been confounded with this disease; but, as I have hitherto had no opportunity of seeing this species of Erysipelas, I must decline advancing any opinion as to its diagnostic marks.

When Gangrenous Phagedena supervenes upon a puncture, slight incision, or scratch, the local symptoms have a very marked resemblance to those which are produced by Vaccine Inoculation. There is so little chance, however, of the two diseases being mistaken for each other, that any attempt to point out a diagnosis appears to be unnecessary.

The following circumstance, though not quite in place, may perhaps be considered worthy of being related:—While engaged in examining the stump of a patient, who had died of this disease, I accidentally wounded one of my fingers with the point of a double-edged scalpel, but so slightly, that not a drop of blood made its appearance; and, on this account, I did not consider any particular precautionary means necessary. In the course of about sixty hours, however, the wound had become inflamed, and to which I was attracted, by an occasional smart stinging sensation, which ultimately extended a considerable way up the arm. On the fourth day, the inflammation had increased, and the stinging sensation was almost constant;

head-ache, nausea, and general indisposition followed, with frequent chills, which increased very much towards evening; but which, with the other symptoms, were considerably relieved by the use of neutral salts, the pediluvium, and warm diluents. A vesicle, having a depression in its centre, and containing a watery fluid of a livid colour, was now forming upon a hard and elevated base; the surrounding integuments became tumified—of an ansarine appearance, and extremely sensible to the touch; and at about the distance of the fourth of an inch from the base of the tumour, a very distinct areola, of a bluish red colour, made its appearance, and remained visible for several days. At this period, circumstances rendered it necessary for me to be exposed to wet, and to undergo considerable fatigue, and, immediately afterwards, to travel to a considerable distance. The inflammation, however, gradually subsided, but the stinging, accompanied by a burning sensation, still continued, and the sore had no disposition to heal; yet it did not enlarge externally, but was disposed to burrow under the integuments. This phagedenic disposition was ultimately got the better of, by laying open the sore, and by repeated applications of caustic; but it was two months before a complete cicatrix had formed. The new cuticle remained, for a length of time, extremely sensible to the touch; and it was upwards of six months before it had acquired the colour of the surrounding integuments. It may be proper to add, that I have repeatedly, and, in one instance, severely suffered, from those painful sores, which sometimes supervene upon slight cuts or punctures, during the dissection of a putrid, or otherwise noxious body; but though these sores were always troublesome, and, in some instances, not very

easily healed, none of them bore the smallest resemblance, nor were nearly so inveterate, as that to which I have now referred.

Notwithstanding the frequent occurrence of Gangrenous Phagedena, its origin is certainly still involved in great obscurity. It has been supposed by many to arise from the contamination of the atmosphere of an hospital, by the accumulation of effluvia from the human body, labouring under wounds or ulcers; while, at the same time, it has been acknowledged, that no hospital, however small, or well ventilated, is secure from its occasional intrusion. The supposed contamination of the air, in a ward of an hospital, is no doubt a very easy way of accounting for the production of this disease; but there are various reasons for considering this account of it not altogether satisfactory. This part of the subject will afterwards come under more particular notice: I shall therefore leave it for the present, with little more than relating the following occurrence—Three men, who had been severely wounded, and taken prisoners, were carried to an open building, which had apparently been used as a stable, but which had not been recently occupied. After having been repeatedly pillaged, they were ultimately abandoned; and the only articles left with them, were a few pieces of biscuit, a canteen of water, one shirt, one pair of trowsers, a pair of old shoes, and an old great coat. In this miserable situation they remained for three days, when they were fortunately discovered; and some provisions and clothing being provided for them, they were put into an open boat, under the charge of two fishermen. Had the wind proved



favourable, a few hours sailing would have brought them to an hospital; but it was the winter season, and they were overtaken by a storm of wind, rain, and sleet—to which they were exposed for nearly two days and a night; and when they at last got to the hospital, the wound of one of these unfortunate men was discovered to be affected with this disease.

I have also understood, though I cannot certify as to its correctness, that Gangrenous Phagedena has occurred, during the conveyance of the wounded from one hospital station to another, the weather being very hot, and the distance considerable.

Whatever may be the source of this disease, it is, at least, sufficiently ascertained, that when it occurs, its propagation is only to be prevented by the most rigid attention to cleanliness—and by insulating the person or persons affected, so as to prevent all direct intercourse between them and the other patients; for, so far as I have had an opportunity of observing, ninety-nine cases in the hundred were evidently produced by a direct application of the morbid matter to the wounds or sores, through the medium of sponges, tow, water, instruments, dressings, &c.; while others, who were, in every other respect, equally exposed to its operation, never caught the disease. In attempting to prove this by experiment, I have placed three patients with clean wounds, (one of which was an extensive wound of the thigh, another a wound of the leg, and the third a stump of the thigh,) alternately between three other patients, severely affected with the disease. They lay in a part of a ward which was appropriated for patients who were labouring under the disease, and of whom there were, at

the time, a considerable number. Their beds were on the floor, and not more than two feet distant from each other; but all direct intercourse was forbidden, and they were made fully aware of the consequences that would follow from inattention to their instructions. The result of this trial was, that not one of the clean wounds assumed the morbid action peculiar to the disease, nor was the curative process in any degree impeded. I have likewise had an opportunity of witnessing a similar result, in two instances of this disease, occurring after amputation; in both of which cases, the patients lay in small apartments, each containing from six to eight patients with healthy wounds; but in neither case was the disease disseminated, although it proved fatal, in both instances, to the individuals affected with it.

From these, and many other circumstances, of a similar nature, I am disposed to consider the *infectious* nature of Gangrenous Phagedena as a subject, at least, well meriting further investigation by the supporters of that opinion. As, however, there exists a difference of opinion, or rather an indefinite practice, in regard to the application of the terms *contagious* and *infectious*, as applied to diseases, it may be necessary to state, that when I have had occasion to use these terms, I confine the former to those diseases, which, though capable of being communicated from one person to another, require, for their production, the direct application of a specific matter, to some external part of the body, capable of being acted upon by it, and of afterwards producing matter possessed of similar properties to that which was applied to it; examples of which may be found in Syphilis, Psora, Lepra, Phagedæna Venerea, Phagedæna Gangræno-

sa, &c. It would appear, that the greater number of this class of diseases have no natural termination.

The latter term is confined to such diseases, as may be communicated from one person to another indirectly, through the medium of the atmosphere, and whose presence is first detected by a general diseased action of the system; such as Typhus, Pertussis, Variola, Rubeola, &c. The greater number of this class of diseases have a particular course through which they pass; and several of them leave the constitution incapable of being again acted upon in a similar manner. It would also appear, that some of them may, in certain circumstances, be produced, by the mere accumulation of effluvia from the human body.

#### METHOD OF CURE.

THE treatment of this disease resolves itself into two principal indications:—1st, To destroy the morbid action in the sore; 2d, To regulate the reaction of the system. That the former of these indications is not to be effected by any of the less active applications, is now, I believe, so well ascertained, and is even so generally acknowledged, that any particular notice of them seems to be unnecessary; but it is of some importance to know, that not a few of them, accelerate the progress of the disease, or materially aggravate its symptoms. Of the former kind, are generally all warm, moist applications; and of the latter, are those lotions, and dry powders, which merely irritate the sore, and thereby increase the pain and inflammation.

At the commencement of the disease, and before it has arrived at that stage when the muscles, &c. come to be exposed and dissected, and a cure thereby rendered next to impossible, the most efficient applications will be found to be those, whatever may be their particular nature or composition, which have the power of destroying the morbid action in the sore, by converting the nerves, blood-vessels, &c. on its surface, and in its immediate vicinity, into a dead slough, or eschar; and afterwards, such applications as shall assist nature in detaching this slough, and cicatrizing the sore. At one period, the actual cautery would have been the means resorted to, in such a case, and there can be little doubt, that it would have proved an effectual remedy. The prejudices of the times, however, are now against its use; and it is fortunate, that, in the present instance, a substitute is not altogether wanting. From extensive experience of its effects in Gangrenous Phagedena, as well as in other diseases, I can confidently recommend the local application of solutions of Arsenic; such as Fowler's Solution, or Liquor Arsenicalis, of the London Pharmacopœia. The circumstances which first led to the employment of that particular preparation, have been already detailed—and, as there does not appear to be any material objections to its use, there cannot be any reason for discontinuing it, for what may be supposed a more appropriate preparation. It has been stated, that the external application of preparations of Arsenic, such as the Arsenical Paste of the French surgeons, is not unattended with danger; and instances are related, of its employment having been followed by death, and of which

it was apparently the cause. This, however, is allowed to be a rare occurrence, compared with the frequent use of that application; and it is highly probable, that the blame, in such cases, did not rest with the remedy, but the manner in which it was employed: for it is very evident, that it may be applied to a sore, in such small quantities, as to admit of its being absorbed into the system, and there to produce baneful effects; but, on the other hand, by employing it in sufficient quantity, quickly to destroy the organization of the part, such absorption, and its evil consequences, may be easily and effectually prevented.

I have heard but of one instance, in which bad effects were supposed to have been produced, by the Arsenical Solution in cases of Gangrenous Phagedena. In this case, the patient complained of an oppressive tightness over the temples, accompanied by a degree of stupefaction, and staring of the eyes. Upon making inquiry, it was found, that the solution had been applied by one, who was not sufficiently acquainted with it; and it was evident that, if the symptoms referred to, were the effects of Arsenic absorbed into the system, the manner of its application, and not the remedy, ought to bear the blame. The patient, however, was very soon cured of his uneasy; and, possibly, merely nervous symptoms.

The first thing to be attended to, in every case of disease, is *cleanliness*,—which, if always of great importance, is in this instance indispensable. The surface of the body ought to be made, and kept perfectly clean, by means of the tepid bath, or, otherwise, by a plentiful use of soap; and the linen, and bed clothes, should be frequently changed, particularly when soiled with matter from the sore.

As it is of great importance to have the sore made perfectly clean, and freed from the viscous discharge—and as this cannot be easily effected by common means, without occasioning a disagreeable loss of blood, and a considerable degree of pain—the following method will be found not unworthy of attention: Two tin-vessels should be provided, in the form of large hospital tea-pots, and which are for the purpose of containing a weak solution of the Sub-carbonate of Potass, the one with cold, the other with tepid water; as it is found, that sometimes the one is most agreeable to the feelings of the patient, and sometimes the other; but the latter is the most effectual in cleansing the sore. This solution, or wash, is to be poured over the sore, while a bason is held in a convenient situation for receiving it, and which ought to be immediately emptied into another vessel, placed at a distance from the patient.\* During this ablution, the glutinous matter which adheres to the sore, may be gently detached by means of small dossils of fine tow, or lint; but these ought never to be used for two different patients—rigid economy, on occasions such as this, being a very mistaken principle. The use of sponges, in such cases, ought to be entirely laid aside, as they can seldom, with safety, be used above once; and such an employ-

\* As circumstances may be such as to render it impossible to keep patients affected with this disease, in a separate apartment by themselves, no precaution, or artifice, that is calculated to prevent its propagation, or to impress a belief in its contagious nature, should be neglected. If ventilation be neglected, the surgeon must be more or less to blame; but, during his absence, the patients may have direct intercourse with each other, which, in this disease, is at least equally dangerous, though it cannot always be so easily prevented.

ment of them is evidently precluded, by the great expense, with which it would be attended. When the sore has been thus made as clean as possible, a piece of fine dry lint, is to be spread over its surface, and gently pressed into all its depressions, with the points of the fingers. If the surgeon be too nice for this operation, or if he has accidentally wounded his fingers, it may be done by means of an instrument, consisting of a flat knob, or ball, attached to an elastic piece of steel—two of which may be readily made, of a common elastic steel probang. When the lint is removed, a quantity of the discharge will be found adhering to it; and this operation must be repeated with fresh pieces of lint, until the surface of the sore is made perfectly clean and dry: in effecting which, considerable pain may be experienced by the patient, whose feelings must be soothed; but he will soon have occasion to be grateful, for the pains that have been bestowed upon him: For this preparation is greatly conducive to the speedy operation of the principal remedy.

The Solution of Arsenic is generally found to be sufficiently powerful, when diluted with an equal part of water. In some slight and recent cases, I have found two parts of water, to one of the solution, answer every purpose; and I have sometimes used it undiluted—but this will very seldom be found necessary.

The patient, or his attendant, should be provided with a small wide-mouthed vessel, containing a quantity of this diluted solution; and which ought always to be carefully set apart, and every one made aware of its pernicious effects, when used internally. He should also be provided with a

number of pieces of lint, cut into the shape, but a little larger than the sore; one of which, previously soaked in the solution, is to be applied, (the sore being previously well cleaned, as directed above,) kept constantly moist, and renewed every fifteen minutes, or half hour, as may be necessary; for, when the sore is large, and when there is much heat and inflammation, the evaporation is proportionally increased, and renders it necessary to renew the application more frequently. When the sore is in this painful and inflamed state, considerable benefit may be derived from the frequent application of linen cloths, moistened with cold water; but, to prevent the solution from becoming thereby too much diluted, it is necessary to cover the lint on the sore, with a piece of oil-cloth, which, however, ought not to be larger, than to extend a short way, beyond the edges of the sore.

When the disease has supervened upon a recent gun-shot wound, it is apt to penetrate deep, in the course of the ball; and, when there is a counter opening, it not unfrequently extends through the whole course of the wound. In such cases, it is necessary to use a syringe, both to clean the sore, and to inject the solution. A slip of fine lint, well soaked in the solution, may also be inserted, by means of a probe, into the bottom of the wound; and when the two openings are at no great distance, and not in the immediate vicinity of the large nerves, and blood-vessels, the lint may be drawn through the wound in the form of a seton. Such cases require more personal attention on the part of the surgeon, as the application of the remedy in this form, cannot be entrusted to the patient, or his usual attendants. As the Solution



of Arsenic, on its first application, always occasions more or less pain, it is sometimes necessary, particularly in irritable or debilitated constitutions, to administer an opiate—and to repeat it, according to circumstances; but this will seldom be found to be absolutely necessary.

The period required by this application, for effectually destroying the morbid action in the sore, is longer or shorter, according to the progress that has been made by the disease, and the nature of the original sore. The best rule to go by, is, to continue its use, until an insensible, dark-coloured, and dry slough, occupies the whole surface of the sore; and until the patient is completely relieved from the burning and lancinating pain, which is, in some degree, characteristic of the disease.

The slough being formed, the next step is, to assist nature in detaching it; and this will, in general, be best effected by the use of an ointment, composed of equal parts of the oil of turpentine, and the yellow resinous ointment, or two parts of Venice turpentine, to one of the resinous ointment. These being melted and mixed together, are to be poured over the sore, as <sup>fast</sup> as the patient can possibly bear it; over this, a pledget of dry lint, or tow, is to be applied, and retained by a bandage; and this dressing may be renewed, according to circumstances, from two to three times, in the course of the day—carefully washing the sore, each time, with the solution of potass. Under this treatment, the slough will be gradually detached, beginning at the edges, and extending slowly to the centre; and, wherever it appears detached, it ought to be pared off with the curved scissars. It sometimes happens, that the whole

slough becomes apparently disunited, and can be readily moved in different directions, while, at the same time, it is found to be still attached, by means of small ligamentous bands, which occasion very acute pain, when their laceration is attempted. When these bands cannot be easily divided by the scissars, the usual dressing should be continued, for a day or two longer, as the advantages attending an opposite practice, is more than counterbalanced by the pain to which the patient must be subjected.

Instead of applying dry lint, or tow, over the ointment, I have frequently had recourse to a lintseed meal poultice, with the view of expediting the separation of the slough; and it certainly answered the purpose, but its effects appeared to be too relaxing. I have also suspected, that it acted otherwise than as a mere relaxant to the sore; namely, by its heat and moisture operating as a solvent on the morbid matter condensed in the slough, (for there is no reason to believe that Arsenic neutralizes this matter,) and thereby allowing it to be again applied to the surface of the sore, and to produce that recurrence of ulceration which has been sometimes noticed in cases, where such an occurrence could not otherwise be so easily accounted for. And, accordingly, when a poultice was employed, I found it expedient, at each dressing, to touch the new granulations, particularly at the edges of the sore, with the nitrate of silver.

When the slough is entirely removed, the same dressing should be continued, until the granulations become vigorous, and high coloured; but, as the morbid action in the sore is now destroyed, the future treatment must be regulated by circumstances, depending upon the nature of the original injury, and the constitution of the patient. In general,

however, the same ointment applied cold, or with the addition of a small proportion of the Sub-acet. Cupri, will be found the most useful dressing. The lint on which it is spread, should be cut into the exact shape of the sore, and not so large as to cover its edges: over this should be applied a piece of smooth oil-cloth, lightly rubbed over with soap, and extending from one to two inches over the sore; it should also be notched at the edges, so as to produce a uniform pressure, by means of a roller, with which the whole limb is to be firmly bandaged. By the use of these means, with proper attention to cleanliness, frequent dressing, and correct application of the bandage, (upon which last very much depends,) the healing process will gradually advance; but, after a sore has been affected with Gangrenous Phagedena, the cicatrising process seldom, if ever, makes a rapid progress.

What the effects attending the application of the Solution of Arsenic would be, in those cases, where the disease has attacked a stump recently amputated, is a circumstance which I am not prepared to state, neither from report, nor personal observation. By far the greater proportion of such cases, have hitherto proved fatal; and when the similarity which exists between this disease, and that morbid action, which is produced in a stump, by the supervention of Remittent Fever, and other acute diseases, is duly considered, there will, perhaps, be found some good reasons for suspecting, that every case of recovery has been of the latter description. At the same time, it must not be forgotten, how nature occasionally astonishes us, by her inexplicable power of resisting the effects of the most terrible accidents, and other apparently incurable diseases.

The local treatment, from which I have witnessed the greatest benefit, in such cases, is the following :

Having cleaned the sore, by means of the solution of potass, (which, in this instance, is advantageously used, along with a decoction of carrots and chamæmil flowers,) and pieces of dry lint, the whole surface of the sore was covered with the hot ointment, which was recommended to be used after the application of the arsenical solution ; and sometimes with the addition of a small quantity of the tincture of cantharides.

The mode of treatment which I have seen pursued by French surgeons, in such cases, was not greatly dissimilar. Having cleaned the sore by means of a lotion, consisting principally of red wine, they stuffed it with a dry powder, which, to the best of my recollection, consisted of storax, camphire, myrrh, and Peruvian bark. Under this treatment, a number of stumps assumed a somewhat cleaner appearance. I must add, however, that I never saw an instance in which a complete cure was effected ; but I have seen several very severe cases of that morbid action in a stump, caused by a bilious intermittent fever, effectually cured by each of these methods, necessary attention being paid to the constitutional affection. It is evident, however, that the local applications now referred to, can, to say the least, be of no advantage when the inflammatory symptoms run high, and when the stump has become much swelled, indurated, and painful. In this state of the disease, the most that I can say is, that poultices, and warm fomentations, were uniformly prejudicial ; and that when cloths, wetted with cold vinegar or red wine, and water, were ap-

plied, and frequently renewed, the patient always experienced a remission of the burning heat, and excruciating pain. I must beg leave to add, however, that should similar cases, at any future period, come under my immediate care, I shall be prepared to employ a much more decisive, and, I trust, efficient method of treatment, than that which I have now been describing.

Having, in the course of the preceding observations, more than once referred to the employment of the Actual Cautery, I may have, possibly, thereby exposed myself to the charge of attempting to restore a barbarous and exploded remedy. It is certainly a very formidable remedy; and, by falling into improper hands, it came to be most grossly abused: and hence, in this country, it was ultimately rejected. It still continues, however, to be occasionally employed in France, Germany, and Italy, by the most respectable surgeons; and they not unfrequently meet with patients, who consider death as much more terrific than a heated iron, in the hand of a judicious and humane surgeon. I would therefore beg leave to ask British surgeons,—Why any remedy should be condemned, and considered totally inadmissible, if there be even the remotest probability, that its employment would be attended with benefit, in cases otherwise incurable, and usually fatal? And—Which of two surgeons is most humane—he, who merely looks on, and leaves his miserable patient to linger under a painful and ultimately fatal disease, or, at most, attempts to amuse him with a number of inefficient applications—or he, who considers himself, not at liberty, but bound, to use any means (how-

ever painful to his own feelings,) that may even probably have the power of arresting the progress of the disease, which now torments, and which, if not removed, must ultimately cut off his patient? Or, lastly, Is it more humane to rest contented with stupifying an unfortunate patient, by the exhibition of opium, hemlock, and other narcotic drugs, than, by subjecting him to a momentary pain, (which is much less severe than is commonly imagined,) to afford even a chance of curing his disease, and of prolonging his life? The pride of modern times may have, in a great measure, limited the merits of Celsus, to that of an accomplished linguist. I still believe, however, that few will be disposed to dispute the correctness of his judgment, when he says, “*Satius est anceps remedium experiri quam nullam,*” cap. x. lib. 2. And if surgeons must still, as in the sixteenth century, believe it incumbent upon them to support their opinions by that of a physician—“*Melius est juvare cum periculo, quam nullo prorsus remedio sinere mori.*”—GALEN.

In severe cases of Gangrenous Phagedena, affecting the extremities, recourse has frequently been had to amputation of the limb, with the view of removing the disease, and thereby saving the life of the patient; but, according to the result of my observations, this operation has been attended with but very indifferent success. I have had an opportunity of seeing a number of such cases; and, in every one of them, the disease again discovered itself at, or soon after, the first dressing, and proved ultimately fatal.

I have been informed, that the operation has been successful, the disease has not returned, and a perfect cure has been accomplished. There can be little doubt, however, that the cases in which the operation has been attended with success, bear a very small proportion to those, in which it has unfortunately not only failed, but evidently accelerated the death of the patient.

If the operation be had recourse to in the first stage of the disease, when the system is not contaminated by absorption of the morbid matter of the sore, there is every reason to expect, that the result will be successful: and if we consider the great variety which exists in the disposition to absorption, in different constitutions, we may account for occasional success, even at what may be considered a late period of the disease. This variety in the disposition to absorption, is frequently exemplified in cases of chancres. In some instances, the constitution appears to be almost immediately contaminated; while, in other instances, the sore has continued open for weeks, without there being any good reason for believing that absorption had taken place. Can any facts be brought forward to prove, that the same does not, or cannot take place, in the case of Gangrenous Phagedena?

But, when the disease has been of considerable duration; when the destruction of parts is extensive; and when the whole system is contaminated with the specific matter absorbed from the sore, (such as I believe to have been the case, in the unsuccessful instances referred to,) there is every reason to expect, that the disease shall return soon after the operation, and very speedily prove fatal. If, therefore, the

circumstances last referred to be those, in which amputation is considered necessary, and has been most frequently had recourse to; and if the success attending its employment, has, in such cases, been far from affording much encouragement, it must follow, that the operation cannot be advisedly performed, at an advanced period of the disease, until its progress has been arrested, and the constitution invigorated, so as to be able to support the operation, and ultimately to effect a cure.

It was formerly stated, that the topical application of the arsenical solution was capable of removing the disease, without supposing that it acted generally upon the constitution, but rather as a powerful caustic; and that it was effectual at any period of the disease, provided the destruction of parts, and constitutional injury, were not such as to forbid its use, from there being little or no chance of effecting a cure.

It may therefore be asked, if the disease can be removed by a topical application, acting merely as a caustic, why may not amputation answer the same purpose, seeing that the whole sore, and nidus of the disease, would thereby be effectually removed? And why should the disease again break out on the new surface of the stump, provided the patient be secured from any fresh source of contagion?

To these questions, I would make the following reply:—

The Arsenical Solution, when used as a topical application, destroys the morbid action in the sore; or, in other words, removes the nidus of the disease; yet, in many



cases, the constitution must have become more or less contaminated, by absorption of the specific matter of the sore, previous to the use of that application; and, on the portion of matter thus absorbed, the arsenic can have no effect. We find, however, that the natural powers of the constitution are such, on this, as well as on other occasions, as to be able gradually to rid itself of this portion of morbid matter; and always, when not too much debilitated by the effects of the disease, and other causes. Hence, when Gangrenous Phagedena occurs in a previously debilitated habit, and when this debility has been increased, from the disease being neglected, and the system having become much contaminated from absorption of the morbid matter of the sore, we find, that though the local morbid action be overcome by the arsenical solution, it will frequently recur again and again, requiring similar means to be had recourse to for its removal,—until the constitution has become invigorated, when a complete cure will be effected. So that the solution of arsenic may be said to arrest the local progress of the disease, and prevent a fresh production of morbid matter, until the natural powers of the constitution are able to overcome the disease, and effect a cure; for we arrogate too much to ourselves, when we think we do more than assist them.

On the other hand, when amputation becomes necessary, the constitution (independent of the effects of a specific disease) must have suffered greatly from the mere destruction of parts. But when this destruction has been produced, or greatly increased, by a specific matter acting for a length of time on the sore, and when this matter has been absorbed, contaminating the whole system, the general debility must

be greatly increased, and the natural powers of the constitution rendered little able to support the shock of a great operation; and, still less, can we then expect them to perform the task of overcoming a powerful enemy, (if I may use a figurative expression,) which, in the midst of their weakness, infests all and every part of their dominions. On the contrary, we see them yield the contest; the enemy shews himself all-powerful, and the victory is not long dubious.

The second indication of cure, namely, To regulate the reaction of the system—will seldom require to be much attended to, if sufficient attention has been paid to the first symptoms of the disease. But when the constitution demands attention, the reaction must be moderated, or supported, according to the plethoric, or exhausted state of the patient. When he is of a plethoric habit, and the disease has been neglected, or improperly treated, and when the inflammatory symptoms, both local and constitutional, become acute, and are accompanied by severe pain, and a hard, or, more frequently, sharp pulse in such cases, the antiphlogistic regimen must be put in force, and recourse had to cooling laxatives, diaphoretics, diluents, and possibly, in some cases, venesection. But as, on other occasions, the use of such means must be regulated by circumstances, and it is an important rule of practice, not to debilitate the constitution, in inflammatory diseases, beyond what is absolutely requisite—paying attention to the climate and season of the year—the constitution and previous habits of the patient; for, by an opposite line of practice, the period of convalescence is often very much protracted; and, in the army and navy, this

must always be a very important consideration, independent of the immediate evil consequences to which it exposes the patient. When the patient is of a debilitated habit, his strength must be supported by a nourishing diet, with an allowance of wine, and such other comforts as are found useful in similar cases. But few medicines will be necessary. The Peruvian bark in substance, should not be indiscriminately administered, as it frequently does more harm than good, by disordering the primæ viæ; and hence the extract, with a proportion of the aromatic confection, or the decoction with the compound tincture, will generally be found the most suitable modes of exhibiting it. The use of opium should be regulated upon the same principles. It is a most useful medicine for relieving pain, and soothing irritability, when there is not much inflammatory action going forward in the system; but there is not, perhaps, another article in the whole *Materia Medica*, so indiscriminately administered.

In debilitated habits, the primæ viæ require frequent attention; and, in the present case, pills composed of rhubarb, with some of the stimulating gums, are the most appropriate, as they operate sufficiently, without inducing debility. But the great object ought to be, to anticipate the use of all such remedies, by early attention to the primary symptoms of the disease; when the careful employment of that method of cure, which has formerly been pointed out, will, generally, be found to render all other means unnecessary.

When Gangrenous Phagedena is complicated with some other general affection of the system, such remedies must

be employed, as are proper for the cure of the particular disease in combination with it. But as my subject does not lead me to a consideration of the treatment necessary in Fevers, Scurvy, &c. I must beg leave simply to refer to the numerous authors who have particularly treated of these diseases.

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## PART SECOND.

AN INVESTIGATION INTO THE HISTORY OF GANGRENOUS  
PHAGEDENA, AS IT IS TO BE FOUND IN THE WRITINGS  
OF VARIOUS ANCIENT AND MODERN AUTHORS.

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“ Books will speak plain when counsellors blanche ; therefore it  
is good to be conversant in them, specially the books of such as them-  
selves have been actors on the stage.”

BACON.

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## INTRODUCTION.

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IN endeavouring to give a view of the opinions of different writers, who may have either casually noticed, or professedly treated of a particular subject, two methods may be pursued; namely, by giving a general summary of the opinions of each author, with references to particular parts of his works, where these may be found detailed; or, by my making such extracts, as shall be sufficient to afford a correct, and impartial view of his sentiments. Each of these methods possesses advantages peculiar to itself; and, I am of opinion, that sometimes the one, and sometimes the other, ought to be preferred. In the present instance, I propose adopting the latter method, not certainly from its greater popularity, or more easy execution, but from the persuasion that it will be found the most useful and satisfactory; as it, in some measure, affords, every author an opportunity of speaking, and every reader of judging, for himself.

In endeavouring to trace the history of Gangrenous Phagedena, I have had occasion to examine the works of a considerable number of authors, both ancient and modern; and though in not a few instances the labour has proved to have been vain, so far as it regarded the principal object of research, I have ultimately had little cause to regret either



the time or the trouble that has been bestowed upon it,—for I have ascertained, (at least to my own conviction,) that the disease which forms the subject of this inquiry, far from being, as by many has been supposed, either new or overlooked, was not unknown—but, on the contrary, that its most appropriate treatment is distinctly pointed out by some of the oldest writers on surgery. It is not indeed always recognised as a distinct disease; for by some it is spoken of as if it were merely a change from a healthy to a less healthy action, on the surfaces of sores; and, by others, as a virulent, or corrosive and putrid ulcer.—But it must be recollected, that it is but recently that Gangrenous Phagedæna has been recognised, or rather suspected, to be a disease *sui generis*, arising from a morbid poison peculiar to itself; and this appears evident, even from the names by which it has been most commonly distinguished.

Previous to a comparatively late period, when Nosology became a particular study, a regular classification of diseases into genera and species had not been attempted; and, hence, were we to look into ancient authors, with the expectation of finding a distinct, yet connected description of every disease, such as may be met with in modern productions, we would be much disappointed. Having this, therefore, in view, and likewise the brevity, which, on many occasions, is no less remarkable than the accuracy of their descriptions, we may, I think, safely conclude, that when, in reading these authors, we meet with the history of a disease, which, in its most prominent features, corresponds with that of one which has fallen within our personal observation, we are warranted in believing it to be the same disease, even though not exactly the same in every particu-

lar, and though found, described under a very different head or name from what we would now-a-days be disposed to place it. Every disease is liable to be modified by circumstances; and, with reference to the last remark, I would instance the term Cancer, as used by Celsus; and yet so accurate a writer has at no after period adorned the annals of surgery.

The long and extensive wars in which France has been from time to time engaged, have afforded the surgeons of that country but too frequent opportunities of witnessing the occurrence of Gangrenous Phagedena, and of exerting their ingenuity in discovering its cause, true character, and method of treatment. But as the origin, or remote cause, of contagious and infectious diseases, has long baffled all attempts at successful investigation, we cannot be surprised to find them, in this instance, still wandering in the outskirts of useful knowledge. By some, it is supposed to arise from a rottenness or corrupted state of the atmosphere; by others, from a septic state of the air in hospitals; and some there are, who suppose it to proceed from the same causes that produce Typhus, Dysentery, and Intermittent Fevers.

In regard to the method of cure, the French surgeons have of late been more successful; but that only by reverting to the practice of some of the oldest writers on the art.

In Britain, the disease does not appear to have attracted particular attention, till towards the close of the eighteenth century; but there can be little doubt, that our army, and particularly our navy surgeons, were no strangers to it, at a much earlier period. From causes which still require, and

well merit investigation, the navy has long been obnoxious to it ; and there seem to be good reasons for believing, that it has long been confounded with the Scurvy, notwithstanding the essentially different characters of the two diseases. To this conclusion I was first led, by the following passage in Dr. Friend's History of Medicine, vol. ii. p. 387.—“ G. Fabricius, in the Antiquities of his own Country, Misnia, makes this distemper (the scurvy) of an earlier date ; and tells us, that there, in 1486, this new and unheard-of disease spread itself very much, and not only proved extremely dangerous, but carried *contagion* with it. The mariners of Saxony,” he says, “ called it Scharbock, which, in their language, signifies *inflammation*. And this, indeed, was one manner amongst the rest, in which it at first appeared, and often terminated in *gangrene*.” \*

This passage scarcely requires any comment : The disease which is here referred to could not have been the scurvy ; on the contrary, every view of the subject seems to lead us to the conclusion, that it was Gangrenous Phagedena ; but it is highly probable, that the disease was observed to occur among a class of persons who were predisposed to, and that it was, in some instances, complicated with, the Scurvy, —thereby giving rise to the mistakes of future historians ; and to some otherwise unaccountable descriptions of *Scor-*

\* Those who may feel inclined to prosecute this branch of the inquiry, are likely to meet with information in the writings of the following authors :—Roetenbëck, Speculum Scorbut. Horn, Kurser Bericht. Van der My, Rolfink, Erit. Method. cognos. Mælenbrocius, de varis. Histor. Morb. Utralis. Camerarius, Diss. de Phlog. Vag. Ephem. Nat. Cin. Dec. ii. Nitzch, Theoret. Pract.

*butus Contagiosus*, and *Calidus*, that are to be met with in medical authors.

In the following investigation, I have not considered it necessary to notice all the numerous writers, who occasionally refer to this disease, nor even all those who have written upon it, at greater length; but I believe I have omitted none, from whose observations any thing very useful is to be derived. This inquiry is, nevertheless, in its present form, far from being what I could have wished, or what was intended, and is, indeed, only a small part of the materials that were collected, with the hope of being able to lay something more worthy of perusal before my readers; but, owing to a state of health, which little admits of that close, or constant application, without which, but small progress, or improvement can be made, either in literature or the sciences, I am forced, either to place it, unfinished as it is, at the mercy of my readers, or, what to one who may have some professional zeal, and, withal, not destitute of the ambition of being useful, is equally repugnant, to allow it to remain in its original obscurity. Those who are accustomed to study their own minds, will at least not be surprised, at the, perhaps, unfortunate alternative I have chosen.

In expressing my sentiments of the opinions of those authors, whose writings are quoted in the following pages, I trust that I have always been guided by a becoming respect for those who have enjoyed superior opportunities, and who have acquired the well-merited respect of their professional brethren; but this can never presuppose a shrinking back from an exposure of what may appear to be incorrect reasoning, or a partial, or mistaken view of facts. For several

of these authors, I entertain the highest respect; and I have the pleasure of ranking some of them in the number of my friends. But as it is to the operation of their example, that I am in some measure indebted for the freedom, with which my sentiments are expressed, I have full reliance on their approval, so far as regards the *manner*; and as to the matter, I am desirous that it shall stand or fall by its own strength.

## CHAP. I.

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OF AUTHORS WHO HAVE TREATED OF GANGRENOUS PHAGEDENA, FROM THE BEGINNING OF THE PRESENT ERA TO THE SIXTEENTH CENTURY.

LET us for a moment suppose an individual, to be thoroughly versant in the modern history of the medical art, with all its boasted improvements, while he at the same time remained ignorant of what had been done in former ages, having only learned that this, that, and the other person, had once existed, from his name being associated by tradition with the science of medicine: Let us then suppose the works of such a one as Celsus to be put into his hands, how great would be his astonishment! how reasonable his disgust! how sincere his regret!—Astonishment, that so much valuable information should be neglected and lost, while human sufferings and life are made the play-ball of every new theorist, who may have sufficient confidence and abilities, to impose his plausible, though crude speculations, upon the gaping multitude. Disgust—Seeing that most of the supposed modern discoveries and improvements, to which so many have extended their claims, and for which so many battles have been fought, are clearly detailed, or distinctly referred to, as matters of notoriety, by some of the

oldest writers that are extant.\* Regret—that the teachers of the art, (yet there are exceptions,) forgetting the first object and true interest of the profession, should, under the pretext of ardent zeal for improvement, have become the willing instruments for propagating and encouraging every delusive, and evanescent speculation of the day; while the reiterated and dear-bought experience of former ages, is left in a great measure to rot on their shelves, as fit only for the devouring jaws of a *book-worm*—or perchance, to be made an occasional subject of merriment, when their own soporific disquisitions have well nigh worn out the patience, or attentive faculty of their auditors. “Plusieurs chirurgiens, par une vaine ostentation, employent toute leur vie et mette toute leur application, à développer tous les secrets des nouvelle decouvertes de la medicine, et a en discourir à fond; meprisant toutes les opinions des anciens: et avec toute leur science ils croupissent dans une entiere ignorance de la pratique. Si ces gens-la avoient autant d’envie d’être veritablement sçavans qu’ils en ont de la paroître, ils embrasseroient un autre partie.”

We find, in Celsus, two descriptions of a morbid action on the surfaces of sores, either of which, but particularly the last, might, in my opinion, lead us pretty safely to the conclusion, that he was not a total stranger to that disease, which forms the subject of this inquiry. But, even allow-

\* Let us do no injustice;—we have no reason to presume that Celsus, or even Hippocrates himself,—no, not Scultetus, with his whole *Armamenta Chirurgica*—ever proposed such an operation as tying the Aorta! But, what will not modern genius achieve, seeing that it is proposed again to subject malefactors to the knife of the surgeon, as a commutation of punishment!

ing that it may be difficult to prove, from either of these descriptions, that Celsus had actually in view that disease which I have denominated Gangrenous Phagedena, it must at the same time be granted, on the other side, that he refers to a species of morbid action, which, to say the least, bears a very close resemblance to it; and that he points out that method of treatment, which is now found to be the only one upon which any dependence can be placed, or from the use of which, any thing like uniform success has resulted. This, therefore, is sufficient to render the neglect of his successors altogether inexcusable, that is, such of them as were acquainted with his works; for it is a notorious fact, that *Degrees in Medicine* have been conferred by a certain celebrated university upon individuals, who, forsooth, could talk Latin as their mother-tongue, but who could not translate a chapter of our author!

In treating of the nature, symptoms, and cure of wounds, and particularly the consequences of their unsuccessful treatment, Celsus observes as follows:—

“ Interdum vel ex nimia inflammatione, vel ob æstus immodicos, vel ob nimia frigora, vel quia nimis vulnus adstrictum est, vel quia corpus aut senile, aut mali habitus est, Cancer occupat. Id genus a Græcis deductum in species est; nostris vocabulis non est. Omnis autem Cancer non solum id corrumpit, quod occupavit, sed etiam serpit.”  
—“ Nam modo super inflammationem rubor ulcus ambit, isque cum dolore procedit; *ερσίπιλας* Græci nominant.—  
*Modo* ulcus nigrum est, quia caro ejus corrupta est; idque vehementius, etiam putrescendo intenditur. Ubi vulnus humidum est, et ex nigro ulcere humor pallidus fertur, malique odoris est, corruptæ carunculæ, interdum etiam



nervi ac membranæ, resolvuntur—eoque vitio nonnunquam os quoque afficitur.”

After describing the treatment which is proper for a wound, when it has become affected with Erysipelas, he observes—  
 “ At, si nigrities est, nequedum serpit, imponenda sunt, quæ carnem putrem lenius exedunt; repurgatumque ulcus sic, ut cætera, nutriendum est. *Si magis putre est*, jamque procedit ac serpit, opus est vehementius erodentibus. Si ne hæc quidem evincunt, aduti locus debet, donec nullus ex eo humor feratur.”—“ Post ustionem putris ulceris, superponenda sunt quæ crustas à vivo resolvant.”—“ Ubi exciderunt, purgandum ulcus, maxime melle et resina est.”

When treating of ulcers, which arise from an internal cause, he gives the following description:—

“ Est etiam ulcus, quod *θηρίωμα* Græci vocant. Id et per se nascitur et interdum ulceri ex alia causa facto supervenit. Color est vel lividus, vel niger: odor fœdus: multus, et muco similis humor. Ipsum ulcus neque tactum neque medicamentum sentit: prurigne tantum movetur at circa dolor est, et inflammatio. Interdum etiam febris oritur. Nonnunquam ex ulcere sanguis erumpit. Atque id quoque malum serpit. *Quæ omnia sæpe intenduntur*, fitque ex his ulcus, quod *ἔκρηθα εὐδιόμνον*\* Græci vocant; quia celcritur serpendo, penetrandoque usque ad ossa, corpus vorat. Id ulcus inæquale est, cæno simile; inestque multus humor glutinosus; intolerabilis; majorque, quam pro modo ulceris, inflammatio.”—“ Curatio utriusque eadem est. Sed in majore malo major vis necessaria. Ac

\* In the edition of Leonardi Targæ, this is considered to be a corruption of the text; and the term *φωγδαίνα* is substituted in its place.

primum, a victus ratione ordinandum est ; ut quiescat in lectulo ; ut primus diebus a cibo abstineat ; aquam quam plurimam assumat. Alvus quoque ei ducatur. Dein, post inflammationem, cibum boni succi capiat ; vitatis omnibus acribus : potionis quantum volet, sic, ut interdum quidem aqua contentus sit : in cæna etiam vini austeri aliquid bibat.”—“ Super ulcus vero inspergenda est arida aloë, ænanthæ, et, si parum proficiet, chalcitis. Ac, si quis nervus, exesa carne, nudatus est, contegendus ante linteolo est, ne sub eo medicamento aduratur. Si validioribus etiamnum remediis opus est, ad eas compositiones veniendum est, quæ vehementius adurant.”—“ Si sub his nihil proficitur, ferro locus aduri debet diligenter nervis, si qui apparent, ante contactis.”

With great justice may it be said of Celsus, what another famous surgeon said (not too boastingly for a Frenchman) of himself :—“ I have so certainly touched the mark whereat I aimed, that antiquity may seem to have nothing wherein it may exceed us, beside the glory of invention ; nor posterity any thing left, but a small hope to add some things, as it is easy to add to former inventions.”

In the works of Aetius, who wrote in the fifth century, we meet with various, though brief, references to a disease, apparently differing in no respect from that which I have denominated Gangrenous Phagedena :—“ Depascentiæ ac putrida ulcera appellantur, quæ vicinas partes erodunt et putrifaciunt. Et sane vehementissimis medicamentis opus habent, et sæpissime inustiones requirunt.” The cautery, however, was not had recourse to, until milder remedies had proved ineffectual. The following is an example of one of

his more active applications ; and though modern chemists may stickle about the unscientific nature of such compounds, it still remains with them to point out upon what occasions they have been able, with all their accuracy and vaunted simplicity, to furnish us with more efficient remedies :—  
 ℞. Mysos crudi, Chalcitidis crudi a ʒ viij ; Ochrae ʒ iij ; Sandarachæ ʒ iv ;\* Calcis vivæ ʒ ii ; Squamæ æris, Aluminis a ʒ ii ; Diphrygis ʒ iv ℥b.

The following directions, which are given for the employment of such remedies, are well worthy of attention :—  
 “ Necessaria vero talia ulcera vitioso humore referta, sordidissima existent, quare ubi aliquod ex relatio simplex aut compositum siccum adhibitari sumus, linteolo prius molli, puro ac sicca ulcus extergemus, deinde medicamento cavitatem explemus, et extrinsecus splenium ad ulcerum labia attenuenda imponimus. Et linteolo supra splenium imposito ac ligato, spongiam ex frigida aut vino expressam adhibimus conamurque ut per totum tempus spongia frigida instilletur sine vinculi linteoli sive fasciæ obligatæ solutionem.”

When treating of hemorrhæge, he takes occasion to make the following remark :—“ Si a putrida erosione sanguis erumpat tunc enim omni putrido exciso, tutius est malam radicem exurere, vel crustam inurentia exhibere.”

In perusing the works of the early authors, we are not long in discovering, that the terms Putrid, Corrosive, Depascent, Sordid, Cancerous, Phagedenic, Malignant, Vi-

\* The native red sulphuret of Arsenic was called Sandarachæ by the Greeks, Realgar and Resigal by the Arabians. The name, Arsenic, was restricted, by the former, to the *auripigmenta*, or native red and yellow sulphurets, when they had the form of thin leaves or scales.

ruent, &c. as applied to ulcers, were not strictly employed as distinctive appellations of different species of sores, but rather as terms descriptive of certain changes, that were liable to occur; so that a sore which was strictly termed sordid one day, might, with equal strictness, be termed sordid and depascent the next; the third day it might be termed malignant or virulent; the fourth, putrid and corrosive, or otherwise, as the particular symptoms might indicate:—"Dum ulcus non habet nisi sordem et saniem grossam et viscosam dicitur sordidum: postquam autem augetur ipsius malitia ita ut putrefacit et mortificat carnem—à qua elevatur fumus fetidus et cadaverosus dicitur putridum et frudentum. Et si ambulat ejus malitia transit ad esthiomenum et ad hominis mortem."—GUIDE.

"Phagedænas antiqui nominant ulcera quæ semper majora, et deteriora fiunt, vel cicatrice nullo modo adveniente, vel si facta sit, resoluta; vel propter influxum vitiosorum humorum, vel propter dispositionem partis latentem longo tempore contractam, ex influentibus humoribus, vel ob aliquam dispositionem ossis eo loco corrupti—quod putridum, atque depascens a nonnullis ulcus vocatur, non est propria ulceris differentia, sed passio implicita."—CASTEL.

The following appellations, viz. Cancer, Herpes esthiomenus, Ignis Persicus, Erysipelas, and even Carbunculus, Nôli me tangere, and Lupus, were also very differently applied by different authors; and hence it is only by comparing the descriptions and treatment of similar diseases, that are to be found in the same author, with one another, and likewise with those that are to be met with in other authors, that we can arrive at any certain knowledge of the particular diseases they refer to. This, however, is a difficul-

ty of no recent date: “ Verum enim vero quoniam ab ipso etiam Galeno locis sexcentis dictum est, non importere de nominibus contendere, si quis putrescens ulcus, et quod exciditur, et quod gangræna, et quod erysipelate affligitur, et cancrustum, et cacoethes, et dolens, et indolens, atque id genus alia ulcerum differentias nomenaverit, non erit cum eo contendendum, modo rectam illis curationem adhibeat.”

Paulus, who wrote in the 7<sup>th</sup> century, and who is considered to be uncommonly minute, has, in his Treatise on Ulcers, paid much more attention to the enumeration of the different articles that were employed as local applications, than to the recording of the diagnostic symptoms of the particular diseases he treats of. He takes notice, however, of various modifications of sordid and putrid corrosive sores; and he recommends nearly the same mode of local treatment for all of them, the particular applications being varied, according to the existing symptoms. In his 4<sup>th</sup> book, chap. 44, “ De nomis proserpendo depascentibus, et putredinibus ac Phagedæna,” he recommends vinegar, vinegar and water, astringent wines, either alone, or variously combined—also cataplasms made with various acrid vegetable substances, along with turpentine and verdigrise—“ si crusta non decedant elaterii parvam portionem ad æruginem admisceo.” “ Ad nomas et putredines R. Salis ʒ xii. Aluminis usti ʒ i. Squamæ æris, Pumicis usti, a. ʒ i M.” “ Ad putredines”—“ Nomas”—“ Phagedenas et ad Carbunculos R. Calcis vivæ, Chalcitidis, a. ʒ ii. Auripigmenti ʒ i. M.”

The description which Paulus, and other ancient authors, gives of Carbuncle, is strikingly minute, when compared with that which they give of most other local diseases; and it

is remarkable, that all of them describe it almost verbatim in the same words.

In comparing these descriptions with the appearances which I have often witnessed in cases of Gangrenous Phagedena, I have been struck with the number of particulars in which the two diseases resembled each other. What has been termed genuine Carbuncle, is a disease with which surgeons in this country have very little opportunity of becoming acquainted. It is well known, however, that there are more than one variety of this disease; or that there are other diseases, which, from bearing a very close resemblance to it, are usually noticed under the same name. Some of these seem to originate in the brute creation, particularly the cow and the horse;\* and from these have been communicated to man, and to both have proved equally destructive. Upon this subject much is yet to be learned—and it would certainly be very desirable to become acquainted with the effects that would be produced by the insertion of the matter of the different species of Carbuncle into a wound or ulcer.

Rolandus, an author of the twelfth century, has, in his third book on Wounds, a chapter with the following title: “De Carbunculo superveniente vulneri.” He does not give any description of the disease, but observes—“Carbunculo vero superveniente vulneri populion inungere circa consuevimus.” He then describes the populion, which, he says, allays febrile heat, and induces perspiration: “Super carbunculum vero pone hoc unguentum R. Auripigmenti, Piperis part. equal. Ficus siccas ad libitum, tere et con-

\* For a comparatively recent instance of this kind, see London Med. Repository, vol. iii.

fice cum melle, et coque ad spissitudinem, et superpone, Carbunculum enim mortificat."

Belloste, when speaking of the bad effects of the air on wounds, refers to Gangrenous Phagedena as a species of Carbuncle: "These Carbuncles," he says, "that are so frequent in hospitals of the army, are occasioned, as some think, by the *arsenical* particles in the air, which, being taken in by respiration, are thrown out, by the strength of the natural heat, upon some excretory."

In the following observations, which are to be met with in the voluminous compilations, or rather commentaries, of Avicenna, an author of the eleventh century, there is, in my opinion, an evident reference to Gangrenous Phagedena.

"De ulceribus sunt putrida, et de rebus magis nocivis sunt meridies, et humiditatis aeris cum caliditate ipsius. Et de eis sunt corrosiva. Et putrefactio est præter corrosionem. Quod si fuerint, erunt ambæ ambulativæ: et fortasse corrodens est corrodens illud, quod continuatur ei, proprie propter acuitatem absque putrefactione: et neque est febris omnino. Verum cum ambulativo putrefactivo multiplicatur febris, aut non seperatur ab eo. Galen quidem nominavit hujusmodi ulcera corrosiva ignem persicum, et formicam ambulativam."

With regard to the treatment of such sores, he observes,—"Non oportet ut sit dilatio in curatione eorum, nam eorum putrefactio addit ipsorum malitiam. Et oportet ut prohibiantur ab eis apostemata calida"—"fit necessarium ut evellantur cum cauterio cum igne, aut cum medicamine acuto, aut cum incisione, ut non remaneat nisi caro sana.

*Et medicamen quidem acutum accepit omnem ostracitatem, et extrahit ipsam.* “Fortasse fit necessarium incidere membrum ut salvetur ex putrefactione sua.”

He recommends the sores to be washed with salt water, soap and water, or a lotion made of water and the ashes of the vine; and he then gives the composition of a variety of active applications, made of various acrid, vegetable, and mineral substances, particularly squills, wild cucumber, alum, muriate of ammonia, mercury, lead, copper, and arsenic, variously compounded, and of which the following are two examples: *R. Lythargiri lb i. Ol. Veteris lb ijs. Arseneci lb i. decoq. Lythar. cum olio donec non adhereat, deinde fundatur super ipsum Arsenicum. R. Calcis. et Colcothar part. eq. Arsenici part. semiss. ft. linim. cum olio.* He also recommends an empyocation made of arsenic and soap, or the ashes of the vine dissolved in water.

Of the different compounds of Arsenic, the auripigmenta, and, of these, that which is now termed the red sulphuret, was that which, from its being supposed to be more manageable in its operation, was most commonly employed by the ancients. The yellow sulphuret of arsenic is said to contain about one-fifth, and the red sulphuret one-tenth, part of sulphur in their composition. The oxide, or, as it was then called, the sublimate of arsenic, was well known, but was seldom had recourse to, on account of the bad effects which were observed to follow its unskilful employment.

In the works of Rogerus, Brunus, Theodoricus, Lanfrancus, Bertapalia, and Guido, authors of the thirteenth



and fourteenth centuries, we meet with many descriptions of putrid corrosive sores, with numerous references to their various modifications; and though there be great want of precision, and even confusion, in the names and appellations by which these varieties are designated, there is, in all of these authors, a distinct reference to one species or modification of local morbid action, which, from the nature and violence of its symptoms, there is great reason to believe, was the true Gangrenous Phagedæna. It would exceed all bounds, however, were I to make such quotations as would be requisite, to give a full and impartial view of the opinions and practice of each of these authors. I must therefore, in a great measure, confine myself to merely pointing out those parts of their works that appear to be immediately connected with the subject, of this inquiry, and which are as follows: Rogerus, Tract. ii. cap. ii. iii. iv. v. et vi. Brunus, lib. i. cap. xiv. Theodoricus, lib. iii. cap. v. et ix. Lanfrancus, Chirur. parv. cap. xii.; Doct. iii. Tract. i. cap. xi.; Doct. ii. Tract. iii. cap. ii. Bertapalia, Tract. iii. cap. i. ii. iii. viii. et ix. Guido, Tract. ii. Doct. ii. p. 13, 14, 16. Tract. iii. Doct. i. p. 28; Tract. iv. Doct. i. cap. ii. et iii.

The works of these, as well as of some other authors, are but too generally neglected by modern surgeons; and yet it is difficult to conceive, how any one, who pretends to a knowledge of his profession, can allow himself to remain ignorant of their contents, if he at all suspects the information that may be derived from them. For medical officers in the army, there are, unfortunately, but too many excuses; but there is no obstacle that will not be overcome,

when professional zeal is sufficiently operative. When great obstacles are overcome, there is the greater merit—and if merit be, for the most part, slowly requited, and but too frequently overlooked, there still remains a certain personal satisfaction, which, when well-grounded, is of more real value, and is more lasting, than even the highest reward that can originate in a source exterior to ourselves.

Theodoric, Lanfranc, and the other authors to whose works I have referred, agree very much both in their descriptions and mode of treating putrid corrosive sores; the later writers always borrowing very freely from their predecessors; and, what adds much to their credit, they are seldom backward in acknowledging their obligations. It is probable that Guido was the latest, though not least, of these authors; and, on that account, I am inclined to believe, that an examination of his opinions and practice will prove nearly equivalent to a general analysis of the authors that preceded him.

Of the works of Guido, there are several editions. That which was published in the sixteenth century by Tagaultius, and which, though an abridged, is in some respects an improved edition, is the one which I have selected for the purpose of making the following extracts:

“ Quid sit ulcus sordidum, quod Græci rhyparon vocant: quid item putre, seu putrifactum ulcus dicatur, supra definimus—Porro *sordidum et putrifactum* ulcus Guidoni dicitur ‘ quod sui malitiæ (ut ejus verbis utar) putrefacit membrum, demittendo viscositatem aut carnem mollem sive (inquit) crustosam, fetidam, à qua fumus elevatur fetidus et cadaverosus.’ Ac, tale quidem ulcus fraudulentum etiam

appellant. Cæterum si ejus malitia ulterius progrediatur, et serpat, in sphacelum (quem vulgus esthiomenum vocat) degenerat, et homini vitam ademit."

The cure, he says, is to be commenced by instituting a proper regimen, and by having recourse to proper evacuations for purifying the humours; and, for the same purpose, cupping or leeches are to be applied in the vicinity of the sore: "Post hæc vero propriam ipsius ulceris curationem agredieris." He directs the sore to be well washed with hydromel, or salt water—"Deinde mundifactum ulcus, unguento vulgo Apostolicum dicto, aut eo, quod Ægyptiacum nominatur. Si vero Sordes in putredinem aut corruptionem degeneret, locus abluendus erit oxycrato, aut (ut voluit Guido) aqua cineris, vel saponis." A variety of active applications are then recommended, of which the following is an example: "R. Vitrioli part. xii. Chalcitidis part. x. Tragacanthi part. ix. Coquantur in aceto et ex iis fiat linimentum."

To what follows, I would particularly request my reader's attention:

"Porro si ulcera ejusmodi depascentia putridaque, eoque feritatis et malitiæ devenerint, ut partes adjacentes magis atque magis semper erodunt, ac sine modo in illis corruptelam excitent, vehementissimis medicamentis (quale supra in curatione malignorum ulcerum recensuimus) indigebunt: Imo vero frequenter inustiones atque etiam excisiones illis erunt necessariae, itaque ut quicquid vitiatum ac corruptam est, prorsus extirpetur. Inter cætera autem medicamenta acria, quæ vivam a corrupto separant, et in hoc affectu celebrari solent, omnium prestantissimum atque cf-

*ficacissimum* \* quotidiano experimento deprehenditur Arsenicum quod sublimatum vocant, ut aliquoties alibi annotavimus. Hoc enim confestim malum sistit, et id quidem sine dolore.†

He had recommended the same local application to be made in cases of inveterate Carbuncle, Esthiominus, and other Malignant Ulcers. In treating of the latter, he recommends (when the sore does not yield to less active remedies) the Actual Caute<sup>r</sup>y—and if that be objected to, “*Pastillæ Musæ aut Andronis. Quod si hæc parum proficerent, Arsenicum quod sublimatum nominant, modica tamen quantitate, † tuto adhibere potest. Locus autem ambiens, hoc est, circumpositæ ulceri partes, interim refrigerantibus perpetuo nutriendus erit ne tam vehementibus admotis præsiidiis fluxio iritetur.*” †

When all other means prove ineffectual, he recommends amputation: “*Id autem miserum atque ultimum auxilium nunquam tentandum est, nisi dum cætera presidia nihil proficiunt, et malo prorsus victa sunt.*”

I cannot leave this author, without again expressing my

\* Guido's own words are—“*Medicamen quidem acutum quod non habet par in hoc casu est Arsenicum Sublimatum.*” He directs it either to be sprinkled on the sore, or, what he seems rather to prefer, to dissolve it in wine, and apply it to the sore, by means of cotton soaked in the solution. The practice recommended by Guido, coincides so remarkably with that which the author was himself led to adopt, that he could not blame any one, who is ignorant of particular circumstances, for suspecting that he had merely followed his directions.

† “*Est enim arsenicum fortis ac violenta medicina commovens febres et accidentia mala: in parva quantitate magna faciens operatione. Quantitas communis est medietas grani frumenti in fortibus et longe a membris principalibus. Melius est semper reiterare quam in una vice nimis ponere.*”—GUIDO, Tract. ii. Doct. ii.

‡ Guido does not claim all the merit of this remedy, but refers directly to Theodoricus and Henricus, as having made mention of it, and who state it be an “*infallible*” remedy.

surprise, and regret, that he is so seldom referred to, and of course so little known to surgeons in this country; for, were his Treatise on Ulcers and Sores in general, better known, I am confident I would not be singular in the opinion, that it is of more real value than a whole library of more modern productions on the same subject. How this melancholy fact is to be accounted for, is perhaps a question of less difficult solution than may at first sight appear. Now-a-days, a few years study, followed by a still shorter period of practical experience, is found to be quite sufficient to enable the successors to Hippocrates to become teachers of the whole science of Medicine and Surgery; while, as part of the same system, modern Essays and Treatises, on subjects connected with the healing art, instead of proving to be the fruit of long or extensive experience, and patient investigation, as was the case in former times, are, in many instances, at least, little else than lengthened hand-bills, relating to some obscure or wonderful *Case*, or still more wonderful hypothesis—These their authors deck out for the obvious, and now almost acknowledged, purpose, of attracting the multitude, and of thereby introducing themselves into some field of practice, where alone materials are to be found for improving their art, or benefiting their species.

Alphonsus Ferrus published, in 1534, what is understood to be one of the first Treatises on Gunshot Wounds. He was a great advocate for hot dressings, in that species of wounds; and, as will appear from what follows, no less an enemy to the opposite mode of treatment.

“ Abstineant itaque, obsecro, imperitiores Chirurghi ab hoc melendi usu s. curationes initio, ovi album, atque id

genus cætera administrare, ne carnifices magis, atque hominum vitæ insidiatores quam medici esse videntur, majoremque lethi causam ægris præbeant, quam ii à quibus vulnera acciperant.”

He was of opinion that gunshot wounds were poisoned. “Vulnera enim fere omnia quæ Sclopetis sive Archobus infliguntur pessime afficiunt ægros, abscedunt, *corrumpuntur, putrescunt, febremque movent acrius quam ulla alia vulnera.*”

He endeavours to prove that they were poisoned by the gunpowder; and then adds,—“Venenatum itaque medicamentum hoc calidum habitum malum induxerit principalibus membris, et illi, quod læsum est, *putrifactionem, mordicationem, rosionem, ulcerationem corruptionemque* parabit. Quæ quidem omnia calidi veneni propria sunt.”

After this description, little doubt can remain as to Ferrus having been witness to the supervention of Gangrenous Phagedena upon gunshot wounds; and, by taking this view of the subject, we can readily account for the treatment which he recommended, viz. scarifying and cupping, for extracting the poison, and the actual cautery for eradicating it. His mistake, (and a great mistake it certainly was,) lay in extending this practice to gunshot wounds in general, and that almost, if not altogether, without exception. Such mistakes, however, can hardly excite our surprise, seeing that they are so frequently to be met with in the history of Medicine and Surgery.

Those who adopted that mode of treating gunshot wounds, which Ferrus so strongly opposed, seem to have gone nearly as far beyond the mark as their opponents; for we find, that along with other acrid applications, the

Actual Caustery not only fell into great and general disrepute in the treatment of gunshot wounds; but was ultimately proscribed, and not in that species of wounds only, but in sores of every description. The consequences of both these extremes are still felt; and there is reason to fear, that, in this country, public opinion is too strongly biassed to admit of an immediate change; for it is difficult to overcome a long existing and deep rooted prejudice.

It would have been a surprising circumstance, had no notice been taken of such a disease as Gangrenous Phagedæna, in the writings of Ambrose Parey, so well known to have been no less remarkable for professional zeal, than for the extensive opportunities which he enjoyed, during a long life of incessant activity. We find, however, on perusing his works, that he gives no description of it as a distinct disease; but that he finds occasion to make repeated references to it, under the idea of its being merely a change from a healthy to a less healthy action in a sore, arising from various causes, but particularly from a supposed *corrupted state of the atmosphere*. In his Second Discourse on Gunshot Wounds, and after refuting the then prevailing notions, that such wounds were burned by the ball, were poisoned, &c. he accounts for their occasional malignancy in the following manner:—“*Toutes lesquelles choses defaillantes au temps des dernieres guerres, il ne se faut esbahir si les navreures, tant fussent-elles petites et de peu de consequence, mesmes et parties non nobles et principales, ont amené quant-et-soy tant d'accidens fascheux, et en fin la mort: Consideré que l'air qui nous environne,*

rend par son inspiration et transpiration les playes pourries et puantes, lorsqu'il est altere et pourry : ce que font aussi les humeurs preparez à cet inconvenient, par leur cacochymie. Nous en sommes devenus sages par l'experience de tant de playes, lesquelles lors que je m'efforçois à les guair, rendoient une telle et si grande puanteur, indice et temoignage tres certain de pourriture et infection, que les assistans ne la pouvoient sentir qu'a contre cœur, et avec bien grande difficulté."

In another chapter, where he defends his mode of treating gunshot wounds, from an attack made by a certain physician, he makes the following remark :—

“ Quant au mespris qu'il fait de l'onguent Egyptiac, je croy veritablement qu'il demeurera seul en ceste opinion et hercsie, veu qu'on na encores sceu trouver de plus singulier remede pour prevenir, et corriger la pourriture, qui survient le plus souvent en telles playes, lesquelles degenerent souvent en ulceres virulens, corrosifs, et ambulatifs, et malins, jettant une sanie puante dopt la partie tombe en gangrene si on n'y remede par l'Egyptiac, et autres medicamens acres, qui ont este pour ceste raison font approuvez desdits Botal et Joubert, et de tous bons chirurgiens.”

And, on another occasion, when treating of the changes produced on the humours by particular modes of living, he observes, “ Ainsi la melancholie, et autres humeurs, estans, meslez et partroublez, infectent le sang, et le disposent a pourriture et venenosite, dont la peste est souvent procee, et autres pourritures : ce que n'augueres nous a este manifeste en plusieurs de ceux qui furent blessez a la bataille pres S. Denys, les playes desquels degeneroient en grandes pourritures, accompagnees de fievre putrides, et



autres grands accidens : a *presque tous mouraient* tant d'une part que d'autre, voire encore que leurs playes fussent petites, et en lieux du coups non dangereux : et aussi qu'ils fussent traictez de toutes choses necessaires, tant a leur maniere de vivre, qu'autres choses"—“ Les pourritures et autres accidens ne venoient seulement aux playes faites par bastons a feu, mais aussi a celles qui estoient faites par autres, armes, comme d'espées, de piques, de lances, et autres. Partant il me semble (sous correction) que les accidens ne venoient par la malignite de la poudre a canon, et moins des boulets qu'on disoit estre envenimez, mais plustost a cause de l'ebullition du sang et des autres humeurs se brouillans et meslans ensemble, tant pour l'extreme cholere et effroy de l'apprehension de la mort, qu'on void si proche, et principalement aussi pour la constitution et pourriture de l'air.”

The treatment he recommends is as follows : “ Au premier appareil, dans les playes, en cas de putrification, sera appliqué tel onguent qui s'ensuit. ℞. pulver. aluminis rochæ, viridis æris, vitrioli Romani, mellis rosatiani. ꝑ. ij. aceti boni quantum sufficit : bulliant omnia simul secundum artem, et fiat medicamentum ad formam mellis.”—“ Cet onguent toutes et quantes fois qu'il en sera besoin, se pourra appliquer avec tentes ou setons, estant dissout avec vin, ou eau de vie : lesquelles tentes seront assez grosses et longues pour le premier appareil, afin d'eslargir et dilater la playe, pour mieux y jeter les medicamens : puis apres ne seront appliquees si longues et grosses. Aussi pour mieux couler au profond des playes, se pourra jeter avec une syringe.”—“ L'on se peut mesme et doit on passer de l'Egyptiac et n'en user aucunement, quand l'on n'a

point a combatre un temps pestilent et pernicieux pour les dites blesseures, tel qu'on a veu les années pasées. Apres l'usage de l'Egyptiac on fera tomber et separer l'escarre, avec choses remollitives et linitives."

It would appear, from the treatment that is here recommended, that Parey has, in this instance at least, to give up more to antiquity, than the mere "glory of invention;" for it is not difficult to discover, from his remarks, that the disease in question, when it did occur, proved generally fatal. And it could not fail to be otherwise, if such was the method of cure that was generally had recourse to, and relied on.

The first English writer I shall notice in this inquiry, is the justly celebrated Wiseman; for though it may not be indisputably ascertained that he had had an opportunity of observing this species of Phagedena, he notices a disease, which, to say the least, is very closely allied to it. In speaking of putrid ulcers, he says, "The sign of a *sordid* ulcer, is a tough excrement sticking in it, with great heat and pain. As the *sordes* increaseth, it changes its colour; and the ulcer corrupts, and the matter stinks. If, from abundance of *sordes*, transpiration be hindered, a corruption of the part follows, and it terminates in a corrosive, or putrid ulcer: and if that putrefaction be not checked, a gangrene and sphacelus follows."

He afterwards describes two kinds of phagedenic ulcers; the one he terms Phagedena, and the other Noma. "Both these are venemous, malignant ulcers, and both spread; but they differ, in that one hath tumour, and no putrefaction; the other putrefaction, and no tumour."

When describing the treatment proper for the sordid or putrid ulcer, he observes, “ If the ulcer be corrosive, and undermine the lips—dress as shall be shewed in a phagedena.” And in treating of the cure of that ulcer, he gives the following directions: “ If this ulcer be with rottenness, and putrefaction, you are to proceed with detergents, as Ung. Egyptiacum, &c. also caustick and actual cautery.”—“ You will find use for the strongest sort of medicaments.”—“ But in case that (the cautery) will not be admitted of, you must proceed with the other, and the while, defend the parts with refrigerants; and after separation of the corrupt flesh, treat it by sarcotics and epulotics.” But, according to some, Wiseman and his brethren are old-fashioned gentlemen, and may have been wise enough in their own generation, sed tempora mutantur—“ Et quoniam variant morbi variabimus artes !”

Of the authors whom I have hitherto quoted on the subject of the *putrid corrosive ulcer*, no one makes mention of it as being of a *contagious* nature; and hence some may be disposed to believe, that it cannot be the same disease with that which I have denominated Gangrenous Phagedena. That circumstance, however, is no proof of the non-identity of the two diseases; for the latter disease has been described by authors, without any notice having been taken of its contagious nature. It may also be remarked, that the subject of Contagion and Infection was either much less understood, or less attended to, by the ancients, than by modern authors. Who, for example, can read the descriptions that are to be met with in Celsus, Avicenna, and other authors, of the ulcers to which the parts of generation are

liable, without believing, that they were frequently communicated by the one sex to the other? Yet no notice is taken of their having been so communicated. Instead, however, of disbelieving in their having been thus propagated, one might rather be led to suspect, that these authors were familiar with that disease now called Syphilis—that they cured the primary sores by local applications—and that they mistook the constitutional symptoms, (which, when they do occur, are often late in making their appearance,) for a new disease. It is well known, that the Arabians were in the habit of using mercury for the cure of cutaneous diseases. It is also well known, that nodes, carious ulcerations of the bones, and (though perhaps less severe) almost, if not all, the constitutional evils with which Venus is believed to have been scourging the human species for five centuries past, were familiarly known to medical authors, at a period long anterior to the perhaps too celebrated siege of Naples. Too notorious, however, that event must become, if it shall yet be ascertained, that physicians and surgeons, instead of proving their art to be “divine,” have ever since been entailing innumerable evils upon their species, by ill-timed and injudicious employment of Mercury, proceeding from too great reliance, or rather an infatuated confidence, in its powers

## CHAP. II.

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OF AUTHORS WHO HAVE TREATED OF GANGRENOUS PHAGEDENA, FROM THE BEGINNING OF THE SEVENTEENTH CENTURY, TO THE PRESENT PERIOD.

AT the beginning of the seventeenth century, G. Horstius wrote a number of Observations, Consultations, and Epistles, on medical subjects; and, among the last, is to be found one, dedicated to a consideration of the cause and cure of Gangrenous Phagedena: “ Inter chirurgos ægros, et etiam illos, quibus de meliori luto finxit præcordia Titan, ab aliquot annis retrolapsis, hucusque exorta est admiratio et contentio, *Cur hoc Martiali seculo vulnera ferè omnia in pejus ruant, difficulterque curentur?*”—“ Verum si fateri velim, attestor, quod omnia ferè vulnera vel ad mortem, vel insignem putredinem cesserint.” With regard to the cause, he observes—“ Cauſa genuina—nulla fuerit alia, quam aër vitiosus, ex castrorum sordibus, et habitus corporis cacochymicus—vel biliosus, vel depravatus ex morbo gallico.”

He advises the cure to be commenced with mild purgatives, or glysters—“ Chirurgia prestantissima in modernis vulneribus fuerunt applicatio Decocti ligni Guajaci et Salsiparillæ, &c. in sordidioribus autem applicatio decocti Passularum Corinthiacarum, cum parum vitrioli, vel aquæ cal-

eis vivæ cum melle rosato, palmam obtinuit." He then relates the history of a severe case, which occurred in a patient, who had been slightly wounded in the occiput, and to whom he had been called in consultation, after the disease had made great progress—"Ubi rebus omnibus præmeditatis, et corpore disposito, nullum tutius occurrebat remedium quam ut latiori *candenti ferro* per intervalla cranium nigrum cauterisaretur." The operation was performed in the month of May; and he continues—"Minima ossa numero 83 indies excernabantur, usque ad mensem Augusti"—"pondero ferè quadrantis libræ, ut in schemate transmissio apparet." Ultimately, a complete cure was effected; and he adds—"Patiens non amplius de Cephalalgia conquestus est."

In treating of the Scurvy, our author describes it as being of a contagious nature; and he states, that it is got by lying in the same bed with one that is affected with it—by using the same cups—and by kissing. In describing the local symptoms, he observes: "Non rara maligna succedunt ulcera, propter unitatem ab erodente materia solutam."

He also states, that persons affected with this disease are sometimes affected with fever, of a continued, interpolating, or intermittent form: "Frequenter hæ febres scorbuticæ inordinatæ sint, ut quandoque bis, aliquando ter, quaterve, sæpius etiam post tertium, quartum, quintum, vel sextum diem variis horripilationibus ægrum invadunt. Pulsus quamvis, vigente febre, magnus et durus, statim decrescenti febris æstu, in parvum crebrum et inæqualem."

Horstius' description of the Scurvy, does not correspond with the symptoms of the disease which now goes by that

name. He seems to include in it, not only Scelotyrbo and Stomacace, but that disease, which is produced by using bread made of a particular kind of grain. It is probable, that he also includes a disease which is common in some parts of Holland, and which is particularly marked by severe aphthous ulcerations of the mouth. It does not appear quite evident, that he does not include even Gangrenous Phagedena,

At an early period in the seventeenth century, La Motte published his "Complete Treatise on Surgery," and is apparently the first author who refers to Gangrenous Phagedena under the notion of its being a species of Gangrene. In his third volume, and under the article "Gangrène," he makes the following observations: "Le mot de Gangrène se prend proprement, ou d'une manière étendue. On prend ce mot proprement pour une disposition à la mortification, qui est ce qu'on appelle vulgairement *pourriture* à l'Hotel Dieu de Paris, laquelle survient et accompagne presque toutes les playes qui sont traitées dans cet Hôpital, et la plus grande partie des absces que l'on y ouvre, a cause de l'air corrompu qui y regne, et que ces blessez y respirent, par la quantité de malades qui y sont, et dans la crainte d'inquieter trop ces blessez, qui croiroient être perdus des que l'on appelleroit cette pourriture, *Gangrène*, quoique ce soit le nom qui lui convient veritablement."

It is not improbable, that this confounding of the two diseases was a principal cause of the unappropriate and unsuccessful methods of cure, which have been so commonly had recourse to in Gangrenous Phagedena. In the Hotel-Ditu, scarifications, and such local applications as were re-

commended in true Gangrene, seem also to have been the means which were employed for the cure of this disease. What remedies were approved of by La Motte, does not very evidently appear; but it is probable, that it is with reference to this species (as he considers it) of Gangrene, that he particularly condemns scarification; and then observes: “Le secret du traitement de ce mal, consiste a y appliquer l’emplatre de styrax, ou l’ægyptiac, et des lotions composées de la maniere que je l’ai dit, de l’eau-de-vie, ou du vin aromatique, ou d’autres remedes spiritueux, afin de fortifier la partie malade, combattre la corruption, et aider par ce moyen a separer le mort d’avec le vif.”

These local applications differ but very little from what I had occasion to see employed in the Flemish hospitals at Brussels, after the battle of Waterloo.

In the posthumous works of M. Pouteau, published in 1783, we find two valuable, though short memoirs, on what he terms “la Gangrène humide des hôpitaux.” He does not, however, consider it a true species of Gangrene: “Elle pourroit seulement avoir quelque relation avec la Gangrène par pique ou morsure des animaux venimeux.” And he is of opinion, that it essentially owes its origin “au mauvais air qu’on respire dans les grands hopitaux.”

The circumstance of some individuals escaping the disease, while others were affected by it, is thus accounted for, p. 230: “Tous les ulceres de l’hôpital ne sont pas également devastes par la gangrène.”—“Je reponds que tous les inocules ne contractent pas cette maladie, et que pour y avoir resiste dans un tems malgré une inoculation bien faite, on n’a pas l’assurance de n’y être jamais expose.”



But so dreadful was the progress of this disease, as generally observed in the French hospitals, that he proposes the following question, p. 131: “ Les hôpitaux seroient-ils donc plus pernicieux qu’utiles à l’humanité ?”

In the second Memoir, a good description is given of the local symptoms; and, at p. 240, he comes to the following conclusion, respecting the successive appearance of the local and constitutional symptoms: “ La cause de la Gangrène agit le plus souvent d’abord sur la place même par une sorte d’insertion, et par réaction subsequente sur tout le reste de l’économie animale.”

The method of cure which he has recommended, shews how well he understood the true character of the disease; or, as some may be inclined to believe, that he was not among the number of those who are accustomed to overlook the opinions and practice of their predecessors. His local application was the Actual Cautery; or, “ si la pusillanimité du malade, ou peut-être celle du chirurgien étoient trop revoltées par l’usage du cautere actuel, on pourroit le remplacer par l’huile bouillante, ou par quelque mélange medicamenteux susceptible d’une chaleur encore plus vive, que l’huile simple.” The constitutional affection which accompanies the disease, he considers “ relativement à sa cause; une vraie fièvre maligne.” And, accordingly, “ La saignée est ici d’une foible ressource, une seule suffit, et dans les tempéraments sanguins seulement.”

He recommends emetics and purgatives—but bark, and other supposed febrifuges, he considers as being altogether useless. He recommends camphire, however: “ Mais il faut le donner à doses assez grandes”—“ cinq grains”—“ reitere de quatre en quatre heures.”

In concluding his Memoir, he takes occasion to make the following remark: “ On a presque toujours paru supposer dans ce Memoire que la Gangrène avoit de inoculée.”—“ On a cependant reconnu que l'air infecte des miasmes gangreneux, pouvoit donner la Gangrène d'hôpital.” No facts, however, nor even conclusive reasonings, are brought forward in support of this opinion.

In a volume of the Medical and Physical Journal, published in 1785, a paper was written by Dr. Leonard Gillespie, Physician to the Fleet, (at that time Assistant Surgeon of the Naval Hospital at St. Lucia,) giving an account of what he terms “ the Putrid or Scorbutic Ulcer.” In 1800, a volume of “ Observations” was published by the same author, in which he gives an account of the diseases, which occurred in the Naval Hospital at St. Lucia, and in the fleet stationed at the Leeward Islands. In this volume, the “ Putrid Ulcer” is again adverted to, and his former paper on the subject is inserted in the form of an Appendix.

The observations of this author are, in my opinion, particularly valuable, on two accounts. First, as furnishing us with an account of the disease, as it occurred in a hot climate; but more particularly as affecting patients, labouring more or less under *scorbutic diathesis*. Secondly, as furnishing us with a method of cure, which is said to have been very successful in such cases. This opinion I shall endeavour to support, by the following extracts:

“ The chirurgical diseases were principally Scorbutic, or Phagedenic Ulcers, occurring in *ships' companies*, which had been kept *much at sea*, and, consequently, *not supplied*

*with vegetable refreshments and fruits.* From the Vanguard, in particular, were landed a considerable number of men, afflicted with Phagedenic, Gangrenous, or Cutaneous Ulcers, occurring in *scorbutic men*, addicted to the abuse of spirituous liquors, and using *gross diet*."

When the sores were "deterged," what was most essentially necessary, was, "to repress the *luxuriant granulations*, which *sprang up rapidly*, and were liable, from their *sponginess*, to recede into a gangrenous disposition."—"The sore was first washed with a decoction of the vulnerary plants of the country; and orange juice, limes sliced thin, or roasted, and the pulp formed into a poultice, were then applied to the part, and which was occasionally wetted with acid, sometimes diluted. The effect of this, in most cases, was to arrest the spreading of the sore."

"In such cases as occurred in cahectic relaxed patients, *not lately from sea*, but whose *diet* had been more of an *accessent* than of an animal nature, *the effects of the vegetable acid were not so remarkable*; and various other dressings were used and changed when found to disagree with the ulcer, which, in many cases, assumed the nature of the *true phagedena*."—"The effects of this (lime juice) was to restrain the effusion of putrid gore; effectually amending the corrosive quality, *thin consistence*, and dark colour of the discharge."—"What tended much to *increase the malignity* of these complaints, was the *excessive scarcity* of all *vegetable productions*."

"The application of limes cut in thin slices, and applied, over the surface of the sore, was found still more powerful, in putting a stop to a spreading gangrenous ulcer, *especially if it occurred in a seaman after a cruise*, in

which circumstances this practice rarely failed to arrest the disease.”—“ The bloody discharge ceased, in general, after the first application ; and the fætor, which had been insupportable, entirely disappeared.”—“ We continued to make use of limes, and lime juice, in a great variety of cases; first in putrid scorbutic gangrenous sloughy ulcers, such as occur after fevers, or other acute diseases, or take place in bad habits of body, or in hot countries where the atmosphere is strongly loaded with marsh miasmata, or such as are observed in hospitals that are too much crowded.”—“ In all such cases, I can, from much experience, venture to recommend the application of fresh vegetable acid as a most excellent remedy.”—“ Yet we did not depend on it alone.” On the contrary, it appears, that various, and not inactive, local applications were had recourse to, while constitutional remedies were certainly not neglected. Animal food was sparingly used ; spirits were prohibited ; but Madeira and Tencriffe wines were allowed. “ Fruit and vegetables of all sorts were given in as large quantities as they could be procured.”—On another occasion, however, it is observed, that fruit and milk were found to keep up the discharge, and prolong the cure. And, again, “ strict injunction was given to the patients to observe as drying a regimen as possible, *avoiding* fruit, particularly oranges, butter, milk, and moist vegetables.” How these seemingly contradictory statements are to be reconciled I confess myself unable to determine, unless it be, that, when the disease was complicated with, a scorbutic diathesis, a vegetable diet was found to be beneficial ; but when it occurred in patients, who were free from that par-

ticular state of the system, a less restricted regimen was allowable.

These extracts may possibly appear insufficient to establish the opinion which I have advanced respecting them. I trust, however, that they are sufficient to induce any one, who may feel interested in the subject, to examine the work for himself; and then, I am persuaded, he must come to the conclusion, that Dr. Gillespie has, in the course of his observations, described Gangrenous Phagedena under a particular form; that is, as occurring in patients labouring under what is termed a scorbutic diathesis. At the same time, it is very evident that our author does not pay much attention to the diagnosis between that disease, and other forms of morbid action, on the surfaces of wounds and sores, caused by various constitutional derangements

In 1789, Dr. Blane, Physician to the Fleet, (now Sir Gilbert Blane), published a volume, entitled, "Observations on the Diseases of Seamen," in which he takes notice of a "large spreading *incurable* ulcer, which sometimes ends in the loss of a limb, or at any rate disables them from duty, till *a cure can be effected* by the use of vegetable diet, or a change of climate."—"Next to acute discases and scurvy, this is the most destructive complaint incident to a sea life, particularly in a hot climate."

Of those that were affected with it at Barbadoes, one in two-and-a-half died; at Jamaica, one in four; at New York, in 1780, one in six; and, at the same place, in 1782, one in seven.

From the following remark, it would appear, that Dr. Blane was not then aware that Dr. Gillespie had already

published a description of the disease, with its most approved mode of treatment.

“ It ought to be mentioned here, as a fact of great consequence, though very little known, and never, as I believe, published before, that the juice of limes and lemons is the best detergent of any external application that has yet been tried in scorbutic ulcers.”

In 1795, Dr. Adams published an interesting volume of “ Observations on Morbid Poisons,” and, among other diseases, he has included Gangrenous Phagedena, which he characterises as “ a sloughing and ulceration, and each in succession.” In his 4th and 5th chapters is to be found a very good example of his mode of reasoning, both on this and similar subjects; but his plan having led him into more of a theoretical than practical view of the subject, it is next to impossible to do justice to the author without making much larger extracts than is, on the present occasion, admissible; more particularly, as my attention is principally directed to the *practical observations* of ‘ such as have themselves been actors on the stage.’ I am far, however, from insinuating, that Dr. Adams has not had practical experience in this disease; but, as formerly observed, I consider his “ Observations” as more of a speculative than practical nature, and would therefore recommend them to the perusal of those who may feel an interest in such subjects, if indeed there be any who are not already familiar with his writings.

In 1796, Citizehs Moreau and Burdin read to the “ Société de Santé de Paris” an “ Essai sur la Gangrène hu-

midc des hôpitaux." This Essay contains much hypothetical reasoning, but adds little or nothing to the previous stock of knowledge respecting this disease. They remark, (p. 6.) that " la gangrène humide est moins une maladie, qu'un epiphenomene." Their description of its symptoms is far from being either accurate or complete, (p. 8.) " avant qu'il paroisse aucun changement a la plaie, un mal-être general se fait sentir, la langue," &c. They pay no attention to the diagnostic marks, and hence they confound it with phagedena caectica. With regard to the cause, it is observed, (p. 5), " la gangrène humide—comme les dysenteries et la fièvre d'hôpital et de prison, sont produites par l'action des miasmes putrides dont l'air est surchargé." And afterwards they consider this part of the subject more particularly under the heads of pre-disposing and occasional causes.

The treatment is referred to two heads—the preventative, and the curative; which, however, ought rather to have been denominated the primary and secondary treatment. For the means which they recommend as preventatives, v. " stirax"—" l'acid vinaigre ou celui de citron"—or, " une légère couche de potasse caustic"—applied locally, along with emetics, and, in certain circumstances, bark and wine, were doubtless intended to *arrest the progress*, and not to *prevent the occurrence*, of the disease. Under the head of curative means, emetics, wine, and bark are recommended; and, locally, " la poudre de quinquina qui remplit une double indication, en absorbant l'humidité, le pus, et en donnant du ton a la partie."

As a specimen of pathological reasoning in the fifth year of the great republic, I shall make the following extract

from the fourth and last part of this Essay, in which they consider the nature of this disease.

P. 43. “ Le déplacement d'un lieu obscur et mal-àere, dans un lieu éclairé, et, ou l'air est plus souvent renouvelé, augmenté aussi la décomposition septique d'une partie attaquée de gangrène humide. Le même phénomène, a toujours lieu a moins que la force de la vie, n'ait recouvré sa primitive activité, et que la partie ulcérée n'ait acquis ce degré de vitalité nécessaire pour s'opposer a tout mouvement de putrification. Dans tout autre cas le contact de l'oxygène sera funeste, et cela pourroit-il être autrement puisque si cet air pur est d'un côté, l'ailment de tout chaleur et de toute vie animale, et tend aussi a opérer la disorganisation de toutes parties mortes, on trop foiblement influences par les irradiations vitals. De tous ces faits n'est et pas permis conclure que dans la gangrène humide, la nature agit en suivant les mêmes loix que dans la fermentation, la putrification, &c. ? L'élévation de température, la contact de l'air, de la lumière et de toutes les substances qui cèdent facilement l'oxygène, ne sont-ils pas des moyens semblables qui-elle emploie dans tous ces cas ? ”

This reasoning is in support of what they had advanced at p. 32: “ Si le blessé se trouve dans un lieu sombre, et on l'air se renouvelle difficilement, il ne faut pas imprudemment le déplacer pour l'exposer a l'action d'un air plus eminentement vital. Ces déplacement ne peuvent convenir que lorsque la gangrène, humide, n'existe plus.”

At the end of a Treatise on Diabetes, published by Dr. Rollo in 1797, we find an account of “ a sore acted upon by a new” or “ overlooked species of matter,” as observed



in the Military Hospital at Woolwich. The description which is there given of the first symptoms and progress of the disease, is, in some respects, more minute than that of any of the preceding writers. The disease, however, as it occurred at Woolwich, was evidently more simple than that observed in the West Indies; that is, it occurred in a class of patients, who may be said to have been free from any previous derangement of the system: but, however modified, there can be little doubt, that it was still the same specific disease.

The following remarks in this publication seem to be deserving of particular notice:—"The action of the poison seemed to be limited and confined to specific effects. The first were local, producing only a general affection, by a more extensive operation on the sore."

"Five or six days from the appearance of the small ulcer, or ulceration, when it had extended over one-third of the former sore with pain and redness in the course of the lymphatics, and the glands through which they led, with enlargement of them, general indisposition of the body became evident."—"We have seen the constitutional effects not taking place until the ulceration had occupied a large portion of the sore; and we have seen that the painful and extreme sensibility did not occur until the system was affected. Therefore it may be presumed, the early ulceration has been unattended to, and the state of the sore remarked only by authors after it had assumed the appearance of Phagedena."

"Some men in *quarters* were affected with this disease."

"The men in the same wards were not generally affect-

ed with it. Those with specific sores, or with sores of small extent, and having little discharge, though lying within two feet of the men under the action of the poison, escaped."

The escaping of these men seems to admit of an easy explanation, from the following statement, which is to be met with in another part of the work.

"We suspected, in a few instances, that the poison was propagated from one sore to another, by means of the sponges employed in the *occasional* wiping, or washing—the *same* sponge being unguardedly used *for different sores*."

From what follows, it will appear, that "small sores," or "such as had little discharge," were not likely to meet with much "wiping or washing," and hence escaped inoculation:—"In all sores on which the poison shewed itself, the discharge was considerable. When dressed, the matter was seldom cleaned off, by which it formed incrustations about the edges, or at a little distance from the sore." Could any surgical practice be more reprehensible? It is added—"This arose *from the opinion of some*, that the washing of sores, if it did no harm (to the delicate fingers and olfactory nerves of the washer, we presume,) was at least superfluous; and, from the great number of sores at that time, to be daily dressed, by which less attention was probably given, than might have otherwise been required and bestowed."

At this stage of our inquiry, it is not without surprise that we meet with the following remark:

"In examining ancient and modern authors; I could find *no disease* which corresponded, though, to the Phagedena of Dr. Adams, it bore a similitude in some of its stages."

We find, however, that Dr. Rollo was not careless of what passed within his own observation: "Impressed strongly with the notion, that a morbid poison was applied locally to the sore, which, like the venereal poison, had the power of assimilation, as also of being absorbed, producing effects on the system, and a reaction on the sore, we were determined to adopt a local means of treatment."

At the time of Dr. Rollo's publication, chemistry was every thing; the medico-chemical mania was in full vogue; nothing but decomposition and analysis was to be heard of. It is not surprising, therefore, that this "new" or "overlooked" poison should have been brought to the alembic or crucible; the morbid matter on the surface of the sore, must be decomposed and neutralised. It is a curious fact, which we not unfrequently find verified in the history of medicine, that the most absurd theory, and a successful mode of practice, are not necessarily opposed to each other. A cure, however, without a theory, goes for nothing; it is only the operation of a quack, or an empiric!

"The oxygenated muriatic acid, and the nitrates of silver and mercury, were the local applications that were employed, and laterally the oxymuriatic gas."

The former were applied in the form of dilute solutions, by means of lint; and it is said that, "by these means *diligently persevered* in, the poison and ulcer were destroyed."

Mr. Cruickshank, the celebrated chemist, had engaged, it appears, with Dr. R. in making a number of chemical experiments, in order to discover the nature and properties of the matter of this sore, and the following are the practi-

cal conclusions he was led to form: "A sore, once clean, might be preserved from the effects of the matter alluded to, by washing it, at every dressing, with a weak solution of the nitrate of mercury, or the oxy muriatic acid, and that even the generation of such matter might be entirely prevented by the same means."

"After the action has taken place, and before a general disposition is formed, it might be possible to stop its progress, by very active topical applications."—"We would prefer, in this case, the most active mercurial preparations."

"And if an *actual caustic* were to be employed, we should have recourse to the strong nitrous acid"—"dipping a little lint in the acid, and applying it to the part." The oxygenated muriate of mercury, and the nitrous acid, were much recommended, and seem to have been frequently employed by surgeons in the sixteenth and seventeenth centuries. They were applied locally, as escharotics, in cases of gangrene and foul ulcers.

In the 4th volume of the Medical and Physical Journal, published in 1800, two communications were made, respecting this disease; one by Mr. Ballard, surgeon, Royal Navy; the other by Dr. Harness, Physician to the Fleet. What seems to be most deserving of notice in the first of these papers, is that which relates to the first appearance of the disease among the sailors on board the Triumph: "I was informed that a man, with a very ill-conditioned ulcer, had been received on board the Triumph from the guard-ship at Spithead; and that, from the date of his admission, they had observed an alteration in the complexion of the sore."

From that period, the disease became daily more frequent and severe: "Every external means, that afforded even a gleam of hope, were tried—but without any permanent advantage."

Ultimately it was "accompanied with alarming fever, which did not appear before," (this was when cruising on the coast of Ireland,) "requiring the most active remedies of inflammation."

He also states, that a naval surgeon had informed him, that his ship had been free from such cases, "till the introduction of some bad ones from a ship in the Channel service; and in vain did he endeavour to eradicate them by external means."—"Thus circumstanced, he resolved to send every case, however slight, out of the ship, and totally destroy every thing that had been used in dressing them, sponges, lint," &c. "This was attended with complete success;" and Mr. Ballard concludes, "No other means will be effectual in banishing them from the navy."

In the paper by Dr. Harness, we have the following remarks, which rather confirm than weaken the opinion advanced, relative to the cases in which citric acid was found so useful:—"Having, in the course of a long and extensive practice, been too frequently witness to the inefficacy of the applications hitherto made use of in the navy, in the treatment of scorbutic ulcers, viz. citric acid, bark, myrrh, rhubarb, and opium, I was induced to have recourse to the gastric juice of graminivorous animals." Is there any thing that has not, or that will not be introduced, as a cure for some one of the numerous "ills that man is heir to?"\* One case is detailed, and others are re-

\* The dried and pounded penis of a stallion has been held forth as a cure for Sterility—A few grains of cobwebs, as a specific in Fever—Burying the

ferred to, in which this juice was employed, along with the internal use of aperients, bark, and “ as many onions and lemons, in the course of the day, as his stomach could easily bear ;” and he ultimately had a perfect cure.

In the 5th volume of the same Journal, there is a communication by Mr. Edwards, who had been assistant surgeon at Haslar Hospital. The class of patients admitted into this hospital were such, as would lead us to expect a modification in the symptoms of this disease. They were, in general, men who had been for a length of time at sea, or on board of ship; and, of course, accustomed to live on salt provisions and coarse rum, with a very scanty supply of fresh vegetables.

“ The patients’ countenances, on their first admission, always appeared wan and dejected.”—“ It is evident their (the ulcers) contagion and obstinacy, proceeded from the vitiated state of the body.” The external applications made use of were emollient cataplasms, and fomentations of the decoctions of bark and poppy heads; and, after the sore was made clean and healthy by these applications, such as were slightly stimulating, sulphas cupri, nitrus argenti, &c. were applied to the edges. Internally, a laxative, followed by an opiate, was administered. In the course of the day, a pint of the decoction of bark, “ after its having gone through the vinous fermentation,” was given, along with

up to the neck in the earth, The internal use of tar-water, and, Living in a cow-house, have severally been held up as a cure for Consumption. All Diseases are said to be cured by certain motions performed with a Rod of Iron. The effects produced by sponging the hands and feet with a Subacid Liquor, shall—in the process of time, be ascertained.

an allowance of “ lemonade as common drink,” and “ wine and porter when requisite.”—“ During the cure, the patients lived chiefly on *animal food and vegetables*,”—a sufficiently nourishing diet; but they had *also* “<sup>t</sup> good soup, which no doubt contributed, in a great degree, to mend the general health.”

In the first volume of Mr. John Bell’s “ Principles of Surgery,” published in 1799, a description is to be found of Gangrenous Phagedena, under the name of the “ Hospital Sore,” accompanied with a plate, representing a sailor boy, with a patch of red paint on his thigh, and which is intended to illustrate the local effects of the disease. But as Mr. Bell’s observations do not appear, in this instance, to contain any new facts or views, tending either to elucidate the nature, or facilitate the cure, I shall only make the following brief quotations:—P. 108, “ There is no hospital, however small, airy, or well regulated, where this *epidemic ulcer* is not to be found at times.”—P. 112, “ The Hospital Sore is usually *preceded* by a degree of fever.”—P. 116, “ He must indeed be very ignorant, <sup>who</sup> disputes this Hospital Sore being a general disease of the system—he must have observed very little, who does not know it to be absolutely an *infection*.”—P. 117, “ Is the surgeon to seek for washings and dressings, use ointments and plasters, and expend butts of wine to cure such a disease? No! let him bear this always in mind, that no dressings have ever been found,” (and, by consequence, *never will* be found,) “ to stop this ulcer—but, on the other hand, that, out of the circle of the hospital, the patients are safe; carry them any where, and at any expense, even to a stable or a dunghill.”

(Sabot)—P. 118, “ This is a disease in which your *whole attention* is to be directed to the *system*.”—“ But I am so undecided with regard to the practice in this disease, that I speak with *diffidence*.”

Though there may be but few, if any, who excel Mr. J. Bell in the operative parts of surgery, it does not therefore follow, that he should be equally distinguished in what some may consider the less dignified branches of the art; or, to take another view of the subject—“ Le degrés du Temple d’Esculape ne son pas moins rapid ni moins glissants, que ceux du Mont-Parnasse; il est tres difficile d’arriver jusqu’au plus haut sans faire quelque faux pas.”—BELLOSTE.

In 1604, Dr. Trotter, Physician to the Fleet, published several volumes, entitled, “ *Medicina Nautica*,” in which there are a number of observations on Gangrenous Phagedena, but principally in the form of Reports, made by different surgeons of the Royal Navy.

At p. 169, Vol. II. there is an account of the disease by Mr. Caird, as it appeared on board the Queen Charlotte, the surgeon of which “ was under the necessity of sending many of them on shore to the hospital, where a change of situation did not seem to operate much in their favour.” Perhaps this may be accounted for, by what is found stated at p. 172: “ The Queen Charlotte had, previous to the appearance of this ulcer, been long in harbour, where the men were living on fresh beef every day, with abundance of vegetables; and all the subjects of the ulcer were in the prime of life.”



Several instances are referred to, in which the disease occurred in the wound, made with the lancet, in the operation of venesection. One severe case of this kind is detailed; and, among other particulars, it is mentioned, that “violent rigours accompanied this condition of the sore, resembling the cold stage of an intermittent, alternating with heats and sweating, but not producing a solution of the fever.”—“The eyes and countenance were flushed, severe headachs, and not without slight delirium at times; the pulse, though frequent and full, was by no means hard.—He was not bled, as the accident was caused by that operation.”

This is a case, which, from the severity of the inflammatory symptoms, some might be inclined to bring forward in proof of the propriety of venesection; yet we find that it was not absolutely requisite; for he was ultimately cured, though not without the loss of motion in the elbow joint.

P. 176, “In some cases, the inflamed portion (after blisters) turned black, and mortified, with a fœtid discharge, in less than forty-eight hours. It was a general opinion, that the disease was most violent after *burns* and *scalds*.” This last observation seems to confirm the opinion I have formerly advanced, that the local effects of this disease are in proportion to the vascularity of the part affected; for, when the vascularity of the cutis was increased by burns or scalds, the disease was remarked to be “most violent.”

Page *ib.* It is stated, that sometimes “buboes appeared in the groin and axilla.” When they ulcerated, “they constantly exhibited the complexion of the parent sore.”

Page 177, “Some (patients with simple ulcers) lay in the cradles next to the worst of the Queen Charlotte’s peo-

ple; yet we observed no disposition in them to put on a malignant form."

At p. 181, Mr. Brown of the *Triumph* gives a shocking account of the ravages made by this disease, in that ship's company. "The contagion," he remarks, "broke out in three very sober men, who had been on my list for several weeks."—"I did not find, that professed drunkards fared worse than their more sober shipmates."—P. 183, "It seems to be most generally contracted in harbour."—P. 185, "Bark, wine, and opium, in almost every instance, did harm, by increasing the inflammation; and in none, any good."—"Poultices never failed, if applied but for forty-eight hours, to occasion hemorrhages."

At p. 185. of the 3d volume, there is an excellent Report upon this disease, by Mr. M'Dowal, surgeon's mate. With most of the other naval surgeons, he traces its introduction into his ship, to some connection with the shore.

"We received on board a number of bad ulcers from Martinique island;—and so alarming was its progress, that, on our arrival in the Downs, fifty-six were on our list of ulcers."

Mr. Arthur, of the *Belleisle*, in giving an account of the disease, as it appeared in that ship, states, that "the marines and landsmen who were sent on board to complete her complement of men, a considerable time after her arrival in England, were as susceptible of the same kind of sore, as the oldest parts of the ship's company, and men in good health, and to all appearance of a good habit of body."

At p. 498. he remarks—"As the cold weather set in, the disposition to ulcers seemed stronger." This is the reverse of what has generally been remarked by other sur-

geons : but the following observation by the surgeon of the Amethyst is confirmed by some of the other Reports, and likewise by Dr. L. Gillespie.

Page 476. “ I have seldom seen amputation in malignant ulcers, where the stump has not been seized with the same kind of sore.”

At p. 195. Vol. II. Dr. Trotter makes the following observations :

“ It has never assumed the complexion of a scorbutic ulcer, which is distinguished by the dark-coloured fungous mass lying over its surface, that, on being removed, is quickly regenerated, and is commonly attended with some symptoms of scurvy, such as soft swellings of the legs, spongy gums, and sallow looks: on the contrary, in this ulcer, when the putrid parts separate, the surface is of a light florid colour. The scorbutic sore is seldom painful—our ulcer is attended at times with exquisite torment. It has not been relieved by large quantities of lemon juice, even to a bottle per diem; nay, we have thought, that much harm has been done by this practice, in the first stage.”

At p. 218. he recommends the following treatment: In the inflammatory stage, general, but particularly *local* blood-letting—a spare dilute regimen, and brisk purgatives—the affected limb to be wetted with cold water—afterwards, warm fomentations, poultices, a better diet, and opiates, when the slough is separating—at the conclusion, stimulating applications, and a generous diet. This method of cure, however, does not appear to have been very successful; for at p. 467. vol. III.\* he observes: This ulcer “ has so

\* The third volume was published a considerable time after the other two.

little yielded to particular methods of treatment, that we have still to lament its ravages, and to confess, that we are ignorant of its certain remedies." He considers it as *nearly allied* to that which we have found described by Dr. Gillespie, and which he states to have been frequently observed in ships of war, on the West and East India stations, during former wars.

It does not, however, appear very difficult to account for the difference between the ulcers referred to by Dr. Trotter, and the writers I have just quoted from him, and that described by Dr. Gillespie, without being under the necessity of considering them as distinct diseases. At and previous to the time that Dr. Gillespie wrote, the scurvy was not a rare disease in the British navy; but when the subject, and the interests of the service, became better understood, ships companies were not allowed to be kept so long at sea; while, at the same time, the diet of the seamen was better regulated: the consequence of which was, that the scurvy, and even a scorbutic diathesis, came to be, comparatively at least, a very rare occurrence among our seamen. The disease, as observed by Dr. Trotter and others, was accordingly such, or nearly so, as it has been observed among land troops in military hospitals; while that observed by Dr. Gillespie, as appears evident, both from the symptoms, and success attending his method of cure, was, in many instances at least, complicated with a scorbutic diathesis.

Page 467. he observes—"I have not seen nor heard any thing, that can entitle it to the term *infectious*;" and he seems to consider the state of the system, induced by hot

climates, and continued use of spirituous liquors, particularly rum, to be the most likely exciting cause.

In 1809, Mr. Little, surgeon, Royal Navy, published a short Treatise, on what he terms the “ Malignant Contagious Ulcer,” in which he endeavours to support the opinion, that Gangrenous Phagedena “ is a fever *sui generis*, a contagious fever, attended—with direct debility from the beginning ;” and though it “ assumes phenomena, which might lead us, at first sight, to think it merely a local disease—such a conclusion must ever prove highly injurious, if it govern the subsequent method of treatment.” Unfortunately, however, for this view of the nature of Gangrenous Phagedena, there are more general assertions, than simple facts, or conclusive reasons, adduced by the author in support of it.

He recommends a light acescent diet, with a bottle of wine in the course of the day, and a liberal allowance of lemonade. He refers us, for the constitutional treatment, to that of fevers in general ; but he condemns emetics, and in particular venesection. As local applications, he recommends fomentations of chamomile flowers, fermenting and carrot poultices, and also antiseptic lotions, such as solutions of the nitrate of silver, sulphate of zinc, &c. All such remedies, however, he considers as merely secondary agents, as he adopts that view of the disease which is given by Mr. J. Bell in his Principles of Surgery.

Mr. Little complains of the little information, and jarring opinions, that are to be found in surgical authors, respecting this disease ; and it is on this account that he

“ comes forward with his mite, although he has no new remedy to bring forward.” He states it as his belief, that “ the Malignant Ulcer has, of late years, occasioned the loss of more men to the naval service, than all the other diseases incident to seamen.”—“ It has for many years excited much attention in the medical department of the navy; and, notwithstanding its long and disastrous prevalence, very little has been made public upon its causes and treatment.” He also states, that “ it appears most commonly to take its origin, in the navy, from some specific contagion, derived from some *exterior* source.”

M. Larrey, notwithstanding his having had frequent opportunities of observing this disease, passes it over with little more than remarking its occurrence. In his “ *Memoires de Chirurgie Militaire*,” published in 1812, he observes, *en passant*, page 343, that “ Il faut panser les plaies qui se frappent de pourriture d’hospital, avec les acides végétaux ou minéraux, le camphre et le quinquina, unis à une substance balsamique, tel que la térébinthine.—Les spiritueux ne conviennent pas, attendu qu’ils dissechent, racornissent les vaisseaux ulcérés, et qu’ils tuméfient les vaisseaux intacts subjacens, ce qui augmente les progrès de la gangrène.”

If such was the method of cure generally pursued in the hospitals under his inspection, it will require no great sagacity to divine the reason of his unusual silence. It is but fair, however, to suppose, that the omission may have proceeded from a different cause from that which such a view of the subject would lead us to infer.

Mr. L. is, or was, one of those who are passionately devoted to Operative Surgery—and such persons are liable to become affected with a very serious disease, commonly denominated the “*operating mania*.” When an individual is affected with this disease, whether asleep or awake, the bloody knife is never out of his imagination; he talks of it incessantly; nothing, in his apprehension, is too difficult to be performed by it, and nothing so desperate he will not undertake; for nothing is more delectable than to see it in action. In such a state of mind, it is not to be wondered at, that other branches of the art should appear mean or inglorious, and be consequently overlooked. The odour of human blood\* appears to intoxicate them in such a manner, that healthy limbs, and even lives, are every now and then *at least in danger* of being sacrificed to gratify the irresistible propensity; and it has been remarked, that the *prospect* of gratification is sometimes the best means for inducing a relaxation in the usually unyielding rigidity of their features.

It is not surprising, that the Baron Larrey should have

\* “Ce principe odorant, qu'on a regardé comme un gaz particulier, et qui a peut-être quelques rapports avec la fluide expansif de Rosa, a fixé l'attention,” &c.—“Il est susceptible de variations, de changemens, d'alterations; il a beaucoup d'affinité avec l'air et avec l'eau, il ne ressemble à aucun des principes spiritueux ou gazeux,” &c.—“On ne sait pas au juste si c'est un principe particulier, s'il jouit d'une existence réelle, et positive, ou s'il n'est qu'une émanation de la masse sanguine, une espece de gaz ou de vapeur subtile”—DUMAS. So much for the attention that has been paid to this *something, nothing something*, by the chemists, and one of the first physiologists in France! The intoxicating quality that is attributed to it, is not inconsistent with the known effects of gaseous bodies; and, in the way of theory, may possibly help forward so important an investigation; as, in certain cases, it is not impossible to guess at the nature of a cause, by attending to its effects.

become affected with this malady, seeing that his late master was so dreadfully infected with it; but surprising it is, that it should be met with among a people whose humanity is otherwise their chiefest boast.

In 1813, a volume entitled "Lectures on Inflammation," was published by Dr. Thompson, Professor of Surgery to the Royal College of Surgeons, Edinburgh, &c. &c. In these lectures, about forty pages are dedicated to the consideration of "Hospital Gangrene, or Malignant Ulcer." The greater part, however, consists of extracts from various authors, most of whose particular opinions have been already noticed in the preceding pages. Though I am not aware that any new facts relative to the nature or treatment of this disease, have been brought forward by the learned author in this publication, I am disposed to consider it as deserving of a particular consideration. It is among the last, and is the most comprehensive account of the disease which has hitherto appeared in the English language, and thereby affords an opportunity of examining the opinions which are pretty generally held, both regarding the nature of the disease, and the various remedies that have been recommended.

As the opinions which I have been led to adopt are unfortunately very different from those of my author, it will be necessary for me to make not a few references to particular parts of his work, and to accompany them with such remarks as may appear necessary in support of the principles I have adopted, as well as the practice which I have ventured so strongly to recommend. This, however, I can do with the greater freedom, not merely because the elucidation of facts, and the discovery of truth are my only ob-



jects, but because I have full reliance on the liberality and candour of the highly respected author. If I expend more time upon the analysis of his opinions, than upon those of some other writers; and if I express my sentiments without reserve, and in the language of one who is more occupied with the subject itself, than the manner of treating it, it will be unjust to consider this as any mark of disrespect.

Before referring to Dr. Thomson's particular sentiments, I may remark, that we have no account given us of the place or particular circumstances of the patients in whom he had an opportunity of observing this disease; and this, according to his own principles, is always a matter of importance. It is not a disease which we have much reason to expect to meet with in private practice, though this is certainly by no means an impossible occurrence. But, as its common appellation indicates, it has hitherto been most commonly met with in hospitals, whether military, naval, or civil. There can be little doubt also, that it is of some importance to attend to the particular description of hospital in which it existed at the time of observation, as well as the climate, season of the year, constitution of the atmosphere, &c. How different are the habits and circumstances peculiar to patients admitted into civil hospitals, from those of soldiers on active service; and how different are the habits and circumstances peculiar to the latter from those of seamen long confined on board of ship, and fed on salt provisions?

With reference to the accession of this disease, Dr. Thomson observes:—"According to the result of my own observation, the constitutional symptoms usually *precede* the local. In the cases in which they have appeared to succeed

to the local, may not the constitutional symptoms, though they actually existed, have been so mild as to escape observation ?”

The result here stated is directly the reverse of that to which (as noticed on a former occasion) I was led by a series of observations, instituted for the express purpose of ascertaining the point in question. I would therefore beg leave simply to reverse the question, by asking, In those instances in which they have appeared to succeed the constitutional, may not the local symptoms, though they actually existed, have been so limited in their extent as to escape observation ? How small is the inflammatory spot which precedes the symptomatic fever after inoculation, and how readily may such a small speck escape observation, especially of those whose preconceived opinions may possibly have been such as would not directly lead to the detection of so partial a change of action on the surface of a large, irregular, or penetrating sore.

“The tongue,” it is said, “becomes foul, with a sensation of bitterness in the mouth,”—“the pulse becomes very quick, but is, in general, rather weak than strong.”

So far as I have had an opportunity of observing, a bitter sensation in the mouth is far from being a characteristic symptom ; the tongue was always covered with a white mucous, but, until an advanced period of the disease, seldom what is termed foul ; and still less frequently was it tinged of a yellow colour. The Bilious Remittent Fever, however, frequently makes its appearance at the same time with Gangrenous Phagedena ; and as I cannot place implicit faith in the hypothesis, that the symptoms of two diseases cannot meet, and be more or less evident at the same time

in the same constitution, I am disposed to believe, that the symptoms of the former of these diseases are occasionally found blended with those of the latter. The pulse is stated to be rather weak than strong. If the latter of these terms be considered as at all synonymous with a *full* and *hard* pulse, the statement is, I believe, correct in the majority of cases. But, in the inflammatory stage, the pulse is frequently such as would induce almost any physician to order venesection, were his patient labouring under what he conceived to be an inflammatory disease, not apt to assume a typhoid character.

In describing the local symptoms, and particularly the appearances exhibited by the edges of the sore, it is observed, that "they are sometimes ragged, at others reverted, and exhibit a soft spongy appearance." The edges of the sore, when a slough has formed, frequently exhibit a spongy appearance, but this is one of the *successive changes* which they undergo; and it therefore seems incorrect to say, "at others reverted, and exhibit a soft spongy appearance." I have always remarked that, until a slough had formed, the edges were *indurated*, their vessels being turgid with blood, and hence they were rendered extremely irritable and painful on pressure. The appearance of the integuments, in the vicinity of the sore, is very peculiar, and merits, I think, more attention than has hitherto been paid to it. At first, they are somewhat of a pearly colour, smooth, and shining; but soon become indurated, swelled up, and painful on pressure. As the inflammatory stage advances, these last mentioned symptoms increase; but frequently while the cutis, near the edges of the sore, retains the appearance first described, a more or less distinct circle of in-

Inflammation forms around the sore. On this circle the cutis assumes a rough ansarine appearance, and becomes of a dusky red, and sometimes of a livid colour, which, as Dr. T. has observed, is frequently the immediate precursor of gangrene and sphacelus. Hence the propriety of the term *Gangrenous Phagedena*; which could not be correct were the formation of a slough on the sore the only circumstance which led to its being so denominated.

It is observed, that, "In some instances, Hospital Gangrene begins in the form of a small inflamed pimple or vesicle, without our being able to perceive any previous injury of the parts in which it appears." In one instance of this kind that fell under my observation, the disease made its appearance, in the form of a vesicle, on the outer side of the thigh of a patient, who had a wound near his ancle affected with the disease. This patient had a peculiar habit of scratching his thigh, whenever he felt or dreaded pain, during the dressing of his wound; and, from the same cause, he was frequently induced to bring his hands more or less in contact with his sore. Aware of the amazingly small abrasion of the cuticle which is requisite to effect inoculation, I had little doubt as to the manner in which this man came to be affected with his new sore. That a hair had been extracted, or a small portion of cuticle removed at its root, while the specific matter was, at the same time, directly applied by the nails or points of the fingers, is, I think, more than probable. and I believe that all such cases may be accounted for in a similar manner.

"Artery," Dr. T. remarks, "seems to be the texture which resists most powerfully the destructive effects of Hospital Gangrene, as well as of other species of mortifica-

tion." For some observations on the subject, I must beg leave to refer to Part First, page 37.

Page 460. "When, in the progress of Hospital Gangrene, adhesive inflammation does not occur, hemorrhage 'is liable to take place." It seems here to be intimated, that hemorrhage is sometimes prevented, in this disease, by the process of adhesive inflammation. I would therefore beg leave to ask, whether any facts have been, or can be, brought forward to prove, that *adhesive* inflammation ever does take place in a sore, *during the progress* of Gangrenous Phagedena? When the disease supervenes upon a healthy granulating sore, and in a patient of a sound constitution, it generally makes very slow progress; and it sometimes happens, that while the disease is advancing in one direction, the cicatrising process is going on in another. This I believe to be the only example we have of a healthy action going forward in a sore, after it has become affected with this disease.

Our author is decidedly of opinion, that the disease is of a contagious nature, and that it can be propagated by contact: he adds—"It would seem, however, to be capable of being communicated through the medium of the air; for it passes along the wards of an hospital, and attacks patients placed at *some distance* from one another." He admits, that the laws by which this contagion is communicated are but little known. It is here allowed, however, that it is capable of being transmitted through the medium of the atmosphere. But no facts are referred to, in which the propagation of the contagion could not be equally, and, in my humble opinion, more satisfactorily accounted for, on the principle, that this disease requires a *direct applica-*

tion of the morbid matter to a sore, for its production. Those who have been familiar with, and can bring to memory a minute and unbiassed recollection of the manner in which the routine of duty is *occasionally* performed, with various other circumstances connected with the interior of hospitals, will find but little difficulty in attempting to trace the progress of this contagion, from one patient to another, without finding it necessary to have recourse to the assistance of the atmosphere, which has already more than enough to answer for. It is added—"Nor is the time at which the disease begins to shew itself, after the infection has been received, better ascertained." The period that elapses, between the application of the morbid matter and the first appearance of its effects, may possibly be lengthened or shortened by circumstances; but, in all the instances that fell under my notice, and which were of a nature to be relied on, in attempting the solution of this question, the period that intervened was from forty-eight to sixty hours, that is, at the end of the second, or early part of the third day. With regard to the question, whether this poison acts immediately on the part to which it is applied, or if it requires to be previously absorbed into the constitution?—I believe that I have had the most satisfactory proofs, that in this, as in some other diseases, a comparatively slight degree of inflammatory action first takes place in that part of the wound or sore to which the morbid matter has been applied—that it goes on, slowly increasing, while the poison is in the progress of absorption; and that, when once the poison has got into the system, the local inflammatory action is rapidly increased, but is more or less severe in different instances.

“ In the treatment of a patient affected with Hospital Gangrene, our first object,” Dr. T. remarks, “ should be, as already mentioned, to remove him from the place of infection.” It is always an object of importance, for patients labouring under this disease, to enjoy the benefit of a pure atmosphere, or at least a dry and well ventilated hospital. It has, however, been fully ascertained, that, for the purpose of effecting a cure, it is by no means absolutely necessary to remove them from, what appears to be a comfortable and well-aired apartment, merely because the disease has made its appearance in that particular quarter. But as it is generally found to be extremely difficult to enforce a sufficiently rigid interdiction of intercourse, between those who are, and those who are not affected, while they remain in the same ward, it is, on all occasions, advisable to have the former placed in an apartment by themselves, particularly when their numbers are considerable: And no part of the hospital materials, utensils, dressings, or even the attendants, who may be attached to that apartment, should, on any occasion whatever, be allowed to enter the other wards, particularly those appropriated for surgical patients.

I may take this opportunity of noticing a circumstance, which, though apparently very obvious, has not only been overlooked by authors, but has also been but too often neglected in practice; and that is, the propriety of either prohibiting patients affected with Gangrenous Phagedena from being *transferred* from one hospital station to another, or of adopting such regulations as shall effectually prevent its dissemination. On Military Service, an order may be received to send all the patients in the hospital, *who can be moved with*

*safety*, to another, and probably distant station, with the view of providing accommodation for other patients, whose circumstances demand rest, and more particular attention. The qualification, "such as can be moved with safety," has been understood to refer to those, who may be conveyed to a distance without danger to their lives, or whose ailments are not likely to be thereby materially aggravated. It is to be observed, that wounds of the superior, and even of the inferior extremities, do not always render locomotion inadmissible; and even when such wounds have become affected with Gangrenous Phagedena, it is frequently a considerable time before the patient begins to suffer particular inconvenience, either from the local irritation, or general indisposition of the system; or, at least, such a degree of it, as to render the moving from one place to another a matter of importance.

In complying with such an order as I have referred to, it is not merely a possible occurrence, that, in making the selection, cases of the latter description may be included in the number to be transferred; it has unfortunately happened, (and not in one instance only) that patients affected with Gangrenous Phagedena have been sent on board of transports, or placed on waggons, &c. among numbers whose sores were healthy, or at least free from that disease; and the consequences have been such as might have been foreseen and prevented, but which do not require description.

More might be said on this part of the subject; but it appears to be sufficient to bring it forward, for the purpose of attracting the attention which it merits, and which it is likely to meet with.

In considering the constitutional treatment, Dr. Thom-



son is "inclined to think that they (Emetics) ought never to be omitted in the commencement of the disease." That emetics are useful at the commencement of this, as well as of other diseases, when the stomach is loaded with any species of sordes, will hardly be questioned by any one, who does not entertain a general prejudice against them. But, upon what other principle they can be thought useful in this disease, is not easily to be discovered—unless it be in those cases, in which it is believed to be complicated with some constitutional affection, requiring (according to a still existing theory) the spasm to be removed from the surface.

"Purgatives," it is said, "and laxatives, are particularly useful in the commencement of the attack."—"If, from the state of the tongue, or from the prevalence of other complaints, there should be any reason to suspect the presence of bile in the intestinal canal, calomel is the purgative which ought to be employed." I have never heard any very satisfactory reason given for the common opinion, that *calomel* is the best purgative, when we have reason to suspect the "presence of bile," or rather an inordinate quantity of bile, in the alimentary canal. When there is reason to believe that the liver is obstructed, experience has taught us, that the use of calomel is likely to be attended with good effects; but when the symptoms only indicate a degree of increased action in the secreting vessels of the liver, that medicine appears to be, from its common effects, rather calculated to increase, than remove, the morbid action. Experience is also not wanting to prove, that small doses of neutral salts, dissolved in a large proportion of an infusion of quassia, gentian or columba root, and given at such

intervals as to produce a comparatively slow and gentle, but complete effect, is by far the most advisable method for accomplishing the object intended.

“ Blood-letting,” it is observed, “ is admissible in but few instances, not merely because the orifice made by the lancet is apt to become gangrenous,” &c. That recourse to venesection will seldom, if ever, be found absolutely necessary in this disease, is an opinion, in the correctness of which I have the strongest conviction ; but, at the same time, there may be cases in which, owing to the plethoric habit of the patient, *previous treatment*, and other causes, such a degree of inflammatory action of the system may take place, that few would object to the opinion, that the abstraction of a small quantity of blood would be likely to be attended with more good than harm : And when such an operation is considered expedient, by taking proper precautions, the danger of the disease supervening upon the wound made by the lancet, may be certainly avoided, as has been proved by experience in numerous instances. The requisite precautions are, that the arm of the patient, the hands of the surgeon, his lancet, and the subsequent dressings, be perfectly free from contamination, and that the patient be prevented from undoing the bandage, or touching the incision made with the lancet, until it is cicatrised. The dread of the orifice made by the lancet becoming gangrenous, has probably arisen out of the opinion, that this is what has been commonly termed a *constitutional* disease ; yet numerous facts might be adduced to prove the groundlessness of such an apprehension, and at the same time to warn us against the danger of allowing our practice to be swayed by *theory*.

The following case, out of many others of a similar nature, will of itself be sufficient to illustrate, and, as I think, establish, that view of the subject which is here supported. A healthy young man, of a vigorous constitution, was, at the same instant, struck by two musket balls, one of which carried away the two first phalanges of the second, third, and fourth fingers of the *right* hand; the other produced a superficial flesh wound, at the lower and outer part of the *left* thigh, about three inches above the knee joint. A short time thereafter, the wound of the thigh became affected with Gangrenous Phagedena. The medical gentleman who attended this patient, having adopted a particular theory of this disease, treated it constitutionally by blood-letting, and locally by relaxants, such as poultices, &c.; and, when these did not seem to answer, by stimulants, such as the red oxide of mercury, &c. Great care, however, was taken, to prevent the morbid matter from being applied to the wounded fingers. Under this treatment, the disease sometimes advanced, sometimes stopped in its progress, for a period of several months. At length, however, it was overcome, the patient having been altogether fifteen months in hospital. The cicatrix measured eight inches in length, and from three to four in breadth. At the end of two years, the new skin retained a shining appearance, and a bright crimson colour; and, at its centre, there was a superficial ulceration, two inches long, and half an inch broad probably produced, and kept up, by the friction of his clothes. The leg was contracted, and the knee joint so moveable, as merely to shew that it was not ankylosed.—Not only the wounds made by the lancet, but also the *wounded fingers*, entirely escaped the disease.

But certainly blood-letting is an operation which ought to be avoided, as much as possible, in Gangrenous Phagedena, particularly when the previous injury has been extensive, such as that of a penetrating gunshot wound. A general debility of the system, is one of the symptoms which is most to be dreaded ; for, when once it takes place, there is no other disease in which it is removed with greater difficulty.

In enumerating the local applications, it is said of the fermenting poultice, that it “ seems to answer very well in mild cases of Hospital Gangrene.”

I have employed, and seen others employ, fermenting poultices made in various ways ; but in well marked cases of this disease, I never witnessed any great or permanent good effects from their use, farther than that they always corrected the fetor of the discharge ; but in foul sores of another description, both the fermenting and carrot poultice were decidedly useful applications.

Page 497. “ Vinegar, either alone or mixed with spirits, I regard as a good application.”

The vegetable acids, and the muriatic acid in a diluted state, were doubtless first employed in this disease from their supposed antiseptic qualities. And their operation could not be consistently accounted for, but by supposing that they acted by decomposing the *putrid matter* on the surface of the sore ; and that thereby, by preventing an accumulation of the poison, the natural powers of the constitution were afforded a greater facility in overcoming the diseased action of the secreting vessels. It was very evident that such applications did not act by directly destroying the morbid action ; and it was observed, that they were

slow in their operation, and only successful in comparatively mild cases; or, in other words, such as might probably recover under any very inefficient applications, provided the patients were kept in a pure atmosphere, and strict attention paid to cleanliness.—For such applications are found to be completely inefficacious in the more inveterate forms of the disease, and which are of by far the most frequent occurrence.

“Spirits of wine, either alone, or holding in solution some of the warm gums, form,” it is said, “in many cases, very good applications in Hospital Gangrene.”

Every one who has had an opportunity of attending to this disease, is likely to have witnessed the effects of the topical application of tinctures of myrrh, aloes, &c.; but, after having given, and witnessed others give such articles the fairest possible trial, I must say, I know of no one instance in which a cure was effected by their use. On the other hand, I have repeatedly known them to produce the most insufferable irritation, so as to make the patient tear off the dressings, and resist their farther application.

“Oil of turpentine, either alone or mixed with equal parts of unguentum resinosum, is the local application on which I should be more disposed to rely.”

Turpentine, and the Linimentum Calidum of the Pharmacopœia of the Royal Infirmary at Edinburgh, were two articles which, on their first trials, seemed to promise a favourable result. A little farther experience, however, soon broke the spell; and it was but too soon obvious that their virtues were such as to rank them with the vegetable acids, and no higher.

With regard to powdered bark and charcoal, it is observed, that "these substances are chiefly useful by absorbing the discharge, which would otherwise excoriate the parts in a state of gangrene."

I have had opportunities of watching the effects of these powders, both when used dry, and in the form of a poultice, variously combined, but never with any marked advantage in those cases which particularly required assistance. When used in a dry form, though they could not effectually absorb the discharge on account of its thick and viscous consistence, they were apt to form a hard crust on the sore, which could not be removed without giving great uneasiness to the patient; hence the matter secreted was kept in immediate contact with the surface of the sore, or forced into the cellular substance under the integuments, thereby accelerating the already too rapid progress of the disease.

In *disapproving of the actual cautery*, Dr. Thomson gives it as his opinion, that "The fermenting poultice, spirits, and turpentine, are certainly much milder applications; and will, I am convinced, when judiciously applied, be found to be *much more* efficacious in effecting a cure."

If my learned author shall ever be so unfortunate as to be put in charge of a large hospital, in which the patients are generally affected with Gangrenous Phagedena, I feel strongly inclined to believe, or rather I have not a shadow of doubt, that he will then not only find occasion to change some of his opinions regarding the nature of that disease, but also to adopt, and that very speedily, a much more decisive, and, I have no doubt, efficient mode of treatment, than that which he has here recommended; while, at the same time, I am not ignorant that it is one thing to make

use of a remedy, and another, and frequently very different thing, to apply it judiciously.\*

In a more recent publication by Dr. Thompson, entitled, “Report of Observations made in the British Military Hospitals in Belgium, after the battle of Waterloo,” the subject of Gangrenous Phagedena is again reverted to, but in a very casual manner. It appears, however, that notwithstanding his having had more extensive opportunities of observing this disease, and also of learning the sentiments of others respecting it, he is still inclined to retain his former opinions; and refers us accordingly to his “Lectures,” for a more particular account of them.

It must be confessed, indeed, that it is not from transient, though careful, observations made in different hospitals, and still less from the jarring and, possibly, in some instances, biassed opinions of others, that any very correct information is to be acquired with respect to this or any other disease. Repeated experience has shewn, that if a person is not indifferent with regard to his being led to adopt erroneous notions respecting medical subjects, it is of essential importance to make minute and accurate inquiry into collateral, and what may, at first sight, appear to be irrelative circumstances; particularly when the verbal reports and opinions of others, are the principal data he has to go upon; and more especially, when the opinion he entertains of the abilities and application of his informants, depends a good deal on mere report, or the apparent respect which is paid them by individuals of less confident or imposing manners—“Le doute

\* The preceding remarks were written before the publication of the “Report,” which comes next under consideration.

philosophique, et une severe impartialité, son louables et necessaires, sur-tout en médecine ou l'on ne doit ceder qu'à la conviction."—VALENTIN.

Such observations on the subject of Gangrenous Phagedena, as seem to be of importance in this "Report," will be found in the following extracts.

Page 13. "The very low situation of Antwerp, and the state of the weather, which had become very warm, were rather unfavourable for recovery; we were accordingly prepared to see, and did observe, that the surfaces of the wounds and sores in the hospitals had a more unhealthy appearance than those of the men we had left at Brussels; they manifested a tendency to sloughing, and had evidently passed, or were many of them passing into that state which is well known to medical men by the name of Hospital Gangrene."

We find in his "Lectures," that Dr. Thompson is of opinion, that certain states of the atmosphere are more favourable for the production of this disease than others; and here he apparently refers directly to the united effects of heat and moisture, as the cause of the disease; for he traces its production to the "low situation of Antwerp, and the state of the weather, which had become very warm." Is it then decidedly ascertained that any particular state of the atmosphere, in a given climate or country, can produce a disease, which, though possibly not *infectious*, is well known to be highly *contagious*?

If Gangrenous Phagedena be a mere change from a healthy to a less healthy action on the surface of a wound or sore, such as arises from a Bilious Remittent Fever, and similar causes, it may be correct enough to say, that wounds "were passing" into that unhealthy state; but if it be a dis-



ease *sui generis*, then such language is not only incorrect, but, as I conceive, calculated to produce evil consequences,—not merely as striking at the root of an accurate diagnosis, but as leading directly to very improper methods of treatment, seeing that what may be proper and necessary in the one case, may be equally prejudicial in the other.

“ A Biliary Symptomatic Fever,” it is said, “ had been very severe, and, in some instances, had even proved fatal to those who had undergone either primary or secondary operations.”

Though not immediately connected with the subject, perhaps I may, by the way, take the liberty of observing, that if the “ Report” be intended for the public in general, and not for the profession in particular, the preceding sentence need not be objected to; but if it be intended for the latter, would not the following small alteration make it more consonant with facts? “ A Biliary *Remittent* Fever had been both frequent and severe, and proved fatal in a number of instances, to those who had been severely wounded, and to those who had undergone either primary or secondary operations.”

If there be such an occurrence as that of a *Biliary Symptomatic* and a *Biliary Remittent* Fever, appearing at the same time, and proving very severe in the *same class of patients*, it will surely require some more particular diagnostic marks than that of the “ furred tongue” and “ oppressive sensation at the epigastric region,” stated at page 20, as being more peculiar to the latter disease, to enable us to distinguish them. In the Gens d’Armerie Hospital at Brussels, I had but too many opportunities of watching the symptoms and progress of the febrile affection referred to, and which

has, on many occasions, proved so fatal to wounded soldiers; but whether it occurred after the symptomatic fever, caused by a wound, was over, or supervened in the first days after amputation, the symptoms were, in every respect, the same, modified only by the particular constitution and circumstances of the patient.

“ There can be little doubt,” it is observed, “ that, in some situations, the sloughing and Gangrenous Hospital Sore is of an infectious nature. In Belgium, however, it appeared to us to be endemial, and to prevail most in those situations and hospitals, where the fevers of the country were most numerous and severe.”

Both in the “ Lectures,” and in the “ Report,” Gangrenous Phagedena is indiscriminately termed a *contagious* and an *infectious* disease. Here we are introduced to a new view of its character—it is believed to be one of those called *endemic*. On turning up a History of Medicine, I found, in that part relating to Hippocrates, the following remark—“ Those (diseases) that are *frequent* and *familiar* to certain places, he called endemic.”

Relying on the accuracy of this definition, it was found extremely difficult even to guess at a reason for this new opinion regarding this disease; for, when military hospitals are out of the question, Belgium is as much exempted from this particular disease, as any other country. But, in another part of the “ Report,” reference is made to the circumstance of Belgium having been, for ages, the almost constant site of war—a circumstance which was feelingly lamented by one of our poets, upwards of a century from the present period. Such being the case, hospitals for the reception and cure of the wounded, must have been

common in that country ; and hence Gangrenous Phagedena may have been both frequent and familiar in Belgium, and may thereby, in a certain sense, justify its endemial character.

It is not, however, to be supposed, that this is our author's mode of reasoning on the subject ; but, in my humble opinion, it is the only way of supporting the particular opinion which he has advanced. For, so far as our information goes, there is not a country nor climate in the world, to which the ravages of war have extended, where this disease has not, sooner or later, made its appearance, in those places where the wounded have been collected together.

Page 17. " The Hospital Gangrene, which, during our first visit, (to Antwerp) was confined to the two extremities of this hospital, had now spread to the patients in the middle divisions. It seemed to be unaccompanied with fever, or any other disarrangement of the general system."

" I am doubtful, whether it was ever communicated from one patient to another in the hospitals in Belgium ; and I am rather inclined to believe that it was endemial, and depended on the same causes as the fevers of the country."

It was stated, that, at a former visit, the disease had made its appearance among the patients who lay at the two *extremities* of a very long range of building, forming one large apartment, and originally intended for the manufactory of cordage for the navy, but which was now occupied by the wounded French prisoners, to the number of one thousand. It is here stated, that, at a second visit, the disease was found to have extended toward the *centre* ; and a doubt is expressed, as to its having been, *in any one in-*

*stance*, communicated from one patient to another in these hospitals. Had the disease prevailed towards the centre of the building, while the extremities were exempted from it, its production would, by some, have been accounted for, by referring it to the accumulation and concentration of animal effluvia, proceeding from the wounds, sores, and bodies of the patients; while ventilation and cleanliness could not, or had not been sufficiently attended to. Seeing, however, that the disease began at the extremities, where ventilation was not so likely to be wanting, even though little attended to, that mode of accounting for its production became, in this case, inadmissible. We are told, that it depended “on the *same causes* as the fevers of the country!” Are we then to believe, that a disease may be contagious one day, and non-contagious the next? And if we are to believe, that the same cause which to-day produces various species of Remittent and Intermittent Fevers, changes its operation before to-morrow, and produces Gangrenous Phagedena, why may we not expect, that it will one day produce the Small-pox, or even Syphilis itself? Or, why not reduce the production of all diseases to *one cause*, the effects being merely modified by time, place, and circumstances. I confess, that, in the present state of our knowledge, I could sooner acquiesce in this latter proposition, than in the opinion, that Gangrenous Phagedena can, on any occasion, or in any circumstance, be produced, excepting by its own proper and peculiar cause.

It is stated, that “it differed (at Antwerp)—from that which I had seen in Britain, in this remarkable circumstance, that it was almost universally unaccompanied by fever, or by marks of great topical inflammation.” The

blood-letting, therefore, which was proper and necessary, in a considerable number of cases of Hospital Gangrene which occurred at Brussels, was not required in the cases at Antwerp."

The absence of fever and great topical inflammation, in the cases of Gangrenous Phagedena observed at Antwerp, is here very particularly noticed, but without any cause being assigned for it. If, however, that mode of treating this disease, which has been formerly described, and which was well known to the Principal Medical Officer and others at Antwerp, was there as generally had recourse to, as our author seems to intimate, the absence of the symptoms referred to, admits of a very easy explanation; for they *could not occur* when that method of cure was judiciously employed: and hence blood-letting was both unnecessary and improper. It is probable, however, that the less inflammatory character of the disease, as observed at Antwerp, may have, in some degree, depended upon other causes, and which will be noticed more particularly afterwards. At present, I shall only observe, that at Antwerp, as well as at Brussels, many of the sores assumed a very foul and unhealthy appearance; while, at the same time, they were as free from Gangrenous Phagedena as the healthiest wound possible. This, however, is an occurrence which is by no means either rare or unaccountable; but it is a circumstance which certainly merits more attention than seems, on the present occasion, to have been paid to it.

"The application of caustic substances," it is said, "such as the strong mineral acids, the solutions of potass, corrosive sublimate, and arsenic, seemed at Antwerp to arrest the progress of this sore, *without exciting inflammation.*"

A number of caustic substances are here enumerated, as having been employed at Antwerp; but it is not stated which of them was considered the most effectual. It may be remarked, that Arsenic,\* though it was not the least effectual, nor, as I am informed, the least frequently employed, is here placed last in the list; but, were this circumstance considered of sufficient importance for investigation, many things would be found much less easily accounted for.—I have repeatedly and successfully employed the undiluted mineral acids, in cases of Simple Phagedena, Venereal Phagedena, in one case of Mercurial Phagedena, and in a number of cases of Inveterate Callous Ulcers—a suitable preparation of Arsenic not being, at the time, so readily to be procured. There are objections, however, to the use of these Acids—they destroy every thing with which they come in contact. Hence, parts of the patient's body, not diseased—his bed-clothes, and other articles—the instruments, clothes, and even the fingers of the surgeon, are not easily kept from being injured, particularly when there are many patients requiring this kind of treatment, and when duty is otherwise urgent.

It is certainly an object of importance to become acquainted with those articles which possess similar properties, though they may not all be possessed of equal advantages. But I am at the same time convinced, that Arsenic will be found to merit a general, if not a universal preference. For, *1st*, It is completely effectual: *2dly*, Its application is attended with as little, if not less pain, than any other article which is equally certain in its effects: *3dly*, Its judicious employment is attended with no danger, difficulty, nor trouble: *4thly*, It has the peculiar

excellence of not extending its operation latterly : \* *5thly*, The expense incurred by its use is so small, as scarcely to bear computation.

It may be remarked, that strong caustic substances, when judiciously employed, never excite inflammation ; or, at least, such a degree of it as to merit any attention ; but, on the contrary, they, in not a few instances, have the effect of removing it. I never hesitated to apply the Solution of Arsenic to a sore affected with Gangrenous Phagedena, even though in a state of high inflammation ; and I generally, if not always, found, that, by next morning, the inflammation had either disappeared, or had become so slight as to be of no importance ; and there can be little doubt, that others have met with the same result.

“ At Brussels,” Dr. Thomson observes, “ where it had more of an inflammatory character, milder applications, such as the common and carrot poultices, were in general found to answer better than the more stimulating substances.”

It is particularly remarked, that Gangrenous Phagedena had much more of an inflammatory character at Brussels, than at Antwerp : and it is also stated, that a different method of treatment was pursued at these two places. I have repeatedly had occasion to remark, that Gangrenous Phagedena, though it always retains its specific character, is liable, like other diseases, to have its symptoms modified by accidental circumstances. At Brussels, the patients referred to were principally full fed English soldiers, who, excepting for a comparatively short time during the

\* One great objection to the Solutions of Potass is, that they are not easily confined within the limits in which they are intended to operate.

engagement, had not undergone any hardships or fatigue ; and, after they were wounded, two, or at most three hours, was a sufficient space of time to bring them to the hospitals, where every comfort had been provided for them. Among patients in such circumstances, the disease might be expected to assume an inflammatory, rather than an opposite character.

The patients who were sent to Antwerp, (which is a much less healthy station, for a general hospital, than Brussels,) were, on the other hand, such as had been wounded at an early period of the engagement, when, from the hurry of the moment, less attention could be paid them than afterwards. Many, if not most of them, were first taken into, and dressed in the hospitals at Brussels ; and, after being allowed to remain there a few hours, or a night, they were necessarily raised out of their beds, and carried, in the midst of great confusion, to the canal, and transported in boats to Antwerp, in order to make room for those who were hourly, or rather momentarily, arriving from the field, and who required rest and immediate assistance. Such a removal must unfortunately be the cause of considerable irritation, and consequent debility. It must also be observed, that, during the transportation of the wounded in such circumstances, great facilities for committing irregularities in diet are unavoidably afforded ; and it is well known, that soldiers are always inconsiderate, and think of little else but what may contribute to present enjoyment. Hence the irritation, and consequent debility, which frequently result from transporting the wounded, particularly during very hot, or warm moist weather ; and hence may, in some degree, have originated the modification of the symptoms of



Gangrenous Phagedena, as observed at Antwerp, among the English soldiers. I have been led to believe, however, that the disease was more frequent among the wounded French prisoners, than among the English, at Antwerp. If, then, we take into consideration the constitutions and habits of the French soldiers—the comparatively spare and vegetable diet they are accustomed to use—the great fatigue they had undergone, in making forced marches, and in fighting against the Prussians, at a time when our soldiers were enjoying their ease;—if we consider the depressing, and, of course, debilitating effects, arising from the circumstance of their being not merely wounded, but taken prisoners—not only taken prisoners, but vanquished—not only vanquished, but all'hopé, to appearance, for ever lost;—if we consider all these circumstances, we may, I think, easily account for a less inflammatory disposition manifesting itself in their sores. These causes may *modify the symptoms*, but certainly they cannot possibly *change the specific character* of Gangrenous Phagedena.

With regard to the method of cure said to have been pursued at Brussels, the account which is given of it is expressed in very general terms. Blood-letting is said to have been *necessary* in a considerable number of cases. I am, however, not the only one who entertains a very different opinion. That it was *admissible*, may be allowed; but that it was *necessary*, or even *advisable*, remains to be proved; and I may add, that I believe it can be made to appear, that the different method of treating this disease at Brussels, from that which was so successfully had recourse to at Antwerp, might proceed from a different cause from that which has been assigned to it.

We are also informed, that mild topical applications were found generally to answer better than the more stimulating substances. In a general Report, the word *generally* may have a very indefinite meaning attached to it; but there cannot be a doubt, that mild applications of any kind are better than such as produce irritation merely, in all cases of Gangrenous Phagedena; for nothing aggravates the disease so much, as those applications which are strictly termed *stimulating substances*.

As a conclusion to this subject, I would observe, that when patients who are affected with this disease, have vigorous constitutions—are kept in a tolerably pure atmosphere—strict attention being paid to cleanliness—and irritating and relaxing applications equally avoided—they will, in not a few instances, get rid of their ailment, without being much indebted to the active interference of the surgeon. But, in all such cases, the cure is very tedious; a great destruction of parts is almost uniformly the consequence; and many patients are thereby rendered lame and deformed; while the large cicatrix which is formed, remains long extremely delicate, is very liable to give way, and a troublesome ulcer is the usual consequence. These are facts which have been ascertained in many instances, both in cases that had been treated at Brussels, and elsewhere. I have repeatedly had occasion to see patients, who had been eight, ten, and fifteen months in hospital, and rendered forever useless to the service, and incapable of providing for themselves or their families, from the effects of this disease, if not from the manner in which it had been treated; whereas, had the treatment formerly described been adopted, and judiciously employed, they would not only have been speed-

dily cured, but their lameness, and consequent helplessness, effectually and easily prevented. Such, at least, is my decided opinion, and which, I trust, has not been rashly adopted.

About the time that the First Part of these Observations were collected, with the view of being made public, M. Delpech, Professor in the Medical School at Montpellier, presented a “*Memoir sur la Complication des Plaies et des Ulceres connue sous le nom de Pourriture d’Hôpital,*” to the Royal Institute of France. In this Memoir, which was published in 1815, a very minute, and in many respects accurate, description is given of the local symptoms of Gangrenous Phagedena; but, as has been remarked by Mr. Cross, in his “*Sketches of the Medical School of Paris,*” there is an apparent contradiction in some of his opinions, which is not easily to be accounted for, in the writings of so respectable an author, and one who has enjoyed opportunities no less extensive than unenviable, of investigating his subject. It is, however, the latest and most complete account of the disease that has hitherto appeared; and I shall therefore endeavour to select whatever is important or peculiar, and that may have a tendency to illustrate the character and cure of the disease.

In the Preface, and after giving a lively picture of the wretched circumstances of the French soldiers, after their armies had suffered those fearful reverses, with which our imaginations are still familiar, he observes—“*Un tel ensemble de causes debilitantes, toutes des plus efficaces, etait bien propre à donner aux humeurs un caractère septique.*”—“*Aussi les fièvres nerveuses devinrent-elles très-communes.*”—“*Les*

émanations septiques dont l'atmosphère des hôpitaux se trouva bientôt surchargée, ne tarda pas à donner aux maladies qu'on y observait la forme du typhus nosocomial ;"—“ alors aussi en vit paraître et régner épidémiquement la pourriture d'hôpital, qui s'emparait indistinctement de toutes les blessures.”

Our author here refers the production of Typhus Fever and Gangrenous Phagedena to the same cause, viz. the previous debilitated state of the patient, and the corrupted state of the atmosphere of the hospitals. But let us remark what immediately follows—“ Les premiers exemples de cette funeste affection (la pourriture) nous furent apportés par des blessés de l'armée de Portugal, et de celle du nord de l'Espagne réunies.”

Allowing it to have been the case, that the inhabitants of London had been suffering under circumstances of peculiar distress, previous to the last occurrence of the plague in that city, what would be our opinion, should an attempt be made to account for its production, by enumerating these heart-rending circumstances, and, at the same time, to conclude with some such remark as the following : “ The first cases that occurred, were those of several persons who had come from the Levant, sick of the disease.” The circumstances referred to by M. Delpéch, seem to have been well calculated for the propagation and aggravation, though not so evidently for the production, of the disease.

In the first paragraph, he points out the inaccuracy of ranking this disease among the species of Gangrene : “ La pourriture d'hôpital dépend constamment de causes extérieures.”—“ La Gangrène, au contraire, dépend tout à

tour de causes inhérentes à la constitution, ou de causes étrangères à l'organisme de l'individu malade."

In the five following paragraphs, he describes the local symptoms; and he distinguishes the disease into no less than four different species—"L'espèce ulcéreuse"—"Le pulpeuse," and other two, which are said to be *varieties* of these species. I formerly had occasion to take notice of these modifications of the local symptoms, and I can still see no good reason for considering them distinct species of the disease.

In the 7th and 8th paragraphs, he describes the constitutional symptoms; and these, he observes, *always occurred last in the order of succession.*

Page 16, "Il est très-rare que son début soit marqué par un frisson, et lorsque ce phénomène a lieu, il est presque toujours le symptôme de quelque complication étrangère à la maladie principale."

This statement is not confirmed by the cases which fell under my observation; but the difference which exists between the original constitutions and modes of living of English and French soldiers, may very readily account for the less frequent occurrence of the symptom referred to, among patients of the latter description.

Page 24, "Toutes les fois que la pourriture d'hôpital a pénétré dans une articulation, elle n'a pas causé des accidens mortels en y agissant sur les moyens articulaires."

In a case of this nature that fell under my observation, the patient had had his foot severely bruised, from a pipe of wine falling upon it; and some time afterwards it became affected with this disease. Before he came under my care, he had had several severe attacks of cold shivering:

the disease had penetrated the capsular ligament of the ankle joint; and the pain was so excruciating, that he begged, in the most earnest manner, to have his leg amputated. But, desirous of affording him at least a chance of saving his limb, I applied the Arsenical Solution: next morning I found him free from all uneasiness, and in less than two months a complete cure was effected. Two years afterwards I met with this patient, who was still in his regiment, and could walk without experiencing much inconvenience, though he had not the full use of the ankle joint.

In the 9th paragraph, M. Delpech considers the causes of the disease. Page 25, “ Elles ne paraissent pas avoir résidé dans les conditions de l’atmosphère.”

He traces its propagation, in almost every instance, to a direct application of the morbid matter to the sores, by means of the dressings, instruments of the surgeon, &c.: but he is, nevertheless, of opinion with Pouteau, that it is also propagated through the medium of the atmosphere; and he observes, p. 33, “ Les malades qui occupaient les lits voisins des ouvertures extérieures, surtout des croisées pratiquées aux extrémités d’une Salle, étoient plus rarement affectés.”

I do not wish it to be understood, that I believe it impossible for this contagion to be, in any given circumstance, conveyed to a sore through the medium of the atmosphere; but there cannot be a doubt, that by far the greater bulk of the evidence we are possessed of, goes to support an opposite view of the subject; and therefore I contend, that the facts which have hitherto been brought forward in support of this mode of its propagation, being in no instance decisive, can at most be only considered as exceptions to a general

rule. I have frequently had occasion to remark, on removing fomentations or poultices, which had been applied to sores affected with this disease, and even when the temperature of the atmosphere was upwards of 60° Fahrenheit, that a dense white vapour arose, and was in some instances visible upwards of six inches above the sore. It seems therefore possible, that a small or crowded apartment may, through the unpardonable ignorance or negligence of the medical attendant, be made to resemble a vapour-bath, by the effluvia from the sores being allowed to accumulate, so as to be almost visible. In such a case, it is not improbable, that the disease would be propagated through the medium of the atmosphere. This, however, I would consider equivalent to inoculation, or immediate contact.

With regard to the origin of the contagion, he observes, p. 45, “ Les excès de fatigue, les privations, le chagrin, un état de maladie dans ces conditions défavorable, surtout le *typhus nosocomial*, la dysenterie, le sphacèle, paraissent très-propres à donner aux émanations animales cette funeste propriété.” Page 46, “ Le *contagium* qui produit la *pourriture d’hôpital* paraît être le même qui détermine le *typhus nosocomial*.”—“ Ce même *contagium* émané d’un corps affecté de *typhus*, est propre à produire la *pourriture*, et vice versa.” And he asks, “ Y a-t-il quelques rapports entre ce même *contagium* et celui qui produit les fièvres intermittentes pernicieuses auprès des marais ; celui qui détermine la fièvre jaune ; celui qui produit le *typhus pestilentiel* ; celui qui donne lieu à la *pustule maligne* ?” all which he is inclined to answer in the affirmative ! Of these opinions, I have already had occasion to take notice in Dr. Thomson’s “ Report ;” and, in addition, I

shall only quote what M. Delpech himself has stated at the 35th page of his Memoir: “ Nous avons en occasion d’observer la maladie dont il s’agit—dans toutes les *combinaisons* possibles.”—“L’embarras gastrique,—la fièvre bilieuse, plus frequemment de ceux de la fièvre catarrhale, et *tres-souvent du typhus nosocomial.*” And again, after describing the change of action which is produced in a sore by typhus, he observes, p. 40, “ Nous avons observé la pourriture, combiné de toutes les manières avec *le typhus*; et  *toujours nous avons vérifié l’indépendance fondamentale* de ces deux maladies.”—“ Per hoc genus demonstrandi, fugiet à te omnis obscuritas, et acquiretur tibi omnis fortitudo fortis vincens omnia subtilia, et solida penetrans.”—TAB. SMARAGD. A celebrated countryman of M. Delpech would have said, “ Let us constantly follow *reason*, and let the public approbation follow us the same way, if it pleases.” But poor Montaigne was not so fortunate as to live under the *new régime!*

In the 10th paragraph, he describes the diagnostic symptoms, and takes notice of a variety of unhealthy actions, which are liable to occur on the surfaces of sores, and which are produced by various changes in the system; but, with regard to the Scurvy, he does little more than mention its name, at the end of the 13th paragraph.

Page 66, “ Nous avons souvent observé que—les praticiens confondaient avec la pourriture d’hôpital une foule d’affections locales différentes, surtout si elles marchaient de concert avec une affection générale.” Nothing, certainly, is more surprising to one who is familiar with this disease, than the remarks and mistakes which are occasionally made respecting it, and that, too, by individuals who are other-



wise well versant in the history and cure of disease. If every foul or phagedenic sore, or sloughy gunshot wound, occurring in an hospital, is to be denominated Hospital Gangrene, the term Diagnosis had better be at once struck out of the surgical vocabulary, and the distinction of diseases be denounced a mere deception, or an imposition on our credulity.

In the 11th paragraph, he considers the Prognosis and observes, p. 53, “ Elle peut cependant guérir spontanément, ou bien demeurer long-temps stationnaire”—“ mais—elle peut déterminer la perte d’un membre, ou compromettre la vie.”

In the 12th, 13th, and 14th paragraphs, he treats of the method of cure; and, in noticing the local applications, he observes, that the vegetable and diluted mineral acids are sometimes effectual, in slight and recent cases. P. 80, “ Des chirurgiens de l’armée Anglo-Portugaise, commandée par Milord Wellington, nous ont assuré que l’acide muriatique était d’une *usage familier* dans les hôpitaux de cette armée pour arreter la pourriture.”—“ Si la maladie était légère et récente, on employait cet acide étendu d’eau; lorsqu’elle était plus grave, on l’employait concentré et à titre de caustique.” It would have been more satisfactory, had our author been enabled to state, accurately, to what extent, and with what success the diluted mineral acids were employed in the British hospitals, as here intimated; and also, at what time the *undiluted* muriatic acid began to be generally employed; or, what amounts to the same thing, *At what period* was Gangrenous Phagedena first and successfully treated as a *local disease*,

and by *local applications only*, in the British hospitals in the Peninsula.

Along with the acids, our author ranks powdered charcoal and unguentum egyptiacum; he considers powdered bark totally inefficacious; and arsenic he does not at all mention. Page 87, “Ceux que nous avons principalement employés sont le nitrate d’argent, la potasse caustique, les acides minéraux et le feu.”—“L’action des caustiques liquides, comme les acides minéraux, nous a paru infidèle, difficile à diriger, et trop bornée.”—“Cependant nous n’avons pas une assez grande expérience sur l’emploi de l’acide muriatique, pour prononcer à son égard.”

He gives the preference to the Actual Cautery, over all other applications. Page 89, “Le cautère actuel”—“avait en sa faveur l’expérience de Pouteau, et celle de plusieurs praticiens des plus célèbres.”—“Nous en avons nous-même retiré les plus grands avantages.”—“Une seule application a suffi le plus souvent—et les plaies marchèrent rapidement vers la cicatrisation.” That the judicious application of the Actual Cautery would effectually cure this disease, was, in my opinion, beyond all doubt, long before I had an opportunity of perusing the Memoirs of either M. Pouteau or Delpech; and I am still persuaded, that there may be particular instances in which, from the site of the sore, and other causes, no other application will prove equally safe, if at all successful.

With regard to Amputation, it is observed, p. 36, “Le succès a souvent couronné nos efforts et justifié nos observations antérieures.”—“La pourriture ne s’est pas reproduite sur le moignon.” P. 39, “Nous avons en la satisfaction de sauver le *plus grand nombre* de nos amputés malgré les dispositions

defavorable, dans lesquelles ils été opérés;" and even, we are informed, when the disease was complicated with "la fièvre catarrhale." It would have been more satisfactory, however, had the particular state of the sores, and the duration of the disease, been more minutely detailed in those cases in which the operation was followed by a success, hitherto unequalled; and also, had some more definite expression been used, than "le plus grand nombre," which, when used in the confines of Gascony, does not always admit of being both literally and correctly translated.

Page 94, "La pourriture a quelquefois dévasté tout un membre à tel point, que sa conservation était absolument impossible, et que l'amputation était évidemment la seule ressource. Mais même dans ce cas, le feu n'était pas inutile; il était, au contraire, le *seul moyen* propre à assurer le succès de l'opération." This last observation goes to support an opinion, which I have formerly advanced, regarding those cases which require amputation in this disease.

With regard to the constitutional treatment, our author's opinions coincide so much with those of M. Pouteau, that it appears unnecessary to take particular notice of them. I shall, therefore, only farther observe, that, notwithstanding the objections which (with all submission) I have made to some of his opinions, M. Delpech's Memoir is unquestionably a valuable addition to former publications on Gangrenous Phagedena, and well merits an attentive perusal, by all who feel an interest in such subjects, but particularly by Army and Navy Surgeons.

The following are some of the Conclusions which may be drawn from the preceding inquiry.

*First*, With respect to the general history of the disease—

That Gangrenous Phagedena was well known even to the earliest writers on surgery, and that its most appropriate mode of treatment was also well understood by them :

That, in process of time, its true character came to be misunderstood, while its former mode of treatment fell into disuse :

That our knowledge, both respecting its nature and treatment, has, during the present age, been greatly increased.

*Second*, With respect to the general character and cure of the disease—

That it is a local disease in the first instance,—afterwards exciting a reaction in the system :

That it is the production of a specific poison; and that its symptoms, with those of most other diseases, are liable to be modified by circumstances :

That it is a decidedly *contagious* disease; and that it is capable of existing in combination with other diseases of a highly *infectious* nature :

That its remote cause is still involved in great obscurity; but that an effectual method of cure is no longer a desideratum.

# CONTENTS.

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## PART FIRST.

PREFACE . . . . . Page vii.—xvi.

### CHAP. I.

Name, General Character, and Importance of the Disease—  
First observed by the Author at Passage, in Biscay—Topographical and Meteorological Account of that Place—General Character of its Inhabitants—Description of the Hospital—First Appearance of the Disease—Its removal from the Hospital—Second Appearance of the Disease—Its Progress—Opinion: generally entertained regarding it—Success attending the usual Modes of Treatment—A New View of its Character—Success attending a New Method of Treatment—The same Mode of Treatment resorted to at Antwerp, after the Battle of Waterloo, &c.  
Page 1—26

### CHAP. II.

History of the Disease—The Local Symptoms, as they appear on a Blistered Surface; on a Granulating Sore; in a Puncture, slight Incision or Scratch; in a Gunshot Wound; on the Face of a Stump—Progress, and certain Modifications of the Local Symptoms—The Constitutional Symptoms—Diagnosis—Consequences of a slight Wound during the Dissection of a Stump—Origin and remote Cause of the Disease—Its Contagious Nature—Significa-

tion attached to the terms Contagious and Infectious—  
 Method of Cure—Local Applications—Arsenic—Objections to the employment of that Mineral obviate<sup>d</sup>—Mode of its Application—After Treatment—Treatment of a recently Amputated Stump, when it has become affected with this Disease—General want of Success in such Cases—The Actual Caustery—Amputation, and its Consequences—Constitutional Treatment—Seldom of importance, where the Local Treatment has been properly attended to . . . . . Page 27—65

## PART SECOND.

INTRODUCTION . . . . . Page 69—74

### CHAP. I.

Of the Opinions and Practice of various Authors who have treated of Gangrenous Phagedena, from the beginning of the present Era to the Sixteenth Century; including Celsus—Aetius—Paulus—Avicenna—Guido—Ferrus—Parey—Wiseman, and others . . . . . Page 75—97

### CHAP. II.

Of the Opinions and Practice of various Authors who have treated of Gangrenous Phagedena, from the Seventeenth Century to the present Period; including Horstius—La Motte—Pouteau—Gillespie—Blane—Adams—Moreau and Burdin—Rollo—Ballard—Edwards—J. Bell—Trotter—Little—Larrey—Thomson—Delpech, and others, . . . . . Page 98—161

## ERRATA.

Page	40,	line	12,	for <i>feverish</i> ,	read <i>febrile</i> .
—	47,	—	5,	— <i>from</i> ,	— <i>upon</i> .
—	78,	—	22,	— <i>scripit</i> ,	— <i>scripit</i> .
—	80,	—	8,	— <i>ß</i> ,	— <i>M</i> .
—	95,	—	14,	— Wiseman referred to as an author of the 16th, instead of the 17th century.	
—	97,	—	1,	— <i>they</i> ,	— <i>these sorcs</i> .
—	<i>ib.</i>	—	16,	— <i>five</i> ,	— <i>three</i> .
—	109,	—	24,	— <i>on</i> ,	— <i>ou</i> .
—	117,	—	9,	— <i>Lc</i> ,	— <i>Lct</i> .

## POSTSCRIPT.

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**W**ITHIN these few days, and after the preceding pages had gone through the press, I have had an opportunity of perusing a very interesting volume from the pen of John Hennen, Esq. Deputy Inspector of Military Hospitals, and which is entitled, "Observations on some important Points in the Practice of Military Surgery." In this volume, about thirty pages are appropriated to discussions on the subject of "Hospital Gangrene," most of which, it appears, had been previously laid before the public through the medium of a Periodical Journal.

Mr. Hennen's opinions, in so far as they relate to the subject of Gangrenous Phagedena, differ very materially from those which I have been led to adopt; and, on this account, I cannot but consider it as particularly unfortunate, that, from the recent publication of the work in which they are contained, it is rendered impossible for me to notice them so fully as I could otherwise have wished, and which they certainly well merit. This task would have been the more agreeable, from the consideration, that no one is a greater friend to free discussion, nor more desirous after the discovery of truth, even were that only attainable by the overthrow of his own most favourite opinions, than the author of the work in question. I shall, however, occupy the short time that is al-



lowed me, in making a few general remarks, and very brief quotations. The work now before me contains a very glowing, but (judging from what I have myself witnessed) by no means exaggerated description, of Gangrenous Phagedena, as it appeared in the hospital at Bilboa, in the province of Biscay. The disease, it appears, was at first very mild; but, as might be expected, it became in a few days greatly exasperated, by a great influx of patients, and consequent overcrowding of the hospital. These patients had been sent from Vittoria and St. Sebastian, or, what is nearly the same thing, from Passage; for many of the wounded were collected at that place from St. Sebastian, some in hospitals, but a greater number in transports lying in the harbour, who were afterwards sent to Bilboa. Among the latter, Gangrenous Phagedena had made its appearance before they sailed for that place, and had even proved fatal, in a number of instances, to those who had undergone amputation. Hence it is obvious, that the disease which appeared at Bilboa was, in many instances at least, the same with that which had previously commenced at Passage; and I may observe, that the description which Mr. Hennen has given of the disease, as it appeared at Bilboa, would apply equally well to that which I had an opportunity of observing at Passage. At the latter station, however, the hospitals were not so large as at the former, and were seldom allowed to remain above twenty-four hours overcrowded with patients.

Since I first had an opportunity of seeing this disease in Biscay, I have had opportunities of seeing it in various other hospitals, both in Britain and in the Low Countries, and also as it occurs on board of ships; and certainly nothing can less admit of doubt, than that, like many other diseases, it is liable to have its symptoms modified by external circumstances; but by nothing more, if so much, as by the nature of

the treatment which is adopted. The oftener I read Mr. Hennen's observations, the more I feel impressed with a conviction, that, with the exception only of such cases as were complicated with some other distinct febrile affection of the system,\* the employment of that local mode of treatment which I have formerly described, would have proved at least equally advantageous at Bilboa as it was found to be at Passage, and afterwards in various other hospitals. It may be of importance to recollect, that the former place is at no very great distance from the latter, and that both lie on the shores of the Bay of Biscay.

Referring generally to what I have formerly advanced relative to the constitutional treatment of Gangrenous Phagedena, as an answer to what has been brought forward by Mr. Hennen, I shall now take notice of what is stated at p. 247 of his Observations. After describing the treatment which was pursued in the hospital under his charge, he observes—“When our endeavours began to be attended with success, the febrile symptoms began, also to abate, and small florid specks, about the fifth or seventh day, appeared to break through the black sloughs; the edges of the circle lost their retorted and tumid appearance. The slough soon began to loosen. In some cases, however, the sloughs were amazingly tenacious, and required a strong solution of lunar caustic. (In those cases, the diluted Fowler's Solution of Arsenic, looked upon as a specific escharotic by some, will be found very serviceable in cleansing the sores; but, whatever is used, no violence should be employed.) A much more im-

\* “Men labouring under them (wounds), and crowded together in large hospitals, are particularly subject to the prevailing diseases of the country where they are, even though they may be complete *acclimatés*; their irritable and debilitated state rendering them particularly obnoxious to every species of contagion common among the inhabitants, and to some peculiar to themselves.”—*Observations on Military Surgery*, by Mr. Heineck, p. 69.

portant object than the separation of the slough, was the removal of the patient to an airy and separate ward, as no disease was more apt to recur than this."

Mr. Hennen does not inform us particularly of the trials he has made of the Solution of Arsenic ; but he informs us, that by some it is considered a *specific escharotic*. With the exception, however, of Guido and Tagaultius, (formerly quoted,) and with whose observations I am aware that Mr. Hennen is acquainted, I know of no author who has expressed any sentiment of that nature ; and by them it is only stated to be the best, the most efficacious, and the most commonly employed escharotic. See Part Second, p. 89.

I am under the necessity of differing entirely from Mr. Hennen with regard to the particular cases in which the Solution of Arsenic, or any other powerful caustic solution, is most useful in this disease ; and for this reason, that the " tenacious slough" which he describes, by preventing the direct application of the solution to the surface of the sore, has necessarily the effect of retarding its operation ; whereas, when it can be applied directly to the living surface, its effects are both rapid and decisive. This obstacle, arising from the impenetrable nature of the slough, is one great argument in favour of the actual cautery, as has been noticed by M. Delpech, in his valuable memoir on this disease.

With regard to the opinion, that it is of more importance to remove the patient to a pure atmosphere, than to remove the slough, I would observe, that I am willing to allow, that the mere separation of the slough, (which, indeed, may be effected by the most simple mechanical means,) without at the same time *effectually destroying the morbid action on the surface of the sore*, can have no effect in curing, but, on the contrary, would certainly aggravate, the disease. But, on the other hand, I can state, from what I think may be consider-

ed more than partial experience, that the disease can be more speedily and effectually cured by appropriate topical applications, than by any other mode of treatment.

By the speedy operation of suitable local remedies, the propagation of the disease is suddenly checked ; which every one must allow is an object of the first importance: Whereas the mode of treatment which Mr. Hennen has described, is, even by his own account, slow in its operation. It is several days, at least, before the morbid action is overcome; and hence it is evident, that more time than enough is allowed for the dissemination of the contagion—while the disease must also become greatly aggravated by the impure air which the patients continue to respire ; for no one can doubt, that the foul exhalations proceeding from the sores and bodies of such patients are injurious to health, seeing that the odour from sores of another, and more healthy description, frequently produce both sickness and vomiting in the attendants. I may remark, that when I first attempted to introduce an effectual local method of treatment, I had to contend against strong prejudices, which were in different quarters entertained against it. These, however, were at length overcome by the unequivocal nature of the results which were derived from their employment.

At p. 252, Mr. Hennen notices shortly the symptoms of the disease, as it occurred in the Gensdarmierie Hospital at Brussels, after the battle of Waterloo. The circumstances of the unfortunate patients who occupied that hospital, have been, on more occasions than one, introduced to the notice of the public. But, as a more circumstantial account of that hospital seems to be yet wanting, and as something of that nature may possibly, at some future period, make its appearance, I shall, for the present, abstain from making any observations upon what has hitherto been advanced respecting it.

At p. 255, Mr. Hennen sums up his observations on Gangrenous Phagedena with the following general conclusion, and to which I would beg the reader's attention.

“ The practical conclusion which I would draw from all that I have seen or heard of this formidable disease, is, that although, by discriminating the type of the accompanying fever, we may arrest the progress of the disease, or although a modification of gangrene (which has occurred to others) should arise, in which local remedies alone, or with very little constitutional assistance, as a purge or emetic, are sufficient to put a period to its progress ; yet that many valuable lives may be sacrificed before the propriety of these means, whether general or local, are satisfactorily confirmed ; and that it is therefore a duty of the most urgent kind, at once to break up an establishment where any suspicious sores may occur.”

This sentence requires a much more particular analysis than I can at present bestow upon it, before all that it contains can, as I apprehend, be placed in its proper light. I certainly do not pretend to know what “ modifications of gangrene” the author refers to, and which he states “ has occurred to *others* ;” but of this I am certain, that I have seen many cases of a disease, which, in the general character of its symptoms, corresponded exactly with that which has been described by Mr. Hennen ; and that this disease yielded easily and rapidly to local applications only.

If, then, this disease has, in its most imposing, as well as in its simpler forms, been found to be curable by local means only, and that by surgeons in no way connected, and very differently situated,\* there can be no necessity for waiting until the propriety of these means are satisfactorily confirmed.” If an attempt, however, should be made to discover, by

\* See Part Second, *passim*.

experiment, whether or not the disease is curable by constitutional treatment, let it be recollected, that at least five or seven days are said to elapse before the local affection begins to assume a healthy action, and that, of course, much mischief may arise during that delay. But, on the other hand, a few hours only will in general be found necessary, either to vindicate or disprove the curative powers of the local applications, which I, with others of much more extensive experience, have recommended. And certainly a *few hours* delay is not likely to be followed by much more serious consequences, than the breaking up of an hospital containing such a description of patients—that is, patients who are not only labouring under a truly horrible and dangerous disease, but who are, at the same time, suffering (many of them at least) from severe gunshot wounds of every description. What is to become of compound fractures of the under extremities, in such a case?

The general tendency of Mr. Hennen's observations, is evidently to disprove the possibility of curing Gangrenous Phagedena by topical applications only, excepting, perhaps, in some simple modification of the disease. There is no reason to believe, however, at least it is not discoverable from what has been made public, that he has had a very extensive experience of the effects of such local remedies as are suitable in this disease; and it may be remarked, that, with regard to the Actual Cautery, he "hesitated to encourage its adoption;" apparently from no other reason, but because "a strong prejudice exists against it in the British hospitals." (See p. 246.) If, then, Mr. Hennen did entertain thoughts of employing the Actual Cautery, he must have remained at least to a certain extent, undecided with regard to the possible efficacy of local applications.

At p. 173, Mr. Hennen refers shortly to the subject of "Contracted Extremities." During part of the autumn and winter of 1815, and while holding the situation of Assistant Surgeon of the General Hospital at Colchester, and likewise during the succeeding year, while holding the same appointment at York Hospital, Chelsea, I had charge of a great number and variety of such cases, under the direction of Dr. James Forbes, Deputy Inspector of Army Hospitals—a gentleman to whose merits as an officer, and to whose kindness as a friend, I cannot even attempt to do justice. While in charge of the class of patients referred to, I had occasion to remark, that not a few of the worst cases were the effects of Gangrenous Phagedena; and that, in every instance, the disease had been treated, at some foreign station, by constitutional remedies and unsuitable local applications, viz. venesection, purgatives, emetics, fomentations, cataplasms, &c.

The means that were employed for restoring to these patients the use of their limbs, cannot now be detailed. They were, however, at least as successful as at any other establishment, and undoubtedly more simple and easy in their operation. Not a few of those, who, from great loss of substance, (the consequence of Gangrenous Phagedena,) appeared to be incurably lamed, were, by patience and perseverance, not only prevented from becoming an encumbrance to their friends or the community, but rendered capable of being useful members of society.

FINIS.











