

Description of an affection of the tibia induced by fever, with observations on the treatment of this complaint / [Thomas Whately].

Contributors

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OBSERVATIONS,

&c. &c. &c.



THE complaint of which this essay professes to treat, is a disease of the Tibia, in which a small opening * is generally discovered, in the integuments covering its internal side, through which a probe may be passed into the cavity of the bone, where one or more loose pieces of bone are usually found, which being confined, from their being often of larger dimensions than the opening in the Tibia, prevent the healing of the ulcer.

Having observed that in almost all the cases of this kind, which I have had in hand, the complaint had been preceded by fever, I have been led to consider the disease in question, as a febrile affection of the part. I should inform the reader, that the case, now before him, is not one which frequently occurs. I do not recollect having, in the course of my practice, had more than about thirty of them entrusted to me. But

* In some cases there are more than one of these openings.

having, in the course of many years, observed a certain peculiarity in the disease, I took notes of most of the cases, which came under my notice, conceiving that I might, at some future time, be thereby enabled to afford useful information to the public, on the treatment of this complaint.

These cases occur more frequently at the middle period of life, than at any other*. In most instances, that came within my observation, the preceding fever was of considerable duration; and sometimes so violent, during its continuance, as to confine the patient to his bed, and often to be attended with delirium. Some time after the patient's recovery, he was seized with pain in one of his legs†. The period at which this pain commences, is not

* I took notes of twenty-two cases which have been under my own care, the ages of these are as follow:

Of the age of 14.	1
----- 18.	1
----- 19.	1
Between 20 and 30.	7
----- 30 and 40.	11
----- 40 and 50.	1

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† Since these pages were written, a case has occurred, in which the Tibia of both legs, were affected in the manner above described.

the same in every case. In some patients, it takes place immediately on the termination of the fever; in others, it is not experienced till a few days afterwards; in others again, not till several weeks, and in others, not till many months have elapsed*. Yet I should observe, that I have always found the disease to make its attack, within twelve months from the termination of the fever.

In most of the cases, the pain in the leg was acute, and appeared to the patient to proceed from the interior of the Tibia. The pain indeed, was not equally violent in every case: as some of the patients were confined to their bed for several days, or weeks, and deprived of sleep for a considerable time; while others were able to go about. No external swelling or inflammation is, in general, to be expected, immediately on the commencement of pain. Yet these appearances are seldom long in following, they are usually visible within a week, and sometimes, in two or three days. In some cases, a general inflammation and swelling over the whole limb first appeared, and soon after a more circumscribed inflammation, near the affected

* These variations, as to time, will be noticed in the several cases annexed to these observations.

part of the Tibia, in which a fluctuation of pus might be felt. In other cases, the inflammation and swelling, never extended to the entire limb, but were, with the subsequent formation of pus, confined to a small circle on the Tibia. In most instances, the suppuration was confined to one part of the Tibia; and this was often about the middle of the leg, and the centre of the bone. In many cases, however, the suppuration took place in other parts of this bone; namely, within a few inches of the instep, a little below the knee, or in some of the intermediate spaces. Sometimes it has happened, that two or more distinct suppurations, and as many separate openings into the cavity of the bone have taken place. These were sometimes found within an inch or two, of each other; at other times further apart. There was some variation likewise, as to the time of their appearance: some weeks elapsing between the commencement of each suppuration, in some cases, while in others, all appeared nearly at the same time.

Although a fluctuation of pus might be discovered, within a short time after the disease had taken place, the matter did not usually burst through the skin, as hastily as it does in some other suppurations. This discharge, however, sometimes took place within a week or two, from the

first appearance of matter; but in many cases, the pus continued in a confined state, for many months, and required the use of the lancet to set it free*.

In most of the cases, the violence of the pain ceased: the inflammation and swelling abated, as soon as the fluctuation of matter was felt; and in a short time afterwards, the patient was generally able to walk about. Soon after the discharge of matter, the wound usually contracted to so small a size, as scarcely to admit the point of a probe; and a small quantity of pus continued to ooze from the aperture. In some cases, however, the ulcers closed up for a few days, and then burst out again.—If in this state of the disease, a probe is passed carefully into the little orifice of the ulcer, it usually enters readily, into the cavity of the Tibia †, where the loose piece or pieces of exfoliated bone are frequently to be felt. Under these circumstances, I have never known a perfect cure

* In the greater number of cases, the suppuration is small, often containing not more than a tea-spoonful or two, of pus. In other cases, however, I have seen a larger suppuration, in which, an ounce or more, of matter is formed.

† In one or two cases, I have perceived this orifice so small, as not to admit the round end of a probe, of the usual size. In a few other cases, it has been so oblique, as to be entered with much difficulty, by that instrument.

to take place, unless where the appropriate treatment had been resorted to.

In this disease, the surface of the Tibia, immediately around the orifice, becomes often, though not always, knotty and irregular, and the periosteum is sometimes thickened, so as to give an appearance, resembling that of a venereal node. This disease, however, differs totally from those affections of the Tibia produced by syphilis, as it does likewise, from those usually denominated necrosis, or from any of those, which are produced by scrophula. In short, as far as I have been able to observe, it is a disease *sui generis*, the relic of fever usually affecting the Tibia*.

From the violence of the pain, and sudden erosion of the bone, an inflammation appears to attack its internal part. Suppuration takes place, and matter is first formed there, and then makes its way through the substance of the bone, to the outer integuments.—As, however, the ulcerative process in the bone, sometimes takes place in different parts, thereby producing several apertures in the Tibia, matter is, in these cases probably, formed in distinct places, previous to the ulcerations in the bone. One of

* I have some recollection of having, many years ago, seen this disease in the Fibula; but in that case, the Tibia was likewise affected.

the most remarkable circumstances, attending these cases, is, that one or more pieces of loose bone are usually found within the cavity of the Tibia, opposite to each aperture.

Some of these exfoliations are so small and thin, as to require a nice examination with the probe, in order to discover them. They are, however, generally found of a larger size, sometimes even exceeding an inch in length. I have always found these exfoliations of an oblong and spiral shape, and evidently separated from the internal laminæ of the Tibia within the cavity of the bone. The separation of such a portion of bone, is probably, the effect of the previous inflammation and ulceration; by which it is deprived of circulation, and of course loses its connection with the living bone, of which it was once a part.

Thus much as descriptive of the disease in question, which may be considered an internal exfoliation of the Tibia.—Our next business, is to speak of the proper treatment of cases of this kind.

During the painful and inflammatory state of the disease, and before the erosion of the bone has taken place, it would be proper to apply emollient fomentations and poultices to the limb: to keep the patient in bed; and to endeavour

to ease the pain, by occasional doses of opium. I must confess, however, that I have seldom seen the disease in this stage. I have commonly been applied to, after the erosion of the bone has taken place, and when the patient has been, in some measure, able to follow his usual employment. In this stage of the disease, the cure of the ulcer, by the common external remedies, is impossible, the loose piece or pieces of bone, pent up within the cavity of the bone, must set that mode of procedure at defiance. The imprisoned exfoliations, therefore, must be extracted, and this is desirable to be done, by the mildest methods possible; avoiding all unnecessary pain and operations to the patient.

The loose bone within the cancelli, is commonly longer, than the ulcerated aperture in the bone. It is in many cases, indeed, considerably longer, and though confined to its situation, it may sometimes be taken hold of by a pair of forceps, and moved upwards and downwards, in its bony case. The examination by the probe should, therefore, be made with great care and gentleness; otherwise, much unnecessary pain will be excited. It may happen also, that the exfoliated bone may be removed from the favourable situation it is in, when it is directly under the ulcerated aperture, and be pushed under the

arch of the Tibia, as I have more than once experienced; by which the difficulty of extracting it must be greatly increased.

As the orifice in the Tibia, as well as the exfoliations, are of different sizes in different cases, and as these are generally covered by the integuments and granulations, it requires a nice examination with the probe, to ascertain the true state of the parts. In some cases, as before observed, the aperture in the Tibia is so small, as not to admit the round end of the probe, to pass into the cavity of the bone, and the contrary end, or an eyed probe, will pass into it with so much difficulty, that no accurate examination of the parts beneath, can be made. In most cases, however, it freely admits the round point of a probe; and our attention should first be directed, to find out the size of the aperture, in the bone. Having ascertained this, we should next examine, whether there be a loose piece of bone within the cancelli. The size of the aperture may be known, by passing the probe, in a gentle manner, from side to side in all directions. But it is not so easy, either to find out the exfoliated piece, or to ascertain its exact dimensions, when discovered.

Where the aperture in the Tibia is large, and the exfoliated piece very small, the latter may be

moved about, with the end of the probe, so readily, as to leave no doubt of its easy extraction, by the introduction of a pair of fine forceps. Under such circumstances, the operation should be instantly performed; and if the whole be removed, the wound will generally heal up in the course of a few weeks; the application of any common dressing, aided by bandage, will be sufficient for the purpose. The utility, therefore, of first examining with great nicety, by the probe, in order to avoid, if possible, the use of more violent remedies, must be evident.

In more difficult cases, the exfoliated piece may, likewise, be readily moved in the cavity of the bone, by the end of the probe; yet the hand of the operator will be sensible that it is confined, by the sides of the surrounding Tibia. In some cases of this kind, the opening in the Tibia may be large enough to admit of our taking hold of the exfoliation, by a pair of common forceps; but in others, it is so small, that a pair of the finest forceps, that can be made, cannot be made to enter, so as to embrace the bone. When possible, we should endeavour to extract the exfoliated bone by the forceps; and in these attempts I have readily succeeded, when the exfoliation was not longer, than the aperture in the Tibia. But where it proved to be of

greater length, which might be known, by its being moved upwards and downwards, in its bony case, by the forceps, but whence it was not possible to extract it; I have been sometimes able to accomplish the extraction, by moving it upwards or downwards, as far as it would go, and then raising one end of it. Where I could not succeed by this procedure, I have been, sometimes, obliged to resort to a more violent method, that of endeavouring to break the exfoliation into two parts, by means of the forceps. This I have been able to do, where it has not been very strong, and having thereby extracted it, the cure has been speedily completed.

There are other cases, however, in which methods, very different from those, must be taken. We may have the strongest reasons for concluding, that there is a loose exfoliation, within the cancelli, and yet may not be able to feel it by the probe. In this case, as well as when the opening in the Tibia is too small, to admit an exfoliation to pass, by any of the methods above described, we must apply the kali purum to the integuments around the ulcerated opening in such a manner, and in such quantity, as to destroy them, to the extent of about half an inch, from the centre of the opening. This is done

with a view to expose as much of the surface of the Tibia, as is requisite for the cure*. The proceeding, here recommended, is attended of course, with some pain; and it requires particular attention, in order to prevent the kali from destroying more of the integuments, than is necessary; and from penetrating through the orifice into the cancelli.

This caustic may be applied in several different ways. That which I prefer is, to take about as much of it (bruised into parts of the size of a pin's head) as will lie upon a seven shilling piece, and apply it, both to the ulcerated opening in the skin, and to the surrounding integuments, to the extent already mentioned. Pieces of dry lint, or adhesive plaister, should be applied around the caustic, to prevent it from extending on the adjoining skin. In a few minutes, the kali liquifies, and begins to operate.

The leg should be placed in a horizontal position; and if the caustic appear to act equally, the limb must remain in that position for about ten minutes, or a quarter of an hour; after which, a pledget of dry lint, should be applied over the kali, large enough to cover the

* The orifice in the bone, is situate so near to an angle of the Tibia, in some cases, that it does not admit of its being exposed, to the extent of half an inch, on all sides of it.

adjoining sound skin. The leg should then be slightly bandaged, with a flannel roller.

It is to be observed here, however, that during the action of the caustic, some additional attentions are not unfrequently required, in order to ascertain the depth to which it has penetrated. If in one part, the integument is thicker than in another, or if the caustic is acting more powerfully on one part, than on another, a little of it may be removed, with the probe, to or from such part; or a little more fresh caustic may be applied to any particular part, if it appear to require it. During the action of the caustic, particular attention must be paid to its effect on the little ulcer on the skin, and on the orifice in the Tibia, as it is desirable to prevent its penetrating the cancelli, much harm and disturbance, being likely to arise from its action on this part.

If the integuments adjoining to the wound, be thick, the kali may be applied to this part, nearly in the same quantity, as to the other parts; as, in general, it ceases to act, before it can penetrate into the cancelli. But if the integument, on this part, be very thin: or if there be no integument, or granulation over the ulcerated orifice, a small piece of lint should be passed down it to the cancelli, previous to the application of the kali, to prevent it penetrating

too far: a piece about the size of a pea, will generally be sufficient. This should be rolled with the finger and thumb, and firmly pressed down the orifice by a probe, till it passes into the cancelli; where it should remain. If this should not perfectly plug it up, a second, or even a third pledget should be applied. This is often attended with some pain, from the pressure made on the granulated flesh, at the bottom of the wound, which generally springs from within the cancelli, and is exquisitely sensible. The kali should remain on the part, to which it is applied, for about six hours. After this, the wound should be dressed twice a day, with some dry lint, and an emollient poultice. In about a week, or ten days, from the application of the caustic, the slough will come away.

If the caustic have performed its office, the surface of the Tibia will be perfectly bare; and now the unequal, knotty state of the bone, and thickening of the periosteum, will often be seen; and if the granulations, on the surface of the orifice have been destroyed by it, the loose exfoliation within the Tibia, will often be visible to the naked eye. But where the granulations are not destroyed, the internal exfoliation cannot be discovered, without introducing the probe into the wound, as before directed.

Sometimes the surface of the Tibia around the ulcerated aperture, will be found, on the separation of the slough, not to be sufficiently exposed.—In this case, a little of the kali must be applied a second time, to such parts as require it. This should be done in the course of a few days, otherwise the wound will begin to fill up, with granulations. Though a repetition of the caustic is seldom attended with as much pain, as accompanies the first application, it being seldom necessary to destroy a fresh portion of the skin; it should nevertheless be applied with all the precautions, recommended in the first instance; the like dangers being to be guarded against, on the subsequent application as on the first. It must be remembered, however, that a proper quantity should be applied; otherwise the surface of the bone will not be sufficiently exposed, when the new slough separates. When the second application has been properly conducted, we seldom have occasion for a third.

The surface of the Tibia, with the aperture into its cavity, being thus exposed to view, we proceed to search for the loose exfoliation, if it be not already visible. The orifice in the Tibia must again be carefully examined, by a probe, and as this examination can now be assisted with the eye, the size and situation of the exfoliated

piece, will for the most part be readily discovered. If indeed the granulations within the cavity of the bone, shall not have been destroyed by the caustic, some impediment to the examination may arise from them, as they are in general extremely sensible, and are apt to bleed, on the slightest touch of the probe. But as the exfoliated piece generally lies buried, in these granulations, and is perfectly detached from the contiguous bone, it may frequently be discovered, by its yielding to the pressure of the probe.

Its situation being discovered, and its size, compared with that of the aperture in the Tibia, pretty fairly ascertained, we must endeavour to extract it by the forceps; and sometimes we shall succeed, where the endeavours made, previous to the application of the caustic, have failed. The exfoliated bone however, will often be found, to be larger than the opening in the Tibia, in which case it will, in general, be impossible to extract it, till the orifice has been widened.

If the trephine be used for this purpose, it may be sometimes difficult, though probably never impracticable, to remove the piece encircled by the instrument after it has been worked to a proper depth. I remember to have succeed-

many years ago by this method, in extracting a large piece of bone, pent up within the cancelli. The case to which I allude, occurred to me when I was a very young practitioner, and has been already published. From the date of this operation, there has not occurred a single case in my practice, in which I have found it necessary to use the trephine. I have, for some years, practised with great success, a method of enlarging the opening in the Tibia, which is much more simple, as well as less painful. It is by means of the kali purum; and the way in which I use it, is as follows: I apply this caustic to the bare surface of the Tibia, around the hole, and to the sides of the hole itself, after the separation of the slough; taking care to guard against its touching the adjoining parts, or penetrating into the cavity of the Tibia: each of which dangers may be prevented, by the application of the lint, as before directed. In about ten minutes after the application of the kali, the bone should be covered with a pledgit of lint; and on the following day, the kali should be again applied to all the parts, as before. After this, the limb should be dressed twice every day with a fresh poultice; it should be lightly covered with a flannel roller, and the patient may be generally permitted to take moderate exercise.

In a month, or less, from this period, an exfoliation of all that part of the bone, to which the caustic has been applied, will take place*. This effect may be known, by occasionally pressing a probe upon the surface of the bone. For when the intended exfoliation is accomplished, the exfoliated piece gives way, on the pressure of the instrument. I do not, however, suffer it to be removed, immediately on discovering its separation, from the body of the Tibia; but generally let it remain in its situation two or three days; in order to give sufficient time for its being completely disengaged, that it may be removed with less danger of being broken. I then complete the removal in the most gentle manner; sometimes by the forceps, sometimes by passing either the one side of a pair of forceps, or a director, under it, as circumstances may dictate†. Having proceeded thus far, my atten-

* I have not known this exfoliation take place, in less than three weeks from the application of the caustic, and it happens, not unfrequently, that it is not separated in less time than a month. The granulated flesh around it, therefore, generally covers this dead part of the bone, before it is taken out. This, of course, obscures it from the view, but when loose, it is as readily extracted, with the loss only of a few drops of blood, as if it was perfectly exposed.

† This exfoliation generally exhibits a very curious appearance. From an examination of seven or eight pieces

tion is next directed to the removal of the loose pieces of bone, within the cancelli. In almost every instance, in which the process above described has been followed, I have found this bone at perfect liberty. But before I attempt its extraction, I always introduce a probe, in order to ascertain its exact position. In most of the cases, which have come under my care, it is readily felt by the probe; but the practitioner should be prepared to meet with some disappointment here. There are cases, in which, from its smallness, it is not only extremely difficult to find the imprisoned piece, but even to discover any vestige of it, on the first examination. In three cases, I found it so small, as to require a very nice management of the probe to feel it; in two of these cases, the loose piece was found immediately after the enlargement of the aperture in the Tibia was accomplished; in the third case, it was not found till two days afterwards. Out of the whole

of bone thus exfoliated, from as many different cases, it is evident, that the ulcerative process, at the commencement of this disease, erodes the substance of the Tibia, in this part, to such a degree, as to render the enlargement of the hole, by the caustic, more certain, than it would have been, had the Tibia been of its usual thickness. See Fig. 5, 6, 7, 8, 9, 10, and 11.

number of cases, which have occurred in my practice, I can advert only to one, in which I have searched in vain for it: nor do I feel warranted to conclude, that even in this case there was no such piece; but rather suppose, that, by its minuteness, it either eluded the search with the probe, or escaped unperceived in the dressings. This solitary instance occurred, before I was aware how very small some of these pieces are found to be. In the three cases I have mentioned, the loose pieces found, would have escaped my notice, had I relaxed but a little of that perseverance with which I searched, and any conclusion against their existence, drawn from the disappointment, would, of course, have been erroneous*.

After having enlarged the aperture in the Tibia, by the caustic process, already described, and having found the loose exfoliation, I have in almost every case been able to extract it. There has, however, been an instance or two, in which it has been found, still too large to pass through the aperture; although it could be moved upwards and downwards, in its bony case. In

* We generally find, only one of these loose exfoliations within the cancelli. I recollect, however, three instances, in each of which there were two pieces, and two or three others, in which there were three or four pieces.

these cases I have been obliged to adopt the method, already described in page 11; viz. of breaking the loose bone, into two parts, in order to liberate it, from its confinement. Had I not been able to do this, I must probably have been obliged to make use of the trephine.

Having carefully examined all the pieces, thus extracted in the different cases, which have come under my observation, I have invariably found them to be exfoliations of the interior laminæ of the Tibia: no marks of affinity, with the external surface of the bone, having been found on any of them. I am likewise certain, that none of the exfoliated pieces, extracted from within the cancelli, were any part of the exfoliation made by the caustic, for the purpose of enlarging the hole in the Tibia. The greater number of them, were ascertained to be within the cavity of the bone, before any caustic was applied to the Tibia. Besides which, I should inform the reader, that the pieces exfoliated by the caustic, were removed with so much care, that no fracture of them was likely to occur, and if it had, it must have been perceived.

After I have extracted one piece of bone from within the cancelli, I examine the bottom of the wound with a probe, to ascertain whether there be any more pieces: this I continue to do occa-

sionally for about a fortnight, knowing that no cure can be obtained, if any portion of bone be left behind. The hole indeed would fill up with granulations, but a small oozing wound would remain. When the cancelli are cleared of these exfoliations, the wound should be dressed in the most superficial manner, and with the most simple dressings; applying compresses and a roller lightly over them.—In the greater number of these cases, the skin is perfectly cicatrized, in the course of six weeks, or two months, from the removal of the exfoliated pieces; and the inequality on the surface of the Tibia is generally removed. The scar indeed, and the external appearance of the leg, is somewhat different, after the cure in these cases, from what I have observed in most others. In a few instances, however, I have seen the wound continue open for several months, after the removal of the bones. In one case indeed, it continued open nearly two years, during which time, a probe could be passed within the cancelli, to the extent of four or five inches; but no material inconvenience accrued from it, to the patient, during this interval, and it afterwards healed up.

Although the method of cure, here recommended, is almost always certain, and may be effected without much confinement to the patient,

yet I think it proper to remark, that I have seen two cases, which occurred in middle aged women, in the intervals of bearing children, where, from a violent use of the forceps, in the extraction of exfoliations, lodged within the cancelli, which were of larger dimensions, than the aperture in the Tibia, the most serious consequences ensued.—Violent inflammation, attended with great pain, extended itself through almost the whole extent of the Tibia; and pus was formed, on the surface of its different sides, in almost every direction, as well as within the cavity of the bone. In one of these cases, the symptoms arose to such a height, as to destroy the patient in the course of a few weeks. In the other, the patient survived; but the irritation and inflammation were so great, for the first six months, as at length to leave the Tibia eroded through its entire thickness, a little below the knee; where, on moving the limb, a kind of joint was observable. By the use of opium, fomentations, and emollient poultices, (the limb being kept in an horizontal position) the disease gradually abated; and after some large exfoliations, from the substance of the Tibia, had been thrown off, the use of the limb was restored. In these two cases, I conceived indeed, that these violent symptoms might have been excited, by

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the patient frequently walking, to a considerable distance, during the time of their being under surgical treatment. Should therefore, a case of this kind again occur in my practice, I shall not consent to perform the operations above described; but on condition, that the patient be strictly confined to the house.

CASES, &c.

CASE I.

Henry Tavenor, aged twenty-five, servant to Mr. Wilberforce, was seized with a fever, in November, 1803, which continued a month. After his recovery, he was seized with chilliness every day, and had night sweats, till the month of April 1804. At this period he was taken with a violent pain in his left thigh and hip, which would not suffer him to turn in bed, and deprived him of sleep: this pain continued for about a fortnight; during which time he was unable to get out of bed. No external appearance took place in his thigh. In two or three days after his recovery from this attack, he was seized with a similar pain, in his right leg, about the middle of the Tibia. This continued about a fortnight. The pain came on about two or three times in the course of twenty-four hours; and was very violent for the time it lasted, but did not continue above a few minutes. It therefore, did not materially disturb his sleep in the night. In this period, no outward swelling

or inflammation appeared. But on walking about two miles, in boots, an increase of pain came on, and an external inflammation appeared, about the middle of the Tibia. The pain was very violent, for the first twenty-four hours; after which, though less, it was at times, still so great, as to prevent his sleeping well. This continued a month, in which time, he used fomentations, and applied an emollient poultice to the part. The inflamed part then burst, but discharged very little matter. After this the patient became easier. In this stage the wound sometimes healed, for some days; and then a small discharge would ooze from it, which was attended with more external inflammation, at one time, than at another. In this state the patient continued several months. He then applied to me; and was perfectly cured, by the methods recommended in this Essay.

CASE II.

A man, aged thirty, was seized with a violent fever, about Christmas, 1804. The fever continued three weeks; during the first fortnight, of that term, he was confined to his bed, and was delirious. About a fortnight after the fever left him, he felt a violent pain in his left leg and

anle, it was so great and incessant, as to deprive him of sleep. In a fortnight after this attack, an external swelling appeared on the Tibia, about the middle of its internal side, and nearly half-way, between the knee and the ancle. In another fortnight, it suppurated, and burst; but soon healing, it was lanced. After that operation till I saw him, which was about eighteen months afterwards, it would occasionally heal for a fortnight, and then burst again: a small quantity of thin sanies oozing, while the wound was open. He was perfectly cured.

CASE III.

A man, aged forty-three, had been troubled during the winter, for two succeeding years, with a cough, attended with asthma and spasms. In the third winter, he was free from those complaints; but had, for a length of time, a violent pain on one side of his face and head, with a small swelling and hardness, near one of his ears, attended with the loss of hearing, on the side affected. In the succeeding summer, (viz. about June 1805,) he was seized with pain in his left hip, which continued about a week; but it was not so violent, as to prevent him from sleep-

ing. During the time he was thus affected, a violent and sudden pain, in the Tibia of the same leg, came on, in the middle of the night, and continued several hours. After which, the pain would decrease; but on the following night would return, with its former violence. In a few days, a small degree of swelling appeared, about the middle of the Tibia. Soon afterwards, the whole leg swelled in the daytime, and the swelling was attended with a small degree of œdema. It should be observed here, that though the general swelling subsided at night, the swelling on the Tibia, not only continued, but increased slowly, for about twelve days. At the end of a fortnight, the pain in these parts nearly ceased. The swelling however, continued, in the same state, for three months. Two blisters were then applied: and soon afterwards, the swelling became so soft, and prominent, as to indicate, that matter was formed. In about six weeks subsequent to the application of the blisters, the swelled part burst into one orifice. In the course of a few days, it burst in another place, about an inch and a half higher than the first opening*. In this state he applied to me, and was perfectly cured.

* This case, and the fourth, are the only instances, I have met with, in which the disease was not preceded by violent fever.

CASE IV.

A middle-aged man, lost the use of his left arm, in consequence (as was supposed) of having had the chronic rheumatism. This effect was, at length, followed by his losing the use of his right arm. Upon which occurrence, he regained the immediate use of his left arm. After suffering, in this way, for eighteen months, he recovered the use of both arms. A short time, however, before the pain had entirely ceased, in his right arm, he was attacked with pain in the left knee, and then along the Tibia, on that side, which continued for three weeks, and was so violent as to deprive him of sleep. After this, a swelling took place about the middle of the Tibia, on its internal side, when the pain abated. In a week afterwards inflammation appeared. It continued in this state for seven or eight months, and then burst. In a short time, another aperture opened, about an inch higher than the first. This was followed by a third suppuration; which took place an inch above the preceding one. This last I afterwards opened, and the man was perfectly cured.

CASE V.

Mrs. Smith, aged thirty-four, New Quebec Street, was attacked with a fever, that continued about a week. She was confined to her bed, three or four days; but was not delirious. On the week immediately following her recovery, she went into the wash-house, and in a day or two afterwards, was seized with a pain in the right leg, which appeared to be seated within the bone. Through the violence of her pain, she was confined to her bed three or four weeks; during which time, she had very little sleep. In about three days, after the commencement of this attack, a slight and circumscribed inflammation (attended subsequently with some tumefaction) appeared, on the middle of the Tibia. In about a fortnight, matter formed, and the tumor, which was not larger than a walnut, burst. After this, the pain became somewhat easier; but it confined her to her bed a week longer. The wound continued open some months. At length it would heal for a few days, and then break out again. In this state she was admitted a patient, at a medical institution, and ordered to be strapped with adhesive plaister, thrice a week, and to have a linen roller on the part.

nued about six weeks; and during a fortnight of the time, she was confined to her bed. In about a fortnight after her recovery, she was seized with a violent pain in the right Tibia. About three days from the commencement of this attack, a swelling, which eventually affected the whole leg and foot, began to appear. At the end of a week, a small tumor was visible, on the Tibia, about four inches below the knee. This suppurated, but did not break. The pain continued, though in a less degree, about a fortnight longer; when it entirely ceased. At this time I saw her, and opened the abscess. She was perfectly cured.

CASE VIII.

A woman, aged thirty-six, was attacked with a fever, in July 1806, which continued for nine weeks. During a fortnight of that period, she was so ill, as to be confined to her bed; and at times delirious. Immediately on the termination of her fever, she was seized with a pain in the Tibia of her left leg, which continued with great violence, night and day, about six weeks. No swelling or inflammation appeared, during the first month. But at the expiration of that term, an abscess formed on the

the middle of the Tibia, in size nearly equal to a pullet's egg. I saw her, for the first time, about two months after the abscess had formed; at which period the pain had ceased. I opened the abscess with a lancet. It contained about a table spoonful of matter; which is a much larger quantity, than usually met with, in similar cases. This is one of the two unfortunate instances, that will be found in the latter part of this essay*. After suffering much, for more than three years, she has at length nearly recovered the use of her leg. But the wound is not quite healed.

CASE IX.

Elizabeth Beeles, aged thirty-six, No. 16, Union Street, Middlesex Hospital, was attacked in July, 1804, with a severe fever, which lasted a month. During a fortnight of the time, she was confined to her bed; and was delirious for three or four days. About a fortnight after her recovery, she went into a damp kitchen. Soon afterwards, a pain in the Tibia of her left leg, came on, and continued, with great violence, day and night, about a week. A small swelling, accompanied with inflamma-

* See page 23.

tion then shewed itself, about the middle of the Tibia. It did not burst; and, at the end of six weeks, it had so far subsided, as to leave only a small spot, that was a little more susceptible of pain, when touched, than the other parts of the leg. About twelve months after this period, she was again attacked with a fever, which, like the former, continued a month. On this occasion likewise, she was delirious; and confined to her bed about a month. During the continuance of the fever, she at times, complained of pain in the same part of the Tibia, that was affected in the former fever. Immediately after her fever had subsided, she perceived a red spot, attended with a small swelling, exactly in the same place, where the swelling had appeared a year before. This part became so painful, as frequently to prevent her sleeping; and a general swelling of the leg took place. The patient continued in this state, about six weeks, when the pain gradually ceased, but the tumor did not burst. I saw her, for the first time, about half a year after the attack of the last fever, and found a small collection of matter in the tumor. The abscess was opened; and a perfect cure effected, upon the plan of treatment already described in this essay.

CASE X.

Thomas Denham, aged twenty-two, No. 32, Stafford Place, Pimlico, was attacked with a violent fever, in December, 1805, which continued about twenty-three days; it confined him to his room the whole time. He recovered, and in a month afterwards was seized with a pain in his left leg, which, for three days, was very violent, especially at night, by which his rest was broken. At length the pain diminished at night; but was still very great, in the day time, whenever the leg was placed out of an horizontal position, so that he was not able to set his foot to the ground. He continued in this state a fortnight; when a slight swelling and inflammation, (the latter having the appearance of a bruise) took place on the Tibia, about five inches below the knee. These appearances increased in the course of a fortnight; and were attended with much pain, in the day time, especially if the position of the leg was altered. At this time, the tumor was about the size of a pullet's egg; and contained matter. There was, however, no general swelling on the leg. The tumor was opened, by a surgeon; and the patient was so much

relieved, that, at the end of a month, he was pronounced to be well: the sore being then healed. In about a week afterwards, however, a sore again appeared in the same place. A few days posterior to this, the same surgeon made an opening, a little higher; he soon afterwards, laid both wounds into one, and the patient was able to walk, without much pain; but the wound still emitted a small discharge. Such was the state of the case when I first saw the patient; which was about three months, after the last mentioned operation had been performed. This person was perfectly cured.

CASE XI.

A man, aged thirty-five, was seized, in December, 1798, with a very violent fever, which continued a month; and during the greater part of which time, he was confined to his bed. He continued, much indisposed, another fortnight. Four days after which, he was taken with pain in his right leg, that continued with much violence, day and night, four or five days. In the lapse of a day or two, a redness, accompanied with some swelling, appeared about the middle of the Tibia, and within half an inch of its spine. When eight or ten days had elapsed,

matter was formed; and shortly afterward spontaneously burst out. He then became easier, and the wound soon degenerated into a small oozing sore. In this state, he was admitted a patient at a public institution, and there continued some time. Here no other remedy was ordered, than an application of poultice to the leg. In this state he applied to me, and was perfectly cured.

CASE XII.

A woman, aged twenty-four, was attacked in April, 1803, with a severe fever, which confined her to the house eight weeks, and to her bed a month. She was delirious two or three days. Her health then seemed to be perfectly restored, and apparently continued so eight months. At the conclusion of that period, she was seized with a violent pain, in her left leg, which continued day and night, three weeks, and deprived her of sleep. In about a week, after the pain in the bone had commenced, a swelling appeared nearly in the middle of the Tibia, which in three weeks burst. The wound closed in three weeks; but it afterwards opened again, and at the end of three or four months, again healed. Another abscess took

place, about the same time, in which the former one made its appearance. It was situate about three inches below the knee, and six inches higher in the Tibia, than the other. This likewise burst; but closed again in three weeks. Both these abscesses were afterwards opened with a lancet. About a fortnight after the operation, another distinct swelling, attended with inflammation, appeared on the Tibia, half way between the two abscesses, before mentioned. It continued in an indolent state: neither bursting, nor giving much pain, for eight months. I then saw her for the first time. I lanced the abscess, and the patient was perfectly cured.

CASE XIII.

Joseph Doe, aged No. 34, Bell Alley, Carey Street, Lincoln's Inn, was seized with a violent head ache, accompanied with fever, which confined him to his bed three weeks. He was apparently restored to health; and began to follow his usual employment. In a fortnight afterward, he was seized with pain in his left side, and under his left thigh. He worked a few days longer, and was then obliged to be taken home suddenly: the pain left his

thigh, and settled in his right leg, and continued with great violence, day and night, for three weeks: seldom allowing him to sleep more than half an hour, at a time. In about three days, after the pain had began in his leg, a slight inflammation appeared about the middle of the Tibia, in the small of the leg, followed by suppuration. At the end of three weeks an opening was made in the affected part. The pain in his shin was supposed, at first, to be rheumatic; and a week elapsed, before it was suspected, that there was an abscess. The wound soon terminated in a small weeping sore; and no means being employed for its cure, it remained in that state two years and a half. He was then attacked with another severe fever, in which he was confined to his bed three weeks. During his confinement, an abscess formed in the calf of the same leg; this was opened, and afterward cured. The little sore, on the Tibia, continued open, till I first saw him, which was four years after he was seized by the first fever. He was perfectly cured.

CASE XIV.

Robert Look, aged thirty-seven, coachman to
—Hatsell, Esq. Spring Gardens, and resident

in Moor's Yard, St. Martin's Lane, was seized with a violent fever, in 1795, which confined him to the house seven weeks. During part of this time, he was delirious. He grew better, in the last fortnight; but was not well enough to go abroad. At the end of the seven weeks, he was attacked with pain in his right leg; which, for the first week, was not very violent; nor did it prevent him from sleeping. The pain, however, gradually increased; and in about ten days, became so great, that he had no ease day or night. He was unable either to walk or stand, for any length of time. At the end of three weeks, he was admitted a patient at a public institution; and his case was deemed venereal. The pain continued, in the same violent degree, three weeks longer: rendering him unable to sleep. No external swelling, or inflammation appeared on the leg. The pain seemed to him, to be deeply seated in the bone. At the expiration of six weeks, a swelling discovered itself on the Tibia, a little below the middle of the leg, but no inflammation attended it, the first ten days. An inflammation then took place in the part; which became soft, and was thought to contain pus. Poultices were applied five months: when the part not bursting, it was lanced.

He was in much pain, till the swelling was opened; but after that was done, he became easier. The part healed, and was again opened, at three different times. About a month after the first appearance of the abscess, another attended likewise with pain, took place in the Tibia, about an inch below the former; though prior to that date there was no appearance whatever, of an abscess in that part of the leg. A fortnight elapsed, after the attack of pain, before any swelling appeared on the part. It then became inflamed, and was poulticed a fortnight; after which it was opened. Soon after the operation, a third abscess appeared on the Tibia, about six inches below the knee. This suppurated in three weeks. About the same time, two more abscesses, of the same kind as the former, took place on the lower part of the leg. One was situate about two inches above the inner ankle; the other, about the same distance above the outer ankle, and on the Fibula. Of these three abscesses, two burst spontaneously, in a few weeks; and the other was opened with a lancet. A short interval occurred, between these different openings. Only a small quantity of matter was found in any of them; but much pain had preceded their suppuration. A probe could be passed,

behind the Tendo Achillis, from the abscess on one ankle, to that on the other. After these several openings, the patient became easier, and was soon able to walk about. He continued in the institution seven months; during which time, some external sinuses were opened, at different times. At the end of this period, he was sent to the sea; but all the wounds were in a weeping state, and continued so, till I saw him, which was some months afterwards. He was perfectly cured. But I should observe, that one of the little openings into the cavity of the Tibia, continued so about two years after all the exfoliations were removed.

CASE XV.

A man, aged thirty-six, was attacked with a fever, in July, 1808, which lasted three months; during which time he was confined to his house, and, for about three weeks, to his bed. He was delirious a fortnight.—While he was recovering from the fever, in the third month, he was attacked with pain, in the middle of the Tibia of his right leg. The pain was so great, that he could not put his right leg to the ground. It was indeed almost incessant; and often prevented him from sleeping,

several nights successively. In two or three days, after he had been seized with the pain, some swelling appeared on the Tibia, but without redness. The swelling increased, and, in about a week or ten days, became inflamed. The pain then nearly ceased, and he slept well. When I saw him, which was four months afterwards, there was a small tumor, accompanied with some inflammation, still remaining, which evidently contained matter. In about a fortnight after the appearance of the lump, on that part of the Tibia, another swelling, but much smaller, appeared, about four inches below the former, on the same leg. This also, was inflamed when I saw the patient; but it had not burst, though it contained a small quantity of matter. About the same time, that the latter swelling appeared, a third distinct swelling, of the same kind, took place, on the same Tibia, about four inches higher than the first. This likewise, contained a small quantity of matter; but it was not inflamed, and had never burst. In about a fortnight after the commencement of the pain, in his right leg, he was taken with pain in his left leg, which was very severe day and night, but not so acute as the pain in his right leg. In a fortnight after the first attack of pain, in the left leg, he perceived a swelling near the middle

of the Tibia, and after it had shewn itself a week, it became inflamed, and in five or six weeks burst.—When I first saw him, there was a small inflamed tumor, on the part, having a minute weeping aperture, that just admitted a probe to be passed into it. About the time that the last abscess broke, another appeared, on the same Tibia, about four inches below the former.—This became inflamed in three or four days; and matter was evidently contained in it, but it had not burst. Although the Tibia, of both legs, had been in the state I have described, two or three months, without using any remedy, yet the patient was able to follow a laborious employment, though with considerable uneasiness at times. He grew impatient under the use of the remedies, and absented himself from me.

CASE XVI.

I have the permission of Captain Thomas H. Robins, of the 7th regiment of Light Dragoons, to say, that in January, 1808, he was attacked with a fever, which continued for nine weeks, and confined him to the house, and by which he was much emaciated. He was however recovering fast from the effects, when

symptoms of fever again appeared. These were followed by pain that attacked the left shin bone, and continued, with some violence, five days; during which time, he was restless, in the night. A small swelling then made its appearance on the Tibia, and in eight or nine days after, it became inflamed. A lotion and fomentation were used. The fever left him; but the swelling, on the leg, considerably increased, and became very tender. At the end of about three weeks, from the first attack of pain, on the Tibia, a blister was applied to the swelling; after which the pain was less severe, and the patient able to walk and ride. The blister soon healed; but the swelling burst, and left a little ulcer on the part, through which a probe might be passed, in the direction of the cancelli, to the depth of an inch and a half. Sea bathing, bark, and other remedies, were used; but without effect. The lump, on the Tibia, continued, and the little ulcer kept oozing. The former had some appearance of being a venereal node. An eminent surgeon saw it, in this state, and pronounced it venereal. Another distinguished member of the profession, advised the blister, and sea-bathing. None of the remedies, used by the patient, had any effect, either in reducing

the swelling on the Tibia, or in healing the ulcer. Captain Robins, on coming under my care, readily submitted to the mode of treatment, which I had practised with success, in other cases, and in less than two months, was perfectly cured.

CASE XVII.

Ann Godwin, aged nineteen, No. 3, Porter Street, Newport Market, was attacked with a fever in June, 1808, which continued six weeks. During three weeks of the term, she was confined to her bed, and at times delirious. She recovered from the fever; but in three weeks afterwards, was seized with a pain in the Tibia, about four inches below the knee, which continued three weeks, and was very violent; depriving her for some nights of sleep. Under this attack, she took doses of opium, to ease the pain. The pain continued about a fortnight, and during that space there was no diseased appearance on the Tibia. A small swelling, attended with some inflammation, appeared afterwards on the spine of the Tibia, about four inches below the knee. At the end of a month, matter had evidently formed, and the part was lanced; but very little matter came out. While the

suppuration was taking place, the patient was confined to her bed three weeks; but after the part had been lanced, she became easier, and was able to go abroad. The wound then healed; but the part gathered and broke again, two or three different times. She had been under the care of an eminent surgeon, but no other means of cure were employed, while under this gentleman's care, than the common external dressings. She was perfectly cured by the remedies noticed in the preceding pages.

CASE XVIII.

Isaac Newton, aged thirty-three, Beek Lane, Shadwell; was seized with a fever, in February, 1807, which confined him to his bed five weeks. About two days after his recovery, he was attacked with a violent pain in his right thigh, which soon settled in the leg, of the same side. The pain continued by night as well as day, about a fortnight, and prevented his sleeping. A swelling then appeared on the Tibia, which burst in three weeks. A small weeping sore remained. In this state he came into my hands, and obtained a perfect cure.

CASE XIX.

William Caustican, aged eighteen, was attacked with a violent fever, in July, 1806, that confined him to his bed two months. A short time after his recovery, he was seized with violent pain in the Tibia of his right leg; a suppuration took place, and in about three months, the part burst. He applied, at different times, to two gentlemen of the profession, both of whom advised the usual external applications; but they produced no amendment in the case. When I saw him, there was a small weeping sore, about the middle of the Tibia, which I was about to treat in the same manner, as I had done in the other cases of the kind; but the lad went to sea, on a sudden, and I have not since heard of him.

CASE XX.

A girl, aged fourteen, was seized with an ague, which continued ten weeks. About a week after the termination of this period, and before she was perfectly recovered, she was taken with a violent fever, that continued a fortnight. During this time, she was for the

most part delirious, and kept her bed; she was subsequently confined to the house, for another week, and then recovered her strength. But at this period, she was seized with a violent pain in the Tibia, about four inches below the knee. The pain seemed to be in the internal part of the bone, and as it was felt night and day, it prevented her from having much sleep, yet she was not altogether confined to her room by it. At the end of a week, a swelling and inflammation took place, on the affected part of the Tibia: matter soon formed; and in three days it burst out, in quantity about a table spoonful. In a week the wound was nearly healed. Another suppuration succeeded, about an inch below the one first mentioned. This was lanced; after which, it healed. Three days after, a third abscess formed, two inches below the second, and was opened. When I saw her, which was twelve months afterwards, there was a small weeping ulcer, which had never closed, from the time of its being lanced. She had been admitted a patient at a public institution, where she remained eight months. While there, an exfoliated piece of bone, about an inch in length, had been extracted. And three other very small pieces, afterwards came away of themselves. She was discharged un-

cured. This person is now with me for cure, having been taken under my care, while these papers were preparing for the press. On examining the wound, I found the opening in the bone, of sufficient size to admit a small pair of forceps, with which I extracted another very small piece of bone. This appears to be the last exfoliated piece, and the wound will probably, be soon healed.

CASE XXI.

William Hill, aged twenty-seven, at Mr. Spillers, Wine Vaults, No. 27, Black Friars Road, was attacked with a fever, which confined him to the room, about five weeks, and to his bed between two and three weeks; during a week of that time he was delirious. Having recovered from the fever, he returned to his business; but about three weeks afterwards, was seized with a pain, in the upper part of the Tibia of his left leg, about four inches below the knee. The pain continued about ten days, and was more violent in the day time, when he walked, than in the night. This was followed by a swelling over the whole leg, which was greater, at the painful part of the Tibia, than in the other parts of the limb. In about a week, inflammation appeared

on this part, after which he was not able to follow his business. At this time he became a patient, at a public Institution; where he remained about a month. While there, the tumor was lanced, and about half a tea-spoonful of matter, let out; but he was confined to his bed fourteen days, before it was opened. After the operation, he regained his strength, and was able to walk about; but the sore continued weeping about nine months. At the end of that time, a fresh abscess appeared near the former, though much smaller. This burst, of itself, soon afterwards. The first ulcer then healed; but the last continued to ooze, a small quantity of matter. On examining the cavity of the Tibia, with a probe, through a small circular opening, in the bone, (which was not large enough to admit a small pair of forceps) I could distinctly feel a piece of bare bone; but it had not the feel of being loose. I therefore applied the kali. An exfoliation was procured, which enlarged the opening into the cavity of the Tibia so much; as to admit of the introduction of a pair of forceps. After this, a probe could be passed, on each side of the piece of bone. It could not, however, be moved, even by the most violent pressure of the probe. Under these circumstances, I did not think

proper to employ any greater force, on the part. Nor did it seem advisable to open the wound afresh, by the re-application of the kali. I suspended all endeavours, of my own, about six months; at which time, the parts were exactly, in the same state, as at first. I now suspected, that the bare bone, or bones, within the cavity of the Tibia, were exfoliated, but jammed together, in such a manner, as to prevent their having motion. I determined, therefore, to apply the forceps, and endeavour to remove them by force. I soon extracted two exfoliated pieces; and in a few days afterwards, another piece was set at liberty, and soon extracted*. As far as I can remember, this is the first instance that I have met with, where these bones were so jammed in, by the surrounding bone, and by one another, as to have no perceptible motion, on the pressure of the probe. This is one of the last cases, of this disease, which I have seen. The patient is now perfectly well.

* Mr. Bew, an eminent Dentist, at Brighton, was present, when I extracted one of these pieces. The same Gentleman was, likewise, present at the extraction of another piece, in one of the cases related in this Essay.

CASE XXII.

A woman, aged twenty-nine, was seized with a violent fever, in the third month of her pregnancy. She was confined, for the most part, to her bed, about seven weeks; but was not delirious. After this, she recovered perfectly, and was safely delivered. About a month afterwards, she was seized with a violent pain in the upper part of the Tibia, about three inches below the knee. The pain continued day and night, and she slept but little; yet was, occasionally, able to walk a small distance. In about a week after the commencement of the pain, a circumscribed swelling, at first, without any inflammation, appeared on the middle of the Tibia. Inflammation, however, took place, and was followed by suppuration. The swelling burst; in about a fortnight. When I saw her, (which was seven months from this period) a small weeping sore, was seen on the Tibia. This had continued, nearly in the same state, in which it was, when it first burst, except, indeed, that it had alternately healed, and broken out again, three different times. This woman is now under cure.

EXPLANATION OF THE PLATE.




Fig. 1 1. represents the appearance of the disease, in a case, where it affected the Tibia of each leg.

a a represents the state in which the ulcers are often seen, when left to themselves, some weeks, or months, after they have burst. In this case, the inflammation around them, is more than is usually seen, in this state of the disease. It was occasioned by improper treatment.

b b b represents three other abscesses, not yet burst, with very small quantities of matter in them.

Fig. 2. represents a case, drawn from life, in which we have a view of this disease, after the separation of the slough, produced by the caustic.

a an aperture in the Tibia, with a loose piece of bone, longer than the aperture, lying within the cavity of the bone. It could be readily moved by a probe; but could not be extracted.

b a part of the surface of the Tibia, around the aperture, laid bare by the caustic, and of a white colour.

c the granulated integuments, after the separation of the slough.

d a part of the slough, from the action of the caustic, not yet separated.

Fig. 3. represents a case similar to the last, and, likewise, drawn from life. In this case, no piece of exfoliated bone, could be seen through the aperture.

Fig. 4. represents another case, nearly similar to the last, but a small piece of exfoliated bone, could be discerned, through the hole in the Tibia.

Fig. 5. represents two views of an exfoliation, of the Tibia, produced by caustic, with an ulcerated aperture in its middle, and an internal exfoliation, much longer than the aperture, lying in a groove, directly across it.

a the exfoliation, with the piece of bone underneath, as they appeared in the leg, before any attempt was made to extract them.

b the internal exfoliated piece, when removed from its situation in the groove.

c the exfoliation, produced by the caustic, but represented on the contrary side to that of letter *a*, by which the groove, for receiving the exfoliated piece, is seen. This case clearly shews, that a cure cannot be obtained, while an exfoliated piece of bone is thus pent up, in the cavity of the Tibia.

My friend, Dr. John Sims, saw this case in the living body, as represented in the plate, and before the exfoliation, of the bone, took place.

Fig. 6. represents two views of another case, produced by caustic, with the exfoliated piece of bone, taken from the cavity of the Tibia. In this case, the exfoliated piece is represented, in the position in which it lay in the groove of the exfoliation, produced by the caustic; in order, however, to shew this more distinctly, the view is taken on that side of the exfoliation, which lay in contact with the cancelli of the Tibia. In this curious case, two apertures were made in the Tibia, by the disease. These were so near to each other, that both were laid bare, at the same time, by the action of the

caustic; and both are seen in one exfoliation.

a represents the internal side of the exfoliated piece, produced by the caustic, with the two apertures in it, and the internal exfoliation lying in its groove.

b represents the piece exfoliated, by the caustic, on its reverse side, as it lay in its situation on the Tibia.

c the internal exfoliated piece, longer than the aperture in the Tibia.

Fig. 7. represents likewise, two views of an exfoliation, produced by the caustic, in a third case, similar to those represented in fig. 5 and 6, with the exfoliated piece taken from under it, which was in this case also, longer than the aperture in the Tibia. Here the aperture was so small, as not to admit a probe.

Fig. 8. represents two views, of another case, of exfoliation, produced by the caustic, in which the aperture, in the bone, is seen.

a shews this bone, as it lay on the Tibia, before its extraction, by the forceps.

b shews a view of the same bone reversed, after its extraction.

Fig. 9. represents an exfoliation, produced by the caustic, in another case, with the exfoliated piece which lay underneath it, and which, in this case also, was longer than the aperture in the bone.

Fig. 10. represents a sixth case, of the same kind. Here there was a very small internal exfoliation; and the aperture, in the bone, as in most of the preceding cases, was so minute, that no instrument could be introduced for the purpose, even of an attempt to extract it. The exfoliation, by the caustic, however, set this at liberty, and it was then extracted by the forceps.

Fig. 11. represents another case, of the same kind; in which the aperture was oblong, and so narrow, as scarcely to admit the round end of a probe. In this case, two exfoliations were taken out of the cavity of the bone, after the removal of the piece, separated by the caustic. One of them was much larger than usual; the other was very small and thin, as represented in the plate. The external piece of the Tibia, separated by the caustic, was, in this instance, so thin, as to break, in its removal,

into two parts. The aperture, however, into the cavity of the Tibia, was so much enlarged by it, as to admit of the extraction, of the largest piece.

Fig. 12. represents an internal exfoliation of the Tibia, of so large a size, as to be incapable of being taken out, till it was broken into two parts, by forcibly twisting it, with a pair of forceps.

Fig. 13. represents a large internal exfoliation, extracted, by the author, in another case.

Fig. 14. represents one much smaller, which was extracted from another patient.

Fig. 15. represents another.

Fig. 16. represents four others, taken out of the cavity of the Tibia, in another case.

Fig. 17. represents three others, in another case.

Fig. 18. represents another small piece, extracted from a patient, now under cure.

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into two parts. The aperture, however, into the cavity of the Tibia, was so much enlarged by it, as to admit of the extraction of the largest piece.

Fig. 12. represents an internal exfoliation of the Tibia, of so large a size, as to be incapable of being taken out, till it was broken into two parts, by forcibly twisting it with a pair of forceps.

Fig. 13. represents a large internal exfoliation, extracted by the author, in another case.

Fig. 14. represents one much smaller, which was extracted from another patient.

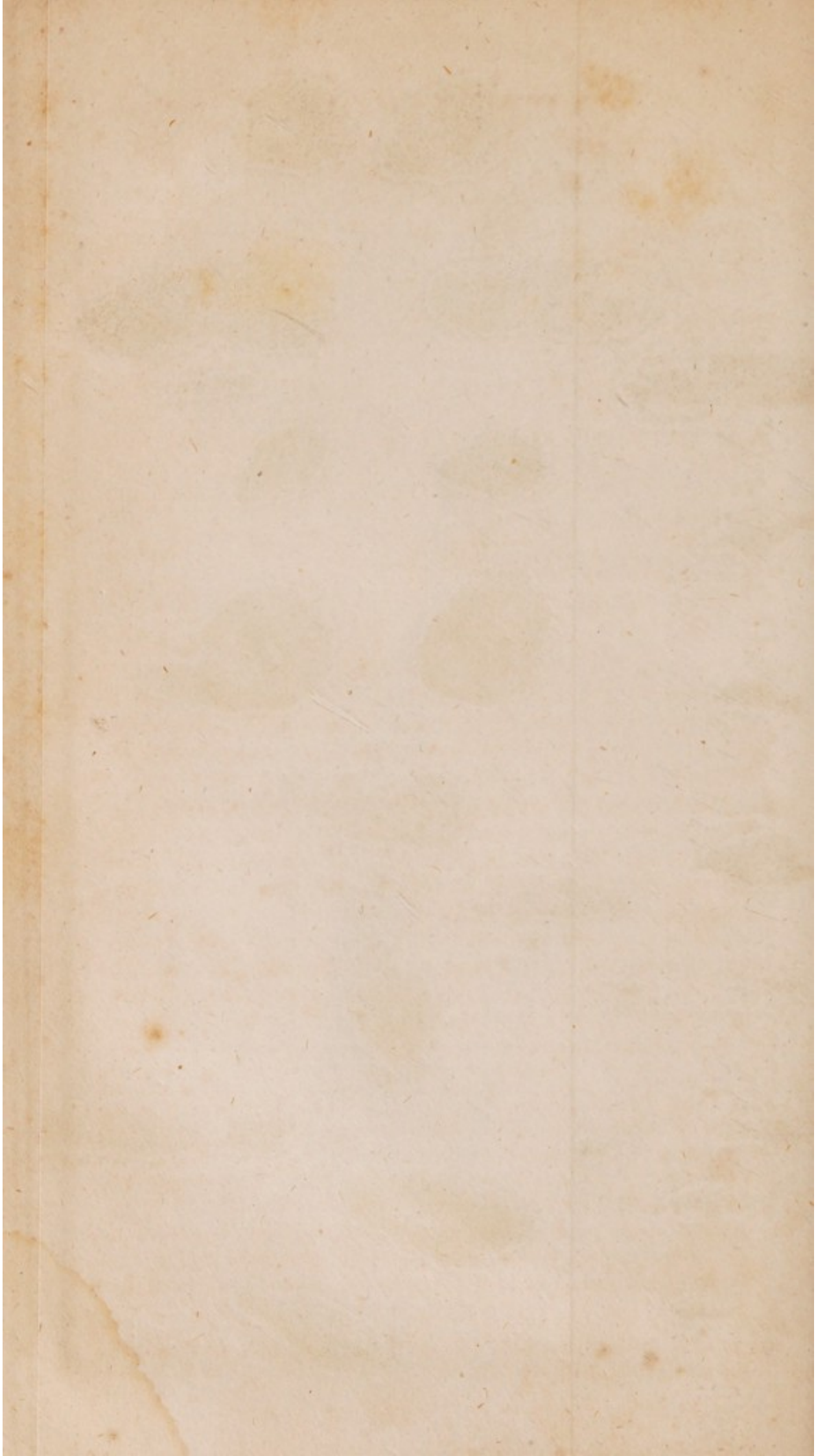
Fig. 15. represents another, which was extracted from a third patient.

Fig. 16. represents four others, taken out of the cavity of the Tibia, in another case.

Fig. 17. represents three others, in another case.

Fig. 18. represents another small piece, extracted from a patient, now under cure.





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