

having his Malady found out, or obtaining a Cure for it?

'Tis not unlikely, that many desperate Cafes in Surgery may arife from fuch Accidents as this.

V. *Some Observations on the Spina ventofa; by the late Claudius Amyand, Esq; F.R.S. and Serjeant-Surgeon to His Majesty.*

Read May 15. ¹⁷⁴⁶ **W**HAT Practitioners generally understand by the *Spina ventofa*, is a *Caries* in the Bone, from the Extravafation of fome sharp Juices within it relaxing the Tone of the Fibres, and fwelling and increasing its Bulk beyond the natural Bounds.

In this Cafe, the Humour, or extravafated Juices, pent in the Bone, works it Way out of it, through the external *Cortex*, or into the Joints, or both. By Detention it acquires an Acrimony; and, like Vinegar, and other acrid Juices, it not only relaxes the Tone of the bony Tubes, by mollifying them, but alfo, like a Cauftic, it tears and lacerates them. At this time the Bone fwells, tumefies, and fpreads; and the Sap flowing, running out through the lacerated Tubes, overfpreads the Surface, and adds to the Tumefaction, as the liquid Matter, forming a *Callus*, is indurated there. So that, when this happens at or near the Joints, the Bones in Contact are knit together, and the Cariofity is incrufted and cover'd with an *Exoftofis*, in as many Places as the Matter confined within the Bone, upon breaking the *Cortex* of

Bb 2

it,

it, will work its Way out at. And thus this Distemper may be consider'd differently, as it happens to be in the different Stages of it.

The Alteration which the Bone suffers from the extravasated Matter lodged within the Substance or Cavities of the Bone in the first Stage of a *Spina ventosa*, becomes the Occasion of some Exfoliation or Detachment from it. As that Matter acquires a greater Acrimony, the Texture of the Bone being relaxed, and the *Lamellæ* made soft and yielding, the Bone is enlarged in its Dimensions; and, in the last Stage of it, wherein the Bone is carious, the corrosive Matter destroys the Continuity, as it makes its Way thro' the *Cortex*, and into the Joints. At this time Impostumations appear in as many Places as the Matter can make its Way out at. The callous Matter lodged under the *Periostium*, gradually ossifying, covers the Bone more or less with *Exostoses*; and the Joints are stiffned, by the Extravasation and Induration of the Sap flowing out of the Bone there.

The Impostumations that happen in the Bone towards the Centre of long Bones, are always attended with additional Mischief, as the working out of the Matter there meets with a greater Resistance from their *Lamellæ*, which lie close, and are compact; the Exfoliations made in the first Stage, and, as it were, in the Beginning of the *Spina ventosa* there, being frequently confined and locked in by the *Cortex* of the Bone, or some callous Expansion on the Surface of it. In the last Stage of this Distemper in this Place, the Bone is usually perforated with large Holes, tubulous Cavities, and fistular Openings, and the main Bone rotten, at a time that the Exfoliations
inclosed

inclosed preserve their primitive State and Solidity. The Patient then cannot survive it long: For, as a hectic Fever and *Diarrhœa* are fed by the continual Absorption of some of the Matter into the Blood, so the Body is drained by the large Discharge from such Wounds. The Amputation of the Limb is then the usual Remedy; but a better may be hoped for, before it comes to this Pass, as will appear from the following Observations.

OBSERVATION I.

One *Thomas Pentney*, a Shepherd in *Norfolk*, aged about 22, was admitted into *St. George's Hospital*, towards the Beginning of *August 1739*, and committed to *Mr. Middleton's Care*. Five Years before, upon the Crisis of a Fever, he had felt a great Pain in the *Os Humeri* of his right Arm, which continued several Months; during which, the Dimensions of this Bone were so increased, that, towards the End of the Year, it was half as big again as is usual in the natural State. About this time the Bone impostumated; and the Matter being discharged by the breaking of the Integuments on the Outside of the Arm, the Patient was eased, so as to have been able to attend his Flock as before.

When he came to the Hospital four Years after this, he had above twelve Holes thro' the Integuments on the Outside of the Arm, answering to, and corresponding with, as many leading into the medullary Cavity of the Bone; some of which were large enough to admit the Finger. These Impostumations had been most vexatious of late. There was an *Anchylosis* at the Elbow; and, for two Years last past,

past, he neither could bend his Arm, nor use it in Pronation and Supination. The whole Bone felt thick and unequal up to the Shoulder, where the Articulation was free. The Patient now did not complain much. The Discharge from the Wounds was moderate; his Rest, Stomach, and Pulse, as well as could be expected; and therefore he was determined to forego any thing, rather than submit to the Amputation that was proposed.

In Consultation with Mr. *Pawlet*, Mr. *Wilkie*, Mr. *Middleton*, and Mr. *Hawkins*, we agreed to make an Incision from the Deltoid Muscle down to the Elbow, thereby to lay the distemper'd Bone bare, so far as it appear'd to be affected; and, with the exfoliative *Trepan*, to make a fair Opening into the medullary Cavity of the Bone, by taking off so much of it as was perforated in the external Part of the Arm, and so to make way for the Application of the actual Caustery, if that was found necessary.

The two first Operations were performed with Ease: For, as in the Incision the *Periosteum* was readily detached from the Bone, so the Bone in View, being nearly of a cartilaginous Nature, and making little Resistance, was soon removed, by the repeated Application of the exfoliative *Trepan*. In the Course of the Operation, Mr. *Middleton* found a Bone loose, which hitherto had lain concealed under the *Cortex* of the Bone; which, being taken out intire, measured above seven Inches in Length, and more than two in Circumference; the Centre forming a tubular Chanel, wherein the *Medulla* of the Bone had formerly been inclosed. This was an Exfoliation fairly separated from the Surface of all the medullary Cavity

Cavity of the Bone, bur improperly called an Exfoliation, as the Thickness of the Bone throughout was as thick as a Shilling: It was more substantial in some Places than in others, and open'd here and there, so as not to be a complete Tube. But what, perhaps, may be thought to deserve more notice is, that this loose Bone, tho' it had for many Years been soaking in the Matter lodged in the Bone (which, at times, had worked its Way out, by perforating the Surface of the *Os Humeri* externally), yet this Exfoliation was in no-wise alter'd, or tainted with Cariosity, as the main Bone was; but in every respect so found, as to give Ground to hope the posterior Part of the *Os Humeri* might be so; but it happen'd otherwise.

Upon the Removal of this Exfoliation, the whole internal Surface of the Bone was found of a Substance like a Cartilage: It was bare in some Places, and cover'd with Flesh in others. The Flesh was fungous in the lower Extremity of the Bone that was carious; firmer towards its upper End, where it was found; and callous towards the Middle, which was degenerated into a cartilaginous Substance.

The Removal of this Exfoliation having laid open the whole Bone, in the inferior Part of it was found a *Sinus* leading into the Articulation with the Cubit, and a Cariosity in the Bone there; and, in the upper End, where the Bone appeared now found, but formerly was distemper'd, several *Foramina*, which were filled up with Flesh, under Cover of the *Deltoid* Muscle.

At this time the Surface of the Wound was very large, and the Discharge from it greater than the Patient

Patient could support. His Stomach hitherto had been good; but that being defective, and a hectic Fever with a *Diarrhœa* attending, the Amputation of the Limb was concluded on. It was taken off near the Articulation with the *Scapula*, where the Bone was found. The Patient did not survive it long; for the *Diarrhœa* increasing, he died spent, within four Days after the Operation.

In the Explanation of the annexed Figures, TAB. II. N^o. 1. and N^o. 2. a further Account will be given of the State of the Bones in the amputated Limb. The *Humerus* next to the Shoulder-Joint did not, after the Patient was dead, appear so sound as it had during Life: For the Matter proceeding from the Bone, which was found, in two or three Places of it, under the Deltoid and Pectoral Muscles, shew'd, that this Part of the Bone was not in that sound State it appeared in, when the Amputation was made.

OBSERVATION II.

Upon the 5th of *November* 1739. Mr. *Johnson*, about 26 Years of Age, having complained for 12 Months last past, of a Swelling in the Bone of his right Arm, which seemingly had been the Cause of several Impostumations he had had thereabouts since, then applied to me for Cure. He could assign no Cause for this Swelling, saving his taking Cold, as he imagines, after having exercised himself by flinging heavy Stones at a great Distance: For that soon after he was seized with a Fever, and a great Swelling from the Neck to the Finger's End of this Arm; which settling towards the Middle of the *Os Humeri*,
where

where several fistular Openings now were, and coming to Suppuration thereabout in a short time after, a great Quantity of Matter was discharged by Incision in *Nottingham*; whereupon the Surgeon had told him, that the Bone was bare; and soon after had cut another Opening in the hind Part of his Arm, where there was another Gathering, and the Bone also laid bare, and dressed both Wounds, as expecting the Bone to scale off; but that meeting with no Cure, and, on the contrary, the Wounds to break open as oft as they had been healed up, and that Matter was still gathering in new Places, and the Swelling in the Bone to increase, had determined him to look for a Cure in *London*.

At this time there were five or six fistular Openings leading to the Bone distilling a sanious Matter on the Sides of the Tendon of the *Deltoid* Muscle, and the hind Part of the Arm, where the Bone was principally enlarged; tho' it was very remarkably increased in Bulk the whole Way down to the Elbow. I could not with my Probe discover the State the Bone was in; but, being satisfied it was carious, and that this Distemper was a *Spina ventosa*, proposed, for the Cure, the laying open all the Bone in the anterior Part of the Arm; which the Patient readily submitted to.

This Distemper was found to be a *Spina ventosa*, or Cariosity in the Body of the *Os Humeri*, whereby above four Inches of the solid Bone had been destroyed; all which was cased in by an *Exostosis*, or callous Expansion; saving in a few Places, where the Matter flowing from the medullary Cavity of the Bone had preserved an Opening.

This *Spina ventosa* was treated nearly in the same manner as the above-mention'd, and the Cure performed as follows. It was enter'd upon th 7th of *November*, by making an Incision to the Bone upon the external Part of the Arm, about six Inches long, and one broad, beginning it above the Place in the Bone where the *Deltoid* Muscle is inserted; but, on the Side of it, almost down to the *Supinators Radii*; and then, by destroying with the *Lapis infernalis* all the Flesh growing on the *Exostosis* or callous Expansion encompassing round, and, as it were, incasing the carious Bone, which the next Day being scraped off, the fistular Opening leading into the medullary Cavity then came in View, and the Probe going a great way therein, I immediately proceeded to the trepanning of the Bone, and enlarging that fistular Opening into it with the exfoliative *Trepan*, perforating through the callous Expansion or *Exostosis*, which was spread externally almost a Quarter of an Inch upon it, quite into the medullary Cavity. The next Day I applied this Instrument above and below the preceding Perforation; and, by cutting and paring off the Angles betwixt them and the Sides of the Perforations, with an Instrument the Engravers make use of, then made a fair Opening into the medullary Cavity of the Bone, and a convenient one too; for the Discharge of the Matter hitherto confin'd within it, which, whilst pent in, had occasion'd the Cariosity, and the Progress of it, now found to have destroyed above four Inches of its Body; and also for the Removal of the Fragments and loose Bones confined in the medullary Cavity, and the Application of the necessary means, as well to stop the
Progress

Progress of the Evil, as the promoting the casting off of the morbid Bones.

But the Work was far from being finished, as, upon the Extraction of the foremention'd loose Bones, it appeared that we had a *Fungus* sprouting as well from the Circumference of the medullary Cavity above and below that Part of the Bone we had operated upon, as from the callous Expansion over its outward Surface occasioning a greater Discharge of *Sanies* than our Patient's Strength could support; that our Opening in that Cavity was not yet sufficient to discharge all the Matter that was deposited in it, as well through a fistular Opening {in the internal Part of the Bone answering to the *Axilla*, as another somewhat lower over the large Vessels that run upon the Surface of the Bone internally, that, being shelter'd above and below, we could not come at them without enlarging further the Opening we had in the Bone externally. This laid us under the Necessity of enlarging this Opening in its upper and lower Part, so as to bring in View the fore-mention'd. These were enlarged with a *Terebellum*, without any Hazard of wounding the large Blood-vessels, which were shelter'd by the callous Expansion lining the carious Bone on this Side: And having thus render'd easy the Discharge from all these Cavities, we had nothing to struggle with then but the Running; which from this time became daily less; that from the internal Part of the Arm, by the Matter having a more easy Vent for itself; and that from the *Fungus* on the Bone by a Solution of the *Lapis infernalis* it was dressed with. Mr. *Singleton*, Surgeon in *Aldersgate-street*, being consulted upon the Case,

the 18th from the first Operation, was of Opinion, that the Amputation was hardly practicable; the *Sinus* into the medullary Cavity shewing that the Cariosity was up to the Head of the Bone; but that, if it was practicable, he thought the Patient had far better chance for his Life, by pursuing the Cure in the Way he was in. At this time we had but in part subdued the *Fungus* that was continually sprouting up from the sinuous Vacuity in the upper Part of the Bone, where the *Medulla* was all wasted, as well as from that which was yet growing without the Bone from the callous Expansion the carious Bone was cover'd by: But this was so effectually overcome and conquer'd by the repeated Application of the actual Cautery, and by it the Bone dried up so, that, in less than two Months from its Use, all the morbid Bone did cast off.

The Quantity of the morbid and carious Bone taken out at divers times, being about 4 Inches of the solid, was effectually repaired, by the Matter flowing as well from the Circumference of the callous Expansion about it, which all along had steadied the Patient's Arm so, that he could pull his Stockings on and off, as from the Matter flowing from the Ends of the *Os Humeri* into the Cavity formed round this incasing or incircling Bone. If we had been lingering in our Proceedings, it is likely the great Discharge would have exhausted the Strength that was necessary to carry on this Cure, before we could have got through so many that were unavoidable; and that the Flesh growing from the Edges of the external Wound would have render'd more painful and difficult the several Operations on the Bone. By this Proceeding,

Proceeding, this difficult Cure was ascertained in less than a Month, and intirely finished in six; the Patient having now the Power of his Arm as complete as ever. Nor is the Limb at all disfigured or short-ended; the expanded incircling Bone attached to the Ends of the *Os Humeri* preventing this; so that the only appearing Defect is, that the Bone about the Wound is thicker than usual; but that strengthens it, and suppliès a Defect in the anterior Part of the Arm, where there is a considerable Hollowness.

In favour of the young Surgeons I shall close this Account with a few Remarks, by way of Inference; and describe the Figures of some Bones, which that expert Surgeon and Anatomist Mr. *Hawkins*, Surgeon to His Royal Highness the Prince of *Wales*, shew'd upon this Occasion.

1°. That 'tis highly probable, a suppurated *Phlegmon* in the Marrow, upon the Crisis of a Fever, hath been the original Cause of the *Spina ventosa* in the two Cases before us; and that, if the Bone had been denudated, and the Opening made thro' it enlarged, when the Matter first made its Way thro' the Integuments, that the Progress of the Evil had been prevented in both, and the Cure brought about in the last Case with a far greater Ease.

2°. That a large Opening is always more advantageous than many smaller, seemingly equal to it. And this appears plain in the two Cases mentioned, inasmuch as the Matter which was discharging thro' the many large *Foramina* in the Bones corresponding with the medullary Cavity in them, have not prevented the Progress of the Evil; and therefore we may conclude, that as a large Opening in the
Bone,

Bone, by giving a free Vent to the Matter, will afford us the nearest Prospect of a Cure in the *Spina ventosa* of all Bones, so that must be the Work of the Surgeon, when that Distemper breaks out towards the Centre of long Bones.

3°. That, in the *Spina ventosa* affecting long Bones towards their Centre, the Application of the *Trepan*, or of any other Instrument as shall take away a considerable Portion of the Substance, is particularly necessary, were it only to make way for the Removal of such Exfoliations as are detached from the inner Cavity of the Bone in the first Stage of the Distemper; which, in the two Cases before us, were concealed and shut in; and, in many others, may be wedged and locked in by the Induration of the callous Matter on the Surface of the Bone, as may appear in the Figures annexed, TAB. II. *Fig. 3. BB.*

4°. That, in a *Spina ventosa*, in the Centre of long Bones, tho' the Discharge attending it is not great, if any of their Joints are made stiff by an *Anchylosis*, viz. by a callous Expansion that shall solder together the Bones in Contact, the only Resource will be the immediate Amputation of the Limb; forasmuch that, if that is delayed till the Patient labours under a hectic Fever, colliquative Sweats, a *Diarthæa*, or such Symptoms as denote a Reflux of the Matter pent up in the Bone into the Mass of Blood; the Operation then will afford us very little Hopes of Success: Whereas the *Spina ventosa* that affects the Extremities of long Bones only, and that which appears in scrophulous Cases in the Bones of the *Carpus* and *Tarsus*, when the Discharge is not great,
are

are best cured by lenient Means, and the most pacific Methods.

5°. That, in that Stage of the *Spina ventosa*, wherein the Bone is carnified, that is, turned into Flesh, with a painful *Fungus* shooting out, as well from the callous Matter spread over the carious Bone changed into Flesh, as from the carious Bone itself degenerated, that, in this Case, as there can be no Hopes of restoring it to itself, the Removal of the Bone so degenerated, is the only Method to be pursued; as that will make way for the Application of the actual Cautery, wherein the Cure principally consists: And if this does not succeed, we must proceed to Amputation. This was the Case of Mr. *Coreho* in *St. Mary Axe*, whose Thumb Mr. *Sainthill* took off the 26th of *October*, 1739, Mr. *Ferne* and I being present: The last Bone of which, affected with a *Spina ventosa* about 18 Years, was so swelled out, and changed into Flesh, that not the least Part of this Bone, as a Bone, was found, but only its cartilaginous Covering, in the Articulation with the second Internode; all the Bone itself being nothing else but a Lump of Flesh.

Explanation of the Figures in TAB. II.

Fig. 1 and 2.

Represent a *Spina ventosa* in the *Os Humeri* of the right Arm, after an Operation performed upon it, during Life, with the exfoliative *Trepan*. The Distemper in the Bone being complicated with an *Anchylosis* and Cariosity of the Heads of the *Cubitus* and *Radius* in the Articulation of the Elbow, occasioned

occasioned by the nutritive Juice in the inner Cavity of the Bone, where the *Medulla* was wasted by an Ulcer, running out thro' several Holes made by it directly into this Joint. *Fig. 2.* represents the Exfoliation, which lay concealed within this Bone, until the Time the Operation above-mentioned, it was taken out by, was performed. This exfoliated Bone being harder than the main Bone itself it was inclosed in, and seemingly sound, whilst the latter was carious: Notwithstanding the cast-off Bone had been soaking longest in the Matter extravasated and pent up in the medullary Cavity, which was the Original of the *Spina ventosa*, this Exfoliation, which was the first Consequence of the extravasated Matter within the Bone having, as it were, been detached from the main Bone, which was dissolved by it, some time before it could possibly reach the Body of the Bone itself.

Fig. 1. The *Os Humeri* amputated near the Shoulder-Joint *b*, with the two Bones of the Fore-Arm sawed off in *E F*. *aaaa*, Several large Openings in the Bone below and under the Deltoid Muscle, where the Bone had formerly been distemper'd and affected by the *Spina ventosa*; this Part of the Bone appearing sound, and seemingly restored to its natural State; whilst all the rest of it downwards is strangely alter'd by the Humour occasioning it, and degenerating, as it were, into a cartilaginous Substance, or such a one as could readily be cut with a Knife; the interior being destroyed by a Cariosity, and the exterior, which was spread out beyond its natural Dimensions, incrusted by a callous Expansion sticking to it, made
solid,

solid, and forming a Body with it, saving where the *Perioftium* was strongly adhering, the *Cortex* of the Bone, after the *Exoftofis*, or callous Shell spread over it was taken off, being perforated with many Blood-vessels, which were larger, and more in Number than usual; these Vessels perforating it, as it was render'd soft and yielding, and the indurated callous Matter sticking to it, as well within as without, was cover'd with a callous Flesh sprouting from it.

BB, A large Opening made in the external Part of the Bone by the Trepan, wherewith the whole medullary Cavity of it was laid open; this Opening taking into its Scope 10 or 12 large Holes in the Bone, all leading into that Cavity thro' which the Matter pent in, and causing the *Spina ventosa*, at times had worked its Way out by; which, when laid into one by the Operation, favour'd the Extraction of the tubular Exfoliation, *Fig. 2.* which, tho' it was intirely loose in, and detached from the Circumference of, the medullary Cavity, yet was so conceal'd in it, by the *Fungus's* obturating the *Foramina* in the Bone, as not to have been discover'd before the Opening, it was taken out by, was made in the Bone.

C, A large Hole in the Place where the external Process of the *Humerus* formerly stood; that having been destroyed, by the Matter causing a great Cariosity here; which also running out of the Bone thro' the *Foramina* made into the Joint, had occasioned the *Anchylosis*, and the Cariosity of all the Bones there.

G, An *Exostosis*, or callous Expansion on the external Surface of the *Os Humeri*, attached to it by a cartilaginous Substance forming a Crest there, about two Inches long, and half an Inch high; which, being wedged in between the Interstices of the Muscles, by their Motion hath been kept in some measure loose upon it.

It is observable, that, during Life, the Substance of this Bone had been render'd so soft, as to have yielded when press'd upon, if it had not been stiffened by the indurated callous Shell, or *Exostosis*, spread over it, wherewith it was incrusted from one End to the other: And this indurated callous Substance, seemingly imbedded in the Bone internally, ending externally in a grisly, fleshy, and gelatinous Substance: All which, sticking to the Bone, added greatly to the apparent Tumour of it; as doubtless, in time, that would have been one with it; it appearing that all these Substances would have acquired the Consistency of it; tho', as yet, they had only attained that of a *Callus* in its Infancy.

Fig. 2.

A tubular Exfoliation from all the Circumference of the medullary Cavity of the *Os Humeri*, seven Inches in Length, and near two in Circumference; which, lying loose and detached from the main Bone, was extracted whole thro' the large Opening made in it.

And thus, upon the Whole, it appears, that the Inflammation, Suppuration, and Ulcer in the *Medulla*, in the first place, has brought about the Consumption of the *Medulla* within the Bone; and, soon after, such an Alteration in it, as hath given Cause to the
Exfoliation

Exfoliation that hath happened: And that the Matter confined, in time having acquired a greater Acrimony, hath gained the Power of softening, dissolving, and destroying entirely the Bone, wherein the Circulation of the Juices was preserved exclusive of any other Bone, that hath been laid out of the Way of that Circulation, or hath happened to be detached from it: Tho' this last evidently hath lain more under the Power of the Matter than the main Bone itself was; and to have been soaking longest in that very Matter, which hath destroyed that Bone wherein that Circulation of the Juices hath been preserved; and therefore, that the Way to a speedy Cure of the *Spina ventosa*, is, the making, as soon as possible, a fair Opening into the medullary Cavity of the Bone that is affected with it.

Fig. 3.

Represents the anterior Surface of the left *Tibia* of a young Person affected with a *Spina ventosa*, inclosing an Exfoliation detached from all the Circumference of the *Medulla*, about seven Inches in Length; which is to be seen through a great Number of Openings in the *Cortex* of it.

AA, An *Exostosis*, or Incrustation in the Bone enlarged, with an Opening in it four Inches long, and one broad, through which the inclosed Exfoliation *BB* appears; the *Caries* of the Bone in the Joint of the Knee, and nine large Openings in the Body of it, having been made by the Matter discharging from the medullary Cavity, and causing a Cariosity in the inclosing Bone only; whilst the exfoliated within is preserved in its natural State.

- C*, The Cariosity of the Bone in the Joint of the Knee, communicated to the *Os Femoris* where-with it is anchylosed in *D*.
- D*, The *Epiphysis* of the *Os Femoris* in the Joint of the Knee, destroyed by the Cariosity.
- E*, The lower End of the Bone, as yet in a natural State, with its *Epiphyses* forming the internal Ankle.

Fig. 4.

- AA*, The anterior and internal Surface of the left *Tibia*, cut off in *B*, where the Bone was found: The opposite End being carious, and perforated with many large *Foramina* or Openings made by the Matter flowing into the Joint of the Knee, from the medullary Cavity in the Bone. The Exfoliation, *ccc*, seemingly found, is detached from the Cavity; but is locked and wedged in by the *Exostosis*, or callous Matter indurated on the Surface, in such manner that it cannot be taken out without cutting off the Edges of it.
- dddd*, The upper Part of the Bone, carious within and without, made rough and unequal by the *Exostosis*, or callous Expansion render'd carious.

Fig. 5.

- A*, Represents a Portion of the *Os Humeri* sawed off, at the time of the Amputation of the Limb; which is solder'd by an *Anchylosis* with the *Cubitus B*, and *Radius C*, in *D*; *E* being a large Exfoliation detached from them, where those Bones had been shatter'd, which is wedged in by a callous Expansion, in such manner that it could not be taken out.
- E*,

E, The Exfoliation from the *Cubitus*, three Inches long, adhering to an Exfoliation from the *Radius* of the same Length, not seen; both which, being almost of the Substance of the whole Bone, are knit together by a *Callus*: So that their Re-union is prior to the Cause which has occasioned the Exfoliation.

FFF, A callous Expansion, inclosing the Bones which are detached within, not hardened in the Middle *G*; and partly cartilaginous there: So that, in this Place, the Bones made up by the callous Expansion could play upon each other.

VI. *An Extract of a Letter from Mr. John Henry Winkler, Græc. & Lat. Litt. Prof. publ. Ordin. at Leipfick, to a Friend in London; concerning the Effects of Electricity upon Himself and his Wife.*

Leipfick, ^{April 22.} _____ 1746.
May 3.

Read May 29. 1746. **S**INCE Mr. *Muschenbroek* has made an Experiment* that has caused Astonishment, I would likewise tell you something of what I have been doing.

When I heard of Mr. *Muschenbroek's* Experiment, I tried the same; but I found great Convulsions by it in my Body. It put my Blood into great Agitation; so that I was afraid of an ardent Fever; and
was

* That with the Gun-barrel suspended as the iron Bar. See *Transactions*, n. 476, p. 419.

