

the Leg B, which Leg B is a Continuation of a Wire, that runs through the Tube C D, and is fastened to the Handle H, and turns with it.

XXVII. *A Description of Needles made for Operations on the Eyes, and of some Instruments for the Ears, by the Same.*

THE first differs from a common Couching-needle, [TAB. VII. *Fig. 3.*] in this, that it is made of Two Pieces of Steel soldered together, and fixed in a Handle [*Fig. 4.*]: At a little Distance from the Handle they separate, and have ; in each *Lamina*, a Button fixed, which passes through a Hole in the other ; from this Part to the Points, they are so nicely applied, and polished together, that they cut, and have the Shape of a common Needle: Upon pressing the Buttons, the Points are separated, and in the Inside of the broad Part of the Points are several small Indents, to prevent any thing from slipping, after it has once got hold.

The Use of this Needle is, either to depress a Cataract ; or, if it should be found of such a Nature as to bear to be taken hold of, then, by opening the Points, to engage it, and carefully bring it out of the Eye.

If it should happen, that in depressing the Cataract, or in bringing it out of the Eye, some of the small Vessels are wounded, and some Drops of Blood diffuse themselves in the aqueous Humour ; this second Needle [*Fig. 5.*] is made with Design to remedy this Inconveniency. It

It is a long, small, round Stilet [*Fig. 6.*], gradually decreasing from the Handle to the Point; and is fitted to a long Silver Tube of the same Shape [*Fig. 7.*], into which the Needle is put, and the Point comes out at the End one Quarter of an Inch. This is to be introduced into the Eye at the Orifice the other Needle had made: When it is so far introduced, as the End of the Tube is within the posterior Chamber of the aqueous Humour, the Needle is to be withdrawn, leaving the Tube in the Eye; and then, with the Mouth, may be sucked into the Tube, all the Blood, and watery Humour, that is contained there, or any other floating Particles: Then the Tube is to be withdrawn, and the Eye left to replenish itself with the aqueous Humour again; which will take Twelve or Eighteen Hours at most.

The following Instruments are proposed to remedy some kinds of Deafness proceeding from Obstructions in the external and internal auditory Passages.

IN order to discover, with more Exactness, whether the Disorder lies in the outward Ear, I make use of a convex Glass, Three Inches in Diameter, fixed in a Handle, [*TAB. VII. Fig. 8.*] into which is lodged some Wax Candle, which comes out at a Hole near the Glass, and reaches to the Centre; which, when lighted, will dart the collected Rays of Light into the Bottom of the Ear, or to the Bottom of any Cavity that can be brought into a strait Line, Therefore, when it is discovered by the Help of this Glass, and lighted Candle, that the Ear is full of hard Wax, which will
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not bear to be taken out with the *Forceps*, the Method is to have a small Boiler, wherein are put some proper Herbs; and, by different Tubes of various Sizes, the Steam is conveyed to the Bottom of the Ear. In a short time, the Wax will dissolve, and the Person find great Ease. In one of these Tubes, are placed Two Valves, to regulate the Heat to the Person's Inclination. If this has not the desired Effect, and the Person still remains deaf, the following Instruments are made to open the *Eustachian* Tube: If, upon Trial, it should be found to be obstructed, the Passage is to be lubricated by throwing a little warm Water into it by a Syringe joined to a flexible silver Tube, which is introduced through the Nose into the oval Opening of the Duct at the posterior Opening of the *Nares*, towards the Arch of the Palate. The Pipes of the Syringe are made small, of Silver, to admit of bending them, as Occasion offers; and, for the most part, resemble small Catheters: They are mounted with a Sheep's Ureter [*Fig. 9.*]; the other End of which is fixed to an Ivory Pipe; which is fitted to a Syringe, whereby warm Water may be injected: or they will admit to blow into the *Eustachian* Tube, and so force the Air into the Barrel of the Ear, and dilate the Tube sufficiently for the Discharge of the excrementitious Matter that may be lodged there. The Probes, [*Fig. 10.*] which are of the same Shape with the Pipes, have small Notches near the Points, which take in some of the hardened and glutinous Matter, that is contained in those Tubes, which is distinguished by the fetid Smell, when the Probes are withdrawn.

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There is another Kind of Deafness, which proceeds from a violent Clap of Thunder, Noise of a Cannon, or the like. In this Case, it is probable, that the Position of the *Membrana Tympani* is altered, being forced inwards upon the small Bones, and so becomes concave outwardly. In this Case no Vibration of Sounds will be communicated to the Drum, until the Membrane has recovered its natural Position. The Means, proposed to remedy this Disorder, are, first, (if the Person heard very well before; and it be not too long after the Accident has happened) to oblige the Patient to stop his Mouth and Nose, and force the Air through the *Eustachian Tube* into the Barrel of the Ear, by several strong Impulses; which will, probably, push the Membrane back to its natural State.

But if, by any Accident, the Excrement is harden'd in the Tube, or the Orifice of it, which opens into the Barrel of the Ear, should be stopped up, so as that no Air can be forced that Way, the second Method proposed, is to introduce into the *Meatus auditorius externus*, an Ivory Tube [*Fig. 11.*], as near to the Drum as can be done, and so exactly fitted, that no Air can go in or out, betwixt the Skin of the external *Meatus* and the Tube. When it is thus fixed, I take the further small End in my Mouth, and, by degrees, draw out what Air is there contained; and, I believe, it will act like a Sucker upon the Membrane, and draw it back to its natural State; and then the Person will hear as before. If this should fail, I should be apt to believe the violent Shock this Membrane has suffered, may have dislocated some of the small Bones; in which Case there is scarcely any Remedy. And
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for the Diseases that are called *Nervous*, I must leave them to the learned Gentlemen of the Faculty,

In this Ivory Tube may be fixed a Brass Cock [Fig. 12.], which, being turned, will hinder the rushing in of the Air, while the Person who sucks, takes Breath, and can renew his Suction.

The flexible silver Tube, for injecting the *Eustachian* Tube, may be used without the Sheep's Ureter, by being screwed on to a small silver Syringe, as at Fig. 13.

XXVIII. *Part of a Letter from Mr. Stephen Fuller, Fellow of Trinity College, Cambridge, to his Father John Fuller, Esq; senior, F. R. S. concerning a violent Hurricane in Huntingtongshire, Sept. 8. 1741. Communicated by Sir Hans Sloane, Bart. late Pr. R. S.*

Cambridge, Sept. 9. 1741.

YESTERDAY was the most violent Hurricane of Wind in these Parts, that ever was known since the Memory of Man. *Cambridge* was not in the midst of the Hurricane, so that it has escaped very well. I happened to be paying a Visit to Dr. *Knight*, a Cotemporary of yours, of our College, who lives at *Bluntsham* in *Huntingtongshire*, about 10 Miles North-west of *Cambridge*. We were in the midst of the Hurricane; but, by getting into the strongest Part of the House, we escaped without any great Danger. The Morning, till half an Hour after Eleven, was still, with very hard Showers of Rain; At half an Hour





